



**A STUDY ON THE EFFECTS OF INCENTIVE
STRATEGIES ON WORK ENGAGEMENT FOR
"TEACHERS WITH DUAL PROFESSIONAL
QUALIFICATIONS" IN PRIVATE UNIVERSITIES
IN SHAANXI, CHINA: SELF-EFFICACY AS
A MEDIATOR**

**ZHAO WEI
6419000012**

**A Dissertation Submitted in Partial Fulfillment of the
Requirements for the Degree of Doctor of Philosophy in
Educational Administration Innovation
Graduate School of Education
Siam University
Academic Year 2026
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Title A Study on The Effects of Incentive Strategies on Work Engagement for
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in Shaanxi, China: Self-Efficacy as a Mediator

Researcher Zhao Wei

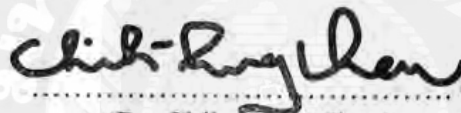
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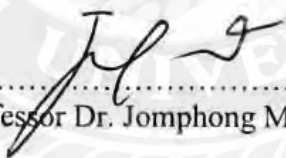
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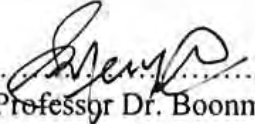

..... Dean of Graduate School of Education
(Professor Emeritus Dr. Chanita Rukspollmuang)

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..... Committee Chairperson
(Dr. Chih-Hung Chen)


..... Committee
(Dr. Sarun Widtayakornbundit)


..... Committee
(Associate Professor Dr. Jomphong Mongkhonvanit)


..... Advisor
(Associate Professor Dr. Boonmee Nenyod)


..... Co-advisor
(Dr. LeeHsing Lu)

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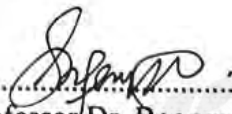
Abstract

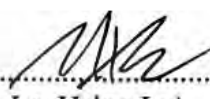
Title: A Study on The Effects of Incentive Strategies on Work Engagement for “Teachers with Dual Professional Qualifications” in Private Universities in Shaanxi, China: Self-Efficacy as a Mediator

Researcher Zhao Wei

Major Educational Administration Innovation

Dissertation Advisor


.....
(Associate Professor/Dr. Boonmee Nenyod)


.....
(Dr. LeeHsing Lu)

This study focuses on teachers with dual professional qualifications at private universities in Shaanxi Province. It aims to examine how three types of external incentives—namely, economic incentives, career development incentives, and training incentives—affect teachers' Self-Efficacy and Work Engagement. The study also examines the mediating role of Self-Efficacy in the relationship between incentives and Work Engagement, as well as the moderating effects of University-Enterprise Cooperation on this pathway. Additionally, it analyzes how Self-Efficacy mediates the relationship between motivation and Work Engagement, and the moderating role of Teachers with Dual Professional Qualifications status on this link. The goal of this research is to provide both theoretical support and practical guidance for private universities to promote the high-quality development of teachers with Dual Professional Qualifications and to optimize human resource management.

This study employs a mixed-methods approach combining qualitative and quantitative methods. In the qualitative phase, the researcher invited seven education experts and university Managers from Shaanxi Province who have many years of experience in teacher training and management to conduct focus group interviews, to gain a deeper understanding of the problems and motivational mechanisms faced by the Teachers with Dual Professional Qualifications group in actual motivational practices. In the quantitative stage, 422 questionnaires were distributed to 23 Shaanxi private universities via stratified random sampling; 403 were returned, yielding an effective recovery rate of 95.5%. The data analysis primarily employs Structural Equation Modeling (SEM) with Process moderated mediation analysis to systematically test direct, indirect, and moderated effects among variables.

The results of the study show that: (1) economic incentives, career development, and training incentives all have a significant positive effect on the Self-Efficacy and Work Engagement of Teachers with Dual Professional Qualifications. (2) Self-Efficacy plays a significant partial mediating role between the three types of incentives and Work Engagement, indicating that University-Enterprise Cooperation cannot be ignored in the incentive transmission mechanism. (3) Teachers with Dual

Professional Qualifications status have a positive moderating role in the relationship between Self-Efficacy and Work Engagement.

Based on the study's findings, the following recommendations are made: universities should develop tiered, differentiated strategies that depend on whether teachers hold dual professional qualifications and the length of their practical experience. Establish a training system centered on competence development to enhance teachers' self-confidence and professional competence. Create a supportive organizational environment to improve teachers' psychological security and sense of belonging, thereby continuously promoting high-quality Work Engagement among Teachers with Dual Professional Qualifications.

Keywords: private universities, teachers with dual professional qualifications, motivational strategies, work engagement, self-efficacy



Acknowledgement

This dissertation represents the culmination of a significant academic journey that would not have been possible without the support, guidance, and encouragement of numerous individuals and institutions. I am deeply grateful to all those who contributed to this research.

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I am particularly indebted to the representatives of the universities that participated in this study; their willingness to share institutional experiences and professional insights proved invaluable to the development of this research. I also extend my sincere appreciation to the HR professionals from various companies, whose critical perspectives on entrepreneurial competencies in the labor market provided essential practical grounding and significantly strengthened the robustness and feasibility of the proposed model.

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Zhao Wei

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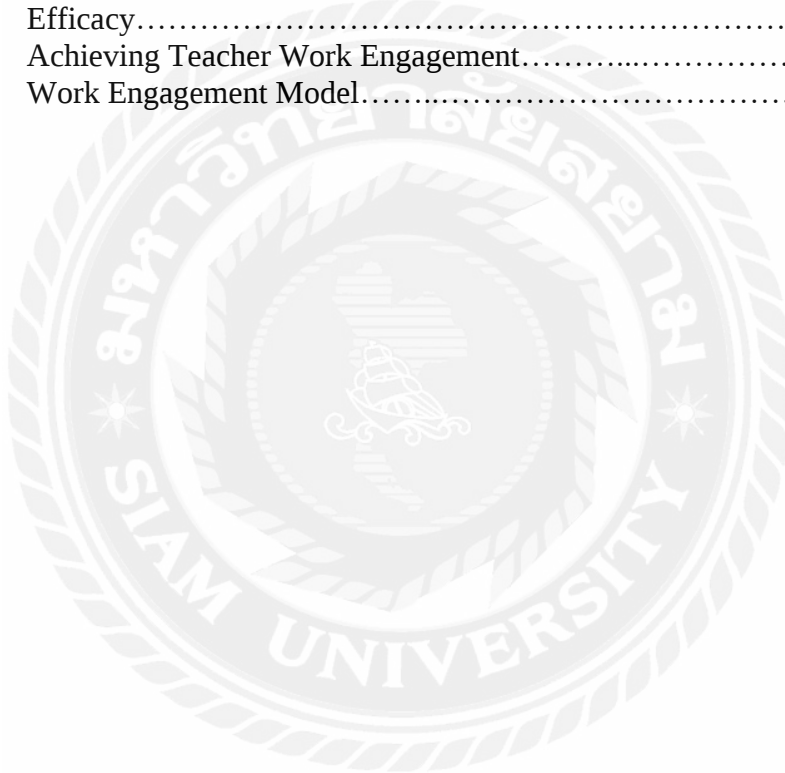


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CHAPTER 1

INTRODUCTION

1.1 Introduction

As China's higher education moves from the stage of expansion to the stage of quality improvement, teachers with dual professional qualifications have become a key force for applied colleges and universities to deepen the teaching reform and promote the collaborative education between schools and enterprises (Wang et al., 2024). In local undergraduate colleges and universities, Teachers with Dual professional qualifications are not only responsible for teaching courses, but also participate in enterprise practice, project research and development, and social services, which makes their roles diversified and their tasks heavy (Chen et al., 2019). However, in reality, there are problems such as lack of incentives, insufficient training support, and unreasonable assessment standards, which lead to insufficient motivation and self-doubt of teachers with dual professional qualifications in terms of work engagement (Xu & Bhang, 2019).

Teachers with dual professional qualifications in this study are defined as full-time faculty members of private universities in Shaanxi Province who hold at least a bachelor's degree (Shaanxi Education Statistics Yearbook, 2023). Such teachers must simultaneously meet both academic and practical qualifications. The recognition criteria require that the teacher be a full-time faculty member with a bachelor's degree or above in a private university and satisfy at least one of the following conditions: possess more than three years of frontline enterprise practice experience; hold an advanced vocational qualification certificate related to the teaching discipline; have presided over an enterprise technological transformation project and passed official evaluation (Shaanxi Education Statistics Yearbook , 2023). Specifically, the criteria include:

(1) Enterprise Practice Experience Standard

Teachers must have at least three years of full-time enterprise frontline work experience directly related to their teaching discipline, with at least one year being formal employment rather than internship or part-time (*Shaanxi Education Statistics Yearbook*, 2023). This criterion ensures that teachers can integrate frontline industry experience with their teaching content, thereby enhancing the applicability and practical orientation of classroom instruction. Quantifiable supporting materials include enterprise work certificates, human resource records, employment contracts, or social insurance payment records.

(2) Vocational Qualification Certificate Standard

Teachers should hold a national vocational qualification certificate at the intermediate level or above, or an advanced professional title/professional skill level certificate issued by an industry association, which must be highly relevant to their teaching discipline (Shaanxi Education Statistics Yearbook, 2023). This standard emphasizes that teachers must possess professionally certified competencies to ensure

that their industry expertise supports application-oriented teaching. Quantifiable supporting materials include certificate numbers, issuing institutions, qualification levels, and validity periods.

(3) Enterprise Project Leadership Standard

Teachers who have presided over or played a core role in at least one enterprise technological transformation, technology transfer, or application-oriented research project and have successfully passed enterprise or government authority evaluation may be recognized as dual-qualified (Shaanxi Education Statistics Yearbook , 2023). This criterion highlights teachers' ability to apply their professional knowledge to solving real-world enterprise problems, thereby fostering a practice-oriented virtuous cycle between research and teaching. Quantifiable supporting materials include project approval documents, evaluation reports, patent certificates, and horizontal project contracts.

Based on the actual situation of some local undergraduate colleges and universities in Shaanxi Province, this study constructed a research model from the three core variables of motivation strategy, Self-Efficacy and Work Engagement. The study adopted a combination of questionnaire survey and interviews to reveal the relationship between the variables through quantitative data as well as to explore the teachers' real feelings and the differences in the implementation of the system through qualitative interviews.

1.2 Background

Against the background of global higher education that tends to be application-oriented and practice-oriented, the cultivation and incentive mechanism of teachers with dual professional qualifications has gradually become an important issue in international education research. In Europe and the United States, especially in Germany, Australia, Canada, and other countries, a mature teachers with dual professional qualifications system has long been established in the application-oriented education system (Dandan & Israel, 2025), which is widely recognized as one of the key factors to promote the close connection between higher education and industry. In Germany, universities of applied sciences place great importance on teachers' industry backgrounds and practical experience. According to the German Federal Ministry of Education and Research (BMBF, 2018), when recruiting faculty members, universities of applied sciences generally require a doctoral degree and at least five years of industrial experience, including three years of non-academic work experience. To encourage college teachers to continuously improve their practical ability, German colleges and universities generally implement incentive mechanisms such as "practice attachment" and "enterprise project cooperation", forming a more systematic dual professional qualifications competence guarantee system. A more systematic dual professional qualifications competence guarantee system has been formed. Australia's technical and continuing education institutions also attach importance to the construction of "dual-capable" teachers, whose teachers often obtain industry qualifications before entering the teaching position and are required to receive regular industry training and updating. The training of "dual-competency" teachers in Australia emphasizes "on-the-job development" and "joint school-enterprise training". It is

complemented by a performance evaluation system that provides dynamic incentives for teachers.

China's National Vocational Education Reform Implementation Program identifies the transformation and development of undergraduate colleges and universities as an important target. This series of policy measures provides institutional support and guidance for the transformation and development of numerous local colleges and universities, including private universities (Ministry of Education of China, 2019). To promote the realization of this strategic goal, the Ministry of Education has continuously pushed forward the implementation of reforms through the ministry-province linkage mechanism and has constructed a multi-dimensional and multi-level guarantee mechanism to promote deep-level reforms and demonstration leadership. More than 20 provinces, including Guangdong and Henan, have issued relevant guiding documents (Guangdong Provincial Department of Education, 2020; Henan Provincial Department of Education, 2021) to promote the accelerated transformation of some ordinary undergraduate colleges into application-oriented colleges. About 300 local undergraduate colleges and universities in China have participated in the pilot reform of application-oriented transformation, covering both public and private institutions (Ministry of Education, of China 2019). Most of them have completed the reform of their organizational structure and talent cultivation mechanism with "strengthening the ability of cultivating application-oriented talents" as the core, while some colleges and universities have launched a stage of exploration based on second-level colleges and universities. At the same time, some of them have carried out stage-by-stage exploration by second-level colleges. However, this does not mean that the transformation work has been fully implemented. Although the policy system is increasingly refined and the practice path is continually enriched, there remain many bottlenecks in the key link of team construction for dual professional qualifications in colleges and universities. In private universities, the development of faculty for dual professional qualifications is lagging, posing an important obstacle to improving the quality of transformation.

In the context of the transformation and development of private universities, the realization of connotative high-quality development has become an important issue for colleges. As the core force of talent cultivation in applied colleges and universities, the practical ability and teaching quality of teachers with dual professional qualifications are directly related to the depth and effectiveness of school transformation. Therefore, through precise incentives and systematic support mechanisms, enhancing the career development of teachers with dual professional qualifications not only helps to strengthen the construction of the teaching team but also effectively promotes the overall improvement of the quality of education in the school, and thus realizes the benign interaction between the development of teachers and the transformation of the school. This process has important theoretical value and practical significance for improving the operational level of private colleges and universities, optimizing the structure of China's higher education, and strengthening the national supply system for high-quality applied talent.

Against this background, selecting Shaanxi Province as the research focus is of particular importance. Shaanxi is a major province in both education and science in western China. It hosts top universities such as Xi'an Jiaotong University and

Northwestern Polytechnical University, while also having a large number of local undergraduate and private institutions. This multi-level and diverse higher education structure faces significant challenges in the transformation toward application-oriented education, with the construction of dual professional qualifications teams lagging behind that of eastern coastal provinces. Shaanxi has explicitly emphasized in its educational reform plans the need to accelerate the cultivation of teachers with dual professional qualifications in order to support regional industrial upgrading and the supply of application-oriented talents. Given the province's strong industrial base in advanced equipment manufacturing, aerospace, information technology, and energy, teachers are expected not only to master teaching skills but also to align their expertise with the technical and practical requirements of these industries. Shaanxi serves as a critical hub of the "Belt and Road Initiative" and an important region for the national innovation-driven development strategy. As industries in the province undergo rapid upgrading and technological transformation, the demand for highly skilled application-oriented talents is increasing, which places greater pressure on colleges and universities to strengthen their dual professional qualifications faculty teams.

Therefore, taking Shaanxi's private universities as the research subject not only helps reveal the current difficulties and optimization paths in dual professional qualifications team construction within a regional development and policy context, but also provides valuable insights and references for other similar regions in China transforming.

1.3 Research Problem

Against the backdrop of national strategic initiatives to promote the comprehensive development of vocational education and the transformation of local undergraduate universities into application-oriented institutions, the construction of a dual professional qualifications teaching workforce has emerged as a pivotal driver. Teachers with dual professional qualifications refer to a composite group of educators who possess both systematic academic knowledge and pedagogical skills, as well as practical experience or professional qualifications from frontline industries. These teachers are instrumental in integrating the latest industrial standards and technological processes into the classroom, thereby bridging the gap between education and industry. Moreover, they play a pivotal role as conduits in industry-academia-research collaboration, technological innovation, and regional service provision. As a major educational hub in the western region and a base for the energy and manufacturing industries, Shaanxi Province's 23 private undergraduate universities play a crucial role in cultivating high-quality technical and skilled talent to support regional industrial upgrading. However, these universities currently face significant challenges in cultivating and retaining dual-qualified teachers.

The distribution of policy resources in Shaanxi Province is uneven, placing private universities at a disadvantage relative to public universities in terms of financial support, research platforms, and opportunities for school-enterprise collaboration. The depth of school-enterprise cooperation in Shaanxi Province remains insufficient, with partnerships often limited to short-term training programs and lacking systematic mechanisms. The incentive and evaluation systems in Shaanxi Province are misaligned, with academically oriented performance assessments failing to recognize the practical contributions of dual-qualified teachers adequately. Teachers' intrinsic motivation is

lacking, as some with industry backgrounds leave universities because of limited opportunities for promotion. There is a misalignment between academic disciplines and local industrial demands, hindering the full realization of the advantages of dual-qualified teachers in enhancing talent quality and contributing to industrial development.

Although existing research has acknowledged the importance of teachers with dual professional qualifications, several gaps persist. Relevant studies lack empirical research tailored to the unique industrial and educational landscape of the western region, particularly Shaanxi Province. The distinctiveness of private undergraduate universities, with their unique resource endowments and governance mechanisms compared to public universities, has been overlooked. There is a dearth of systematic analysis of the mechanisms by which economic, career development, and training incentives translate into actual work engagement through the enhancement of teachers' self-efficacy. The measurement dimensions of teachers with dual professional qualifications' work engagement are relatively simplistic and fail to fully encompass core aspects such as practical teaching, technological innovation, and regional service. Therefore, this study focused on the 23 private undergraduate universities in Shaanxi Province, with an emphasis on the incentive mechanisms and value retention of dual-qualified teachers. This research not only provides actionable pathways for private undergraduate universities in the western region but also contributes empirical evidence to enrich the theoretical framework and policy practices of dual-qualified teacher development in China.

1.4 Research Questions

(1) How do economic incentives, career development, and training incentives affect work engagement of teachers with dual professional qualifications in private universities in Shaanxi Province?

(2) What is the role of self-efficacy in the improvement of teachers' work engagement in private universities in Shaanxi Province?

(3) What are the effective strategies to improve work engagement of teachers with dual professional qualifications in private universities in Shaanxi Province?

1.5 Research Objectives

(1) To examine the effects of economic incentives, career development, and training incentives on work engagement of teachers with dual professional qualifications in private universities in Shaanxi Province.

(2) To explore the role of self-efficacy in the improvement of teachers' work engagement in private universities in Shaanxi Province.

(3) To propose effective strategies to improve work engagement of teachers with dual professional qualifications in private universities in Shaanxi Province.

1.6 Research Significance

1.6.1 Theoretical Significance

Existing scholarship on faculty incentive mechanisms remains predominantly anchored in institutional contexts of publicly funded universities, with limited empirical

attention to the unique governance logics and resource constraints characterizing private higher education institutions. This study addresses this gap by centering on private universities in Shaanxi Province, a region that represents a critical yet understudied node in China's westward push for applied talent cultivation. By integrating Resource Dependence Theory, Work Engagement Theory, and Social Cognitive Theory, the research constructs a contextually grounded framework that reconceptualizes how external incentive structures translate into teachers' internal psychological resources and subsequent behavioral outcomes.

A core theoretical contribution lies in refining the operationalization of the moderating variable of status of teachers with dual professional qualifications, moving beyond treating individual attributes as static controls to positioning them as dynamic boundary conditions that shape the efficacy–engagement linkage. Further, the study challenges the conventional assumption of disciplinary homogeneity in incentive design by empirically testing how the effects of economic, career development, and training incentives vary across applied and theoretical disciplines. This advances a more granular, discipline-sensitive extension of incentive theory tailored to dual-qualified faculty populations. The findings also extend Bandura's Social Cognitive Theory to the vocational higher education context, clarifying how self-efficacy functions as a mediator between institutional resource provision and multifaceted work engagement, encompassing practical teaching, technical research, and regional service. Collectively, these advancements enrich the theoretical repertoire of teacher motivation research and provide a foundation for regionally adaptive policy design in Western China's private higher education sector.

1.6.2 Practical Significance

The study yields actionable insights for three key stakeholder groups. For provincial education authorities, the empirical evidence informs the calibration of special subsidy allocation formulas and dual-qualification certification standards, enabling more precise alignment between policy inputs and on-the-ground faculty development needs. For private university administrators, the validated pathway model offers a roadmap for reconfiguring incentive bundles—balancing economic rewards, career progression clarity, and discipline-matched training provisions—to maximize dual-qualified teachers' engagement without exacerbating institutional resource burdens. The identified moderating roles of dual-qualification status and university-enterprise cooperation further equip managers to design targeted support mechanisms for faculty subgroups, avoiding the inefficiencies of one-size-fits-all policies.

For enterprise partners engaged in industry-education integration, the findings clarify how institutional incentive structures can amplify the returns on collaborative investments, providing a basis for negotiating shared responsibility frameworks for faculty practical training and joint research. Beyond institutional boundaries, the study furnishes a transferable empirical template for private universities in other western provinces facing analogous challenges of resource scarcity and transformation pressure, supporting the scaling of effective dual-qualified faculty development practices across regions. Ultimately, the research contributes to the broader policy goal of enhancing the quality of applied talent cultivation, aligning private higher education provision with the evolving technical and service needs of regional economies.

1.7 Scope of the Study

1.7.1 Scope of Area

This study was geographically delimited to Shaanxi Province, China, a provincial-level administrative region in western China that serves as a strategic hub for the national "Belt and Road" initiative and the pilot reform of applied undergraduate education. The selection of Shaanxi as the research site responds to the pressing need to unpack context-specific mechanisms of faculty incentive governance in regions where private higher education operates under distinct resource constraints and industrial transformation pressures, differentiating this inquiry from broader national-level analyses.

1.7.2 Scope of Population

The target population comprised full-time teachers with dual professional qualifications across 23 private undergraduate universities in Shaanxi Province. These institutions represent the complete spectrum of private applied higher education provision in the province, covering comprehensive, science and engineering, finance and economics, arts, medical, and vocational-technical orientations. The population included all faculty members who meet the provincial official recognition criteria for dual professional qualifications—namely, holding at least a bachelor's degree and satisfying at least one of the following: ≥ 3 years of frontline enterprise experience, possession of an intermediate-level or above national/industry vocational qualification certificate, or core participation in enterprise technological transformation projects with official evaluation approval.

1.7.3 Scope of Content

The study examined the following variables:

Independent Variables: economic incentives, career development incentives, training incentives

Mediating Variable: self-efficacy

Dependent Variable: work engagement, operationalized as practical teaching effort, technical research effort, and regional service effort

Moderating Variables: Status of teachers with dual professional qualifications, university-enterprise cooperation

Control variables include teachers' gender, age, education, professional title, and type of institution, which were statistically adjusted to ensure internal validity of the causal inferences.

1.7.4 Scope of Time

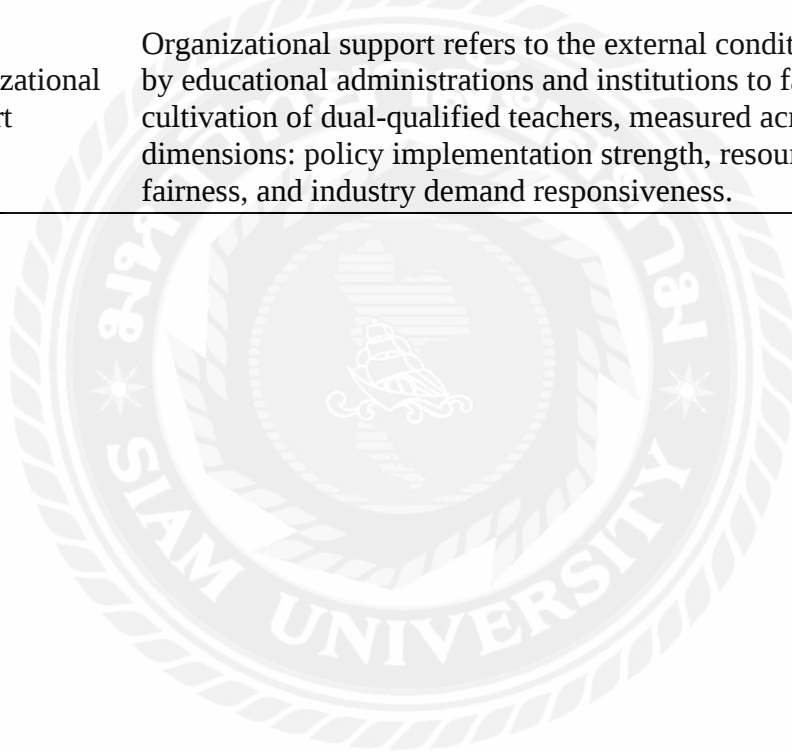
Primary data collection spanned from 2023–2024, coinciding with the initial implementation cycle of Shaanxi Province's special fund policy for dual-qualified faculty cultivation. This timeframe captured the dynamic policy-to-practice transition, enabling the analysis to trace how shifting institutional incentive provisions and regional industrial upgrading processes jointly shape teachers' psychological and behavioral responses within a condensed, policy-relevant window.

1.8 Definition of Terms

Definition	
Teachers with Dual Professional Qualifications	Teachers with Dual professional qualifications are defined as full-time faculty members of private universities in Shaanxi Province who hold at least a bachelor's degree and meet at least one of the following criteria: (1) a minimum of three years of full-time enterprise frontline experience related to their teaching discipline; (2) possession of a national or industry-recognized vocational qualification certificate at the intermediate level or above; or (3) leadership or core participation in an enterprise technological transformation, technology transfer, or application-oriented research project officially evaluated and approved.
Economic Incentives	Economic incentives refer to the financial rewards and material support provided to teachers, including class hour allowances, performance-based pay, project-related subsidies, income-sharing mechanisms, financial support for practical training, and reward systems. In this study, they are measured through teachers' satisfaction with the fairness, adequacy, and timeliness of these incentives, as well as the additional benefits offered to Dual professional Qualification teachers.
Career Development	Career development refers to the institutional support provided to teachers for professional growth, including promotion opportunities, project participation, crediting of achievements, exchange programs, cross-border development, and career planning. In this study, it is measured through teachers' perceptions of promotion channels, assessment fairness, developmental opportunities, and the university's attention to their long-term growth.
Training Incentives	Training incentives refer to the training opportunities and support provided by the university to strengthen teachers' professional competence, practical ability, and overall quality. In this study, they are measured through teachers' perceptions of in-school and enterprise-based training, access to higher-level qualification programs, relevance and timeliness of training content, continuing education support, fairness of training arrangements, and the effectiveness of training assessments in motivating learning.
Self-Efficacy	Self-efficacy refers to the confidence and perceived capability of teachers with dual professional qualifications in accomplishing teaching tasks, overcoming challenges, and integrating industry practices into education. In this study, it is measured through

Definition	
	teachers' self-assessment of their competence in practical teaching, program design, problem-solving, guiding students' practice, maintaining confidence under pressure, and pursuing continuous self-improvement.
Work Engagement	Work engagement is defined as a positive, fulfilling, work-related psychological state characterized by vigor, dedication, and absorption, which, in the context of teachers with dual professional qualifications, is reflected in their practical teaching commitment, effort of technical research, and regional service effort.
Practical Teaching Commitment	Practical teaching commitment refers to the extent of teachers' involvement in practice-oriented education, including course design, project supervision, and teaching reform, reflecting their responsibility and enthusiasm for cultivating students' practical abilities.
Effort of Technical Research	Effort in technical research refers to teachers' active engagement in technology development and academic innovation, as evidenced by sustained research, knowledge transfer, and professional learning, with energy and perseverance.
Regional Service Effort	Regional service effort refers to teachers' contributions to local industries and communities, including participation in regional projects, enterprise cooperation, and student practice guidance, highlighting their commitment to industry–education integration and social development.
Certification Criteria	The specific index system for the recognition of the competence of Teachers with Dual professional qualifications, including the weighting of skills in emerging industries (e.g., operation of industrial robots, coal chemical carbon capture technology), and the requirement of matching degree of disciplines, etc., need to be dynamically adjusted annually according to the Catalogue of Talent Demand of Key Industries in Shaanxi Province.
Depth of Enterprise Practice	The quality and frequency of teachers' participation in enterprise practice, as measured by indicators such as the average number of days of enterprise practice per year and participation in technology research projects, are key observational variables of school-enterprise collaborative incentives.
Level of Resource Sharing	The quantity and quality of technology, equipment, cases, and other resources provided by enterprises to institutions in university-enterprise cooperation, including the number of joint

Definition	
	university-enterprise laboratories, the value of equipment donated by enterprises, the number of joint teaching materials developed, and other indicators.
Discipline Adaptability	Discipline adaptability refers to the extent to which incentive strategies are aligned with the characteristics of teachers' disciplines, such as project-driven incentives for science and engineering teachers or scenario-based training for language teachers, to reduce disparities in incentive effectiveness caused by differences in the measurability of practical outcomes.
Organizational Support	Organizational support refers to the external conditions provided by educational administrations and institutions to facilitate the cultivation of dual-qualified teachers, measured across three dimensions: policy implementation strength, resource allocation fairness, and industry demand responsiveness.



CHAPTER 2

LITERATURE REVIEW

This study's literature review aims to develop a systematic theoretical framework to examine the influence of economic incentives, career development incentives, and training incentives on the work engagement of teachers with dual professional qualifications in private universities in Shaanxi Province. The literature review begins with the theory of resource dependence, which posits that college teachers are highly dependent on external incentives. In private colleges and universities, where resources are unevenly distributed and professional development opportunities are limited, teachers are in greater need of financial support and career-development opportunities to achieve their career goals. Based on Work Engagement Theory, the literature emphasizes that teachers' positive emotions, cognitive focus, and sustained effort are guarantees of high-level educational quality, and incentives significantly influence these behaviors. Social Cognitive Theory, on the other hand, introduces the mediating variable of self-efficacy into the study, emphasizing that a dual's judgment of their ability to accomplish a task directly affects their motivation and behavioral performance.

At the level of specific variables, there has been extensive research on the definition, measurement, and impact of economic incentives. It is agreed that compensation, fairness, and welfare incentives significantly increase teacher satisfaction and engagement. Still, some literature questions their short-term effects, suggesting that economic incentives may stimulate extrinsic motivation but are insufficient to sustain deep professional commitment. In terms of career development, the literature points out that teachers' promotion, clarity of development paths, and support for career growth are all closely related to their professional identity, which can enhance their sense of belonging to the organization and their commitment to their work. However, some studies have criticized the lack of a systematic faculty development mechanism in universities, which leads to fragmentation of development opportunities and makes it difficult to create long-term incentives. Training incentives play an important role in improving the teaching and practice abilities of teachers with dual professional qualifications; in particular, enhancing practice-teaching ability directly affects their enthusiasm for teaching. Still, some scholars have pointed out that the quality of training and post-training support for application are often insufficient, which limits the actual effectiveness. Regarding the relationship between self-efficacy and motivation, the literature generally agrees that economic incentives, career development and training incentives can positively effect teachers' self-efficacy, especially in private universities, where external support is more likely to be translated into competence judgment and confidence. In addition, self-efficacy is a significant predictor of work engagement, which is recognized as an important psychological resource to drive teachers' continuous engagement in teaching, research and practice. A large body of research supports its mediating role between motivational strategies and work engagement, explaining how external incentives are translated into intrinsic behavioral motivation.

Nonetheless, there are some shortcomings in the literature. For example, most of the studies focus on public universities, and there are relatively few studies on Teachers with dual professional qualifications in private universities, and fewer studies have examined the linkages among multiple incentives, self-efficacy, and work engagement from an integrative perspective. Therefore, the literature review of this study not only provides a theoretical foundation for the establishment of the research model, but also points out the gaps and controversies of the current research, laying a solid theoretical support for the subsequent empirical research.

2.1 Theoretical Foundation

2.1.1 Resource Dependence Theory

Resource Dependence Theory (RDT), proposed by Pfeffer and Salancik (1978), asserts that organizations do not operate in isolation but rather within an external environment that is constantly changing and uncertain, and that they must rely on and access key external resources to sustain their survival and development. This resource dependency not only shapes an organization's strategic choices and structural adjustments but also influences its ability to adapt and integrate with the external environment. Organizations often mitigate uncertainty in the resource acquisition process through alliances, collaborations, policy negotiations, and environmental adaptation to achieve organizational goals and maintain competitive advantage (Shahid & Hittinger, 2021). In higher education, resource dependence theory has been widely used to analyze resource exchange and cooperation relationships among universities, governments, industry enterprises, and social capital (Zeng et al., 2021). Private universities are more dependent on external resources and policy support for faculty development and teacher training, due to limited funding sources and competitive pressure for resources (Guo & Li, 2020). For example, policy adaptation can be understood as the process of effectively absorbing and transforming supportive policies from higher education authorities and local governments. At the same time, university-enterprise collaboration is the process of sharing practical teaching resources and research platforms through cooperation with industrial enterprises, to enhance the practical ability and professionalism of teachers with dual professional qualifications (See et al., 2020). 2020). Meanwhile, dual motivation is also an important means for universities to enhance teachers' development through the optimal allocation of internal resources and the provision of dual development opportunities under the condition of limited resources (Ryan & Deci, 2020). Based on the perspective of resource dependence theory, this study argues that private universities can effectively integrate and utilize external and internal resources through economic incentives, career development, and training incentives to provide support for the professional development of teachers with dual professional qualifications, which in turn effects their psychological state and professional behavior, and contributes to the construction of a dual professional qualifications education system that meets the needs of the development of the local economy and the development of the local economy. It provides theoretical support for the development of a training model for teachers with dual professional qualifications that meets the needs of local economic development.

2.1.2 Work Engagement Theory

Work engagement Theory (WET) was first systematically articulated by Kahn (1990) in his model of "Dual's Psychological Existence in Role," which posits that Work engagement is the psychological state of a dual who fully mobilizes his energy at work and integrates it into his role performance. positive connections at the adequate, cognitive, and physical levels. Kahn argued that Work engagement is influenced by psychological meaning, security, and available psychological resources, and that Duals are more likely to have higher Work engagement when they feel meaningful and valued at work, and when they receive support and trust in their work. Harackiewicz et al. (2016) crystallize work engagement into vigor, dedication, and concentration (Absorption) dimensions, and pointed out that work engagement is an important prerequisite for organizations to achieve high performance, high innovation, and employee mental health. Work engagement not only affects employees' job performance and career commitment but is also closely related to outcome variables such as job satisfaction, intention to leave, and psychological well-being (Edopkolor et al., 2022). In the higher education faculty population, studies have shown that teachers' level of work engagement is directly related to teaching quality and research output (Zeng et al., 2020), and teachers' access to supportive resources, perceived organizational equity, and opportunities for professional growth can significantly increase their work engagement (Schaufeli & Bakker, 2004). In the field of teachers with dual professional qualifications training, Work engagement is not only reflected in classroom teaching, but also in multiple roles such as industry practice, student mentoring, and curriculum development, and a high level of Work engagement is an important safeguard for Teachers with dual professional qualifications to effectively perform their duties and promote the integration of industry and education (Deckert & Takawira, 2022). A high level of Work engagement is an important guarantee for Teachers with dual professional qualifications to perform their duties effectively and promote the integration of industry and education (Deci et al., 2017). Based on the theory of work engagement, this study treats work engagement as the dependent variable, examines how motivational strategies that provide psychological and practical support affect teachers' motivation and sustained engagement in teaching and practice guidance, and provides a theoretical basis for testing the effectiveness of these strategies.

2.1.3 Social Cognitive Theory

Social Cognitive Theory was proposed by Bandura (1986), which emphasizes the interaction between dual cognitive process, environmental factors and behavior, and believes that duals are not passively adapting to the environment, but actively interacting with the environment to regulate their own behavior. It is believed that duals do not passively adapt to their environment but actively interact with it to regulate their behavior. Among them, self-efficacy, as a core concept of social cognitive theory, refers to a person's judgment of their ability to accomplish a specific task or achieve a desired goal and is an important predictor of motivation, persistence, and behavioral performance.

Self-efficacy significantly influences teachers' professional behavior, and teachers with high self-efficacy are more likely to use innovative teaching methods, cope with teaching challenges, and persist when encountering difficulties (Karabacak et al., 2020). In the study of teachers with dual professional qualifications, self-efficacy

not only affects teachers' motivation in industry practice and classroom teaching, but also determines their willingness to continue learning and participate in school-enterprise cooperation activities (See et al., 2020). It was also found that external motivational strategies (e.g., policy support, resource provision, and professional development opportunities) can further enhance teachers' work engagement by increasing their Self-efficacy (Xu & Bhang, 2019). Therefore, based on social cognitive theory, this study took self-efficacy as a mediating variable of motivational strategies effecting work engagement, aiming to reveal how economic incentives, professional development, and training incentives can provide theoretical support for the mechanism of action of motivational strategies by boosting teachers' confidence in their own abilities, which in turn stimulates their motivation and sustained engagement in teaching and industry practice.

2.1.4 Motivational Strategies

2.1.4.1 Economic Incentives

(1) Definition of Economic Incentives

As a core component of motivation theory, economic incentives are typically defined as management tools that satisfy employees' economic needs through material rewards, such as salaries, bonuses, allowances, and performance incentives, to motivate them to work and improve their performance. This definition captures the essence of economic incentives: the use of financial benefits as leverage to shape employee behavior to achieve organizational goals (Hartanto, 2021). Academics recognize that economic incentives are important mechanisms for organizations to influence employees' behavior and that they are used to satisfy employees' economic needs at different stages of their careers through the rational distribution of material benefits, thereby enhancing employees' job satisfaction and organizational commitment. Some scholars further point out that economic incentives are not merely material rewards but also a strategic management tool (See et al., 2020), linking organizational goals with dual employee goals to align employee behavior with organizational performance indicators and maximize mutual benefits (Dwivedi et al., 2021).

In higher education, economic incentives are widely used in faculty position management and performance appraisal. The economic incentives of the teacher group cover a variety of forms, such as post allowance, classroom fee, research incentive, performance pay, etc., aiming to stimulate teachers' enthusiasm for teaching and research motivation through material means, and to promote the improvement of the quality of education and the output of scientific research achievements (Deci et al., 2017). Studies have shown that appropriate economic incentives can effectively enhance teachers' work motivation and promote their commitment to teaching and research, thereby increasing the position's attractiveness and the stability of the teaching force (Lentini et al., 2024). At the same time, economic incentives help mitigate the risk of burnout and turnover stemming from economic pressures and support universities in recruiting and retaining excellent teachers.

The role of economic incentives is controversial. On the one hand, overreliance on economic incentives leads teachers to place undue emphasis on short-term material rewards and to neglect the intrinsic value of teaching quality and academic pursuit, thereby weakening their sense of professional responsibility and

mission. Research has shown that economic incentives may, under certain conditions, intensify competitive relationships among teachers, increase work pressure, and affect teamwork and the spirit of teaching innovation (Hartanto, 2021). Especially in research-oriented universities, economic incentives, if not properly designed, may lead to the phenomenon of "thesis and performance", which may distort teachers' work orientation (Toropova et al., 2020). There are significant differences in teachers' responses to economic incentives across types of universities and positions. Salary levels and incentives should be designed differently based on teachers' years of experience, titles, and disciplinary characteristics to avoid fairness issues and incentive failures. The actual effects of economic incentives are also affected by factors such as cultural background, organizational climate, and motivational expectations, which make their design and implementation more challenging.

As an important component of the teacher incentive system, economic incentives have been widely recognized for their positive effects in promoting teachers' commitment to their work, improving teaching quality, and supporting their career development. However, the design of economic incentives must be scientific and reasonable, not only to guarantee the fairness and motivational effectiveness of material rewards, but also to pay attention to the cultivation of intrinsic motivation, to avoid the incentive mechanism being homogenized and short-sighted, to balance the teachers' extrinsic needs and intrinsic driving force, and to promote the comprehensive development and sustainable effort of teachers (Xu & Bhang, 2019). Based on this, this study defines economic incentives as the diversified material incentives of colleges and universities through salary packages, job allowances and performance rewards, aiming to enhance the work motivation and job stability of teachers with dual professional qualifications in private universities in Shaanxi Province, to promote the continuous improvement of the teachers' teaching and practical abilities, and to provide a solid guarantee for the improvement of the quality of education in colleges and universities.

(2) Measurement of Economic Incentives

Regarding the measurement of economic incentives, existing studies generally assess teachers' perceived levels of salary packages, performance incentives, and economic support using questionnaires and scales to quantify the role of economic incentives in teachers' incentive mechanisms (Hofstede, 2021). Based on motivation theory, scholars have focused economic incentive measurement on specific components such as base pay, classroom compensation, job allowances, and performance bonuses, arguing that these dimensions provide a more comprehensive picture of the extent to which organizations support and motivate teachers through material means. Some studies emphasize the importance of performance bonuses and research incentives in higher education, pointing out that research incentives not only affect teachers' motivation to do research, but also have a significant effect on their overall Work engagement. Studies have incorporated the fairness of economic incentives into the measurement system, reflecting the effects of economic incentives through teachers' perceptions of whether their pay matches their effort, arguing that a sense of fairness is an important prerequisite for economic incentives to be effective, and measuring the level of teachers' perceptions of both internal and external fairness to more comprehensively capture the differential impacts of economic incentives among different groups of teachers (See et al., 2020)

Some scholars have also suggested that the predictability and timeliness of economic incentives are important determinants of their effectiveness. Therefore, the timeliness of incentive fulfillment, the stability of incentive acquisition, and the transparency of the incentive structure are used as key indicators to measure the effectiveness of economic incentives in the actual implementation process. The study focuses on cross-sectional comparisons and longitudinal tracking of measurement, by recording the frequency of salary adjustments and incentive payments over different periods, to examine the sustained impact of economic incentives on teachers' behavior change. It should be noted, however, that most of the existing studies' measurements of economic incentives rely on dual professional qualifications' subjective perceptions of knowledge, which, while reflecting teachers' experiences and attitudes toward incentives, are susceptible to social expectation bias and questionnaire response bias, affecting the objectivity and explanatory power of the measurements (Dwivedi et al., 2021). Meanwhile, some studies differ substantially in the selection of economic incentive measurement dimensions and lack a unified indicator system and question-item criteria, which makes the results of different studies less comparable and affects the generalizability of the measurement tool across regions and colleges.

Some studies have criticized that the current measurement of economic incentives often focuses on the static description of salary structure and incentive level, while ignoring the dynamic changes of financial incentives in the process of career development of college teachers, and fails to fully consider the differences in the demand and perception of economic incentives of teacher groups at different career stages and with other titles, which leads to the results of the measurement not being able to reveal the long-term motivational role of economic incentives comprehensively. At the same time, some colleges and universities have problems with lagging in the implementation of financial incentives, non-transparent distribution of bonuses, and ambiguous performance evaluation, etc., which may lead to negative experiences when teachers fill out the survey and affect the stability of the measurement results (Mohamed et al., 2021).

Existing economic incentive measurement methods begin by quantifying teachers' perceptions and capturing organizational incentive practices, providing a feasible tool for analyzing the mechanisms of economic incentives in teachers' Work engagement and in teaching and research behaviors, and laying a methodological foundation for empirical research. However, it is still necessary to optimize the index system in combination with different higher education contexts to improve the accuracy and explanatory power of the measurement results in the measurement design and implementation process, to ensure that economic incentive measurement can more effectively serve the research and practice improvement of teacher incentive effects (Xu & Bhang, 2019). Combining the context of dual professional qualifications teacher training in private universities, this study defines economic incentive measurement as the three dimensions of compensation package level, performance reward fairness and incentive fulfillment timeliness, reflecting the level of economic incentives through the combination of teachers' perceptions and the organization's actual incentive implementation, which is used to assess the specific role of economic incentives in promoting teachers' sustained teaching practice effort and competence improvement.

(3) Research on Economic Incentives

Research on economic incentives examines their impact on employee motivation, performance, and organizational commitment; in education, it focuses on the effects of economic incentives on teachers' commitment, teaching quality, and research output (Edopkolor et al., 2022). It has been pointed out that economic incentives, as an important means to meet the basic needs of duals and to achieve extrinsic motivation, have a significant impact on the regulation of teachers' professional behavior, and that the provision of remuneration packages, performance bonuses and research incentives can effectively enhance teachers' motivation and sustained level of commitment to their work, as well as promote their performance in terms of teaching quality and research output. The study shows that economic incentives can not only enhance job attractiveness and career stability among teachers but also alleviate the problem of teacher turnover to a certain extent. For private colleges and universities, economic incentives are seen as an important means of enhancing the stability and competitiveness of the faculty (Sachs et al., 2019).

Research on the impact of the distributional fairness perception of economic incentives on teachers' job satisfaction and Work engagement suggests that the effect of economic incentives depends not only on the quantity and form of the incentives themselves, but also on teachers' perception of the fairness of the incentive distribution process, and that a lack of transparency or fairness in the distribution mechanism may weaken the positive effect of economic incentives or even trigger negative feelings (Lentini et al., 2024). At the same time, economic incentives have different motivational effects on different types of teachers, and teachers' titles, years of teaching experience, subject backgrounds, and types of positions all effect the effects of economic incentives in practice. For example, young teachers are more concerned with the level of economic incentives to meet their living needs, whereas middle- and high-ranking teachers are more interested in research performance rewards and incentives that align with their dual contributions. The relationship between financial and non-economic incentives suggests that relying solely on economic incentives may lead teachers to shift their focus to short-term performance rewards and neglect teaching innovation and sense of educational mission, and suggests that economic incentives should be used in conjunction with non-economic incentives, such as career development support, academic freedom, and pedagogical autonomy, in order to achieve a balance between teachers' internal and external motivations.

However, some studies have also criticized the current economic incentive system in universities for having a single incentive structure, ambiguous performance appraisal indicators and untimely incentive delivery. These shortcomings may lead to the failure of economic incentives to play the expected effect in practice, and even trigger teachers' dissatisfaction and resistance. At the same time, some studies have pointed out that although economic incentives can enhance teachers' short-term motivation to a certain extent, their long-term impact on teachers' intrinsic motivation is limited, and it may be difficult to maintain a stable level of teachers' Work engagement if there is a lack of institutionalized and sustained support for economic incentives. In addition, most current research on economic incentives focuses on public colleges and universities, and there are still few studies on private universities, which

lack a contextualized exploration of how economic incentives function under conditions of limited resources (Deci et al., 2017).

The important role of economic incentives in enhancing the Work engagement and teaching and research quality of university teachers has been widely verified as an important element in constructing an incentive system for university teachers, but how to optimize the structure of economic incentives, balance fairness and incentive efficacy, and harmonize the relationship between economic incentives and non-economic incentives in different school-running contexts are still important topics that need to be focused on in the future research. This study examines the role of economic incentives in promoting teachers' motivation for practice teaching and job stability in the context of dual professional qualifications teacher training at private universities in Shaanxi Province, to enrich research on the application of economic incentives in the field of teachers' motivation and job commitment.

2.1.4.2 Career Development

(1) Definition of Career Development

Career development, as an important research topic in the field of human resource management and education management, is usually regarded as a dynamic process in which duals realize their career goals and personal values by continuously accumulating knowledge and skills and expanding their career paths in the course of their career (Harackiewicz et al., 2016). Some studies believe that career development includes not only external career growth, such as job promotion and salary enhancement, but also internal growth, such as career competence enhancement, career role refinement, and career satisfaction enhancement, reflecting the process of continuous optimization and adaptation in the process of matching dual and organizational needs. In the field of education, career development is regarded as an important path for teachers to achieve professional growth and career goals through the continuous improvement of teaching ability, research ability, and practical ability during their career, and it is an important prerequisite for teachers to realize their work engagement and career commitment (Hollowell, 2025). Some scholars emphasize that career development encompasses career planning, training and learning, accumulation of work experience and job mobility, etc., and believe that teachers' career development is the result of the joint action of organizational support and dual efforts, and an important way for teachers to realize their self-worth and social value in the process of interacting with the organization (See et al., 2020).

Stages and contexts characterize career development, and teachers have distinct needs for developmental support and opportunities across these stages. Younger teachers are more concerned with training opportunities and academic resource support, whereas middle- and high-ranking teachers are more concerned with channels for title promotion and research development platforms. Meanwhile, the realization of career development is influenced by multiple factors, including school policies, management mechanisms, and external environments, which require organizations to provide supportive environments and opportunities (Edopkolor et al., 2022). However, there are also criticisms that some colleges and universities have a tendency towards formalization and short-termization in career development support, and a lack of systematic career development planning and targeted support measures, which leads to

stagnation of teachers' career development or burnout, and affects teachers' motivation to teach and their ability to innovate (Lentini et al., 2024). At the same time, some studies have pointed out that career development is not only a need for teachers' personal development, but also an important support for universities to improve teaching quality and achieve strategic goals, and that universities should promote teachers' continuous growth through the design of clear career development paths and supportive policies, to improve the overall level of education and the ability to serve the society (Moquin et al., 2024).

Overall, career development is widely recognized in higher education research as an important pathway to promote teachers' teaching ability, research ability, and Work engagement, and as a core link in building a motivation system for college teachers and achieving high-quality development. This study defines career development as a systematic process of private universities to promote the career growth and professional development of Teachers with dual professional qualifications through the support of training and learning, title promotion mechanism, job practice opportunities and career development channel construction, in order to stimulate teachers' continuous teaching commitment and job stability, and to provide a guarantee for high-quality talent cultivation of the university.

(2) Measurement of Career Development

Regarding the measurement of career development, most existing studies have used structured questionnaires and Likert scales to capture the level of duals' perceptions of career development opportunities, career development support, and career growth in a multidimensional way in order to quantify the effect of the actual functioning of career development in organizational contexts (Deci et al., 2017). Career development measurement focuses on the three dimensions of career advancement opportunities, training and learning opportunities, and career skill enhancement, which are believed to comprehensively reflect the level of organizational support for dual career development and the likelihood of individuals to achieve career growth (Sachs et al., 2019). Some scholars have also added career path clarity and the fairness of promotion mechanisms to the measures to examine the organization's supportive role in career development at the institutional level and to emphasize the important impact of the predictability and sustainability of career development on teachers' continued Work engagement (Edopkolor et al., 2022). The study quantified the actual level of career development in the university context by measuring teachers' perceptions of opportunities for job practice, environmental support for career development, and access to research resources. It concluded that both resource and environmental support are important prerequisites for successful career development (Sanhokwe & Takawira, 2022).

The study concluded that the measurement of career development should not only focus on teachers' subjective perception of current development support, but also on the objective frequency of teachers' actual participation in training and learning, job practice and academic activities, and improve the explanatory power of the measurement results through the combination of subjective and objective indicators (Sachs et al., 2019). However, some scholars have also pointed out the problem of over-reliance on teachers' self-reports in the current career development measurement methods. At the same time, studies have criticized the current career development

measurements as being more general in indicator design, failing to effectively differentiate between the mechanisms of different dimensions of career development in the teacher population, and ignoring the differential impact of career development in different career stages, job categories, and types of colleges and universities (Sanhokwe & Takawira, 2022). The measurement stops at examining the number of career advancement and training opportunities. It ignores the important role of the quality of career development and supportive developmental environments in teachers' long-term career growth, thereby limiting the applicability of the measurement tools in explaining teachers' sustained Work engagement and career commitment.

Existing career development measures offer practical tools for understanding the level of career development and the impact of developmental support for college teachers. They are important for exploring the role of career development in teachers' Work engagement and career growth. However, there is still a need to improve the design of measurement dimensions and enhance the contextual relevance and multidimensional explanatory power of these tools in future research to better capture the true role of career development in influencing teachers' motivation (See et al., 2020). In the context of dual professional qualifications teacher training in private universities, this study defines career development measurement as assessing teachers' perceptions of and participation in support for career development through three dimensions: career promotion opportunities, training and learning support, and job practice opportunities. This approach aims to evaluate the actual role of career development in fostering teachers' sustained teaching engagement and career stability.

(3) Career Development Related Research

Related studies on career development have focused on exploring its mechanism of action on employees' Work engagement, career commitment, and organizational performance. In the field of higher education, career development is widely regarded as an important way to promote teachers' professional growth and enhance the quality of teaching and research (Shahid & Hittinger, 2021). Some studies have pointed out that career development support can enhance teachers' career satisfaction and organizational identity, and that by providing training opportunities, job practice, and career advancement pathways, it can enhance teachers' sense of professional security and growth motivation, and then promote their teaching commitment and research motivation. Some studies have shown that through systematic career development planning and support measures, colleges and universities can not only help teachers achieve their professional competence and career goals at different stages of their careers, but also effectively improve the stability and competitiveness of the overall college and university faculty, and promote the high-quality development of higher education (See et al., 2020). At the same time, studies have examined the fairness and accessibility of career development, noting that inequities in the distribution of career development opportunities and support resources in colleges and universities may lead to burnout and turnover among faculty, weakening the motivational effects of career development.

Scholars have analyzed professional development through the lens of motivation theory and concluded that professional development support can meet teachers' needs for self-actualization and professional growth and is an important source of intrinsic motivation, thereby sustaining teachers' continued commitment to teaching

(Lentini et al., 2024). In the Dual professional qualifications population, professional development opportunities are closely linked to practice enhancement, thereby promoting teachers' continuous learning and professional refinement in their roles. Meanwhile, some studies have also found that career development is closely related to teachers' dual characteristics, such as differences in the needs and sensitivities of teachers with different teaching years, titles, and subject areas to career development opportunities (Sachs et al., 2019), with young teachers valuing training and practicing opportunities to accumulate experience and gain promotion, and middle- and high-level teachers focusing on the support of research resources and the clarity of career paths to achieve career breakthroughs (Toropova et al., 2020). However, there are also criticisms that the career development system in some universities is formalized and short-term, and lacks systematic, targeted support measures, which makes it difficult for career development support to meet teachers' dualized and diversified growth needs in practice and affects the effectiveness of career development.

Some empirical studies have shown that career development support can enhance teachers' Self-efficacy and professional commitment and promote their continuous commitment to teaching and research. In the context of private colleges and universities, career development is regarded as an important strategy for enhancing the stability of teachers' positions. However, most of the current research on career development focuses on public colleges and universities, and contextualized research on the career development of Teachers with dual professional qualifications in private universities is more limited, lacking in-depth discussion on how to promote teachers' sustained growth and commitment to teaching and learning through adequate career development support in the context of limited resources (Xu & Bhang, 2019).

Career development, as an important part of the incentive system for university teachers, plays an important role in promoting teachers' professional growth, enhancing teaching quality, and promoting the high-quality development of universities. Its mechanism of action and practical effects across different groups of teachers and school operating contexts remain worthy of in-depth exploration. In the context of Dual professional qualifications teacher training at private universities in Shaanxi Province, this study considers career development as an important pathway to support teachers' sustained teaching practice and enhance their competence, thereby enriching the application of career development in teacher motivation and higher education research.

2.1.4.3 Training Incentives

(1) Definition of Training Incentives

Different scholars have defined training incentives from various perspectives. Training incentives are opportunities provided by schools or organizations for employees to participate in training, coupled with motivational mechanisms that encourage individuals to engage and apply the knowledge acquired in practice actively (Lewis et al., 2019). The essence of training incentives lies in the combination of external institutional support and internal motivation, which sustains employees' or teachers' learning drive and translates it into improved work performance (Ryan & Deci, 2020). According to self-determination theory, training incentives should consider both external rewards (e.g., certificates, subsidies, promotion opportunities) and intrinsic satisfaction (e.g., professional achievement, skill enhancement), and the interaction

between these two factors is associated with the long-term effectiveness of training (Lentini et al., 2024).

In the field of education, training incentives have been defined as “organized training activities that help teachers continuously update their disciplinary knowledge and teaching skills, thereby enhancing their teaching effectiveness and professional self-efficacy.” (Bos-Nehles et al., 2017) Training incentives are a core institutional arrangement to promote professional development of university teachers and advance educational reform, particularly in application-oriented universities, where they are implemented through school-enterprise cooperation, on-the-job practice, and industry-specific training to enhance teachers’ professional competence. Training incentives serve as a key tool for teacher capacity building and play an indispensable role in the development of Teachers with dual professional qualifications, facilitating the optimization of knowledge structures, the accumulation of practical experience, and the introduction of industry standards (Lentini et al., 2024). Furthermore, training incentives must be institutionalized and regularized to avoid superficiality, thereby enabling teachers to transition from non-dual-qualified to dual-qualified status.

Training incentives also serve to support regional industrial development (Edopkolor et al., 2022). National vocational education development plans emphasize that training incentives should not only meet the developmental needs of individual teachers but also align closely with local economic strategies. In this context, training incentives should be industry-oriented, enabling teachers to acquire dual-professional qualifications through enterprise practice, skills certification, and research collaboration.

At the theoretical level, training incentives have a dual nature: they constitute an organized institutional arrangement for professional development and serve as an important driver of teachers’ motivation and self-efficacy. Scholars have emphasized the role of training incentives in promoting individual capacity development and organizational performance (Harackiewicz et al., 2016). Therefore, in this study, the definition of training incentives draws on the general understanding from international scholarship on motivation and competence enhancement, while also integrating regional policy and industrial requirements, thereby highlighting its critical role in cultivating Teachers with dual professional qualifications.

(2) Measurement of Training Incentives

Regarding the measurement of training incentives, existing studies usually start from the three aspects of teachers' perceptions of access to training opportunities, applicability of training content, and training support through structured questionnaires and Likert scales in order to quantify the actual operation level of training incentives in the motivation system of higher education teachers (Gordon, 1950). Scholars believe that training incentive measurement should focus on the availability and fairness of training opportunities, examining whether teachers have equal opportunities to participate in training and further education, whether the training content meets teachers' current teaching and research needs, and whether the training is effective in promoting teachers' competence improvement and career development (Sachs et al., 2019). Meanwhile, some studies have emphasized that the training support measure should assess whether the organization covers training costs, arranges training leave,

and provides a platform for post-training practice, reflecting the resources and support it invests in training incentives (Karabacak et al., 2020).

Some studies have refined the measurement of training incentives into the frequency of teachers' participation in training, the relevance of the training content to teaching and research, and the feedback and application of the results of the training in order to better capture the impact of training incentives on teachers' actual teaching behaviors and Work engagement (Kuntoğlu & Sağlam, 2021). Some scholars have pointed out that measuring training incentives should not only focus on the training opportunity itself, but also on teachers' perceptions of the incentives, such as whether they perceive the training as contributing to their professional growth and teaching competence, and whether the content of the training is relevant to their actual teaching needs. However, there are also criticisms that the current measurement of training incentives focuses too much on the statistics of training frequency and number of training sessions at the surface level, and neglects the deeper effects of training incentives, such as the internalization of knowledge, practical application and improvement of teachers' abilities after participating in training. At the same time, some studies have neglected the variability of training incentive needs of teachers of different ages, titles and subject backgrounds in their measurements, resulting in limitations of the measurement results in explaining the training incentive effects of different groups (Bonham, 2020).

The study pointed out that training incentive measurement is susceptible to teachers' subjective evaluation bias and social expectation effects in practice, which may lead to a gap between the results and the actual incentive effects, so it is suggested that future studies may combine interview or observation methods to collect objective data to improve the reliability and validity of training incentive measurement. Overall, the existing training incentive measurements provide an effective tool for analyzing the level of training support and training incentive effects of college teachers, which is important for understanding the role of teacher training incentives on teaching engagement and professional growth, but there is still a need to optimize the design of the measurement indicators in the future, and to combine the multiple data collection methods in order to enhance the scientific and explanatory power of the measurement results. In this study, in the context of dual professional qualifications cultivation in private universities, training incentive measurement is defined as capturing the level of teachers' perception of training incentives from three dimensions: access to training opportunities, applicability of training content, and guarantee of training support, in order to assess the actual role of training incentives in promoting teachers' sustained teaching commitment and competence improvement.

(3) Training Incentive Related Research

Related studies on training incentives mainly focus on the exploration of their role in promoting employee motivation, career enhancement, and organizational performance, and in the field of higher education, training incentives are generally regarded as an important way to promote the professional growth of teachers and the improvement of teaching quality (Bahram, 2021). It has been pointed out that by providing systematic and targeted training support, higher education institutions can not only enhance teachers' teaching and research abilities, but also improve teachers' job competence and career development potential, thus promoting teachers' sustained Work

engagement and organizational commitment (Goyal, 2024). Research has found that training incentives, as an external support force, can effectively enhance teachers' professional Self-efficacy, help teachers better adapt to job requirements and teaching and research pressures, and at the same time promote teachers' continuous innovation and improvement of teaching methods in teaching practice (See et al., 2020). Some scholars also believe that training incentives are particularly important for dual professional qualifications groups, and that joint school-enterprise training and professional skills enhancement training can effectively promote the simultaneous development of teachers' practical ability and teaching level, and promote the interface between teaching content and industrial needs (Ryan & Deci, 2020).

Studies have linked training incentives to teachers' commitment to their work, suggesting that effective training incentives can enhance teachers' commitment to teaching and sustainability by improving their professional skills and knowledge, especially in private universities and applied undergraduate colleges and universities, where training incentives are seen as an important means of addressing teachers' competence deficiencies and promoting education quality. However, some studies have suggested that the implementation of training incentives in colleges and universities suffers from mismatches between training content and teachers' actual needs, uneven distribution of training opportunities, and lack of evaluation of training effects, which may lead to the limited effectiveness of training incentives in practice. Scholars have criticized that the training incentives in some universities are just a formality, focusing only on the number of trainings and the participation rate but ignoring the quality and effectiveness of trainings, which can hardly promote the internalization of teachers' abilities and the improvement of their actual teaching level (Ge, 2024). At the same time, it has been pointed out that teachers' perceptions of the effectiveness of training incentives are effected by their age, title, and subject background, and that there are differences in training needs, willingness to participate, and preferences for training content among different groups of teachers, which need to be taken into account in the design and implementation of training incentives.

From the perspective of motivation theory, the study points out that training incentives are not only a means to improve knowledge and skills, but also an important part of the university's teacher incentive system to improve teacher satisfaction and organizational commitment, which can meet the growth needs of teachers to improve their commitment to their positions and loyalty to the organization, but it is difficult to play a sustained role in training incentives if the university lacks the support of systematic training planning and incentive mechanisms. However, without the support of systematic training planning and incentives, it is difficult to realize the sustainable effect of training incentives. The important role of training incentives in teachers' commitment and ability enhancement has been fully verified, but its effect is effected by multiple factors such as the suitability of training content, the fairness of training opportunities and post-training support measures, etc. How to play a greater incentive effect in different types of colleges and universities and among different groups of teachers is still an important issue to be further explored in the future research.

2.1.5 Self-Efficacy

2.1.5.1 Definition of Self-Efficacy

As a core concept in the field of psychology, Self-efficacy first originated from social cognitive theory, and its essence is an dual's beliefs and judgments about his or her ability to accomplish a task or reach a specific goal in a specific situation (Woodcock et al., 2023). This belief not only involves the dual's cognitive evaluation of his or her own ability, but also profoundly effects his or her psychological state, behavioral choices, and the degree of sustained effort in the face of difficulties and challenges. Self-efficacy emphasizes an dual's subjective perception of competence, a cognitive structure that is decisive for how duals regulate their emotions, motivation, and behaviors, and is widely regarded as an important psychological resource for driving employee performance and career adaptation, especially in professional contexts (Wiederhold, 2020).

The role of Self-efficacy is particularly prominent in the teaching professional community. Teachers with a high sense of Self-efficacy tend to exhibit a greater sense of teaching responsibility, more positive classroom management strategies, and more effective instructional innovations, and some studies have shown that teachers with a high sense of Self-efficacy are more inclined to adopt positive coping measures rather than avoidance when faced with student behavioral problems or instructional difficulties (Nicol & Macfarlane-Dick, 2006). In addition, Self-efficacy enhances teachers' professional satisfaction and professional commitment, and promotes their sustained professional growth and teaching quality. Different studies reveal that Self-efficacy not only effects teachers' teaching behaviors, but also enhances teachers' willingness to develop professionally and the depth of their commitment to teaching by stimulating intrinsic motivation.

Self-efficacy is obviously context-dependent and dynamic, and its level changes according to factors such as the successful experience accumulated by duals in relevant tasks, the observation and learning from role models, the encouraging feedback from others, and the emotional state of duals. Practical experience is the most important source of enhanced Self-efficacy, and teachers develop a stronger sense of Self-efficacy by accumulating a sense of success through continuously overcoming challenges in teaching. Meanwhile, the influence of social support and organizational environment on Self-efficacy should not be ignored, as a good professional support system can effectively enhance teachers' Self-efficacy, while the opposite may inhibit their confidence and motivation (Stankov et al., 2012).

However, Self-efficacy research has also faced some controversy. Some scholars have pointed out that excessive Self-efficacy may trigger cognitive biases in duals, leading to overconfidence or even blind confidence, thus ignoring deficiencies in teaching and the need for improvement, and limiting the depth and breadth of professional growth (Lentini et al., 2024). Measurement of Self-efficacy relies mainly on subjective questionnaire reports, which may be effected by social expectation effects and personal cognitive biases, reducing the objectivity and generalizability of the data, especially in different cultural backgrounds and professional environments, and the cross-cultural adaptability and reliability of the measurement instrument need to be further tested.

Self-efficacy, as a bridge between cognitive psychology and actual behavior, has been widely demonstrated to play a key role in influencing dual Work engagement, career performance, and continuous learning (Shahid & Hittinger, 2021). Particularly in the development and motivation of Teachers with dual professional qualifications, Self-efficacy not only effects the level of self-confidence in teaching and practicing tasks, but also directly relates to their ability to effectively cope with professional challenges and achieve professional growth and pedagogical innovation. This study defines Self-efficacy as teachers' beliefs and self-confidence in their competence in teaching and practice, emphasizes its role as a psychologically mediated variable of motivational strategies effecting teachers' Work engagement, and aims to reveal the internal mechanism of economic incentives, career development and training incentives on teachers' work performance, and to provide theoretical support for the improvement of the incentive system of Teachers with dual professional qualifications in private undergraduate universities.

2.1.5.2 Measurement of Self-Efficacy

Measurement of Self-efficacy in related studies mostly adopts the questionnaire scale method, which quantifies the Self-efficacy level of an dual through the subjective assessment of his or her ability to accomplish tasks in a specific situation (Zeng et al., 2020). Classical Self-efficacy measurement tools emphasize context-specificity, arguing that Self-efficacy is highly variable across tasks and domains, and therefore the measurement needs to be designed in the context of specific occupational or behavioral contexts. In the field of education, especially for the measurement of Self-efficacy in the teacher population, research has mostly focused on the dimensions of teaching ability, autonomy, classroom management, and teaching innovation, with the intention of capturing teachers' comprehensive assessment of their own teaching competence. Some scale designs focus on measuring teachers' confidence and coping ability in the face of teaching challenges, and emphasize the association between teachers' Self-efficacy and performance in teaching behaviors. Scholars generally agree that such multidimensional measures can reflect the current status of teacher Self-efficacy in a more comprehensive way, and their reliability and validity are verified through statistical methods such as structural equation modeling to ensure the scientific validity of the measurement tools (Gruber-Baldini et al., 2017).

Although existing measurement tools are widely used in multiple fields and have achieved some success, there are some limitations. First, the measurements mostly rely on self-report methods, which are susceptible to social expectation effects and subjects' self-perception bias, effecting the objectivity and authenticity of the data. Second, some of the scales have not been designed with sufficient consideration of cultural differences and context specificity, and their reliability and validity may be reduced when applied cross-culturally, especially in different countries and education systems, which require targeted revision and local adaptation (Rigby et al., 2003). Thirdly, the current measure focuses on teachers' Self-efficacy in classroom teaching, but less on teachers' multidimensional professional competencies such as practice teaching, research ability and teamwork, which limits the comprehensive assessment of teachers' overall Self-efficacy. Other scholars have pointed out that the existing measurement tools do not pay enough attention to the dynamic changes and development of teachers' Self-efficacy, and lack a longitudinal tracking design, which

makes it difficult to capture the growth trajectory of Self-efficacy and the influencing factors of teachers' Self-efficacy in their careers.

The study attempts to combine objective behavioral indicators with subjective self-assessment to enhance the scientific and applicability of the measurement, and argues that incorporating teachers' actual teaching performance, training participation, and teaching outcomes into the assessment system can help supplement the shortcomings of traditional self-reported measures. Some scholars also advocate the use of a mixed-method approach that combines quantitative questionnaires with qualitative interviews to gain a deeper understanding of the formation mechanisms of teachers' Self-efficacy and its influencing factors, thus improving the connotative richness and explanatory power of the measurement (Selickaitė et al., 2019).

Existing Self-efficacy measures provide an important tool for understanding dual professional qualifications' beliefs about their competence in teaching and professional development, and can better reflect their psychological state and level of self-confidence in their work, but they still need to be improved in the areas of cultural adaptability, context-specificity, comprehensiveness of measurement dimensions, and capture of dynamic changes. Combining the characteristics of Teachers with dual professional qualifications in private universities in Shaanxi Province, this study proposes to adopt a multidimensional Self-efficacy measurement framework covering the three core dimensions of teaching competence, practical competence, and occupational adaptability, and seeks to scientifically and systematically reflect the actual level of teachers' Self-efficacy and its facilitating effect on their Work engagement.

2.1.5.3 Self-Efficacy Related Research

As an important psychological variable effecting dual behavior and performance, Self-efficacy has received widespread attention in the fields of organizational behavior and education. Numerous studies have shown that Self-efficacy significantly influences employees' motivation, task adherence, and performance, especially in the teacher population (Marschall & Watson, 2022). Teachers' high Self-efficacy is often characterized by greater teaching confidence and classroom control, more positive attitudes toward teaching, and more effective responses to teaching challenges, thus enhancing overall teaching quality and student learning outcomes. Self-efficacy not only contributes directly to teachers' engagement in teaching, but also indirectly effects job performance by enhancing professional commitment and career satisfaction.

Self-efficacy has been shown to be a key psychological resource for teachers to adapt to changes in the educational environment and cope with work pressure. Teachers with high Self-efficacy are more capable of actively adjusting their teaching strategies, maintaining psychological resilience in the face of complex teaching situations, and reducing the risk of burnout. Some studies have pointed out that Self-efficacy plays a positive role in enhancing teachers' innovative teaching behaviors and promoting the diversification of teaching methods, especially in the context of dual professional qualifications and practice-oriented education, and its ability to promote the integration of theory and practice is particularly important (Çelikkol, 2023). At the same time, the role of Self-efficacy in teachers' professional

development is widely recognized, and higher Self-efficacy helps teachers to actively participate in training and academic research, and promotes the continuous improvement of professional skills.

Research has scrutinized the positive effects of Self-efficacy, pointing out that high Self-efficacy may lead duals to be overconfident, ignoring the need for reflection and improvement in teaching, and effecting the depth of teachers' sustained professional growth (Akman, 2021). On the other hand, the development and maintenance of Self-efficacy is influenced by organizational support, resource environment, and socio-cultural factors, and teacher groups lacking good support may be less committed to their work due to low Self-efficacy, even if they have strong competence. In addition, the mechanism of Self-efficacy varies among different groups of teachers, such as young versus experienced teachers, and autonomous versus dependent teachers, suggesting the need to tailor the design of motivation and support to the dual professional qualifications.

Self-efficacy, as a core variable connecting dual psychological cognition and behavioral performance, plays an irreplaceable role in promoting teachers' commitment to teaching, career development, and organizational performance. Future research needs to pay further attention to its dynamic change mechanism and adaptability in different educational contexts in order to realize more effective teacher motivation and training. Combined with the background of dual professional qualifications teacher cultivation in private undergraduate colleges in Shaanxi Province, this study regards Self-efficacy as an important psychological mediator of motivational strategies effecting teachers' Work engagement, aiming to reveal the indirect mechanism of economic incentives, career development and training incentives on teachers' Work engagement through Self-efficacy, and to enrich the theoretical system of teachers' motivation in colleges and universities.

2.1.6 Work Engagement

2.1.6.1 Definition of Work Engagement

Work engagement is defined as a positive, fulfilling, work-related psychological state characterized by vigor, dedication, and absorption, which, in the context of dual-qualified teachers, is reflected in their practical teaching commitment, effort of technical research, and regional service effort (Karabacak et al., 2020). As an important concept in organizational behavior, Work engagement is usually understood as an dual's positive psychological state at work, which is manifested in a high degree of concentration, vitality and sense of commitment. Scholars generally agree that Work engagement reflects employees' passion and dedication to their work, and is the intrinsic motivation for employees to actively perform their duties and make continuous contributions. Work engagement not only reflects an dual's emotional state, but also relates to cognitive and behavioral performance, including the sense of identification with the work, the sense of responsibility, and the creativity and persistence shown in the work. In the teacher community, Work engagement is regarded as a key factor in improving teaching quality and promoting student development, which is manifested in teachers' active participation and sustained efforts in teaching, research and student guidance (Huang et al., 2022).

It was found that Work engagement contains three core dimensions of effective, cognitive, and behavioral engagement, with effective engagement referring to a dual's love for and emotional attachment to his or her work, cognitive engagement involving a deep understanding of the meaning and value of the work, and behavioral engagement manifested in actual effort and sustained effort (Reed et al., 2018). This multidimensional structure contributes to a comprehensive understanding of the connotative and exoteric characteristics of Work engagement. Some studies have emphasized that Work engagement is highly state-based, influenced by dual motivation, work environment, and organizational support, and can be dynamically adjusted over time and contextual changes.

Although Work engagement is widely recognized as a positive psychological resource, it is also controversial. Some scholars have pointed out that excessive Work engagement may lead to work-life imbalance and trigger burnout and psychological stress, especially in the higher education teaching population, where high-intensity Work engagement sometimes undermines long-term career satisfaction and teaching innovation (Green et al., 2017). In addition, the measurement of Work engagement mostly relies on self-report, which suffers from social expectation effect and subjective bias, limiting the objectivity of its results. On the other hand, existing studies have paid less attention to the cross-cultural adaptation of Work engagement, and there may be differences in employees' understanding and performance of Work engagement in different cultures, which requires more detailed contextualized analysis (Zigarmi et al., 2009).

As a key variable reflecting employees' positive work attitudes and behaviors, Work engagement plays an important role in promoting teachers' teaching effectiveness and the overall quality of education in universities. Understanding its connotation, formation mechanism and influencing factors is of great significance in optimizing the teacher motivation system and improving the quality of talent cultivation in universities. This study defines Work engagement as the positive psychological state of concentration, enthusiasm and persistence shown by teachers in their teaching and practice work, and aims to explore the influence paths of economic incentives, career development and training incentives on teachers' Work engagement through Self-efficacy, so as to provide a theoretical basis for improving the level of Teachers with dual professional qualifications' Work engagement in private universities.

2.1.6.2 Measurement of Work Engagement

Measurement of work engagement has been widely researched in the fields of organizational behavior and human resource management, where self-rating scales are commonly employed to capture individuals' psychological states and behavioral characteristics at work. Classical measurement tools typically emphasize three dimensions, affective, cognitive, and behavioral engagement (See et al., 2020) with items designed to reflect employees' enthusiasm, dedication, and intensity of effort (Breevaart & Pletzer, 2023). Scholars argue that this multidimensional structure captures the connotation of work engagement in a more comprehensive way, while psychometric validation ensures the reliability and practicality of the tools (Huang et al., 2022). In the educational field, the measurement of teachers' work engagement has been extended beyond teaching activities to also encompass research, student

supervision, and professional development, reflecting the complex and diversified work roles of teachers.

Nevertheless, despite their widespread use, self-report questionnaires carry limitations, including social desirability bias and subjective overestimation of engagement due to organizational expectations, which may undermine objectivity. Moreover, most existing tools have been developed in Western cultural contexts, raising concerns about cross-cultural applicability and the explanatory power of such measures in non-Western settings (Schaufeli et al., 2002). Another limitation is the tendency of traditional scales to focus on static performance indicators, often neglecting the dynamic and context-dependent nature of work engagement. To address these issues, some studies propose combining self-assessment with objective indicators—such as attendance records, teaching performance evaluations, and collaborative project outputs—to improve measurement accuracy. Others advocate the inclusion of qualitative methods, such as interviews and classroom observations, to capture the underlying motivations and behavioral expressions of engagement (Petrović et al., 2017). Collectively, these discussions highlight the need to refine measurement tools to improve cultural adaptability, multidimensional comprehensiveness, and dynamic tracking capacity.

Building on this literature, the present study adapts the conceptualization of work engagement to the specific context of dual-qualified teachers in private universities in China. Unlike general faculty members, dual-qualified teachers are simultaneously responsible for academic instruction and practice-oriented contributions to industry, requiring a broader operationalization of engagement. Accordingly, this study emphasizes three interrelated dimensions of work engagement:

Practical Teaching Commitment: reflecting teachers' time and energy invested in preparing and delivering practice-oriented courses... This corresponds closely to the "dedication" component of traditional engagement (Schaufeli et al., 2002).

Effort of Technical Research: capturing teachers' active participation in technology development, scientific innovation, and the integration of research into teaching. This aligns with the "vigor" aspect of work engagement, as it requires sustained energy, persistence, and continuous professional learning to advance both research and instructional practice (Schaufeli et al., 2002).

Regional Service Effort: This reflects the "absorption" dimension, as teachers immerse themselves in bridging academia and industry to generate broader societal and economic impact (Schaufeli et al., 2002).

By incorporating these three dimensions, this study extends the traditional conceptualization of work engagement, offering a framework that captures the unique professional reality of dual-qualified teachers. It acknowledges their multifaceted responsibilities and provides a culturally and contextually grounded basis for measuring work engagement in private universities in Shaanxi Province.

2.1.6.3 Work engagement Related Research

Relevant studies on Work engagement mainly focus on its positive impact on employee performance, organizational commitment and career satisfaction, and the work engagement of the teacher group is a key factor in enhancing the quality of

education and the effectiveness of student development (Bonham, 2020). Numerous studies have shown that highly work-engaged employees exhibit higher task completion, innovation, and identification with organizational goals, while high teacher Work engagement is strongly associated with more positive teaching attitudes, more effective classroom management, and more intensive student counseling (Chambel et al., 2016). Particularly in higher education, faculty Work engagement not only effects the effectiveness of classroom teaching, but also correlates with their research output and scholarly contributions, creating a virtuous cycle of teaching and research. Research generally agrees that Work engagement, as a manifestation of employees' intrinsic motivation, is a core variable that promotes sustainable organizational development.

At the same time, Work engagement is also regarded as an important component of employees' psychological capital, which can buffer work stress and reduce the risk of burnout (Cho et al., 2006). Teachers with high levels of Work engagement are more professionally resilient and adaptable, and are better able to cope with changes and challenges in the educational environment. Some studies have further suggested that motivational strategies, organizational support, and Self-efficacy have a significant effect on Work engagement, and that all three factors work together through a complex mechanism to promote teachers' positive work performance (Jung et al., 2021).

However, related studies have also raised rational reflections on Work engagement. On the one hand, overcommitment to work may lead to work-life imbalance, increase psychological stress and health risks, and affect teachers' long-term career development and quality of life. Especially in a high-intensity work environment, sustained high effort may lead to burnout, weakening work motivation, and the drive for innovation. On the other hand, existing research relies primarily on cross-sectional data. It lacks in-depth exploration of the dynamic processes underlying Work engagement, making it difficult to elucidate the mechanisms of its formation and change. Other scholars have noted differences in the manifestations and determinants of Work engagement across cultural and organizational contexts, which require in-depth analysis within specific situations (Nabhan & Munajat, 2023).

2.2 Relationship between Variables

2.2.1 Relationship between Economic Incentives and Self-Efficacy

The effect of economic incentives, as a motivational approach applied in organizations, on the psychological state of duals, especially Self-efficacy, has been of great interest. Most studies have shown that rationally designed economic incentives can satisfy employees' basic material needs and sense of security, reduce stress and anxiety stemming from resource constraints, and thus create a relatively stable psychological environment for duals (Williamson, 1981). Such external security gives employees greater confidence and motivation to undertake their work tasks, enhances their positive assessment of their abilities, and, in turn, increases their sense of Self-efficacy. Economic incentives not only provide practical compensation support but also convey to some extent the organization's recognition of employees' value, which helps to stimulate employees' sense of achievement and competence, especially in high-stress or highly challenging positions. The supportive role of economic incentives is more obvious (Bothello & Roulet, 2018).

However, the role of economic incentives in promoting self-efficacy remains controversial and subject to limitations. On the one hand, economic incentives may elicit short-term behavioral engagement, but their positive impact on Self-efficacy is often difficult to sustain when they lack intrinsic motivation (Li, 2019). Some studies have pointed out that when employees rely excessively on external financial rewards, they may weaken their intrinsic motivation, resulting in a "motivation crowding-out effect" (Shahid & Hittinger, 2021), in which economic incentives inhibit duals' self-driven motivation and reduce their willingness to learn and challenge difficulties, ultimately limiting Self-efficacy. Moreover, ultimately limits long-term increases in Self-efficacy. In addition, the effects of economic incentives vary significantly across employee groups, particularly in highly specialized and autonomous occupations, where reliance on economic incentives alone is insufficient to stimulate duals' intrinsic potential and sense of Self-efficacy fully.

Among teachers, the role of economic incentives in self-efficacy is more complex. While economic incentives help alleviate teachers' life stress and career uncertainty and enhance their sense of security and belonging in their jobs, teachers' professional self-efficacy is more dependent on non-financial factors, such as professional growth opportunities, teaching support, and professional identity (Grund & Soboll, 2023). Some studies have criticized the tendency of a single financial incentive to overlook the intrinsic value and sense of mission of the teaching profession, which may lead teachers to focus on material rewards at the expense of the deeper motivations of teaching innovation and student development, and to undermine the endogenous stimulation of self-efficacy. Economic incentives exhibit differential effects across cultural contexts and organizational environments. In the context of private colleges and universities in China, economic incentives should be integrated with teachers' actual needs and professional expectations to promote self-efficacy effectively.

As an important external condition for the formation of self-efficacy, economic incentives have positive, supportive, and facilitating effects, but also pose risks of incentive dependence and internal drive inhibition (Lentini et al., 2024). Its impact on Self-efficacy is multiply moderated by the rationality of incentive design, dual professional characteristics, and organizational context. Therefore, economic incentives should be combined with multidimensional incentives, such as career development and training support, to enhance teachers' self-efficacy and form a comprehensive incentive system that promotes its continuous growth. This study examined the mechanism by which economic incentives affect self-efficacy among Teachers with dual professional qualifications at private universities in Shaanxi Province. It examined the actual effects and optimization pathways of economic incentives within the teacher incentive system.

2.2.2 Relationship between Career Development and Self-efficacy

Career development, as the process by which duals accumulate knowledge, skills, and experience, has been recognized in numerous studies for its impact on self-efficacy. Studies have shown that good career development opportunities can enhance a dual's confidence in his or her own abilities and improve the perception of his or her ability to solve work tasks, thus promoting self-efficacy (Bocciardi et al., 2017). Through career development, duals are provided with opportunities for continuous learning and growth, which not only accumulate professional skills but also enhance

their adaptive capacity to face career challenges; this capacity growth directly feeds back into the enhancement of self-efficacy. A supportive career development environment, including promotion paths, career guidance, and training resources provided by the organization, can effectively stimulate Duals' career autonomy and intrinsic motivation and promote their positive responses to work challenges and career transitions (Onafowora, 2005).

However, the relationship between career development and self-efficacy is not a simple linear positive relationship. Some studies have pointed out that the effectiveness of career development is limited by dual's perception and acceptance of development opportunities, and if the career development path is unclear or resources are unevenly distributed, it may lead to duals feeling burned out or frustrated, which may affect the formation of Self-efficacy (Tindowen, 2019). In addition, the stress and uncertainty of the career development process may negatively affect self-efficacy, particularly in environments that lack effective support and feedback, and duals may struggle to develop a positive sense of self-efficacy during this process. Some scholars have criticized that current research on the relationship between career development and self-efficacy focuses on the macro level and lacks an in-depth exploration of micro mechanisms and dual differences (Wang et al., 2024).

In the teacher community, the role of career development in promoting self-efficacy is particularly significant. Teachers gain a sense of accomplishment and professional identity through continuous improvement of teaching skills, participation in research activities, and professional training, which directly enhance their self-efficacy and competence in teaching tasks (Sanhokwe & Takawira, 2022). However, teachers' career development paths are often constrained by multiple factors, such as title evaluation, teaching load, and organizational support. As a result, some teachers' self-efficacy declines due to limited career development, which in turn affects their commitment to teaching and career satisfaction. Overall, career development, as an important means of enhancing teachers' self-efficacy, should be integrated with dual needs and the organizational environment to optimize the support system and avoid motivational imbalance caused by a single promotion orientation.

Career development has a complex and significant impact on self-efficacy: it can promote self-efficacy through enhanced abilities and career fulfillment. However, it may also have negative effects due to unclear pathways and uneven resources. Therefore, constructing a scientifically sound and reasonable career development system that integrates dual differences and strengthens support and feedback mechanisms has become key to enhancing self-efficacy and promoting teachers' sustainable development. In the context of training teachers with dual professional qualifications at private universities in Shaanxi Province, this study explored how career development affects teachers' self-efficacy and how strategies can be used to enhance it, providing a theoretical basis for improving the career development and incentive mechanisms of teachers in colleges and universities.

2.2.3 Relationship between Training Incentives and Self-Efficacy

As an important means of enhancing employees' competence and professionalism, the impact of training incentives on self-efficacy has received widespread attention in the academic community. Relevant studies generally agree that

systematic and practical training incentives can provide duals with opportunities to learn and grow, enhance their professional skills and knowledge, and thereby improve their confidence in their competence (Ismailos et al., 2019). Through training, employees not only acquire practical skills but also gain theoretical knowledge, support, and practical experience; these positive learning experiences contribute to a sense of self-efficacy. Training incentives also promote positive professional attitudes and behavioral performance by stimulating duals' motivation and autonomy to learn, and by enhancing duals' coping ability and persistence in the face of work-related challenges (Bakker & Demerouti, 2017). Particularly within the teaching community, training incentives for teaching methods, research skills, and practice are widely regarded as an important means of enhancing teachers' professional self-efficacy.

However, the effects of training incentives on self-efficacy are not static; some studies identify factors such as training quality, content relevance, and follow-up support as determinants of effectiveness. If training content is out of alignment with actual work needs, or the training format is single and monotonous, it may lead to poor learning outcomes or even trigger training burnout, thereby undermining the enhancement of self-efficacy. In addition, the effect of training incentives is influenced by dual differences and organizational culture, and there are differences in employees' acceptance and application of training, resulting in a complex impact on self-efficacy (Atif Bin Tareef, 2013). Some studies have criticized existing Training incentives for focusing primarily on skill transfer, neglecting psychological motivation, and ignoring continuous post-training follow-up and application support, thereby limiting the far-reaching impact of training on self-efficacy (Darmawan, 2023).

As a key mechanism for promoting the development of self-efficacy, Training incentives can positively affect dual job performance by providing knowledge and skill support, stimulating motivation to learn, and enhancing career self-confidence. In order to give full play to the potential of training incentives, it is necessary to optimize the training design, enhance the relevance and practicality of the content, strengthen the post-training practical support and feedback mechanism, and at the same time pay attention to dual differences to promote the personalization and sustainability of training incentives. In the context of dual professional qualifications teacher training in private universities, training incentives are not only an important way to enhance teachers' professional competence, but also a key factor in enhancing their sense of self-efficacy and Work engagement, and this study focused on exploring the role of training incentives in teachers' incentive system and its influence mechanism.

2.2.4 Relationship between Economic Incentives and Work Engagement

Economic incentives, including salary, bonuses, allowances, and other financial rewards, are widely recognized as a key driver of employee motivation and work engagement. According to expectancy theory (Abun, 2021), employees' effort is positively influenced by the perceived link between performance and rewards. In the context of higher education, empirical studies have shown that teachers' perceptions of fair and competitive remuneration are significantly associated with their level of engagement in teaching and research activities (Mujanah & Utami, 2023). Salary satisfaction and performance-related bonuses were positively correlated with teachers' cognitive, emotional, and physical engagement in their work. Economic incentives not

only satisfy extrinsic needs but also signal organizational recognition, thereby enhancing teachers' intrinsic motivation and commitment (Jamillah et al., 2023).

However, the effect of economic incentives on work engagement is not uniform. Studies suggest that while adequate financial compensation can prevent disengagement, it may not necessarily enhance proactive or creative engagement unless combined with non-monetary forms of support (Zamroni & Munadi, 2025). In the context of applied or vocational higher education, where practical skills and industry collaboration are emphasized, financial rewards linked to applied outcomes, such as enterprise project participation or technology transfer, have a greater impact on work engagement than standardized salary increases. Despite these findings, there remains a lack of research on how economic incentives interact with teachers' professional self-efficacy and dual professional qualifications to influence engagement, particularly in private universities in regions such as Shaanxi.

2.2.5 Relationship between Career Development and Work Engagement

Career development opportunities, including promotion pathways, professional recognition, and role enrichment, have been consistently linked to higher levels of work engagement. According to social exchange theory (Blau, 1964), when organizations provide opportunities for professional growth, employees feel obliged to reciprocate with higher commitment and engagement. In the academic context, career development is often operationalized through tenure, research grants, administrative responsibilities, and leadership training. Empirical studies indicate that teachers who perceive clear and attainable career advancement opportunities demonstrate higher vigor, dedication, and absorption in teaching and research tasks (Dandan & Israel, 2025).

In applied and technical higher education, career development is closely intertwined with industry engagement and the accumulation of professional skills. For Teachers with dual professional qualifications, promotion is not only tied to academic outputs but also to practical achievements, such as enterprise project leadership or facilitation of skill certification. Studies suggest that career development mechanisms aligned with both academic and industry performance more effectively enhance teachers' engagement than purely academic criteria (Jamillah et al., 2023). Nevertheless, existing literature often emphasizes either academic or vocational career pathways separately, leaving a gap in understanding how integrated career development strategies influence work engagement among dual-qualified teachers, particularly in private universities that are transforming application-oriented institutions.

2.2.6 Relationship between Training Incentives and Work Engagement

Training incentives encompass organized learning opportunities designed to enhance teachers' professional knowledge, practical skills, and overall competence. From the perspective of human capital theory (Becker, 1964), investments in training increase employees' capabilities, thereby improving job performance and engagement. Training incentives not only strengthen technical and pedagogical skills but also promote self-efficacy and intrinsic motivation, which are critical predictors of sustained work engagement (Bandura, 1997; Bakker & Demerouti, 2017).

In the context of applied universities, training incentives often include enterprise placements, skills certification, continuing education, and participation in research or

industry projects. Empirical studies indicate that teachers who actively engage in these structured training programs exhibit higher levels of vigor, dedication, and absorption (Bakker & Demerouti, 2017; Wu et al., 2020). Moreover, training that bridges academic knowledge and practical industry requirements is particularly effective in enhancing engagement among Teachers with dual professional qualifications, as it consolidates their dual expertise and professional identity. However, most research has focused on training content or frequency, neglecting the combined effects of training incentives, career support, and economic rewards on teachers' engagement (Jamillah et al., 2023). There is also limited empirical evidence on private universities in western China, underscoring the need for studies examining the integrated influence of training incentives on the work engagement of dual-qualified teachers.

2.2.7 Mediating Effect of Self-efficacy

Self-efficacy, as a dual's belief in his or her ability to complete a specific task, has been widely regarded as an important psychological mechanism influencing employees' attitudes and behaviors in organizational behavior research, and its mediating role in a variety of relationships has gradually become a research hotspot (Grol & Wensing, 2004). A large number of empirical studies have shown that self-efficacy not only directly affects a dual's work performance and psychological well-being. Self-efficacy is often used as a mediator in studies, explaining how incentives translate into specific work outcomes and behavioral performance. In the teacher population, Self-efficacy is an important psychological mediator linking motivational strategies to work engagement and helps explain how incentives affect teachers' motivation to teach and professional commitment. Self-efficacy enhances work motivation by increasing a dual's sense of task mastery and experience of competence, prompting employees to show greater persistence and innovation in the face of challenges, leading to positive work behaviors (Wardana et al., 2020).

Although many studies have supported the mediating effect of self-efficacy, the strength and generalizability of this effect remain somewhat controversial. On the one hand, various studies have found that the mediating effect of self-efficacy is influenced by dual differences, situational characteristics, and cultural background, and that its role is weaker in some settings or even replaced by other psychological variables, such as job satisfaction and sense of organizational support. On the other hand, some studies have pointed out the limitations of self-efficacy measurement and mediation testing (Liu et al., 2010). Although self-efficacy has been widely used as a mediator, its interactions with other potential mediators or moderators have not been systematically explored, limiting the comprehensive understanding of complex motivational mechanisms (Jiatong et al., 2021).

Self-efficacy, as an important mediating variable of the effects of motivational strategies on Work engagement and performance, has strong explanatory power and practical value at both theoretical and empirical levels. It provides an important theoretical basis for organizational management and teacher motivation by enhancing duals' Self-efficacy and behavioral motivation and promoting the effective transformation of motivational resources. However, to more accurately elucidate the mediating role of self-efficacy, future research should strengthen the systematic analysis of its dynamic change process, cultural adaptability, and interactions with other psychological variables. In the context of cultivating Teachers with dual professional

qualifications in private universities in Shaanxi Province, in-depth exploration of the mediating effect of self-efficacy can help reveal the optimization path of motivational strategies and enhance teachers' Work engagement and professional development.

2.2.8 Relationship between Self-efficacy and Work Engagement

Self-efficacy, a dual's belief in their ability to accomplish a specific task, is widely recognized as an important psychological resource for promoting Work engagement. Numerous studies have shown that self-efficacy significantly enhances employees' work enthusiasm, focus, and persistence, thereby increasing the overall level of Work engagement (Nielsen & Munir, 2009). duals with high self-efficacy typically exhibit stronger intrinsic motivation and positive work attitudes, cope more effectively with work challenges and pressures, and demonstrate a high level of responsibility and engagement. Among teachers, those with high self-efficacy tend to be more confident in adopting innovative teaching methods, more actively participate in teaching reforms and student counseling, and exhibit higher levels of job engagement and career satisfaction. It is widely recognized that self-efficacy is an important bridge between a dual's psychological state and behavioral performance, and is a key variable in promoting employees' sustained Work engagement (Johnson & Johnson, 2009).

Although the positive effects of self-efficacy on Work engagement are widely supported, relevant studies have also pointed out that there are certain boundaries and conditional limitations to its impact. Some studies have found that although Self-efficacy enhances work motivation, its facilitating effect may be attenuated or even counteracted by negative factors, such as job burnout, in situations where there is a lack of organizational support, insufficient resources, or excessive work-related stress (Xu & Bhang, 2019). Measures of self-efficacy rely primarily on subjective self-assessments, which introduce potential bias and affect the objectivity of research findings (Bandura et al., 2003). It has also been criticized that existing studies have paid insufficient attention to the interaction between self-efficacy and other psychological variables, such as job satisfaction and organizational commitment, thereby limiting a comprehensive understanding of the complex dynamics of Work engagement.

Self-efficacy, a core psychological variable that promotes Work engagement, plays a critical role in enhancing employee motivation and organizational performance. To more effectively stimulate and leverage self-efficacy, organizations need to provide necessary support and resources, foster a positive work environment, and help employees continually enhance their sense of competence and self-confidence. In the context of Teachers with dual professional qualifications in private undergraduate colleges in Shaanxi Province, an in-depth discussion of the relationship between Self-efficacy and Work engagement can help optimize teachers' motivational strategies, enhance their enthusiasm for teaching and for career development, and promote the quality of talent cultivation in colleges and universities.

2.2.9 Status of Teachers with Dual Professional Qualifications has a Moderating Effect on the Relationship between Self-Efficacy and Work Engagement

Self-efficacy, defined as an individual's belief in their capability to organize and execute the actions required to achieve specific performance outcomes (Bandura, 1997), is a well-established predictor of work engagement. High self-efficacy enhances

teachers' motivation, persistence, and proactive involvement in both teaching and research tasks (Xu & Bhang, 2019). However, the strength of the relationship between self-efficacy and work engagement varies across teaching contexts and may be influenced by individual and organizational characteristics.

Dual professional qualifications status, which refers to teachers possessing both academic credentials and substantial industry or vocational experience, represents a unique professional identity in applied higher education (Bandura et al., 2003). Teachers with dual professional qualifications not only carry pedagogical expertise but also practical industry competence, enabling them to translate theoretical knowledge into real-world applications. This dual identity is hypothesized to amplify the positive effects of self-efficacy on work engagement for several reasons. Dual-qualified teachers often have greater confidence in integrating industry practices into their teaching, which reinforces their perceived effectiveness and professional mastery (Jiatong et al., 2021). Second, their dual expertise provides access to broader networks, resources, and professional recognition, which can enhance engagement when they perceive themselves as capable of contributing value both in academic and practical domains (Bandura, 1997; Bakker & Demerouti, 2017).

Empirical studies suggest that professional qualifications can act as a boundary condition that strengthens or weakens the self-efficacy engagement link. For example, in vocational and technical higher education, teachers with dual credentials demonstrate higher dedication and absorption in work compared to peers with solely academic qualifications, especially when engaging in applied projects or industry collaborations (Liu et al., 2010). Conversely, teachers without dual professional qualifications status may experience lower engagement even when possessing moderate self-efficacy, due to perceived gaps in practical competence or industry credibility (Jiatong et al., 2021).

Despite these insights, research examining the moderating role of DPQ status remains scarce, particularly in private universities in western China. Most studies focus on self-efficacy as a direct predictor of work engagement without accounting for the contextual influence of dual-professional identity. Consequently, this study addresses this gap by investigating how dual professional qualifications status may enhance or constrain the impact of teachers' self-efficacy on their engagement, providing a nuanced understanding of the interplay between professional identity, personal belief, and behavioral outcomes in applied higher education settings.

2.2.10 University-Enterprise Cooperation has a Moderating Effect on the Relationship between Career Development, Training Incentives, and Self-Efficacy

(1) University-enterprise cooperation has a moderating effect on the relationship between career development and self-efficacy.

Drawing on the Job Demands-Resources (JD-R) model, university-enterprise collaboration strengthens the link between professional development and teaching performance (Bakker & Demerouti, 2017). By participating in enterprise projects or internships, teachers gain real-world insights and feedback that reinforce their sense of professional mastery—one of the key sources of self-efficacy identified by Bandura (1997). Furthermore, such collaboration enhances the relevance of teachers' career trajectories by aligning their growth goals with industry demands (Bakker & Demerouti, 2017). Consequently, the moderating effect of university-enterprise cooperation may

lie in its ability to amplify the positive impact of career development on teachers' self-efficacy: when cooperation is strong, the experiential learning and professional recognition from enterprise engagement deepen teachers' belief in their teaching abilities; when cooperation is weak, the influence of career development on self-efficacy may be significantly attenuated.

Previous studies indicate that while career development directly promotes teachers' self-efficacy, this relationship becomes stronger and more meaningful within the context of active university–enterprise collaboration. Therefore, it is reasonable to hypothesize that university–enterprise cooperation moderates the relationship between career development and teachers' self-efficacy.

(2) University-enterprise cooperation has a moderating effect on the relationship between training incentives and self-efficacy.

Training incentives are crucial for enhancing teachers' professional competence and self-efficacy. According to self-determination theory (Deci & Ryan, 2000), external incentives—such as financial rewards, promotion opportunities, and recognition—can strengthen individuals' intrinsic motivation when they are perceived as supportive rather than controlling. In the educational context, effective training incentives not only provide material or career-related rewards but also create opportunities for teachers to update their pedagogical and technical skills (Guskey, 2002). Teachers who receive sufficient training support tend to exhibit greater confidence in performing complex teaching tasks, which directly contributes to higher self-efficacy (Tschannen-Moran & Hoy, 2001).

However, the effect of training incentives on teachers' self-efficacy may vary depending on the broader institutional environment. In vocational and application-oriented universities, university–enterprise cooperation plays a critical moderating role in translating training incentives into actual competence and confidence. University–enterprise partnerships provide teachers with authentic industry exposure and access to real work environments, where they can apply and reinforce the skills gained through training (Bakker & Demerouti, 2017). Such cooperation transforms traditional classroom-based training into experiential learning that integrates theory and practice, thereby amplifying the psychological impact of incentives on teachers' perceived teaching capability (Bakker & Demerouti, 2017; Deci & Ryan, 2000).

Empirical evidence within the job demands–resources framework supports this moderating relationship: when teachers engage in enterprise collaborative programs, the availability of both training incentives (a job resource) and university–enterprise cooperation (another job resource) is more likely to be translated into practical teaching innovations and increased self-efficacy (Bakker & Demerouti, 2017). Therefore, when university–enterprise cooperation is strong, the positive effects of training incentives on self-efficacy are reinforced through experiential learning, external validation, and applied research opportunities. Conversely, when such cooperation is weak, training incentives may yield only short-term motivation, with no significant improvement in teachers' confidence or professional competence.

Previous studies suggest that training incentives enhance teachers' self-efficacy by motivating continuous learning and skill development. However, the strength of this relationship depends on the degree of collaboration between universities and enterprises.

Hence, it is hypothesized that university–enterprise cooperation moderates the relationship between training incentives and teachers' self-efficacy, strengthening the positive influence of incentives under a highly cooperative environment.

2.3 Theoretical Framework

The theoretical framework constructed in this study integrates Resource Dependence theory, Work Engagement Theory, and Social Cognitive Theory to systematically analyze the influence mechanism and path of private undergraduate colleges' Teachers with dual professional qualifications' Work engagement. According to the resource dependence theory, universities can optimize the allocation and integration of internal resources through the design of scientific incentive mechanisms, including economic incentives, career development incentives, and training incentives, to enhance the stability and development potential of the teaching force in the context of limited access to external resources. Based on Work Engagement Theory, this study treated teachers' Work engagement as the primary dependent variable, measured explicitly by their motivation, concentration, and sustained participation in teaching, scientific research, social service, and other activities. Incentives are considered an important external condition influencing teachers' engagement behavior, guiding them to maintain high levels of psychological energy and behavioral motivation in educational and practical tasks by providing emotional support, practice opportunities, and development space. This theory supports a causal analysis in which "motivation" is treated as an external driver and Work engagement as the ultimate behavioral manifestation. In conjunction with social cognitive theory, this study introduced self-efficacy as a mediating variable, emphasizing the mediating role of duals' judgments of their own abilities in the relationship between incentives and behavioral responses. When teachers perceive effective financial rewards, career growth paths, or ongoing training support, this enhances their confidence in accomplishing their teaching and industry tasks, which in turn translates into a stronger willingness to engage and actual behavioral performance. Thus, self-efficacy is a psycho-cognitive variable and an intrinsic psychological mechanism by which incentives are effective. This logical path reveals the basic mechanism by which external incentives activate dual behavioral momentum through internal cognition. Through the triple theoretical support, the study constructed a framework that considers the status and teaching age of teachers with dual professional qualifications as moderating variables, explores the interference and amplification effects of different dual characteristics on this path, and provided a systematic and scientific theoretical foundation and empirical support for the design of incentive mechanisms and teachers' professional development in colleges and universities.

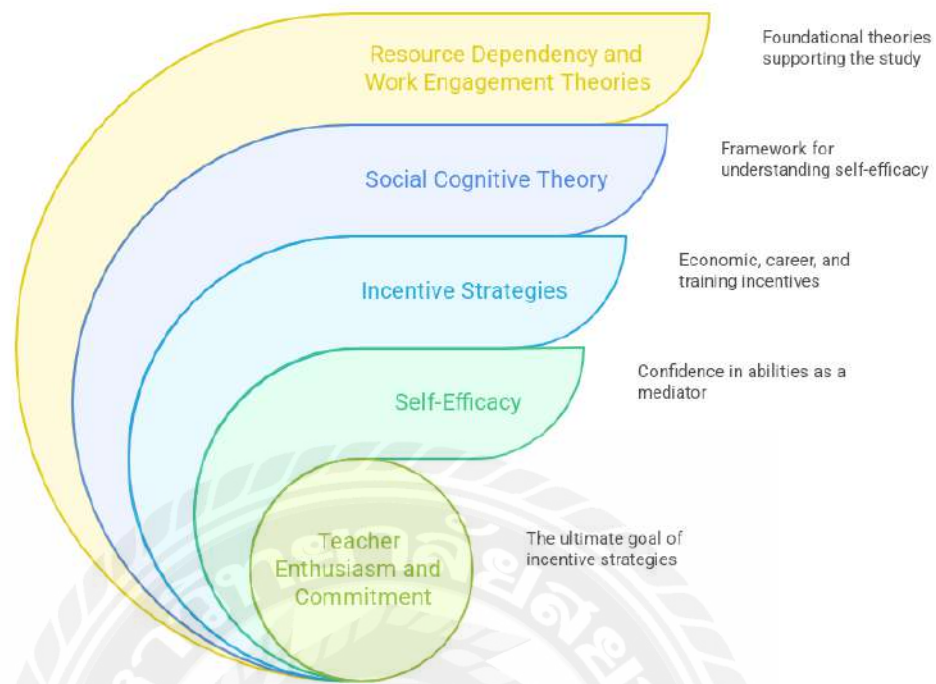


Figure 2.1 Theoretical Framework

2.4 Conceptual Framework

Based on extensive combing of existing literature, this study integrates resource dependence theory, Work engagement theory, and social cognitive theory to construct a systematic research model with incentive mechanism, self-efficacy, and teachers' Work engagement as the core elements, aiming at exploring the deep-rooted mechanism that affects the Work engagement of "double-teacher" teachers in private universities in Shaanxi Province. Mechanisms. In the model, economic incentives, career development incentives, and training incentives are regarded as key external driving variables, which represent the supportive environment provided by universities through resource allocation and institutional arrangements; these incentives not only directly affect teachers' work attitudes and behaviors, but also indirectly stimulate teachers' enthusiasm and commitment to their work by enhancing their sense of self-efficacy. On this basis, the study also introduced two moderating variables, namely the status of Teachers with dual professional qualifications, in order to reveal the differences in the paths of incentives in different dual contexts, and to explore the moderating effects of teachers' role status and career stage on the relationship between psychological cognition and behavioral outcomes in the dual professional qualifications policy environment.

By integrating these three theoretical perspectives, the study constructs a transmission path of "motivation-cognition-behavior", emphasizing that teachers' Work engagement not only stems from external institutional incentives, but also is more deeply influenced by their intrinsic sense of efficacy. Especially in the context of the transition of higher education from elite education to universal education and the increasing challenges of talent mobility and quality improvement faced by private universities, how to accurately identify and optimize incentives to enhance teachers'

professional identity, sense of responsibility, and continuous commitment has become a core issue of concern for university Managers and policy makers. This study proposed 11 systematic hypotheses to explain the mediating and moderating mechanisms between incentives and Work engagement, which provides a dynamic and clear analytical framework for understanding the behavior of university teachers, as well as theoretical support and practical references for the development of more targeted management strategies and intervention paths.

It should also be noted that economic incentives, such as salary and welfare benefits, are generally fixed within a given period and thus remain relatively stable. Considering their deterministic nature and limited short-term variability, this study did not include university–enterprise cooperation as a moderating factor in the relationship between economic incentives and teachers' self-efficacy. Instead, the moderating effect of university–enterprise cooperation is examined only in relation to career development and training incentives, where interaction with enterprises can meaningfully influence teachers' professional growth and confidence.

It is important to note that in the proposed conceptual framework (Figure 2.2), university-enterprise cooperation is hypothesized to moderate the effects of career development incentives and training incentives on teachers' self-efficacy, but not the effect of economic incentives. This theoretical positioning is based on the nature of the constructs and prior literature. Economic incentives (e.g., salary, bonuses) are primarily direct, transactional mechanisms governed by internal university policies and resource allocation, and their perception as fair and adequate may not be directly contingent upon the depth of external university-enterprise ties. In contrast, career development and training incentives often rely on or are significantly enhanced by active collaboration with industries (e.g., access to enterprise projects for career growth, joint training programs). Therefore, the level of university-enterprise cooperation is theorized to strengthen (or weaken) the relationship specifically for incentive types that are more directly facilitated by or dependent on external partnerships. Consequently, the moderating effect of university-enterprise cooperation on the path from economic incentives to self-efficacy is not included in the model or the subsequent hypothesis testing.

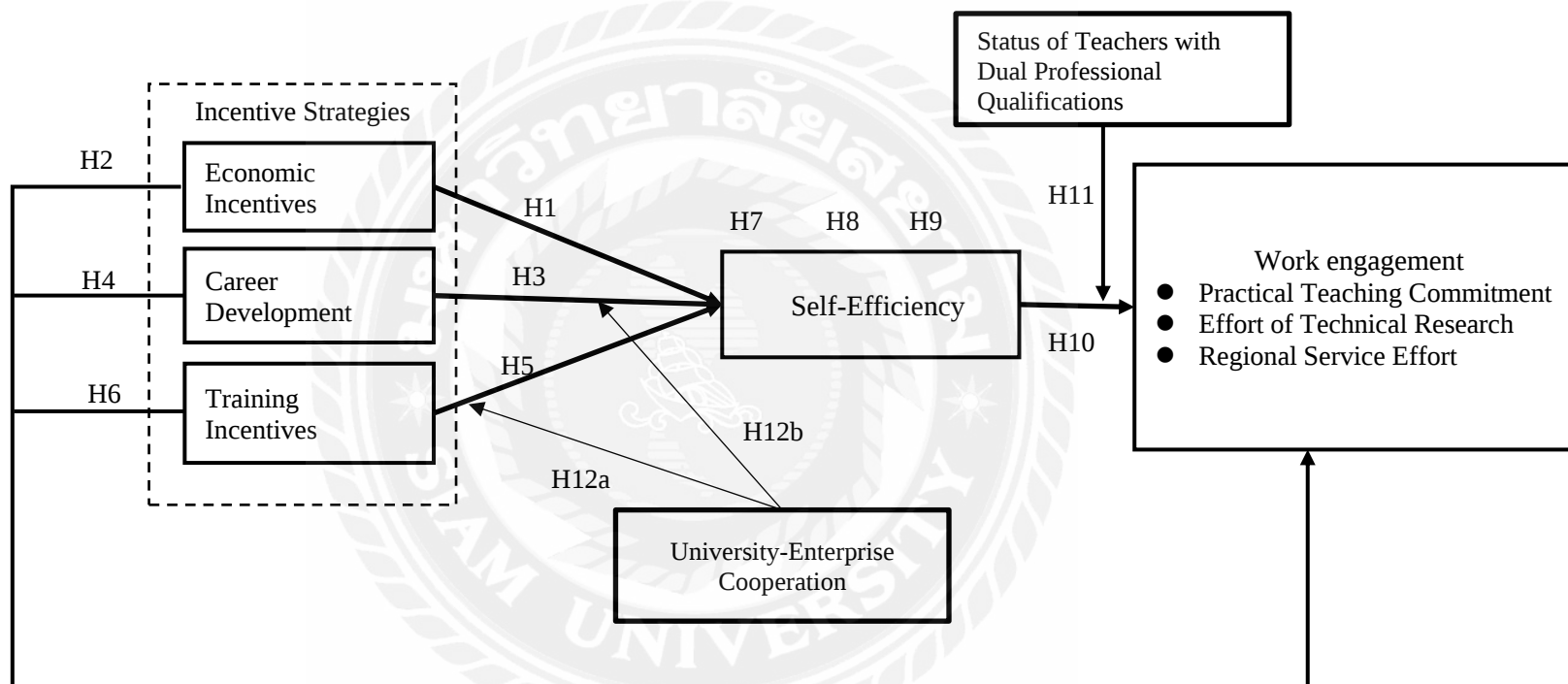


Figure 2.2 Conceptual Framework

2.5 Hypotheses

Based on the above framework, the following hypotheses were formulated.

- H1: Economic incentives have a significant positive effect on self-efficacy.
- H2: Economic incentives have a significant positive effect on work engagement.
- H3: Career development has a significant positive effect on self-efficacy.
- H4: Career development has a significant positive effect on work engagement.
- H5: Training incentives have a significant positive effect on self-efficacy.
- H6: Training incentives have a significant positive effect on work engagement.
- H7: Self-efficacy mediates the relationship between economic incentives and work engagement.
- H8: Self-efficacy mediates the relationship between career development and work engagement.
- H9: Self-efficacy mediates the relationship between training incentives and work engagement.
- H10: Self-efficacy has a significant positive effect on work engagement.
- H11: Status of teachers with dual professional qualifications has a moderating effect on the relationship between self-efficacy and work engagement.
- H12a: University-Enterprise Cooperation has a moderating effect on the relationship between career development and self-efficacy.
- H12b: University-Enterprise Cooperation has a moderating effect on the relationship between training incentives and self-efficacy.

2.6 Operationalization of Variables

Table 2.1 Operationalization of Variables

Variable	Definition	Item	Reference
Economic Incentives	Economic incentives are the financial rewards and material support provided to teachers, including class-hour allowances, performance-based pay, project-related subsidies, income-sharing mechanisms, financial support for practical training, and reward systems. In this study, they are measured through teachers' satisfaction with the fairness, adequacy, and timeliness of these incentives, as well as the additional benefits offered to dual professional qualification teachers.	I am satisfied with the current class hour allowance. The performance pay effectively reflects my work effort. I receive appropriate allowances for my participation in horizontal/vertical projects. I can benefit from the income-sharing system for part-time jobs outside the university. The university arranges sufficient financial support for practical teaching. The mechanism of linking the fulfillment of practical training tasks to the bonus is fair. The system of rewarding project results is motivating. I am satisfied with the mechanism for annual salary increases. Teachers with dual professional qualifications receive additional economic incentives. I can receive all types of allowances in a timely manner. I can obtain a promotion in my title.	(Edopkolor et al., 2022)

Variable	Definition	Item	Reference
Career Development	Career development refers to the institutional support provided to teachers for professional growth, including promotion opportunities, project participation, crediting of achievements, exchange programs, cross-border development, and career planning. In this study, it is measured through teachers' perceptions of promotion channels, assessment fairness, developmental opportunities, and the university's attention to their long-term growth.	The university offers a wealth of career advancement pathways. I have the opportunity to participate in important programs or projects. Dual professional qualifications faculty members are given extra points in merit awards. I have the opportunity to undertake an assignment or participate in an exchange learning opportunity. The results of my participation can be counted in the title materials. Teaching and practice achievements are valued equally in the assessment. I can get support for cross-border development. The school values my willingness to develop my career. My growth path planning is given attention.	(Shahid & Hittinger, 2021)
Training Incentive	Training incentives are the training opportunities and support provided by the university to strengthen teachers' professional competence, practical skills, and overall quality. In this study, these are measured through teachers' perceptions of in-school and enterprise-based training, access to higher-level qualification	Teacher training is regularly organized in schools. I can participate in practical exercises in enterprises. The content of in-school training is helpful for my practical work. I can participate in Teachers with dual professional qualifications training at the	(Xu & Bhang, 2019)

Variable	Definition	Item	Reference
Self-efficacy	programs, the relevance and timeliness of training content, continuing education support, the fairness of training arrangements, and the effectiveness of training assessments in motivating learning. Self-efficacy refers to the confidence and perceived capability of dual professional qualification teachers in accomplishing teaching tasks, overcoming challenges, and integrating industry practices into education. In this study, it is measured through teachers' self-assessment of their competence in practical teaching, program design, problem-solving, guiding students' practice, maintaining confidence under pressure, and pursuing continuous self-improvement.	provincial level or above. The training resources can meet my professional development needs. I can obtain support through continuing education credits. The content of practical skills training is updated promptly. The training arrangement accounts for teachers' teaching loads. I am satisfied with the training assessment mechanism. The school training system stimulates my learning motivation. I can competently perform the practical teaching tasks assigned by the school. I am capable of designing and implementing industry-teaching programs. I can maintain confidence despite teaching challenges. I am confident in leading students to accomplish practical training objectives. I can independently solve practical problems encountered in teaching. I can continuously improve my teaching and technical skills.	(Harackiewicz et al., 2016) (Bandura, 1997)

Variable		Definition	Item	Reference
Teachers with dual professional qualifications		Teachers with dual professional qualifications are defined as full-time faculty members of private universities in Shaanxi Province who hold at least a bachelor's degree and meet at least one of the following criteria: (1) a minimum of three years of full-time enterprise frontline experience related to their teaching discipline; (2) possession of a national or industry-recognized vocational qualification certificate at the intermediate level or above; or (3) leadership or core participation in an enterprise technological transformation, technology transfer, or application-oriented research project officially evaluated and approved.	I believe my dual qualifications significantly enhance my teaching effectiveness. My dual professional qualifications enable me to teach a broader range of subjects effectively. I am provided with sufficient opportunities to integrate my academic and industry expertise into my teaching. My dual qualifications enable me to adapt my teaching methods to meet students' evolving needs. I feel that both students and faculty members highly value my dual qualifications.	(Liu & Hu, 2020)
Work engagement is defined as a positive, fulfilling, work-related psychological state that, among teachers, is reflected in	Practical Teaching Commitment	Practical teaching commitment refers to the extent of teachers' involvement in practice-oriented education, including course design, project supervision, and teaching reform, reflecting their responsibility and enthusiasm for cultivating students' practical abilities.	I have invested substantial time in preparing practice courses. I focus on the quality of teaching in practical courses. I will use my time outside of class to supervise students in practical training programs. I am actively involved in the reform of laboratory/practical training courses. I consider practical teaching as an important part of my job.	(Karabacak et al., 2020)

Variable		Definition	Item	Reference
their practical teaching commitment, technical research effort, and regional service.	Effort of technical research	Effort in technical research refers to teachers' active engagement in technology development and academic innovation, as evidenced by sustained research, knowledge transfer, and professional learning, with energy and perseverance.	I have participated in technology development or research tasks at the school. I play a key role in the project's technical implementation. I can carry out technological innovation in conjunction with my teaching. I am in a continuous state of learning in technology development.	
	Regional Service effort	Regional service effort refers to teachers' contributions to local industries and communities, including participation in regional projects, enterprise collaboration, and guidance of student practice, thereby highlighting their commitment to industry-education integration and social development.	I participate in programs that serve local industries. I guide students to participate in local enterprise practice. I take the initiative to address the technical needs of regional industries.	

CHAPTER 3

RESEARCH METHODOLOGY

This chapter discusses the research methodology, population and sample, sampling method, data collection, operationalization of variables, pre-testing of the questionnaire, research hypotheses, analytical model, and statistical methods.

3.1 Research Design

This study employed a mixed-methods research design. Quantitative research determined the correlation between variables. Using a structural equation modeling framework, this study examined the pathways by which motivational strategies influence teachers' work engagement of teachers with dual professional qualifications. the mediating role of self-efficacy and the moderating effect of Dual characteristic variables. The research design fully accounts for the complexity of the educational practice context and the teacher population and seeks to establish an effective link between theoretical explanation and practical application.

In the model construction, economic incentives, career development, and training incentives were used as independent variables. Economic incentives primarily refer to policy measures that directly affect teachers, including performance awards, job subsidies, and gains from the commercialization of technological achievements. Career development emphasizes mid- and long-term growth opportunities such as smooth title promotion channels, research and project support, and opportunities for school-enterprise job transfer. Training incentives are embedded in professional development opportunities, such as joint training with schools and enterprises, industrial attachments, and on-the-job training. These three incentive dimensions together constitute the institutional supply environment of teachers' perception and experience, which is the antecedent factor of teachers' behavioral response. Self-efficacy, as a mediating variable, is a subjective judgment of teachers' ability to accomplish their work tasks, reflecting their confidence and sense of control when facing teaching, research and industrial practice tasks. By introducing this variable, the study attempts to reveal how motivational strategies can indirectly enhance teachers' professional behavioral performance by influencing their psychological perceptions. Work engagement is the dependent variable of this study, focusing on the degree of teachers' commitment in teaching, research and practice duties, including three dimensions: emotional commitment, energy commitment and continuity commitment. This variable can comprehensively reflect the effect of incentives in teachers' actual work performance, and is a core indicator of the effectiveness of incentives. Identifying the impact of dual differences on the research path, Status of dual professional qualifications (whether or not they have obtained official dual professional qualifications certification) was set as moderating variable. The study hypothesized that teachers with dual professional qualifications and extensive practice experience would respond significantly to incentives, resulting in different levels of efficacy and work engagement levels. To improve the explanatory power of the model and the internal validity of the findings, the study included teachers' gender, age, education, type of institution and professional title as control variables. These variables affect teachers' professional perceptions and behavioral performance and

need to be statistically controlled in the empirical analysis to ensure the robustness of the core variable relationships.

Qualitative analysis methods refined the conceptual model. In the qualitative part of this study, interviews with seven teachers with dual professional qualifications from different private universities in Shaanxi Province were organized. The interview aimed to explore the relationship between the actual effectiveness of motivational strategies and teachers' subjective feelings. The interviewees were representative with respect to discipline distribution, teaching experience, and dual professional qualifications status, and came from polytechnic, grammar, and comprehensive colleges and universities. The interview centered on perceptions and preferences regarding motivational strategies, changes in self-efficacy, subjective experience of work engagement, and identity and motivational fit, aiming to reveal the complexity and dual differences in the process of implementing the system, which are difficult to capture with quantitative analyses. The interview data were coded and categorized through thematic analysis to explore key issues in policy implementation and common features of teachers' feedback, thereby providing theoretical support for subsequent structural equation modeling and practical guidance for developing more adaptive incentive mechanisms and support strategies.

3.2 Quantitative Research

3.2.1 Population and Sampling Methods

The population of this study encompassed 23 private undergraduate universities in Shaanxi Province, spanning a range of disciplines, including science and engineering, comprehensive programs, finance and economics, the arts, and medicine. These universities are primarily concentrated in Xi'an, Xianyang, Yan'an, Yulin, Ankang, and Shangluo, with the largest number in Xi'an, reflecting the region's significance as a hub for education, technology, and industry. The total number of teachers included in this study is 13,014, of whom 5,396 have dual professional qualifications.

Table 3.1 Demographic Characteristics of Faculty at Target Institutions

No.	School	Location	Category	Number of Teachers	Percent of teachers with dual professional qualifications
1	Xi'an Eurasia University	Xi an	General Studies	1,082	38%
2	Xi'an Peihua University	Xi an	General Studies	1,156	42%
3	Xi'an Foreign Affairs University	Xi an	General Studies	987	35%
4	Xi'an Translation University	Xi an	Liberal Arts	865	31%
5	Xijing University	Xi an	Science and Engineering	1,243	47%

No.	School	Location	Category	Number of Teachers	Percent of teachers with dual professional qualifications
6	Xi'an Siyuan University	Xi an	Science and Engineering	798	40%
7	Shaanxi International Trade and Economics University	Xian Yang	Finance and Economics	672	33%
8	Shaanxi Institute of Fashion Technology	Xian yang	Arts	521	28%
9	Xi'an Jiaotong University of Engineering	Xi an	Science and Engineering	587	45%
10	Xi'an Vocational University of Information Technology	Xi an	Science and Engineering	432	50%
11	Xi'an Vocational University of Automotive Technology	Xi an	Science and Engineering	498	48%
12	Xi'an Mingde University of Science and Technology	Xi an	Science and Engineering	543	41%
13	Xi'an University of Business and Technology	Xi an	General Studies	476	36%
14	Yan'an University Xi'an Innovation College	Yan an	General Studies	387	29%
15	Xi'an University of Finance and Economics	Xi an	Finance and Economics	354	32%

No.	School	Location	Category	Number of Teachers	Percent of teachers with dual professional qualifications
	Xingzhi College				
16	Xi'an University of Science and Technology Gaoxin College	Xi an	Science and Engineering	612	44%
17	Chang'an University Xinghua College	Xi an	Science and Engineering	298	30%
18	Haojing College of Shaanxi University of Science and Technology	Xian yang	Science and Engineering	421	39%
19	Gaoxin College of Xi'an University of Technology	Xi an	Science and Engineering	367	42%
20	Gaoxin College of Xi'an Medical University	Xi an	Medicine and Pharmacy	285	37%
21	Yulin Energy Technology Vocational College	Yu lin	Science and Engineering	187	51%
22	Ankang University	An kang	General Studies	643	34%
23	Shangluo University	Shang lu	General Studies	578	31%

Sample size optimization was achieved by adjusting the design effect value (*deff*), methodology based on Kish (1965):

Parameter setting:

Confidence level 95% ($Z=1.96$)

Allowable error 5% ($e=0.05$)

Proportion estimate $p=0.5$

Design effect: $deff=1.10$ (after optimization)

Calculation Procedure:

Base sample size (Cochran, 1977):

$$n_0 = \frac{Z^2 \cdot p \cdot (1 - p)}{e^2} = \frac{(1.96)^2 \times 0.5 \times 0.5}{(0.05)^2} = 384.16 \approx 385$$

Finite aggregate correction ($N=3,624$):

$$n = \frac{n_0}{1 + \frac{n_0 - 1}{N}} = \frac{385}{1 + \frac{384}{3,624}} = 348.7 \approx 349$$

Design effect adjustment (critical optimization):

$$n_{adj} = n \times deff = 349 \times 1.10 = 383.9 \approx 384$$

Invalid questionnaire buffer (10%):

$$n_{final} = 384 \times 1.10 = 422.4 \approx 422$$

Conclusion: The theoretical minimum sample size was 384 and the target distribution size was 422. In this study, stratified random sampling was used to select a sample of teachers with dual professional qualifications from 23 private universities in Shaanxi Province to ensure that the sample was representative and structurally reasonable. According to the proportion of teachers with dual professional qualifications in each institution in the "2024 White Paper on teacher qualifications in Private Colleges and Universities in Shaanxi Province", and taking into account the total number of teachers and the confidence level of the sample required for the study, the theoretical sample size was set at 384, and 10% of the redundant space for questionnaire recovery was reserved, so that the target number of distributed copies was finally determined to be 422 (see Table 3.2).

Table 3.2 Stratified Sampling Distribution Plan

No.	School	Teachers with dual professional qualifications	Target Distribution Size
1	Xi'an Eurasian College	411	33
2	Xi'an Peihua College	486	35
3	Xi'an Foreign Affairs College	345	30
4	Xi'an Translation College	268	26
5	Xijing College	584	37
6	Xi'an Siyuan College	319	24
7	Shaanxi International Business College	222	20
8	Shaanxi Garment Engineering College	146	16
9	Xi'an Jiaotong Engineering College	264	18
10	Xi'an Information Vocational University	216	13
11	Xi'an Automobile Vocational University	239	15
12	Xi'an Mingde Polytechnic College	223	16

No.	School	Teachers with dual professional qualifications	Target Distribution Size
13	Xi'an College of Commerce and Industry	171	14
14	Xi'an Innovation College of Yan'an University	112	12
15	Xi'an University of Finance and Economics Xingzhi College	113	11
16	Xi'an University of Science and Technology High-Tech College	269	18
17	Chang'an University Xinghua College	89	9
18	Shaanxi University of Science and Technology Haojing College	164	13
19	Xi'an University of Science and Technology College of Higher Education	154	11
20	Xi'an Medical College Gaoxin College	105	9
21	Yulin Energy Science and Technology Vocational College	95	6
22	Ankang College	219	19
23	Shangluo College	179	17
Total		5,396	422

This study employed a stratified sampling method to survey the faculty of 23 private undergraduate universities in Shaanxi Province, aiming to ensure that the sample was representative of the overall population while accounting for differences in faculty size across institutions. The 23 universities were stratified according to school and discipline type, with each university treated as a separate stratum. The total number of teachers in each university was used as the basis for determining the proportional allocation of the sample. Based on a total faculty population of teachers with dual professional qualifications of 5396, a sample size of 422 teachers was set, and the target sample for each university was allocated proportionally according to its share of the total faculty. This proportional allocation ensured that both large and small universities were reasonably represented in the sample. Within each stratum, teachers were randomly selected to guarantee that the sample covers all discipline categories and reflects the diversity and differences in the construction of teachers with dual professional qualifications across universities. The stratified sampling plan thus covered 422 teachers out of a total of 5396, ensuring the scientific validity and representativeness of the sample and providing a reliable basis for subsequent empirical analysis of teacher training incentives, career development, and work engagement.

3.2.2 Questionnaire Design

3.2.2.1 Independent Variables

The questionnaire was designed to focus on the mechanism of economic incentives, career development, and training incentives on work Engagement, aiming to systematically assess the perception of incentives from different dimensions and explore its mediating effect on teachers' work engagement through self-efficacy. This part is the

dimension of perceived strategies, which is refined into three sub-dimensions: economic incentives, career development incentives and training incentives, with 10 items for each dimension and a total of 30 items, and a five-point Likert scale (1=strongly disagree, 5=strongly agree) is used to reflect the subjective perceptions of and satisfaction with economic incentives, career development, and training incentives of the interviewees.

Economic Incentives focus on teachers' perceptions of income-related policies, including performance pay, program subsidies, part-time share, teaching funds, and bonus mechanisms, to reflect the effectiveness of incentive policies in securing income and stimulating motivation.

Career Development Incentives focus on opportunities for expanding teachers' career paths, such as title promotion, project participation, merit policy, recognition of achievements, and exchanges and learning, to reflect the extent of the school's support for the growth and development of teachers with dual professional qualifications.

Training Incentives assess teachers' satisfaction with training opportunities, content alignment, resource availability, and system fairness, reflecting whether the school has a comprehensive competency enhancement system.

Table 3.3 Economic Incentives Measurement Scale

Variable	No	Item	Reference
Economic Incentives	1	I am satisfied with my current classroom stipend.	(Edopkolor et al., 2022)
	2	Performance pay effectively reflects my work effort.	
	3	My participation in horizontal/vertical projects is subsidized accordingly.	
	4	I can enjoy the revenue-sharing system for off-campus part-time jobs.	
	5	The university arranges sufficient financial support for practical teaching.	
	6	The mechanism of linking the fulfillment of practical training tasks to the bonus is fair.	
	7	The system of rewarding project results has an incentive effect.	
	8	I am satisfied with the mechanism for annual salary increases.	
	9	Dual faculty enjoy additional economic incentives.	
	10	I can receive all types of allowances on time.	

Table 3.4 Career Development Measurement Scale

Variable	No	Item	Reference
Career Development	1	I can get a title promotion.	(Shahid & Hittinger, 2021)
	2	The school offers numerous career advancement paths.	
	3	I have the opportunity to work on important projects or programs.	

Variable	No	Item	Reference
	4	Teachers with dual professional qualifications are subject to an extra-points policy in the evaluation of merits and honors.	
	5	I have the opportunity to go on a posting or an exchange study.	
	6	The achievements I have participated in can be counted in the title materials.	
	7	Teaching and practice outcomes are given equal weight in appraisal.	
	8	I can access support for cross-boundary development.	
	9	The school values my willingness to develop my career.	
	10	My growth pathway planning is attended to.	

Table 3.5 Training Incentives Measurement Scale

Variable	No	Item	Reference
Training Incentives	1	The school organizes regular teacher training.	(Xu & Bhang, 2019)
	2	I can participate in practical exercises in enterprises.	
	3	The content of in-school training is helpful for my practical work.	
	4	I can participate in the provincial or above Teachers with dual professional qualifications training.	
	5	The training resources can meet my professional development needs.	
	6	I can receive support for continuing education credits.	
	7	Practical skills training content is updated in a timely manner.	
	8	Training arrangements take into account the teaching load of teachers.	
	9	I am satisfied with the training assessment mechanism.	
	10	The school training system motivates me to learn.	

3.2.2.2 Mediating Variable

The Self-efficacy scale used in this study (see Table 3.6) consists of six items designed to assess the confidence and perceived competence of teachers with dual professional qualifications in accomplishing the tasks associated with practice teaching. The scale is rated on a five-point Likert scale (1 = strongly disagree, 5 = strongly agree) to ensure the continuity of the data and the operability of the statistical analysis. The content of the items is closely centered on vocational teaching scenarios, specifically covering teachers' ability to complete practical teaching tasks assigned by the school, design and implementation of industry-teaching integration projects, etc. These items cover both the task competence and challenge response of Self-efficacy, as well as its development-oriented dimension. This scale can effectively capture teachers' perceptions of their own professional competence, and provide a quantitative basis for subsequent verification of its mediating effect in the relationship between motivational strategies and Work Engagement.

Table 3.6 Self-efficacy Measurement Scale

Variable	No	Item	Reference
Self-efficacy	1	I can competently perform the practical teaching tasks assigned by the school.	(Harackiewicz et al., 2016)
	2	I am capable of designing and implementing industry-teaching programs.	
	3	I can maintain confidence in the face of teaching challenges.	
	4	I am confident in leading students to accomplish practical training goals.	
	5	I can independently solve practical problems encountered in teaching.	
	6	I can continuously improve my teaching and technical skills.	

3.2.2.3 Moderating Variable

University–Enterprise Cooperation refers to the long-term collaborative partnership between universities and enterprises that involves resource sharing, knowledge exchange, and project collaboration. Such collaboration aims to integrate educational content with industrial practice, aligning teaching with market and professional needs. It enhances teachers' ability to innovate in teaching and research by providing access to real-world industry experience. In this study, university–enterprise cooperation is regarded as an external support mechanism that strengthens the positive effects of career development and training incentives on teachers' self-efficacy by offering resources, training opportunities, and practical platforms. This variable was measured using three items that assess the closeness of cooperation, the level of support for teaching and research, and the extent of practical

experience gained. All items were rated on a five-point Likert scale (1 = strongly disagree, 5 = strongly agree).

Table 3.7 University–Enterprise Cooperation Measurement Scale

Variable	No	Item	Reference
University–Enterprise Cooperation	1	My university maintains a close cooperative relationship with enterprises.	(Plewa et al., 2013)
	2	The cooperation between the university and enterprises provides strong support for teachers’ teaching and research.	
	3	I can gain practical teaching or research experience from university–enterprise cooperation.	

The scale of status of teachers with dual professional qualifications includes five measurement items, rated on a Likert 5-point scale (1 = Strongly Disagree, 5 = Strongly Agree) In this study, “Status of teachers with dual professional qualifications” is proposed as a moderating variable in the relationship between self-efficacy and work engagement (Liu, & Hu, 2020). Teachers with dual qualifications, which encompass both academic and industry expertise, are likely to experience higher levels of self-efficacy due to their broader skill set and diverse knowledge base. The dual qualifications may strengthen the positive relationship between self-efficacy and work engagement, as teachers with this dual expertise are more likely to perceive themselves as capable of contributing effectively in both theoretical and practical teaching contexts.

Table 3.8 Status of Teachers with Dual Professional Qualifications Measurement Scale

Variable	No	Item	Reference
Status of teachers with dual professional qualifications	1	I believe my dual qualifications significantly enhance my teaching effectiveness.	(Liu, & Hu, 2020)
	2	My dual professional qualifications enable me to teach a wider range of subjects effectively.	
	3	I am provided with sufficient opportunities to integrate my academic and industry expertise into my teaching.	
	4	My dual qualifications allow me to adapt my teaching methods to meet the evolving needs of students.	
	5	I feel that my dual qualifications are highly valued by both students and faculty members.	

3.2.2.4 Dependent Variable

The Work Engagement measurement scale adopted in this study is comprehensively divided into three core dimensions from the job characteristics of teachers in vocational colleges and universities. practical teaching effort, technical research effort, and regional service effort, with a total of 12 question items and scored using the Likert 5-point scale. The practical teaching effort dimension focuses on reflecting teachers' efforts in daily teaching activities, including preparation for practical courses, attention to teaching quality, supervising students' practical training programs after class, and participation in teaching reform, etc. The technology tackling effort dimension focuses on teachers' actual contributions to the school's technology development, science and technology programs and innovation efforts. The regional service effort dimension focuses on teachers' service behaviors toward local industries, enterprise practices and regional economic development. Through the comprehensive measurement of these three types of effort behaviors, the questionnaire can help to analyze teachers' performance in different task areas and explore the influence mechanisms of motivational strategies, Self-efficacy and other variables on Work Engagement, so as to enhance the scientific and explanatory power of the overall study.

Table 3.9 Work Engagement Measurement Scale

Variable	No	Item	Reference
Practical Teaching Effort	1	I have invested a lot of time in preparing for my practicum courses.	(Karabacak et al., 2020)
	2	I focus on the quality of teaching and learning in practice courses.	
	3	I will utilize my time outside of class to supervise students in practical training programs.	
	4	I actively participate in the reform of laboratory/practical training courses.	
	5	I regard practical teaching as an important part of my work.	
Effort of Technical Research	6	I am involved in technological development or research tasks of the university.	
	7	I played a key role in the technical implementation of the project.	
	8	I can carry out technological innovation in conjunction with my teaching.	
	9	I am in a continuous state of learning in technology development.	

Variable	No	Item	Reference
Regional Service Effort		I am involved in projects that serve local	
	10	industries.	
		I mentor students in local business practices.	
	11		
		I take the initiative to pay attention to the technical	
	12	needs of regional industries.	

3.2.3 Quality of Research Instrument

The questionnaire was tested for validity and reliability.

3.2.3.1 Content Validity

Content validity is a key indicator for assessing whether a research instrument accurately reflects the conceptualizations addressed in the research objectives. It centers on ensuring that the content of each item reasonably and accurately represents the focus area of the study. In this study, a questionnaire was designed based on the classical scale. Experts in the field were invited to review each item for appropriateness and relevance. The content of the questionnaire was reviewed to ensure comprehensive coverage of all key concepts or dimensions explicitly presented in the study and avoid including items that were irrelevant to the study or ambiguously stated to enhance the quality of the questionnaire. An index of item-objective congruence (IOC) was used to assess the relevance and fit of each item in the questionnaire to the study objectives. The IOC consists of three types of scores: +1, 0, and -1, each of which has a specific meaning as follows:

+1 means "the item is consistent with the study objectives."

0 means "the item is not consistent with the study objectives."

-1 means "the item is not aligned with the study objectives".

$$IOC = \frac{\sum R}{n}$$

where IOC = Index of item-objective congruence value

IOC Index of item-objective congruence value = Score from experts

$\sum R$ = Total score from all experts

Ratio of experts to total score from all experts = number of experts

Items with an Index of Consistency (IOC) score between 0.00 and 0.59 were not included in the questionnaire. Conversely, items with an IOC score above 0.60 were considered valid (content-validated). This approach ensured that only the most appropriate and relevant items were included in the assessment tool, thus enhancing its content validity.

3.2.3.2 Reliability Test

Reliability is a key indicator of whether a research instrument (e.g., a questionnaire) yields consistent results across multiple administrations. Cronbach's alpha (α) is a common method for assessing the internal consistency of a scale, inter-item correlations, and measurement reliability. Cronbach's alpha ranges from 0 to 1. A Cronbach's alpha greater than 0.9 indicates high internal consistency. When $0.8 \leq \text{Cronbach's Alpha} < 0.9$, it indicates that the questionnaire has high internal consistency. When Cronbach's Alpha is between 0.7 and 0.8, it indicates good internal consistency. When Cronbach's Alpha is between 0.6 and 0.7, it indicates that the internal consistency of the questionnaire is fair but needs improvement. When Cronbach's Alpha is below 0.6, it indicates that internal consistency is low and needs major revision.

The study conducted a pre-test before the official questionnaire was administered in this study. Pretesting ensured the reliability of the questionnaire items and the clarity and appropriateness of the measurement items. The pretest was administered to 30 representative teachers with dual professional qualifications in higher vocational colleges and universities, covering professional backgrounds and teaching age structures. The questionnaires were distributed offline, and after the subjects completed the questionnaires, the study also conducted brief interviews on the presentation and comprehension of some questions to verify the language and content acceptability of the questionnaire.

After the internal consistency test of the 30 valid questionnaires, Table 3.10 presents the Cronbach's alpha coefficient for each item. The results show good internal consistency for all three sub-dimensions of motivational strategies: economic incentives ($\alpha = 0.855$), career development ($\alpha = 0.809$), and training incentives ($\alpha = 0.837$). The Alpha coefficient for the mediating variable Self-efficacy was 0.851, indicating a high degree of consistency among the six measurement question items. Of the three dimensions of the dependent variable Work Engagement, practical teaching effort ($\alpha=0.850$), technical research effort ($\alpha=0.853$), and regional service effort ($\alpha=0.856$) exceeded 0.85, showing a very high level of reliability. The pretest results show that the questionnaire is well structured, the measurement dimensions are clear, and there is good internal consistency among the dimension items. The questionnaire has a strong reliability base and can measure the research variables with relative stability.

Table 3.10 Cronbach's Alpha Coefficient Test Results (n=30)

Variable	Observed Variable	N0. of Items	Cronbach's Alpha
Economic Incentives	-	10	0.855
Career Development	-	10	0.809
Training Incentives	-	10	0.837
Self-Efficacy	-	6	0.851
Status of Teachers with Dual		5	0.852

Variable	Observed Variable	N0. of Items	Cronbach's Alpha
Professional Qualifications	Practical Teaching Effort	5	0.850
Work Engagement	Technical Research Effort	4	0.853
	Regional Service Effort	3	0.856

3.2.4 Data Collection

The questionnaire data of this study were collected by an online survey, and unified management was carried out based on the Questionnaire Star platform. The target population of this study was teachers with dual professional qualifications at private universities in Shaanxi Province, China, to comprehensively understand teachers' perceptions of motivational strategies, self-efficacy, and work engagement. To ensure the scientific validity and representativeness of the data, the researcher conducted thorough preparation and pretesting before distributing the questionnaire and strictly controlled the survey process. Before the official survey, the researchers prepared and revised the questionnaire, invited experts in related fields to assess the content validity, and recruited 30 higher vocational teachers to participate in a pre-test to refine the wording of the questions and improve the logical structure. Subsequently, with the assistance of the relevant administrative departments of the higher vocational institutions, the link to the electronic questionnaire was distributed to eligible teachers at each institution. The survey instructions clearly informed respondents of the purpose of completing the questionnaire, the use of the data, and the principles of anonymity and confidentiality, to ensure that respondents answered truthfully and on an informed and voluntary basis. A total of 422 questionnaires were distributed. The respondents comprised teachers from different types of institutions, genders, ages, titles, and dual professional qualifications status, and is highly representative. The entire questionnaire data collection process strictly controlled the proportion of invalid questionnaires. It ensured the completeness and logical consistency of the data, which provided a reliable basis for subsequent quantitative analysis.

3.2.5 Statistical Method of Analysis

The questionnaire data were systematically analyzed in this study to test the research hypotheses using SPSS 26.0. AMOS 23.0 was employed to examine the complex relationships between variables. During data analysis, the collected data were coded and organized to facilitate subsequent statistical tests. Descriptive statistics were used to summarize the sample's characteristics, including frequencies, percentages, means, and standard deviations. These statistics provided an overview of the sample's overall distribution.

To validate the alignment between the measured variables and the underlying constructs in the study, confirmatory factor analysis (CFA) was employed. CFA verified the measurement model and assessed the relationships between the measured variables and the underlying constructs. The model's fit was evaluated using fit indices, including the chi-square statistic, RMSEA, and CFI. The study confirmed that the questionnaire accurately measures the study's core constructs. Structural Equation Modeling (SEM) was used to explore the relationships between the variables. SEM is a comprehensive statistical technique

that analyzes the relationships between multiple independent and dependent variables simultaneously. In this study, both independent and dependent variables can be measured or latent, providing significant flexibility for modeling complex relationships. Through path analysis and covariance structure analysis, SEM uncovered direct relationships among variables and allowed for the exploration of effects among latent variables. SEM analysis was performed in this study using AMOS 273.0 software. The criteria for assessing the overall fit of the structural equation model are presented in Table 3.11.

Table 3.11 Evaluation Criteria for the Overall Model Fitness of SEM

Fitting Index	Standard or Critical Value
χ^2	$p > 0.05$
χ^2/df	Between 1 and 3
GFI	> 0.90 or above
AGFI	> 0.90 or above
RMSEA	< 0.50
NFI	> 0.90 or above
IFI	> 0.90 or above
CFI	> 0.90 or above

Source: (Hair et al., 2010; Kline, 2023)

3.3 Qualitative Research

The qualitative research design of this study focuses on organizing focus group interviews to complement and refine the conceptual model derived from the quantitative research. In the qualitative phase, the researcher proposed organizing interviews with seven teachers with dual professional qualifications from different private undergraduate universities in Shaanxi Province. The interviews focused on the interaction between the actual effects of the teachers' subjective feelings.

3.3.1 Interview Design

The qualitative part of this study utilized interviews. The interviewees consisted of seven teachers with dual professional qualifications from different private universities in Shaanxi Province. The members were representative in terms of their disciplinary backgrounds and dual professional qualifications status, spanning polytechnics, grammar schools, comprehensive schools, and universities, to ensure that the interview sample was diverse and covered a wide range of topics. coverage.

The interviews were semi-structured and centered on several core themes:

- (1) Teachers' perceptions of and preferences for three types of strategies: economic incentives, professional development, and training incentives.
- (2) The influence of different incentive modes on teachers' self-efficacy. Teachers' experiences of effort in practice teaching, technology research, and regional service.
- (3) How do dual identity characteristics (e.g., Dual professional qualifications) affect their degree of adaptation and response patterns to the incentive system?

The primary purpose of the interview was to reveal the complexity, dynamics, and dual differences in the implementation process of the system. All interview data were systematically organized and analyzed through thematic analysis. The study employed open coding, cluster analysis, and thematic analysis to distill the key elements affecting the effectiveness of motivational strategies and the main patterns in teachers' responses. This study employed thematic analysis to code and categorize the interviews, thereby extracting representative themes and ideas. The interview design aimed to reveal the complexity of the system implementation process, the variability of dual responses, and the underlying mechanisms, which are difficult to capture by quantitative data, to provide theoretical support for subsequent structural equation modeling, as well as practical references for the development of more adaptive and precise incentive and support policies.

3.3.2 Interviewees

To ensure the scientific and representative nature of the qualitative analysis, this study selected seven teachers with dual professional qualifications from different types of private universities in Shaanxi Province as focus group interviewees. These key informants were selected through purposive sampling based on their experience in practical teaching, research and development, and regional services, as well as their direct experience and subjective, reflective abilities regarding effectiveness. The specific composition of the sample is as follows:

Institutional type distribution: seven faculty members came from different types of colleges and universities to ensure that they could cover the three educational backgrounds set out in the current study, reflecting differences in incentive systems and practice conditions across institutions.

Length of status of dual professional qualifications: three of the sample had varying years of dual professional qualifications teaching experience, encompassing both systematic reflections of the experienced and the sensitivity responses of new dual professional qualifications faculty to the incentive system.

Structure of disciplines and positions: The selected teachers covered diverse disciplines (engineering, management, etc.) and roles (department directors, project heads), possessing deep insights into the system. Their self-efficacy, defined as the confidence in task accomplishment and integrating practice into education, was measured through their self-assessment of various competencies.

Gender and title structure: The sample comprises 4 males and 3 females, with titles representing lecturers, associate professors, and exceptional teachers, which may reflect dual differences in incentive suitability with respect to gender roles and career development stages.

Using the interview data from these teachers, this study could not only identify statistical correlations among variables in the empirical investigation but also reveal the deeper mechanisms of system operation, the influence of organizational culture, and the dual difference response, which are difficult to capture through quantitative analysis. The qualitative interview data were organized and coded using thematic analysis to provide a theoretical foundation and practical basis for subsequent structural equation modeling, hypothesis revision, and policy recommendations.

3.3.3 Research Instrument

The research instrument used in the qualitative analysis of this study was the semi-structured interview guide. This instrument was designed to ensure basic topic coverage while allowing the interviewer to follow up with questions based on the respondent's responses to obtain more in-depth and personalized statements of opinion and experience. The interview outline designed for this study was constructed based on the prior literature review, quantitative questionnaire content, and research modeling, focusing on the following four core themes:

(1) Teachers' knowledge and perception of motivational strategies: including their recognition, satisfaction, and experience with the current mechanisms of "economic incentives", "career development", and "training incentives" in their universities. The actual feelings.

(2) Subjective changes in self-efficacy: to explore whether the incentives have improved teachers' confidence and sense of control when facing teaching challenges, professional growth, and research tasks.

(3) Experience of work engagement: Interviews were conducted to understand teachers' commitment and subjective feelings of motivation in practical teaching, technical research, and regional service.

To ensure the effectiveness of the interviews, the researcher briefly met with the interviewees prior to the formal interviews to clarify the purpose of the study, the principle of confidentiality, and the requirement for consent to record. In the actual interview process. The length of communication with each interviewee was limited to 60-90 minutes; the interviews were conducted primarily in Mandarin; and the content was recorded, organized, and thematically coded with the interviewees' authorization. Through the use of semi-structured interview, this study hoped to explore teachers' behavioral responses and psychological mechanisms under the incentive system within the established analytical framework, supplementing the dynamic processes and dual differences that are difficult to present in quantitative research, to enhance the depth, completeness, and explanatory power of the overall study.

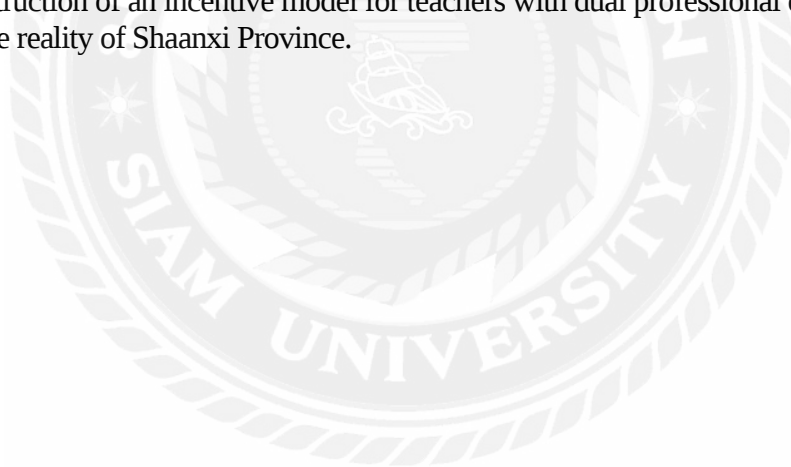
3.3.4 Data Collection

The study conducted interview with seven faculty members with dual professional qualifications from different institutions, representing backgrounds in science, engineering, liberal arts, and general studies. The interviews were conducted using a semi-structured outline and focused on perceptions of motivational strategies, experiences of self-efficacy, feelings of work Engagement, and identity fit issues. The interviews were audio-recorded,

verified by the interviewees, and subsequently transcribed into text for thematic coding and analysis. By combining quantitative and qualitative data, this study sought to bridge the gap between theoretical constructs and practical applications and to provide a scientific basis and practical guidance for optimizing incentive mechanisms.

3.3.5 Content Analysis

This study employed content analysis to systematically organize and interpret the textual data obtained from interviews. The audio recordings of the interviews were transcribed verbatim to form complete text data. Quantitative analysis was conducted using Nvivo software. Based on the established theoretical framework and research questions, a preliminary coding scheme was developed to capture the core themes of perceived motivational strategies, experience of self-efficacy, work engagement, performance, and identity regulation. Subsequently, open-ended coding was used to categorize the interviews and to extract key concepts and themes, followed by axial coding to explore the intrinsic connections and mechanisms of interaction among the themes. To ensure the scientific validity and credibility of the coding, the study invited multiple coders to code independently and to reach agreement and resolve differences through discussion. Combining the coding results with quantitative data enriched the understanding of the impact path of the incentive mechanism, revealed the real challenges and dual differences in policy implementation reflected in the interviews, and provided solid qualitative evidence to support the construction of an incentive model for teachers with dual professional qualifications that meets the reality of Shaanxi Province.



CHAPTER 4

RESEARCH RESULTS

This study employed a mixed-methods approach combining quantitative and qualitative methods. The quantitative study examined the correlations among economic incentives, career development, training incentives, self-efficacy, and work engagement. The qualitative study examines the model's validity through interviews and proposed countermeasures to enhance teachers' work engagement with dual professional qualifications.

The survey data were analyzed for reliability and validity. Cronbach's alpha was used to assess reliability, and confirmatory factor analysis, including path coefficients, was used to assess validity. Based on the analysis results, it was confirmed that the survey data were reliable and distinct. After the data passed the reliability and validity tests, correlation analysis and structural equation modeling were performed. Structural equation modeling required assessing model fit, which should be evaluated using GFI, NFI, CFI, AGFI, RMSEA, and other fit indices. The model fit must meet the requirements through data analysis. The model was checked based on the metrics, ensuring that the model fit met the criteria. Finally, path analysis was performed for each variable to verify the hypothesis and draw conclusions. In this study, 422 questionnaires were distributed, and 403 questionnaires were recovered. During data organization, questionnaires with missing values were excluded. At the same time, questionnaires with a response duration of 30 seconds were excluded. The questionnaire's validity rate was 95.5%. The rationality of the data was ensured by its organization.

Regarding the qualitative analysis, this study employed the interview method to collect data. Expert opinions were collected and analyzed. In-depth interviews with experts were conducted. The collected opinions and suggestions were analyzed using NVivo software to develop the most appropriate interpretation of this study. Seven of these experts were teachers with dual professional qualifications. from different private universities in Shaanxi Province, ensuring the professionalism and diversity of the discussions. During the interviews, the experts were prompted to share their experiences, perspectives, and suggestions using a combination of open-ended and fixed-response questions. Data analysis was conducted in NVivo, employing its coding capabilities to systematize and thematically categorize the textual content. Through open coding, axial coding, and selective coding, core concepts and ideas highly relevant to the research themes were extracted, and potential patterns and relationships were identified.

4.1 Descriptive Statistical Analysis

4.1.1 Demographic Characteristics of Respondents

A total of 403 valid questionnaire were collected in this study, covering a diverse range of background variables, and the sample composition is highly representative and extensive, providing a solid foundation for subsequent empirical analysis.

Regarding gender distribution, there were 204 male respondents (50.6%) and 199 female respondents (49.4%), with the two groups nearly equal in size. This indicates that the research sample is more balanced in gender distribution and can better compare differences in performance across genders on the research variables (e.g., self-efficacy, motivational perceptions, and work engagement). Regarding the age structure, the highest percentage of teachers was 25-30 years old (52.9%), followed by 31-40 years old (16.1%) and over 40 years old (8.7%), while those under 25 years old accounted for 22.3%. This distribution indicates a relatively young sample. Young teachers' career development aspirations, self-efficacy construction paths, and motivational sensitivity are more prominent.

In terms of educational attainment, teachers with a bachelor's and a master's degrees accounted for 37.5% and 50.6%, respectively; the proportion with a doctoral degree was 3.7%; the remainder held other degrees (e.g., study abroad, overseas educational background, etc.). This indicates that the majority of teachers hold a professional master's degree or higher, which is consistent with the academic structure of the teaching force in private universities. By school type, teachers from comprehensive colleges and universities constituted the largest group, accounting for 45.7%, followed by arts (25.3%) and science and technology (22.1%). Liberal arts accounted for only 6.9%.

In terms of title structure, Lecturer and Associate Professor constituted the main body, accounting for 40.7% and 34.0% respectively. Assistant Professors accounted for 22.6%. The rank of Professor is the lowest, at only 2.7%. This indicates that the sample is primarily composed of young and middle-aged teaching cadres, who are typically responsible for the "triple task" of teaching, scientific research, and service, and represent the core strength of private universities' development.

Table 4.1 Sample Demographics

Variable	Options	Frequency	Percent%
Gender	Male	204	50.6
	Female	199	49.4
Age	Under 25	90	22.3
	25-30	213	52.9
	31-40	65	16.1
	Over 40	35	8.7
Education	Bachelor	204	50.6
	Master	151	37.5
	Doctorate	15	3.7
	Others	33	8.2
Type of Institution	Comprehensive	184	45.7
	Science and Engineering	89	22.1
	Liberal Arts	28	6.9
	Arts	102	25.3

Variable	Options	Frequency	Percent%
Professional Title	Assistant	91	22.6
	Lecturer	164	40.7
	Associate Professor	137	34.0
	Professor	11	2.7
Total		403	100.0

The samples in this study show diversity and representativeness in multiple dimensions of gender, age, education, school type, professional title which provides a solid population base for the subsequent in-depth analysis of the relationship between incentives, self-efficacy and teachers' work engagement, and supports the feasibility and scientific validity of the analysis.

4.1.2 Descriptive Statistics of Variables

Based on the mean, standard deviation, skewness, and kurtosis of each variable in Table 4.2, a preliminary assessment of the normality of the sample data was made. The mean values of all variables are between 3.5 and 3.8, indicating that the overall evaluation of motivational strategies, self-efficacy, and work engagement by the interviewed teachers tends to be moderately high. The standard deviations across all variables range from 0.76 to 0.98, indicating moderate dispersion and suggesting that Dual differences are more pronounced. All variables exhibit negative skewness. The values range from -0.22 to -0.39, indicating a slightly left-skewed distribution with a longer left tail relative to the mean; however, the skewness is slight. The degree of deviation from the normal distribution is slightly less.

Table 4.2 Descriptive Statistics of Variables

	Mean	Std. Deviation	Skewness	Kurtosis
Economic Incentives	3.60	0.94	-0.35	-1.11
Career development	3.60	0.90	-0.32	-1.11
Training Incentives	3.62	0.87	-0.22	-1.11
Self-Efficacy	3.82	0.76	-0.31	-0.85
Practical Teaching Commitment	3.68	0.94	-0.39	-1.08
Effort of Technical Research	3.58	0.98	-0.30	-1.09
Regional Service Effort	3.72	0.94	-0.33	-0.90

Typically, absolute values of skewness of 0.5 or less are considered consistent with an approximately normal distribution. The kurtosis indicator shows negative kurtosis for all variables, ranging from -0.85 to -1.11, indicating that the data are relatively flatly distributed, with peaks lower than those of a normal distribution, indicating slight flat peakedness. This kurtosis characteristic is also consistent with an

approximate normal distribution. Combining the skewness and kurtosis indicators, the sample distribution, although slightly left-skewed and flat-tailed, is overall consistent with the basic statistical requirements for a normal distribution. The premise of normality provides a basis for subsequent use of parametric statistical methods (e.g., correlation and regression analyses, structural equation modeling) to ensure the validity and reliability of the results.

4.2 Discriminatory Power, Reliability Analysis, and Validity Analysis

The questionnaire data were subjected to reliability and validity tests. After the reliability and validity tests met the requirements, structural equation modeling was conducted.

4.2.1 Reliability Analysis

Reliability Analysis is used to ensure the validity of model fit evaluation and hypothesis testing. This paper uses Cronbach's alpha to assess the internal consistency of the research variables across measurement items. In order for a variable to have good reliability, the Cronbach's Alpha coefficient must be greater than 0.7. Cronbach's Alpha is a commonly used measure of internal consistency. In this study, Cronbach's Alpha is used to assess the internal consistency of the questionnaire's relevant items, i.e., reliability. Cronbach's Alpha is generally between 0 and 1. If the coefficient is between 0.5 and 0.7, it indicates general reliability and warrants further analysis. If the coefficient exceeds 0.7, it indicates general reliability and warrants further analysis. Analysis: If the coefficient value exceeds 0.7, it indicates strong reliability of the indicator coefficients.

Table 4.3 demonstrates the results of the reliability analysis of the measurement scales in this study. The Cronbach's Alpha coefficient of each dimension is more than 0.8. The Alpha coefficients for the Economic Incentives, Career Development, Training Incentives, and Self-Efficacy are 0.855, 0.809, 0.837, and 0.851, respectively. The effort for practical teaching, technology research, and regional service under the dimension of Work Engagement is 0.850, 0.853, and 0.856, respectively. These results show that the internal consistency of the scales in the questionnaire is high, and there is a good correlation between the measurement items, reflecting the good reliability of the scales.

Table 4.3 Reliability Analysis

Dimension	N of Items	Cronbach's Alpha
Economic Incentives	10	0.855
Career Development	10	0.809
Training Incentives	10	0.837
Self-efficacy	6	0.851
University–Enterprise Cooperation	3	0.886

Dimension	N of Items	Cronbach's Alpha
Status of Teachers with Dual Professional Qualifications.	5	0.885
Practical Teaching Effort	5	0.850
Work Engagement Technical Research Effort	4	0.853
Regional Service Effort	3	0.856

4.2.2 Validity Analysis

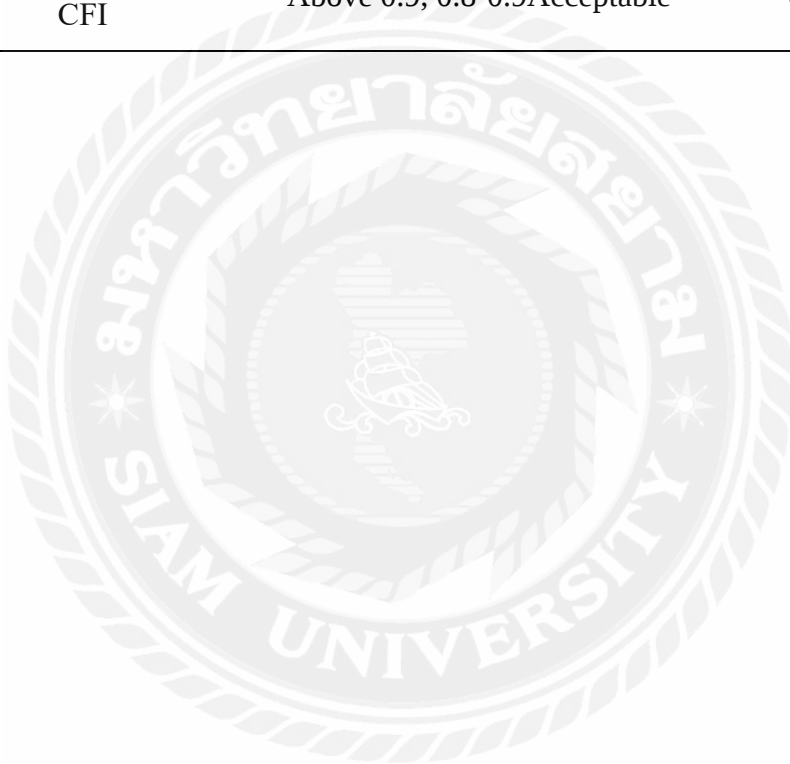
The data presents the model-fit metrics from the confirmatory factor analysis (CFA) and their observed values, which are used to assess the fit and validity of the research model. The observed variables effectively reflect the latent variables measured by the validated factor analysis. The Model Fit Indicators in Table 4.4 include several commonly used fit-test parameters, and by comparing the observed values of each indicator with the accepted Threshold Range, it is possible to determine whether the model fit meets the statistical requirements.

Factor loadings were used to assess whether each loading is statistically significant; they should exceed 0.7. Composite reliability (CR) indicates the internal consistency of the items; the higher the reliability, the greater the consistency, and it should be greater than 0.7. Average Variance Extracted (AVE) was used to assess the extent to which each measurement item of the latent variable accounts for the variance of the variable; a higher AVE indicates greater reliability and convergent validity. Average Variance Extracted (AVE) was used to quantify the proportion of variance explained by each measurement item in the latent variable. If the AVE is higher, it indicates greater reliability and convergent validity, and it is recommended that its standard value exceed 0.5. Overall model fit index. When using the validity test based on the validation factor analysis, the model fit should be evaluated, and the measurement model should be corrected to improve it. The model-fit indices selected were CMIN/DF, GFI, AGFI, NFI, IFI, TLI, CFI, and RMSEA. The CMIN/DF was 1.307; the TLI, IFI, and CFI all exceeded 0.8; and the RMSEA was 0.029 or less than 0.08. Most fit indices were consistent with standard SEM criteria, indicating good fit.

Table 4.4 Confirmatory Factor Analysis Model Fit Intercept (N=403)

Model Fit Indicator	Threshold Range	Observed Value
CMIN		1420.23
DF		1067
CMIN/DF	Below 5, best below 3	1.331
GFI		0.878
	Above 0.9, 0.8-0.9Acceptable	

Model Fit Indicator	Threshold Range	Observed Value
GFI	Above 0.9, 0.8-0.9Acceptable	0.866
RMSEA	Below 0.08	0.029
IFI	Above 0.9, 0.8-0.9Acceptable	0.970
NFI	Above 0.9, 0.8-0.9Acceptable	0.841
TLI (NNFI)	Above 0.9, 0.8-0.9Acceptable	0.968
CFI	Above 0.9, 0.8-0.9Acceptable	0.970



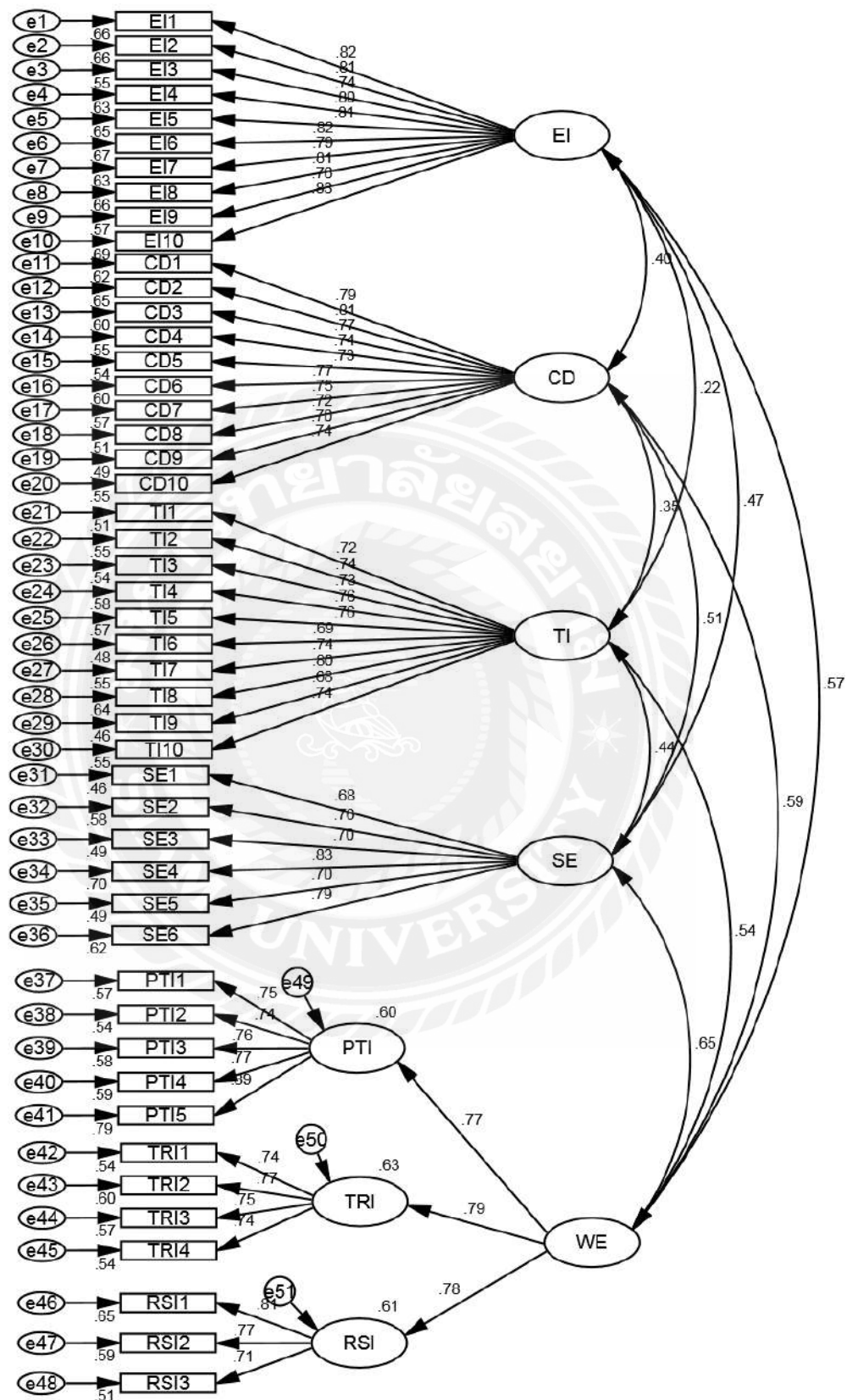


Figure 4.1 Confirmatory Factor Analysis

In this study, a validated factor analysis was conducted on the latent variables of Economic Incentives, Career Development, Training Incentives, Self-efficacy, and Work Engagement to test the convergent validity of the scales. The results showed that the factor loadings for each dimension ranged from 0.68 to 0.83, the composite reliability (CR) exceeded 0.80, and the average variance extracted (AVE) exceeded 0.50, which met the basic criteria for convergent validity. The CR for Economic Incentives was 0.954, and the AVE was 0.646, indicating that internal consistency across the scale dimensions was firm and measurement stability was good. The CR values for the Career Development and Training Incentives dimensions were 0.950 and 0.946, respectively, and the AVE values also exceeded 0.56, indicating that the explanatory power of the items for the latent variables was high. The factor loadings of the items in the Self-efficacy dimension ranged from 0.676 to 0.834, with a CR of 0.927 and an AVE of 0.574, indicating a reasonable construct of teachers' confidence in their own abilities. The three sub-dimensions of Work Engagement (practice teaching effort, technology research effort, and regional service effort) demonstrated good convergent validity. The AVE for practical teaching effort was 0.667, indicating that it was the most representative of the overall construct. After combining these three sub-dimensions as first-order indicators into the second-order latent variable of "Work Engagement", it still has good convergent validity (CR=0.826, AVE=0.613), which verifies the stability and interpretability of the structural model. In summary, all measures of the variables met the criteria for statistically significant convergent validity, providing a solid quantitative foundation for subsequent structural model analysis.

Table 4.5 AVE and CR of Confirmatory Factor Analysis

Path Relationship	Estimate	S.E.	C.R.	P	Factor Loading	C.R.	AVE
EI1 <--- EI	1.000				0.815		
EI2 <--- EI	0.925	0.048	19.227	***	0.815		
EI3 <--- EI	0.773	0.045	16.986	***	0.744		
EI4 <--- EI	0.910	0.049	18.666	***	0.797		
EI5 <--- EI	1.005	0.053	19.065	***	0.809	0.954	0.646
EI6 <--- EI	0.956	0.049	19.521	***	0.821		
EI7 <--- EI	1.018	0.055	18.503	***	0.791		
EI8 <--- EI	0.930	0.049	19.152	***	0.810		
EI9 <--- EI	0.890	0.051	17.349	***	0.756		
EI10 <--- EI	0.956	0.048	19.905	***	0.833		
CD1 <--- CD	1.000				0.788		
CD2 <--- CD	1.215	0.068	17.854	***	0.808	0.950	0.576

Path Relationship			Estimate	S.E.	C.R.	P	Factor Loading	C.R.	AVE
CD3	<---	CD	0.802	0.047	17.000	***	0.773		
CD4	<---	CD	1.073	0.067	15.967	***	0.739		
CD5	<---	CD	0.873	0.055	15.815	***	0.732		
CD6	<---	CD	1.119	0.066	16.907	***	0.773		
CD7	<---	CD	1.024	0.063	16.337	***	0.753		
CD8	<---	CD	1.009	0.065	15.411	***	0.717		
CD9	<---	CD	0.995	0.067	14.954	***	0.701		
CD10	<---	CD	1.019	0.063	16.132	***	0.741		
TI1	<---	TI	1.000				0.717		
TI2	<---	TI	0.911	0.063	14.479	***	0.744		
TI3	<---	TI	0.908	0.064	14.249	***	0.734		
TI4	<---	TI	1.100	0.075	14.733	***	0.759		
TI5	<---	TI	1.109	0.076	14.656	***	0.756	0.946	0.564
TI6	<---	TI	0.986	0.073	13.463	***	0.692		
TI7	<---	TI	0.982	0.068	14.416	***	0.743		
TI8	<---	TI	1.053	0.068	15.552	***	0.802		
TI9	<---	TI	0.811	0.061	13.243	***	0.681		
TI10	<---	TI	0.924	0.064	14.349	***	0.740		
SE1	<---	SE	1.000				0.676		
SE2	<---	SE	1.084	0.080	13.566	***	0.764		
SE3	<---	SE	0.977	0.077	12.616	***	0.699	0.927	0.574
SE4	<---	SE	1.442	0.100	14.476	***	0.834		
SE5	<---	SE	1.145	0.090	12.656	***	0.701		
SE6	<---	SE	1.427	0.103	13.814	***	0.790		
PTI1	<---	PTI	1.000				0.753		
PTI2	<---	PTI	0.668	0.045	14.956	***	0.737		
PTI3	<---	PTI	0.869	0.057	15.343	***	0.762	0.928	0.667
PTI4	<---	PTI	0.852	0.055	15.500	***	0.767		
PTI5	<---	PTI	1.135	0.063	18.044	***	0.887		
TRI1	<---	TRI	1.000				0.736		
TRI2	<---	TRI	1.093	0.077	14.134	***	0.772	0.913	0.569

Path Relationship			Estimate	S.E.	C.R.	P	Factor Loading	C.R.	AVE
TRI3	<---	TRI	1.005	0.071	14.061	***	0.753		
TRI4	<---	TRI	0.913	0.067	13.715	***	0.736		
RSI1	<---	RSI	1.000				0.807		
RSI2	<---	RSI	0.874	0.059	14.812	***	0.767	0.806	0.582
RSI3	<---	RSI	0.910	0.066	13.800	***	0.713		
PTI	<---	WE	1.000				0.773		
TRI	<---	WE	0.937	0.095	9.831	***	0.793	0.826	0.613
RSI	<---	WE	0.938	0.092	10.225	***	0.783		

NOTE: EI is Economic incentives. CD denotes Career development; TI denotes Training incentives. SE is Self-efficacy. WE is Work engagement. PTI is Practical Teaching Commitment. TRI is a technical research effort. RSI is the Regional Service Initiative. The following summarizes the study results: EI denotes economic incentives; CD denotes career development; TI denotes training incentives.

4.3 Correlation Analysis

Table 4.6 shows that the correlation coefficients between the variables in this study are statistically significant. The root mean square ($\sqrt{\text{AVE}}$) values of all latent variables are higher than their correlation coefficients with other variables, which is in line with the Fornell-Larcker criterion. It verifies that the scales have good discriminant validity. The correlation coefficients between Economic Incentives and Career Development, Training Incentives, Self-efficacy, and the three forms of Work Engagement were 0.375, 0.202, 0.435, 0.410, 0.409, and 0.378, respectively, with p-values < 0.01. This indicates a moderately positive correlation between economic incentives and the variables. The correlation coefficients between Self-efficacy and Economic Incentives, Career Development, and Training Incentives were 0.435, 0.454, and 0.399, respectively, suggesting that incentives can enhance teachers' sense of efficacy.

The relationship between Self-efficacy and the three types of Work Engagements is also relatively strong, with the highest correlation coefficient (0.462) for the effort of practice teaching, followed by the effort of technology research (0.441) and the effort of regional service (0.413). This indicates that the higher the teachers' Self-efficacy, the higher their effort in practice teaching, research, study, and service to regional development. Significant correlations were also shown between the three types of incentives and Work engagement. For example, the correlation coefficient between training incentives and practical teaching effort is 0.414. The correlation coefficients for technical research effort and regional service effort are 0.346 and 0.358, respectively, suggesting that the vocational training and competence enhancement opportunities provided by the school can, to some extent, promote teachers' application of their skills in teaching, scientific research, and social service. In summary, the bivariate correlations status of all variables are significantly positive, and there is no multicollinearity, which not only supports the independence of the measurement dimensions but also provides a sound statistical foundation for subsequent structural equation modeling.

Table 4.6 Results of Correlation Analysis for Each Dimension

	$\sqrt{\text{AVE}}$	Economic Incentives	Career Development	Training Incentives	Self-efficacy	Practical Teaching Effort	Effort of Technical Research	Regional Service Effort
Economic Incentives	0.804	0.804						
Career Development	0.759	.375**	0.759					
Training Incentives	0.751	.202**	.330**	0.751				
Self-efficacy	0.758	.435**	.454**	.399**	0.758			
Practical Teaching Commitment	0.817	.410**	.435**	.414**	.462**	0.817		
Effort Of Technical Research	0.754	.409**	.417**	.346**	.441**	.513**	0.754	
Regional Service Effort	0.763	.378**	.373**	.358**	.413**	.512**	.541**	0.763

NOTE: * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

4.4 Structural Equation Models and Hypothesis Testing

In this study, AMOS was used to assess model fit using SPSS Statistics. It is generally accepted that a chi-square degrees of freedom ratio (CMIN/DF) of less than 3 indicates a good fit of the model to the data; a root mean square of approximation error (RMSEA) value of less than 0.08 indicates a good fit, and less than 0.05 is better. The fit of a model can be assessed using indices such as the Comparative Fit Index (CFI). The values of these fit indicators range from 0 to 1; generally, values above 0.8 indicate a better fit, and values above 0.9 are better, with the closer to 1, the better. The specific-fit indicator test criteria are presented in Table 4.7.

Table 4.7 Fit Indicator Test Criteria

Indicator	Range of Values	Judgment Criteria
CMIN/DF	>0	Best: ≤ 2.00 Good: ≤ 3.00 Acceptable: ≤ 5.00
Root Mean Square Error of Approximation (RMSEA)	>0	Maximum: 0.00 Good: ≤ 0.05 Acceptable: ≤ 0.08
The Bentler-Bonett's Normed Fit Index (NFI)	0-1	Maximum: =1.00 Best: > 0.98 Good: > 0.90 Acceptable: > 0.80
Incremental Fit Index (IFI)	0-1	> Maximum: =1.00 Best: > 0.97 Better: > 0.95 Good: ≥ 0.90 Acceptable: > 0.80
Tucker-Lewis Index (TLI)	0-1	Maximum: =1.00 Best: > 0.97 Better: > 0.95 Good: ≥ 0.90 Acceptable: > 0.80
Comparative Fit Index of Bentler (CFI)	0-1	Maximum: =1.00 Best: > 0.97 Better: > 0.95 Good: ≥ 0.90 Acceptable: > 0.80

As shown in Table 4.8, the overall fit of the structural equation model is good, meeting the acceptable or even excellent standard. First of all, the chi-square value (CMIN) is 1420.230, and the degrees of freedom are 1067. The calculated CMIN/DF is 1.331, which is well below the 5 threshold and close to the optimal value of 3 or less, indicating that the model-data discrepancy is relatively small and that the fit is improved. The GFI is 0.878, and the AGFI is 0.866, which are slightly below 0.9 but still within the acceptable range of 0.8 to 0.9, indicating that the model fits the overall structure better. The RMSEA value is 0.029, well below the 0.08 threshold, indicating that the

model residuals are smaller than expected and that the fit is excellent, a key index for assessing structural equation model fit. In terms of the comparative fit indices, the IFI and CFI are both 0.970, and the TLI is 0.968, all exceeding the excellent criterion of 0.90, indicating that the established model improves significantly over the independent model and explains the structural relationships among the variables well. Although the NFI is 0.889, slightly below 0.9, it remains within the acceptable range. All model fit indices are at a statistically acceptable level, indicating that the structural model generally captures the causal relationships among the variables and provides a reliable foundation for subsequent path analysis and mediation effect testing.

Table 4.8 Model Fit Intercept (N=403)

Model Fit Indicator	Threshold Range	Observed Value
CMIN		1420.230
DF		1067
CMIN/DF	Below 5, best below 3	1.331
GFI	Above 0.9, 0.8-0.9Acceptable	0.878
AGFI	Above 0.9, 0.8-0.9Acceptable	0.866
RMSEA	Below 0.08	0.029
IFI	Above 0.9, 0.8-0.9Acceptable	0.970
NFI	Above 0.9, 0.8-0.9Acceptable	0.889
TLI	Above 0.9, 0.8-0.9Acceptable	0.968
CFI	Above 0.9, 0.8-0.9Acceptable	0.970

4.4.1 Direct Effect Validation

As shown in Table 4.9, this study tested direct path effects of the dimensions of incentive policies, Self-efficacy, and Work Engagement using structural equation modeling. The results show that each path is statistically significant ($p < 0.001$), indicating a significant positive influence among the variables specified in the model. Regarding the effect of incentives on Self-efficacy (SE), the unstandardized regression coefficient of Economic Incentives (EI) on Self-efficacy is 0.181, and the standardized path coefficient is 0.293. This indicates that Economic Incentives significantly enhance Self-Efficacy. The standardized coefficients for Career Development (CD) and Training Incentives (TI) on Self-efficacy are 0.298 and 0.269, respectively, and are significantly positive, slightly higher than those for economic incentives. This suggests that professional development opportunities and training support play a more critical role in enhancing the Self-efficacy of teachers with dual professional qualifications. All three types of incentives also have a significant positive effect on Work Engagement (WE). The standardized coefficients of WE for Economic Incentives are 0.283, Career Development is 0.238, and Training Incentives are 0.275, indicating that when teachers are provided with reasonable material incentives, clear promotion paths, and sustained training opportunities, the actual degree of teachers' commitment to teaching, research, and social services is increased accordingly. The standardized path coefficient from

Self-efficacy to Work Engagement is 0.273, which is highly significant. This confirms the central role of teachers' Self-efficacy in driving their engagement in teaching and practice.

Table 4.9 Results of Structural Equation Modeling

Path Relationship			Estimate	S.E.	C.R.	P	Standardized Estimate
SE	<---	EI	0.181	0.032	5.571	***	0.293
SE	<---	CD	0.210	0.039	5.394	***	0.298
SE	<---	TI	0.192	0.037	5.161	***	0.269
WE	<---	EI	0.219	0.042	5.176	***	0.283
WE	<---	CD	0.209	0.050	4.179	***	0.238
WE	<---	TI	0.245	0.049	4.950	***	0.275
WE	<---	SE	0.341	0.081	4.227	***	0.273

NOTE: * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

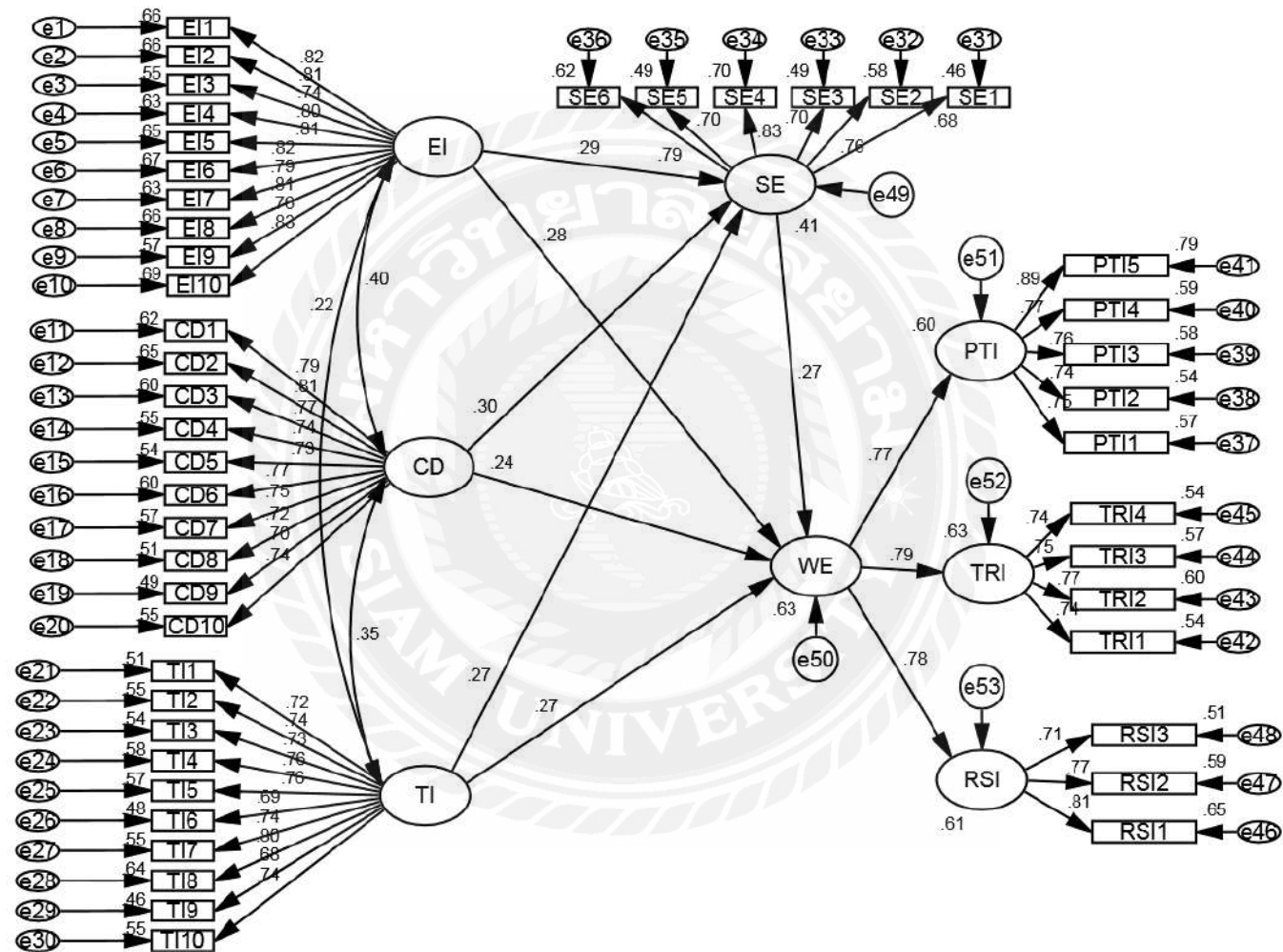


Figure 4.2 Modified Structural Equation Model

4.4.2 Validation of Mediation Effect

To verify the mediation effect in the model, a Bootstrap mediation effect test was used to assess whether the mediation effect is significant, following the method proposed by Hayes (2013) for the mediated mediation effect test with mediation.

Table 4.10 presents the results of the mediated effect test of Economic Incentives (EI) on Work Engagement (WE) through Self-Efficacy (SE). The direct effect of Economic Incentives on Work Engagement was 0.261, which is significant ($p = 0.000$) and accounted for 64.29% of the total effect. Its indirect effect was 0.145 with a 95% confidence interval of [0.106, 0.187], which does not contain zero, indicating that the indirect effect was significant and accounted for 53.71% of the total effect. The total effect was 0.406, indicating that Economic Incentives play an important mediating role both by directly influencing Work Engagement and by enhancing teachers' Self-efficacy. This result supports the partial mediating role of Self-Efficacy in the relationship between Economic Incentives and Work Engagement.

Table 4.11 presents the results for the mediating effect of Career Development (CD) on Work Engagement (WE) via Self-Efficacy (SE). The direct effect of Career Development on Work Engagement was 0.282, which is significant ($p = 0.000$) and accounts for 64.83% of the total effect. Its indirect effect was 0.153, with a 95% deviation-corrected confidence interval of [0.110, 0.205], which does not include 0, indicating that this indirect path was significant and accounted for 35.17% of the total effect. The total effect was 0.435, indicating that Career Development not only directly promotes teachers' Work Engagement but also partially mediates it by enhancing their Self-efficacy, which in turn increases their engagement in teaching, research, and regional service.

Table 4.12 shows the results of the mediation analysis exploring the role of Training Incentives (TI) in Work Engagement (WE). The direct effect of Training Incentives on Work Engagement was 0.262, which is significant ($p = 0.000$) and accounted for 63.13% of the total effect. This suggests that, even without the mediating variable, there is a significant direct impact on Work Engagement. Meanwhile, the indirect effect was 0.153, with a 95% confidence interval adjusted for multiple comparisons [0.111, 0.198], which does not include zero, indicating that the indirect pathway was significant and made up 36.87% of the total effect. The total effect was 0.415, implying that training incentives not only directly influence teachers' commitment to practice teaching, research, and regional service but also indirectly boost this commitment by increasing their Self-efficacy, underscoring the critical role of training resources in motivating intrinsic engagement.

Table 4.10 Results of Economic Incentives Bootstrap Indirect Effects Tests

Path Relationship	Effect	SE	T-test	Bias Corrected (95%)			%
				LLCI	ULCI	P	
EI - WE Direct Effect	0.261	0.037	7.03	0.188	0.333	0.000	64.29
EI - SE- WE Indirect Effect	0.145	0.201	-	0.106	0.187	-	53.71
EI - WE Total Effect	0.406	0.037	11.11	0.334	0.478	0.000	

Table 4.11 Results of Career Development Bootstrap Indirect Effects Tests

Path Relationship	Effect	SE	T-test	Bias Corrected (95%)			%
				LLCI	ULCI	P	
CD -WE Direct Effect	0.282	0.039	7.24	0.1205	0.358	0.000	64.83
CD - SE -WE Indirect Effect	0.153	0.024	-	0.110	0.205	-	35.17
CD -WE WP Total Effect	0.435	0.037	11.53	0.361	0.510	0.000	

Table 4.12 Results of Training Incentives Bootstrap Indirect Effects Tests

Path Relationship	Effect	SE	T-test	Bias Corrected (95%)			%
				LLCI	ULCI	P	
TI -WE Direct Effect	0.262	0.040	6.57	0.184	0.341	0.000	63.13
TI - SE -WE Indirect Effect	0.153	0.023	-	0.111	0.198	-	36.87
TI -WE WP Total Effect	0.415	0.041	10.24	0.335	0.494	0.000	

4.4.3 Validation of Moderation Effects

(1) The Effect of Status of Teachers with Dual Professional Qualifications. in the Relationship between Self-Efficacy and Work Engagement

Table 4.13 illustrates the moderating effect of Status of "Dual Professional Qualification" among educators on the relationship between Self-efficacy and Work engagement. Through stepwise regression analysis, model M1 demonstrates that Self-efficacy had a significant positive impact on Work Engagement ($\beta = 0.554$, $t = 112.660$, $p < 0.001$), with the model explaining 0.286 of the variance. This indicates that the higher the teachers' Self-efficacy, the greater their level of Work engagement.

In Model M2, the moderator variable, Status of Teachers with Dual Professional Qualifications, was added. The results showed that this variable had a significant positive effect on Work Engagement ($\beta = 0.245$, $t = 3.745$, $p < 0.001$), and the R^2 increased to 0.310 (0.024), indicating that Status of Teachers with Dual professional qualifications itself enhances Work engagement.

Model M3 introduced the interaction term (Self-efficacy $\times$ Status of Teachers with dual professional qualifications.), which also had a significant effect on Work Engagement ($\beta = 0.179$, $t = 5.673$, $p < 0.001$), indicating that having dual professional qualifications. significantly moderates the relationship between Self-efficacy and Work engagement. The overall explanatory power of the model increased to $R^2 = 0.361$, showing that the model's ability to explain Work Engagement improved after adding the interaction term.

In conclusion, adding dual professional qualifications. not only influences their Work Engagement but also significantly amplifies the positive impact of Self-efficacy on Work engagement. Teachers with dual professional qualifications. are more actively involved in practical teaching, research, and service work, while maintaining the same level of efficacy. This highlights the vital role of teachers with dual professional qualifications. in reforming university education.

Table 4.13 Effect of Status of Teachers with Dual Professional Qualifications on the Relationship between Self-Efficiency and Work Engagement

	M1		M2		M3	
	β	T	B	t	β	T
Constant	1.536***	8.999	1.393***	8.093	1.434***	8.639
Self-efficacy	0.554***	12.660	0.560***	12.992	0.551***	13.265
Status of Teachers with Dual Professional Qualifications			0.245***	3.745	0.245***	3.890
Self-efficacy $\times$ Status of Teachers with Dual Professional Qualifications					0.179***	5.673

	M1		M2		M3	
	β	<i>T</i>	<i>B</i>	<i>t</i>	β	<i>T</i>
R Square	0.286		0.310		0.361	
Adjusted R-Square	0.284		0.306		0.356	
F	F (1,401) =160.285, p=0.000		F (2,400) =89.760, p=0.000		F (3,399) =75.232, p=0.000	
F Change	160.285		14.028		32.181	
R Square Change	0.286		0.024		0.052	

Note: Dependent Variable = Work Engagement, * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

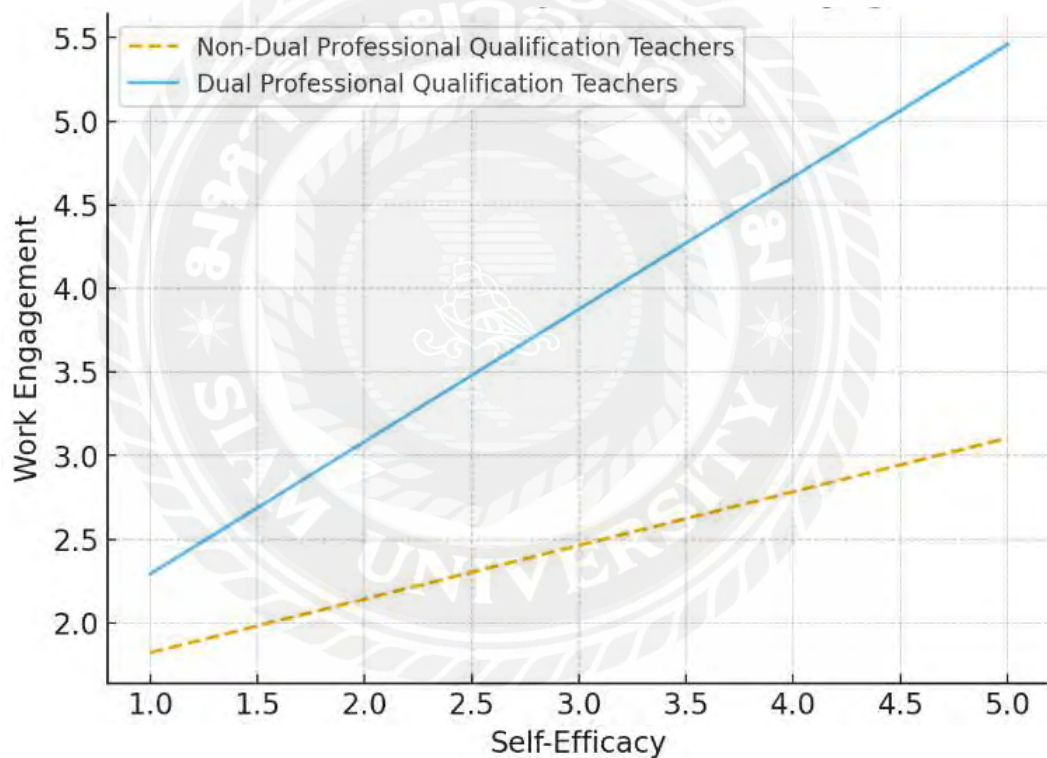


Figure 4.3 Moderating Effect of Status of Teachers with Dual Professional Qualifications.

Hierarchical regression analysis was performed to explore the moderating effect of Status of Teachers with Dual Professional Qualifications. on the relationship between Self-efficacy and Work engagement.

Model 1 demonstrated that Self-efficacy significantly predicted Work Engagement ($\beta = 0.554$, $t = 12.660$, $p < 0.001$, $R^2 = 0.286$).

Model 2 indicated that Status of Teachers with Dual Professional Qualifications. also had a significant positive effect ($\beta = 0.245$, $t = 3.745$, $p < 0.001$, $R^2 = 0.310$).

Model 3 revealed that the interaction term (Self-efficacy $\times$ Dual professional qualifications.) was significant ($\beta = 0.179$, $t = 5.673$, $p < 0.001$), and the R^2 increased to 0.361, confirming a positive moderating effect.

Further simple slope analysis revealed that Self-efficacy had a stronger positive impact on Work Engagement among teachers with dual professional qualifications. ($\beta = 0.792$) compared to those without ($\beta = 0.321$), suggesting that these teachers are more effective at turning self-efficacy into increased engagement in teaching and research activities.

(2) The Effect of University-Enterprise Cooperation on the Relationship between Career Development and Self-Efficacy

Table 4.14 presents the hierarchical regression results examining the moderating role of University-Enterprise Cooperation in the relationship between Career Development and Teachers' Self-efficacy.

In Model M4, only the independent variable Career Development was included. The results showed that Career Development had a significant positive effect on Teachers' Self-efficacy ($\beta = 0.502$, $t = 13.361$, $p < 0.001$), and the model explained 24.3% of the variance in Self-Efficacy ($R^2 = 0.243$). This suggests that the more teachers perceive available career development opportunities, the higher their self-efficacy.

In Model M5, the moderator variable University-Enterprise Cooperation was included. The results indicated that this variable also had a significant positive impact on Teachers' Self-efficacy ($\beta = 0.111$, $t = 2.944$, $p < 0.001$). The model's explanatory power increased from $R^2 = 0.243$ to $R^2 = 0.263$, a gain of 0.020, suggesting that University-Enterprise Cooperation itself contributed to enhancing teachers' self-efficacy.

In Model M6, the interaction term (Career Development $\times$ University-Enterprise Cooperation) was added. The coefficient for this interaction was significant ($\beta = 0.166$, $t = 5.483$, $p < 0.001$), and the model's explanatory power improved further, with R^2 rising to 0.303 and a change of 0.04 compared to the previous model. This finding shows that University-Enterprise Cooperation had a meaningful positive moderating effect on the relationship between Career Development and Self-efficacy.

Specifically, under a high level of University-Enterprise Cooperation, the positive influence of Career Development on Teachers' Self-efficacy became stronger. This suggested that when universities and enterprises maintained close cooperation, teachers were more likely to turn their career development opportunities into higher levels of teaching confidence, innovative capacity, and professional self-efficacy.

Therefore, the existence of University-Enterprise Cooperation not only enhances teachers' sense of career development but also amplifies the positive impact of Career Development on Self-efficacy, demonstrating its critical role in promoting professional growth and improving educational quality in vocational and higher education institutions.

Table 4.14 Effect of University-Enterprise Cooperation on the Relationship between Career Development and Self-Efficacy

	M4		M5		M6	
	β	<i>t</i>	β	<i>t</i>	β	<i>t</i>
Constant	2.471** *	13.34	2.175***	10.387	2.201***	10.792
Career Development	0.502** *	13.36	0.495***	13.24	0.478***	13.102
University-Enterprise Cooperation			0.111***	2.944	0.124***	3.358
Career Development ×University-Enterprise Cooperation					0.166***	5.483
R Square	0.243		0.263		0.303	
Adjusted R-Square	0.242		0.261		0.299	
F	F (1,401) =178.526, p=0.000		F (2,400) =94.882, p=0.000		F (3,399) =76.738, p=0.000	
F Change	178.526		8.666		30.064	
R Square Change	0.243		0.02		0.04	

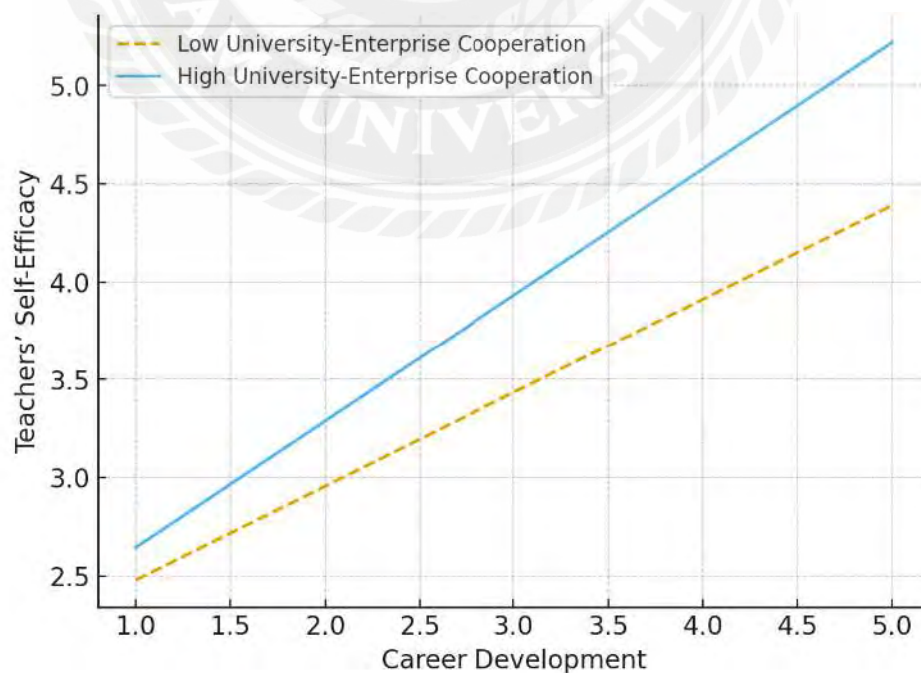


Figure 4.4 Effect of University-Enterprise Cooperation on the Relationship between Career Development and Teachers' Self-Efficacy

As shown in Figure 4.4, under conditions of high university-enterprise cooperation, the positive impact of career development on teachers' self-efficacy was more pronounced. Conversely, under low-cooperation conditions, the slope was relatively shallow. This suggests that university-enterprise cooperation enhances the positive relationship between career development and teachers' self-efficacy, showing a significant positive moderating effect.

(3) The Effect of University-Enterprise Cooperation on the Relationship between Training Incentives and Self-Efficacy

Table 4.15 presents the hierarchical regression results testing the moderating role of University-Enterprise Cooperation in the relationship between Training Incentives and Teachers' Self-efficacy.

In Model M7, only the independent variable Training Incentives was included in the regression equation. The results indicated that Training Incentives had a significant positive impact on Teachers' Self-efficacy ($\beta = 0.774$, $t = 15.05$, $p < 0.001$), and the model explained 29.9% of the variance in Teachers' Self-efficacy ($R^2 = 0.299$). This suggests that higher training incentives are linked to greater self-efficacy among teachers.

In Model M8, the moderator variable University-Enterprise Cooperation was added. The results showed that University-Enterprise Cooperation also had a significant positive predictive effect on Self-Efficacy ($\beta = 0.083$, $t = 2.222$, $p < 0.01$), and the model's explanatory power increased slightly from $R^2 = 0.299$ to $R^2 = 0.305$, a change of 0.006. This suggested that university-enterprise cooperation itself contributed positively to the enhancement of teachers' self-efficacy.

In Model M9, the interaction term (Training Incentives $\times$ University-Enterprise Cooperation) was introduced. The coefficient of the interaction term was significant ($\beta = 0.141$, $t = 4.839$, $p < 0.001$), and the model's explanatory power further increased to $R^2 = 0.335$, with a change of 0.029 compared with the previous model. This result indicated that University-Enterprise Cooperation had a significant positive moderating effect on the relationship between Training Incentives and Self-Efficacy.

Table 4.15 Effect of University-Enterprise Cooperation on the Relationship between Training Incentives and Self-Efficacy

	M7		M8		M9	
	β	t	β	t	β	t
Constant	0.459	1.779	0.21	0.756	0.041	0.147
Training Incentives	0.774***	15.05	0.746***	14.123	0.756***	14.593
University-Enterprise Cooperation			0.083**	2.222	0.094**	2.577
Training Incentives $\times$ University-Enterprise Cooperation					0.141***	4.839
R Square	0.299		0.305		0.335	
Adjusted R-Square	0.297		0.302		0.331	

	M7		M8		M9	
	β	t	β	t	β	t
F	F (1,401) =226.524, p=0.000		F (2,400) =116.569, p=0.000		F (3,399) =88.798, p=0.000	
F Change	226.524		4.937		24.416	
R Square Change	0.299		0.006		0.029	

Specifically, when the level of University-Enterprise Cooperation was high, the positive effect of Training Incentives on Self-efficacy became stronger. This indicated that teachers involved in cooperative programs between universities and enterprises were better able to turn organizational training support into improvements in teaching confidence, professional skills, and self-efficacy.

Therefore, University-Enterprise Cooperation not only directly improves Self-Efficacy but also enhances the impact of Training Incentives on Self-Efficacy. This finding emphasizes the importance of building strong university-enterprise partnerships as an effective way to support teachers' professional growth, motivation, and confidence in vocational and higher education settings.

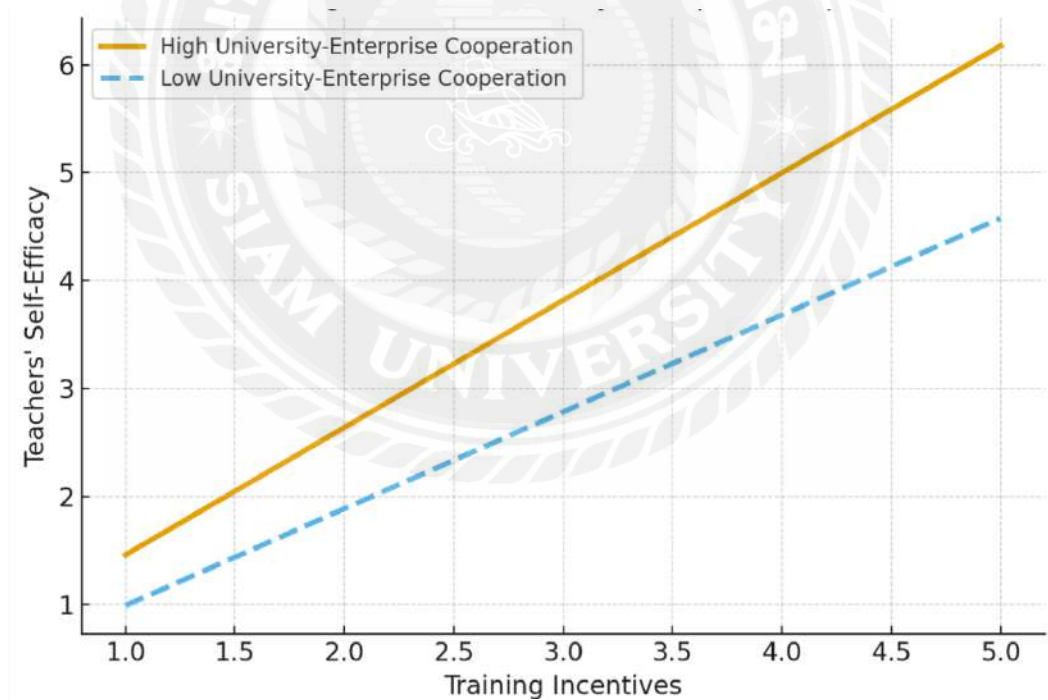


Figure 4.5 Effect of University-Enterprise Cooperation on the Relationship between Training Incentives and Self-Efficacy

Table 4.16 Hypotheses Test Results

Hypothesis	Result
H1: Economic incentives have a significant positive effect on self-efficacy.	Established
H2: A significant positive effect of economic incentives on teachers' commitment to work.	Established
H3: Professional development has a significant positive effect on teachers' Self-efficacy.	Established
H4: Professional development has a significant positive effect on teachers' engagement.	Established
H5: Training incentives have a significant positive effect on teachers' Self-efficacy.	Established
H6: There is a significant positive effect of training incentives on teachers' commitment to work.	Established
H7: Self-efficacy mediates the relationship between economic incentives and work engagement.	Established
H8: Self-efficacy mediates the relationship between career development and work engagement.	Established
H9: Self-efficacy mediates the relationship between training incentives and work engagement.	Established
H10: Self-efficacy has a significant positive effect on engagement.	Established
H11: The status of Dual professional qualifications. moderates the relationship between self-efficacy and Work engagement.	Established
H12a: University-Enterprise Cooperation has a moderating effect on the relationship between career development and self-efficacy.	Established
H12b: University-Enterprise Cooperation has a moderating effect on the relationship between training incentives and self-efficacy.	Established

4.5 Qualitative Data Analysis

4.5.1 Interview Characteristics

To ensure the rigor and trustworthiness of the qualitative phase, this section delineates the characteristics of the interviewees who participated in the Interview. As demonstrated in Table 4.17, a total of seven dual-qualified teachers from various private universities in Shaanxi Province were purposefully selected. The sample was strategically structured to encompass diverse institutional types, academic disciplines (e.g., engineering and management), and professional ranks, including lecturers, associate professors, and department heads.

This configuration, consisting of four males and three females with varying years of dual-professional experience, was designed to capture a wide spectrum of perspectives. By covering both novice and experienced instructors, the sample ensured heterogeneity in terms of career stages and institutional contexts. Such a composition was critical for reflecting the differential incentive suitability related to gender roles and professional development stages. Consequently, this representative sample provided a robust empirical foundation for the subsequent thematic analysis, enabling a deep exploration of the operational mechanisms of incentive systems beyond what quantitative data alone can reveal.

Table 4.17 Interviewee Characteristics

Interviewee	Teacher	School	Subject Type	Years of Career	Dual Professional Qualifications.
T1	Mr. Zhang	Xi'an Eurasian College	Science and Engineering	12 years	Provincial Dual professional qualifications. Backbone Teachers
T2	Mr. Li	Xi'an Translation College	Liberal Arts	7 years of teaching / 6 years of industry	School-level Dual professional qualifications. Teacher
T3	Mr. Wang	Xi'an Peihua College	General (Management)	10 years	School-enterprise cooperation: Teachers with dual professional qualifications.
T4	Mr. Zhao	Shaanxi Garment Engineering College	Art (Design)	8 years	School-level Dual professional qualifications. Young Teachers
T5	Mr. Zhou	Xi'an Foreign Affairs College	Economics and Management	8 years	School-level Dual professional qualifications. Teachers
T6	Mr. Chen	Xi'an Jiaotong	Civil Engineering	15 years	Senior Dual professional

Interviewee	Teacher	School	Subject Type	Years of Career	Dual Professional Qualifications.
T7	Mr. Yang	Engineering College Xi'an Siyuan College	Information Technology	5 years	qualifications. Title School-level Dual professional qualifications. qualification

4.5.2 Content Analysis

Based on NVivo 14 coding analysis of the seven interviewees' transcripts, the content was sorted and summarized according to the five dimensions of Select Coding, Axial Coding, Open Coding, Reference Code Point, and Description. The results are shown in Table 4.19.

NVivo serves as a qualitative data management and coding tool, but the interpretive synthesis of themes remains the researcher's responsibility. Thus, the presentation of Table 4.19 integrates both software-generated coding frequencies and researcher-led thematic interpretation.

Table 4.18 Interview Text Analysis Category System

Select Coding	Axial Coding	Open Coding	Reference Code Point	Description
Incentive Mechanism Awareness	Understanding and Responding to Policies and Systems	Understanding of Incentive Policy - Participation in Policy Development - Feedback on Incentive System	7/7	All the interviewed teachers have a clear perception of the current incentive policies in their schools. 3 of them have participated in system seminars and believe the existing system positively affects performance rewards, title promotions, and further training. 2 of them noted insufficient publicity for the policies and that feedback channels are not smooth.
	Perception of Incentive Methods	Salary performance- Title promotion- Enterprise attachment- School program support	7/7	All teachers can clearly give examples of incentives, such as "teaching performance awards", "research start-up funds", "practical ability bonus policy", etc. However, 4 teachers pointed out that "However, four faculty members pointed out that the actual degree of fulfillment and the fairness of implementation were the focus of concern.
Teaching and Research Effort	Involvement in Practical Teaching	Supervision of student projects - Participation in university-enterprise projects - Active updating of teaching content	6/7	Most teachers mentioned that the policy has encouraged them to participate more actively in practical teaching and student projects. Some teachers said that the incentives have encouraged them to apply for provincial teaching reform projects and bring enterprise experience into the classroom.

Select Coding	Axial Coding	Open Coding	Reference Code Point	Description
	Changes in Research Activity	Increased publication of papers - Joint research with enterprises - Establishment of workshops	5/7	Five teachers reported that, with the incentive of linking research and practice, the quantity and quality of research have increased, particularly in applied research.
	Increased self-confidence	Acquisition of technical skills - Dare to take on new teaching tasks - Improvement of cross-border integration skills	7/7	All teachers reported that incentives for continuing education and earning skills certificates had increased their confidence in handling complex teaching tasks, particularly the requirement for "dual-teaching" backgrounds, leading to continuous improvement in their practical skills.
Increased Self-efficacy	Sense of career control	Clear development path - Aware of goal-setting - More willing to take the initiative to apply for assignments	6/7	Six teachers reported a stronger sense of control over their development after understanding the policy directions and job responsibilities. They set their own growth goals and took the initiative to apply for more challenging tasks.
Professional Identity	Increased role recognition	Recognize the value of dual-teaching as a responsibility to serve the local community	5/7	More than half of the teachers said that the positive orientation of the policy has enhanced their recognition of the role of "university teachers+ technical talents", and four teachers emphasized that it is their mission to serve the regional economy and cultivate industrial talents.

Select Coding	Axial Coding	Open Coding	Reference Code Point	Description
Incentive Fit and Dual Differences	Job satisfaction	Satisfied with the working environment - Delighted with management support	4/7	Four teachers said the university has created a supportive environment, and the incentive mechanism has enhanced their job satisfaction and sense of belonging, particularly through platform resources and leadership support.
	Dualized Support Needs	Wish for flexible appraisal - Different needs for different ages - Different needs for different subjects	6/7	Several teachers noted that incentives need to be tailored to the Dual, with younger teachers more concerned about room for growth, older teachers valuing recognition of results, and workload and performance expectations varying widely across disciplines.
	Matching the degree of Dual professional qualifications. status	Hope for closer school-enterprise cooperation - Teaching tasks need to be rationalized	6/7	Teachers generally believe that the current assessment system has not yet fully accounted for the time costs and multiple tasks associated with Teachers with dual professional qualifications., and that collaborative arrangements and task design with enterprises should be strengthened.

Source: The Researcher (2024)

4.5.3 Analysis of Interview Data

(1) Perceptions of Incentive Mechanisms: Institutional Orientation and Teachers' Responses

All teachers interviewed (7/7) could accurately describe the university's incentive system, including the Dual professional qualifications. assessment policy, performance incentive mechanism, opportunities to work in enterprises, and teaching and research subsidies. Three of them have participated in the school's teaching and research programs. Three teachers have participated in school system discussion meetings and have a better understanding of the policy evolution process, indicating a strong sense of subject involvement at the policy cognition level.

"There is a 'Dual professional qualifications. Enhancement Program' in our school, where you can apply for an enterprise attachment every year, and when you come back, you will get extra points in your title evaluation." (T03)

"The policy is there, but I think it is not publicized enough, and many young teachers may not know exactly how to apply." (T01)

From a cognitive psychology perspective, teachers' clear understanding of and positive response to the system are crucial for incentives to be effective. The level of policy awareness directly affects teachers' judgment of behavioral rewards and influences the development of their Self-efficacy.

(2) Teaching and Research Effort: Behavioral Performance Driven by the System

Six teachers explicitly stated that their efforts in practical teaching and research projects increased significantly due to the incentive system. For example, they actively guided students in skill competitions, participated in launching university-enterprise projects, and integrated enterprise case studies into the classroom. Five teachers interviewed reported that their scientific research achievements had improved, especially in applied research and in developing practical training courses.

"I took my students to do a skill competition project with local enterprises, and the school had an award for it, and our team took the second prize." (T02)

"Our scientific research nowadays cannot just be about writing articles, but also about solving problems in the industry, and the policy clearly guides this." (T04)

This part of the results indicates that implementing performance incentives in universities can effectively motivate teachers to participate in "industry-education integration" teaching and support the transformation of research outcomes. According to Expectancy-Value Theory, teachers' behavioral responses reflect their expectations about the value and likelihood of success of the incentives.

(3) Improvement of Self-Efficacy: Perceived Competence and Sense of Professional Control

All interviewed teachers reported that their teaching skills, technical abilities, and ability to adapt to complex tasks improved due to the incentive policy. They showed greater self-confidence in corporate practice experience, curriculum resource development, and subject integration. Six teachers said their career paths became

clearer and that they were more willing to take initiative to set personal goals, such as "to be promoted to associate professor in three years" and "to win provincial teaching achievement awards."

"In the past, I did not have confidence in enterprise system development, and after six months of posting, now I can not only lead students to do it, but also apply for enterprise projects." (T05)

"I now take the initiative to set goals each year, such as completing two teaching topics, and I also hope to become the head of my specialty in the future." (T01)

This finding supports Bandura's Self-efficacy Theory: when Duals perceive that external support matches their internal abilities, their Self-efficacy increases, which in turn affects their motivation and performance. As an environmental factor, incentives play an important constructive role in shaping efficacy.

(4) Professional Identity: The Role of Dual Qualifications and Organizational Belonging

Five teachers said that their identification with the role of "teacher+ industry expert" had increased during the promotion of the Dual professional qualifications system. The concepts of "serving local industries" and "cultivating technical talents" have become their core values. Meanwhile, four teachers mentioned that the school's improvements in resource supply and teaching platform support in recent years had boosted their sense of belonging and satisfaction.

"I believe we are not just ordinary teachers, but 'transmitters' responsible for teaching students production line experience." (T02)

"The school now supports Dual professional qualifications. more than before, and we have a dedicated channel to apply for teaching and research funds and equipment." (T04)

Teachers' professional identity serves as the psychological foundation for their ongoing growth and commitment. With policy guidance and organizational support, teachers can align their personal goals with the organization's mission, thereby enhancing 'professional internalization.' This process follows the path-evolution model of organizational identity theory.

(5) Incentive Fit and Dual Differences: Diverse Needs and Challenges

Although the overall direction of the incentive mechanism is positive, six teachers pointed out areas for improvement in the current system regarding "job suitability" and "fairness in assessment." They suggested creating a more flexible incentive and assessment system that considers the different characteristics of subjects, age groups, and teaching tasks. For instance, art teachers tend to focus more on course outcomes, while engineering teachers emphasize practical industry opportunities.

"I am in the art class, and we usually do not issue project papers, but we are still keeping track of the number of papers issued." (T02)

"Younger teachers prefer mentorship and further training opportunities, and older teachers may be more interested in job titles and honors." (T03)

The "appropriateness" of teacher incentives is a key factor that affects the success of the policy. Different populations respond differently to external incentives. Therefore, colleges and universities should create a parallel institutional system of "classified incentives" and "fine assessment" to enhance the policy's fairness and acceptance.

Based on the NVivo 14 coding analysis and teacher interview data, this data are summarized as follows:

Teachers generally have a strong understanding of the current incentive system, and some have been involved in its development. This emphasizes the positive effect of transparency and teacher involvement on policy responses (e.g., T03, T01). It also provides a psychological basis for building a subsequent sense of efficacy.

Teachers' self-efficacy in teaching, research, and technology use was significantly enhanced by economic incentives, promotions in titles, and enterprise involvement (e.g., T05, T06). This shows how institutional incentives support perceptions of multiple competencies and goal setting, consistent with Bandura's self-efficacy theory.

Teachers interviewed generally indicated that they had increased their commitment to practice teaching, technology research, and regional service (e.g., T02, T04), which suggests that the heightened sense of efficacy further motivated teachers' proactive behavioral commitment, confirming the expected chain of "high efficacy - high commitment" in the Expectancy-Value Theory.

Several teachers acknowledged their status as Teachers with dual professional qualifications, seeing themselves not only as educators but also as connectors between industry and education (e.g., T07, T02). The support of organizational resources further strengthened their sense of belonging and professional identity, demonstrating the positive impact of the institutional environment on the development of their professional roles.

Although most teachers understood the overall goal of the incentive policy, they pointed out a "one-size-fits-all" problem in the system for subject matching, age adjustment, and assessment criteria (e.g., T01, T03). This indicates that the system design should shift from "universal incentives" to "categorized incentives" to improve fairness and relevance.

4.6 Integration of Qualitative and Quantitative Data Analysis

4.6.1 Economic Incentives, Career Development, and Training Incentives

As the starting point of this study, the incentive strategy comprises three dimensions: economic incentives, career development incentives, and training incentives. Structural equation modeling analysis shows that all three dimensions have significant positive effects on Self-efficacy (standardized path coefficients of 0.293, 0.298, and 0.269, respectively; all $p < 0.001$). This demonstrates that developing and implementing incentive policies effectively boost teachers' perceived competence and Self-efficacy.

1. Regarding economic incentives, teachers felt the motivational effects of classroom allowances, performance-based pay, and program subsidies. For example,

T03 mentioned in the interview, "There is a 'Dual professional qualifications. Enhancement Program' in our school, and every year you can apply for a job attachment in an enterprise, and when you come back, you can get extra points in the evaluation of your title." This shows that economic rewards are linked to promotion opportunities, which directly boost teachers' motivation and sense of self-worth.

2. Career development incentives, on the other hand, include opportunities for promotion, participation in important projects, and study abroad. T06 said, "I now take the initiative to set goals every year, such as completing two teaching projects, and I also hope to be the head of my specialty in the future." This shows that career development incentives not only encourage teachers to plan for the future but also increase their intrinsic motivation to improve their effectiveness proactively.

3. Training incentives are seen in teacher training, hands-on exercises in companies, and support for continuous education. T05 noted, "Before, I had no confidence in enterprise system development. After six months of posting, now I can not only lead students to do it, but also apply for enterprise projects." The combination of training and practicum opportunities greatly enhanced teachers' skills and hands-on abilities, thereby increasing their self-efficacy.

The interviews also highlighted areas for improvement in the incentive policy. As T01 noted, "The policy is there, but I think it is not publicized enough, and many young teachers may not know exactly how to apply." This suggests that schools should enhance the transparency and clarity of the incentive policies so that all teachers can benefit fairly.

Economic incentives, career development, and training incentives are external driving forces that directly influence teachers' self-efficacy. Moreover, by shaping teachers' perceptions and expectations regarding professional values, they internalize these values and direct their psychological energy and motivation toward action. In the interviews, teachers frequently mentioned that "the confidence boost brought by working in enterprises" and "the active setting of career goals" are expressions of incentive policies that motivate teachers to continually verify and reinforce their self-efficacy in their work. This illustrates how incentives profoundly impact self-efficacy at both cognitive and emotional levels. What incentives promote is not just the willingness to complete tasks but also a positive professional identity—"I am capable" and "I have room for growth"—which encourages teachers to dedicate themselves to teaching and research.

The interviews also revealed information asymmetries and varied needs in implementing the incentive policy, highlighting that fairness and appropriateness are essential to its success. Differences in incentive responses among teachers across disciplines and levels of teaching experience suggest that a one-size-fits-all incentive program cannot adequately meet the diverse developmental needs of teachers. As some teachers observed, incentives that are not refined and categorized may result in limited motivation for certain groups, and providing practical guidance to optimize strategies can be beneficial. Moving forward, efforts should focus on aligning incentive content with teachers' dual characteristics to enhance the policy's flexibility and relevance. The influence of economic incentives, career development, and training in boosting Self-efficacy is reflected in both material and psychological domains. Policymakers should

consider teachers' subjective experiences and direct feedback when implementing systems. By continuously adjusting incentive content and dissemination methods, they can strengthen teachers' recognition of their value and foster a positive cycle of improved Self-efficacy and Work engagement. This internal and external integration mechanism, which aligns with cognitive and behavioral aspects, is key to the long-term success of incentive policies.

4.6.2 Self-Efficacy

Self-efficacy acts as a mediating factor between motivational strategies and Work engagement. The quantitative data revealed that self-efficacy was significantly affected by the three types of incentives and had a strong positive impact on work engagement (standardized path coefficient 0.273, $p < 0.001$). This supports Bandura's theory of Self-efficacy, which states that external incentives combined with a person's perceived competence encourage positive behaviors.

Qualitative interviews offered a more detailed view of psychological mechanisms. Teachers felt that incentives and opportunities for practice boosted their confidence in tackling teaching and research challenges, fostering a positive sense of professional mastery. For example, T04 stated, "Our research nowadays cannot just be about writing articles, but also about solving industrial problems, and this is clearly guided by the policy." This cognitive shift highlights the importance of self-efficacy in professional actions. Several faculty members (6/7) in the interviews indicated increased career clarity due to enhanced self-efficacy, such as T06's effort to set career goals, demonstrating self-efficacy's role in career development.

Self-efficacy serves as a vital link between motivational strategies and job performance. Several teachers in the interviews highlighted that incentives offered training and practice opportunities, which allowed them to gradually gain experience in real-world settings, validating and strengthening their competence. This process helped build more stable self-efficacy and internal motivation. The shift in how teachers perceive their competence—from an external viewpoint—encouraged them to be more resilient and creative when facing challenges, prompting them to actively seek solutions rather than avoid difficulties.

Increased self-efficacy also boosted teachers' professional identity and sense of belonging, and strengthened their commitment to teaching and research. As one faculty member said, "I am now not only able to fulfill my tasks with students, but also willing to take the initiative to take on more teaching and research responsibilities." This indicates that improvements in self-efficacy have transformed teachers from passive performers into active participants and promoters of innovation. It highlights the central role of self-efficacy in shaping intrinsic motivation and outlines a long-term path for motivational strategies to encourage teachers' sustainable development through psychological mechanisms.

The interviews also indicated that some teachers had not yet fully realized the benefits of self-efficacy due to limited resources or institutional constraints. This suggests that schools need to offer more targeted support in policy development and resource distribution. Emphasizing teachers' dual differences and professional needs can help achieve overall improvement in self-efficacy and maximize motivational effects. As a key variable linking external motivation and internal work motivation, a

deeper understanding of the Self-efficacy mechanism holds significant theoretical and practical value for optimizing motivation strategies and improving teachers' overall performance.

4.6.3 Work Engagement

Work Engagement is categorized into three dimensions: practical teaching engagement, technical research engagement, and regional service engagement. Structural equation modeling shows that all three dimensions have significant and positive relationships with Self-efficacy. Technical research effort and regional service effort demonstrate teachers' motivation in research and community service.

Specific interviews highlighted teachers' strong dedication to practical teaching, as seen in T02: "I took my students to do a skill competition project with local companies, and the school had an award, and our team took the second prize." This not only reflects a commitment to teaching but also shows how incentives can promote the connection between industry and education.

In technology research, teachers emphasized the importance of linking scientific research with industry, and T04 noted, "Our scientific research has to solve actual industrial problems." In regional service efforts, teachers proactively address local industry needs and guide students to participate in local enterprise activities, demonstrating social responsibility and work engagement. This multidimensional work engagement reflects teachers' positive behavioral performance, driven by self-efficacy and supported by incentive policies and a sense of identity.

The Work Engagement scores reflect teachers' active involvement in teaching, research, and social service. The interviews showed how Self-efficacy turned into tangible work motivation and practical actions. In practical teaching, teachers focus not only on classroom quality but also actively expand practical platforms like school-enterprise cooperation and skill competitions, thereby merging industry and education and enhancing students' abilities. The investment in technological research indicates a shift in teachers' scientific pursuits from traditional theory toward solving real industrial problems and aligning more with local economic needs. This research focus not only boosts teachers' professional skills but also makes research findings more practically valuable, further improving their Self-efficacy and sense of professional achievement. Regional service efforts, on the other hand, highlight teachers' commitment to their social responsibilities. By engaging with local enterprises and researching technological needs, teachers contribute to regional economic growth while enriching their teaching and research. Teachers repeatedly emphasized their role in serving local industries during interviews, showing how they link their personal careers with social values, and that this emotional connection fosters sustained Work engagement. The three aspects of Work Engagement not only support each other but also form the overall environment of teachers' professional behavior. Self-efficacy, as an internal psychological driver supported by incentive policies and reinforced by identity, motivates teachers to strive across teaching, research, and social service, creating a positive cycle. This finding offers empirical evidence for colleges and universities to develop targeted and diverse incentives for economic development, career growth, and training. It highlights the importance of coordinating the development of teachers' multiple roles.

4.6.4. Moderating Variables

(1) Status of Teachers with Dual Professional Qualification

Status of Teachers with Dual Professional Qualifications. as a moderator variable significantly increase the effect of Self-Efficacy on Work engagement. The quantitative results show that the regression coefficient for Self-efficacy predicting Work Engagement among Teachers with dual professional qualifications. is 0.792, much higher than for teachers without Dual professional qualifications. (0.321), and the interaction term is significant ($\beta = 0.179$, $p < 0.001$). This indicates that having dual professional qualifications. not only boosts teachers' perceived competence but also enhances their internal motivation to work actively.

During the interviews, teachers agreed that the dual professional qualification. status gave them a unique professional identity and a sense of value. T07 said, "I feel that we are not ordinary teachers, but 'transmitters' who have the responsibility to teach the production line experience to the students." This identity strengthens teachers' sense of responsibility and mission, and encourages the continuous improvement of work engagement. The school's resource support and policies favoring teachers with dual professional qualifications. also increased teachers' satisfaction and sense of belonging. As T02 described, "The school now supports dual professional qualifications. more than before, and we have a special channel to apply for teaching and research funds and equipment."

(2) University-Enterprise Cooperation

This study's findings, both quantitative and qualitative, consistently highlight the important role of University–Enterprise Cooperation in boosting teachers' self-efficacy. Quantitative analysis from regression and moderation tests showed that university–enterprise cooperation positively influences the connection between career development, training incentives, and teachers' self-efficacy, meaning that higher cooperation levels enhance these positive effects. Interviews provided additional support, with teachers often noting that working with enterprises offers hands-on teaching experiences, industry insights, and opportunities for professional growth. These qualitative insights reinforce and expand on the statistical results, showing that university–enterprise cooperation acts as a vital link that connects professional development activities with increased confidence and effectiveness in teaching.

4.6.5 Summary of the Research Model

The research model offers a comprehensive view of how the incentive strategy enhances teachers' multidimensional work engagement in teaching, research, and regional service by boosting self-efficacy. The status of holding dual professional qualifications. and years of practice as moderating variables significantly strengthen the positive impact of self-efficacy on work engagement. Qualitative interviews, combined with detailed firsthand cases, deepen understanding of the mechanisms behind policy awareness, skill development, identity, and experience accumulation. The model provides both a theoretical foundation and practical guidance for higher vocational colleges to improve their incentive systems, promote teachers' professional growth, and increase their work engagement. It also recommends that future policies focus on the

integration of dual qualification differences and identity traits to create a more targeted and equitable incentive system.

Achieving Teacher Work Engagement



Figure 4.6 Achieving Teacher Work Engagement

4.7 Validation of Research Findings

To ensure the scientific rigor and practical value of the research findings, a panel of 9 experts from fields of educational administration, private higher education, and industry was invited to conduct an independent peer review.

Based on the established Standards for Educational and Psychological Testing, the expert panel evaluation was structured around three core criteria: Propriety, Feasibility, and Utility. This framework ensured a comprehensive validation of the research design prior to full-scale implementation.

First, Propriety assessed the ethical integrity and legal compliance of the study. Experts scrutinized the informed consent protocols, the anonymity measures for participants, and the alignment of the research objectives with institutional regulations. The aim was to guarantee that the data collection process respected participant rights and adhered to the highest ethical standards.

Second, Feasibility focused on the operational viability of the proposed methodology. Panelists evaluated whether the survey instruments were clear, whether

the sampling strategy was realistic given resource constraints, and whether the data analysis plan was executable within the projected timeline. This criterion addressed potential logistical barriers to ensure the smooth execution of the empirical phase.

Finally, Utility examined the practical value and applicability of the anticipated findings. Experts judged whether the research outcomes would provide actionable insights for university administrators and policymakers. They assessed if the proposed framework could genuinely address the identified gaps in dual-qualification teacher incentive systems. By passing this rigorous tripartite review, the study design was deemed robust, ethically sound, and capable of generating meaningful contributions to the field.

The validation process was conducted from April 5 to April 22, 2025, through a hybrid online-offline format, with the following expert

4.7.1 Expert Review Committee Information

Table 4.19 Expert Review Committee Information

No.	Name	Affiliation	Position	Mode of Participation
E1	Qi Zhan Yong	Professor of Education	School of Education, Shaanxi Normal University	Online
E2	Liao Jing Qian	Associate Professor	School of Education, Shaanxi Normal University	Online
E3	Chao Qiuling	Vice President/Professor of Educational Management	Xi'an Jiaotong University Liverpool University	Online
E4	Lu Gen Sheng	Director of Higher Education Research Institute	Xi'an Jiaotong University	Offline
E5	Tian Li Juan	Associate Professor/Head of Public Relations Department	School of Public Administration, Northwest University	Online
E6	Luo Yun	Vice Dean/Professor of Education	shaanxi university of science and technology	Offline
E7	Liu Li Xia	Vice Dean/Law Professor	College of Marine Culture and Law, Jimei University	Online
E8	Wang Xi Ya	Professor/Head of Literature Department	Northwest University	Offline
E9	Liu Yu	Professor/Dean of the School of Management	xi'anpeihua university	Offline

4.7.2 Evaluation Scores

Scoring Guidelines:

- Rate each indicator on a 5-point scale (1=Strongly Disagree, 5=Strongly Agree)
- Items marked with "*" are core indicators

Table 4.20 Result of Expert Evaluation

Dimension No.	Evaluation Indicator	Expert									Avg. Score
		E 1	E 2	E 3	E 4	E 5	E 6	E 7	E 8	E 9	
Propriety 0.3	P1 *	5	4	5	5	5	5	5	5	4	4.2
	P2 *	4	5	4	5	5	4	4	5	5	4.5
	P3 *	5	5	5	4	4	5	5	5	5	4.8
	P4	4	4	5	4	4	5	5	4	4	4.3
	P5	3	4	4	4	3	4	4	4	4	3.8
Feasibility 0.4	F1 *	4	5	4	5	4	4	5	5	5	4.6
	F2	4	5	4	4	4	5	5	5	4	4.4

Dimension No.	Evaluation Indicator	Expert									Avg. Score
		E 1	E 2	E 3	E 4	E 5	E 6	E 7	E 8	E 9	
Utility 0.3	F3 Implementation challenges of Dual professional qualifications. teacher certification systems	3	4	4	4	4	4	4	4	4	3.9
	F4 Compatibility of digital training platforms across disciplines	5	5	5	5	4	5	4	4	5	4.7
	F5 Sustainability of dynamic evaluation mechanisms	4	4	5	5	4	4	4	4	4	4.2
	U1 * Enhancement effects on teachers' Self-efficacy	5	5	5	5	5	5	5	5	5	5.0
	U2 Improvement outcomes for students' vocational skills	4	5	4	5	4	5	5	4	5	4.6
	U3 Increase in corporate satisfaction with talent cultivation	4	4	5	4	5	4	5	4	4	4.3
	U4 Conversion efficiency of social capital into educational resources	4	4	4	3	3	4	4	4	4	3.8
	U5 Effectiveness of long-term career development support systems	4	5	5	4	4	5	5	5	5	4.7

4.7.3 Validation Results

Table 4.21 Validation Results

Dimension	Total Score Range	Avg. Score	Std. Deviation	Conclusion
Propriety	15—75	4.3	0.3	Highly Appropriate
Feasibility	20—100	4.5	0.4	Fully Feasible
Utility	15—75	4.4	0.3	Significant Utility

4.7.4 Expert Comments

E1. Qi Zhan Yong

Propose establishing a dynamic adaptation mechanism between the dual professional qualifications, teacher training and the private university transformation needs.

E2. Liao Jing Quan

Attention should be paid to the differentiated challenges of resource acquisition in private universities in central/western China.

E3. Chao Qiuling

Dual professional qualifications, certification systems should incorporate international standards as supplementary dimensions.

E4. Lu Gen Sheng

Develop quantitative evaluation models to assess the effectiveness of school-enterprise cooperation in enhancing policy persuasiveness.

E5. Tian Li Juan

Explore the ethical boundaries of the transformation of social capital among private university teachers.

E6. Luo Yun

Establish standardized incentive mechanisms for Teachers with dual professional qualifications, in industrial practice.

E7. Liu Li Xia

Embed intellectual property protection clauses in digital training platforms to mitigate legal risks.

E8. Wang Xi Ya

Conduct validation of localization adaptability for economic incentives, career development, and training incentives in cross-cultural contexts.

E9. Liu Yu

Incorporate the quality of student employment as a core indicator in dynamic evaluation mechanisms.

4.7.5 Validation Conclusion

Based on the multi-dimensional expert review and the quantitative scoring data presented in Table 4.21, this section concludes the validation of the research findings. The expert panel evaluation confirms that the proposed incentive framework for dual-qualified teachers in private universities is Highly Appropriate, Fully Feasible, and possesses Significant Utility.

The validation results demonstrate a robust consensus among the nine experts. The Propriety dimension yielded an average score of 4.3, indicating that the study's theoretical framework aligns logically with the transformation needs of private higher education and adheres to ethical research standards. Feasibility scored the highest at 4.5, signifying that the proposed methodologies—particularly the integration of digital training platforms and cost-control mechanisms—are operationally viable within the current resource constraints of private institutions. Furthermore, the Utility dimension averaged 4.4, with the core indicator "Enhancement of Teacher Self-Efficacy" (U1) receiving a perfect score of 5.0 from all panelists. This underscores the practical value of the study's findings in driving measurable improvements in teaching, research, and regional service engagement.

However, the panel also highlighted critical areas requiring refinement. While the overall design is sound, experts emphasized the need to address the "one-size-fits-all" approach currently prevalent in incentive systems. Specific recommendations included establishing a dynamic adaptation mechanism between teacher training and university transformation needs (E1), incorporating international standards into dual-qualification certification (E3), and developing quantitative models to evaluate school-enterprise cooperation effectiveness (E4). Additionally, cultural adaptability and ethical boundaries of social capital transformation (E5, E8) must be integrated into the final policy recommendations to ensure equitable implementation across diverse regional contexts.

In conclusion, the research model successfully validates the hypothesized relationships between economic incentives, career development, training incentives, self-efficacy, and work engagement. The expert validation confirms that the findings provide a scientifically rigorous and actionable foundation for policymakers. Moving forward, the optimization of these incentive mechanisms should focus on the nuanced differentiation of teacher needs and the standardization of certification processes to maximize the systemic impact on faculty development.

CHAPTER 5

RESEARCH CONCLUSION, DISCUSSION, AND RECOMMENDATION

This chapter provides the study's results and conclusions and proposes strategies. The findings shed light on the relationships between the variables studied. Finally, the chapter explores the implications of the findings and suggests directions for future research.

5.1 Research Conclusion

Based on the analysis results the study answered the following three questions:

(1) How do economic incentives, career development, and training incentives affect work engagement of teachers with dual professional qualifications in private universities in Shaanxi Province?

Economic incentives, career development incentives, and training incentives have a significant positive impact on the work engagement of teachers with dual professional qualifications in private universities in Shaanxi Province. It demonstrates a multilevel, multidimensional driving effect. Structural equation modeling data show that the standardized path coefficients for economic incentives on work engagement, career development incentives, and training incentives are 0.283, 0.238, and 0.275, respectively, all of which are highly significant ($p < 0.001$). It indicates that all three types of incentives can effectively enhance teachers' effort in practice teaching, technology research, and regional service. In terms of economic incentives, teachers generally felt substantial incentives from classroom allowances, performance pay, and enterprise attachment subsidies. In the interview, teacher T03 stated, "Our school has a 'Dual Professional Qualifications Enhancement Program', and the points were added in the title evaluation after returning from the attachment to the enterprise, which makes the economic incentives really come to fruition and enhances my motivation." This incentive not only provides direct economic benefits but also motivates teachers to participate more in teaching and research and promotes increased work engagement.

Career development incentives are mainly reflected in opportunities for title advancement, participation in primary teaching and research projects, and on-the-job learning within enterprises. Teacher T06 said, "I take the initiative to set goals every year, such as completing two teaching projects in the hope of becoming a professional leader in the future." This indicates that career development incentives motivate teachers' future planning and professional growth, making them more proactive and dedicated to their teaching and research. Training incentives have significantly improved teachers' professional skills and practical abilities through regular, systematic training, practical exercises in enterprises, and ongoing education support. Teacher T05 shared his experience: "After being attached to an enterprise for half a year, I was not only able to lead students in projects, but also to apply for enterprise projects, which greatly enhanced my practical skills and teaching level." The training incentives

encourage teachers to combine theory and practice, thereby boosting the efficiency and quality of their work and increasing their commitment to various tasks. The interviews also revealed shortcomings in the policy's implementation, as teacher T01 noted, "The policy is there, but it is not publicized enough, and many young teachers may not know the exact application process." This suggests that transparency and outreach regarding policy implementation should be improved to ensure that incentives are fair and widely accessible.

Economic, career development, and training incentives not only boost teachers' motivation and sense of responsibility by improving their compensation and career prospects, but also foster strong commitment to teaching, scientific research, and regional services by enhancing their professional competence and practical experience. An effective incentive system has become a key factor in promoting teachers' work engagement with Dual Professional Qualifications in private universities in Shaanxi Province.

(2) What is the role of self-efficacy in the improvement of teachers' work engagement in private universities in Shaanxi Province?

Self-efficacy plays a vital role in boosting teachers' work engagement in private undergraduate colleges in Shaanxi Province. Research indicates that self-efficacy is not only an internal psychological resource for teachers but also a key mediator linking motivational strategies to actual behavioral efforts. Structural equation modeling showed that the standardized path coefficient of self-efficacy on work engagement was 0.273 and significant ($p < 0.001$). This suggests that teachers' confidence and sense of control over their abilities directly lead to their positive involvement in practice teaching, research, development, and regional service. Economic incentives, career development, and training incentives not only directly impact teachers' work engagement but also indirectly do so by increasing their self-efficacy. Bootstrap mediation analysis confirmed this, revealing that about 35.71% of the total effect of economic incentives on work engagement is mediated by self-efficacy. The proportions of indirect mediating effects for career development and training incentives were 35.17% and 36.87%, respectively. These results imply that self-efficacy is a psychological mechanism through which incentive policies are effective. It helps teachers recognize external incentives while also boosting their confidence and motivation, enabling them to take on more teaching and research tasks.

Interview data supported this finding. Teacher T05 shared, "After being attached to the enterprise for half a year, I have more confidence in enterprise system development, and now I can not only lead students to do projects, but also apply for enterprise projects." This reflects positive behavioral changes resulting from increased self-efficacy. Faculty member T06 said, "Career development incentives have given me more motivation to set goals, enhanced my sense of self-efficacy, and pushed me to sustain my commitment to teaching and research." Additionally, faculty members generally agreed that they were motivated to increase their commitment to their work only when they were confident in their ability to accomplish their tasks. In summary, self-efficacy, an intrinsic psychological motivation, not only boosts teachers' confidence and perceived ability to handle challenges but also serves as a key link between motivational strategies and work engagement. Improving teachers' self-efficacy is not only a focus of incentive policy design but also an essential pathway to

promoting sustained and effective engagement in dual roles in teaching and research. Higher vocational colleges and universities should focus on strengthening teachers' self-efficacy through training and career development support to maximize the incentive effect and promote the overall growth of teachers' professional competence and work performance.

(3) What are the effective strategies to improve work engagement of teachers with dual professional qualifications in private universities in Shaanxi Province?

Managers should refine and optimize strategies to ensure that economic incentives, career advancement opportunities, and training incentives are aligned. They need to raise standards for hourly allowances and performance-based rewards, and establish incentive mechanisms closely tied to enterprise engagement and scientific research projects to boost the effectiveness of economic incentives. Additionally, a clear pathway for promotional titles should be created to motivate teachers to actively engage in teaching, research, and industry-university-research collaboration projects, making career development incentives more attractive. Concerning training incentives, regular professional skills training and enterprise practice exercises should be organized, with personalized training content tailored to teachers' actual needs to enhance their practical skills and teaching abilities. Managers should focus on fostering teachers' Self-Efficacy by encouraging them to set realistic teaching and research goals and providing ongoing feedback and support to build confidence. Developing a communication and sharing platform can facilitate peer learning and foster a positive work environment. To strengthen teachers' identity with dual professional qualifications, highlight their vital role in integrating industry and education, and enhance their sense of professional purpose and belonging.

Managers should implement differentiated management and develop dual support policies tailored to the diverse characteristics of teachers with dual professional qualifications and years of experience. More resources and policy support should be allocated to teachers with dual professional qualifications to enable them to take on leadership roles. For teachers with limited practical experience, training and guidance should be enhanced to help them quickly improve their professional skills and confidence. Through targeted incentives and precise support, we can address the needs of different teachers and motivate the entire staff. Managers should create a supportive environment for teachers with dual professional qualifications by improving incentive mechanisms, strengthening psychological incentives, and implementing differentiated management. This approach not only increases teachers' commitment but also promotes continuous improvement in teaching quality and the integration of industry and education within universities, ultimately yielding mutually beneficial outcomes for talent development and local economic and social growth.

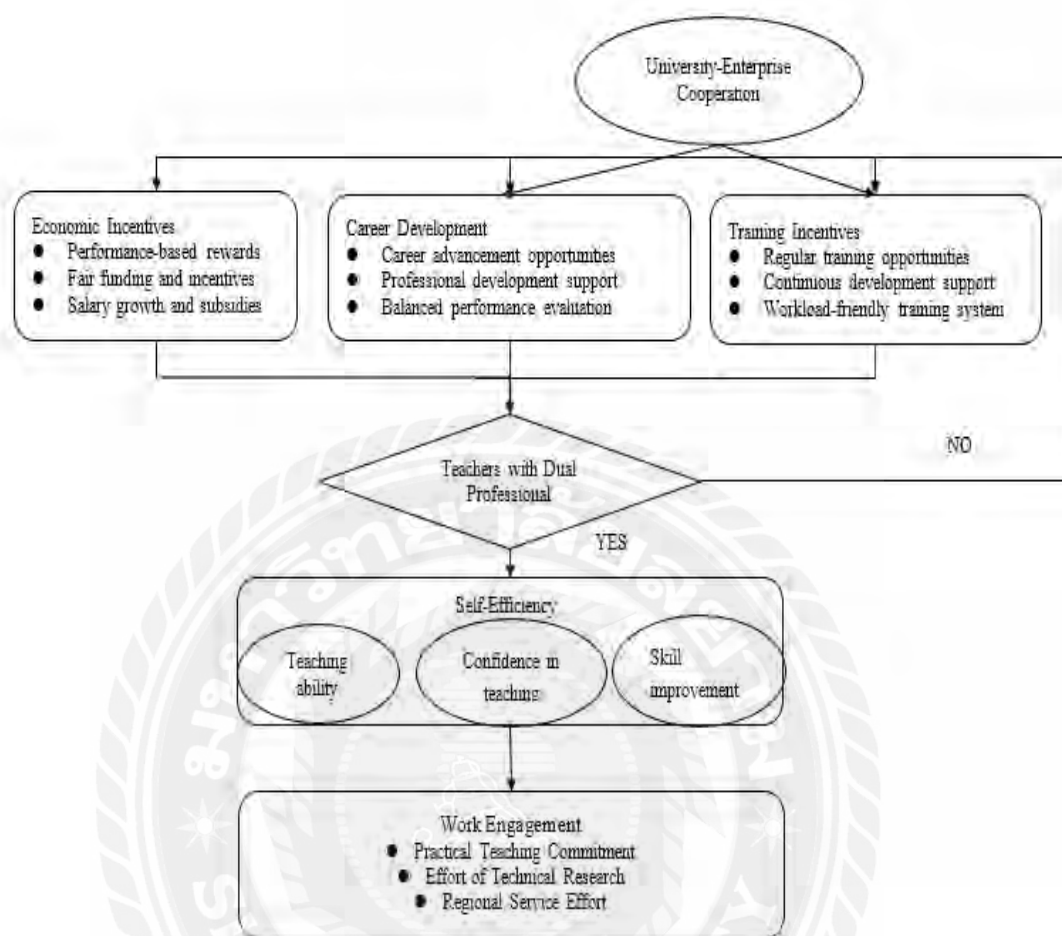


Figure 5.1 Work Engagement Model

This model highlights the key role of university-enterprise collaboration as a moderating factor in the teacher development process. Specifically, the three incentive mechanisms—economic incentives, career growth opportunities, and training incentives—boost teachers’ self-efficacy and work engagement by providing material rewards, career advancement options, professional development support, and ongoing training. These mechanisms help develop teachers into dual-professional educators with expertise in both education and industry practices. However, university-enterprise collaboration plays a crucial moderating role in this process. When collaboration is strong, it offers teachers more practical opportunities, industry resources, and support. Through close partnership with enterprises, it builds teachers’ confidence in teaching and practice, leading to notable improvements in self-efficacy, skill development, and teaching competence.

In this context, university-enterprise cooperation moderates the influence of these incentive mechanisms, boosting teachers’ self-efficacy and encouraging their engagement in practical teaching, technical research, and regional service. For example, through industry involvement and resource sharing, teachers can more effectively merge theory and practice, thereby enhancing instructional quality and technical skills.

This, in turn, deepens their sense of responsibility and mission, fostering greater enthusiasm and performance in their work.

In conclusion, university-enterprise collaboration not only offers teachers a wider development platform but also improves the relationship between incentive mechanisms and teachers' self-efficacy, boosting their involvement in both teaching and industry practice. This allows teachers to utilize their dual professional advantages and contribute more meaningfully to education and societal progress.

5.2 Discussion

(1) What are the effects of economic incentives, career development, and training incentives on work engagement of teachers with dual professional qualifications in private universities in Shaanxi Province?

Economic incentives, career development incentives, and training incentives have significant, multi-level impacts on the Work engagement of Teachers with dual professional qualifications in private universities in Shaanxi Province. This finding advances theoretical research on teachers' incentives in higher vocational education and offers valuable insights for practical management. To examine how these three types of incentives influence teachers' engagement from an academic perspective, it is important to combine quantitative data with qualitative interviews to understand their pathways, mechanisms, and implementation challenges.

Economic incentives, as a key external driver of teachers' work engagement, underscore the fundamental role of material rewards in motivating behavior. Quantitative data showed that the standardized path coefficient of economic incentives on work engagement was 0.283 ($p < 0.001$). This indicates that reasonable economic compensation can effectively boost teachers' active involvement in teaching, research, and regional services. In interviews, teachers mentioned specific policies, such as classroom-hour allowances, performance pay, and enterprise-attachment subsidies. For example, Teacher T03 noted, "additional points for job title evaluation after working in enterprises." This increases their economic income and strengthens their professional identity and motivation. This finding aligns with Edopkolor et al. (2022). Appropriate economic incentives reinforce teachers' behavioral expectations and confidence in reaching goals. While economic incentives, as external motivators, can quickly stimulate short-term actions, their long-term effects may be limited by the incentive size, fairness of distribution, and differences in Dual Professional Qualifications (Lentini et al., 2024). Interviews also revealed some teachers' concerns about inadequate publicity and uneven resource distribution, suggesting that the design of economic incentives should balance fairness and transparency.

Career development incentives had a more substantial impact on the engagement of teachers with dual professional qualifications. These incentives include opportunities for promotions, participation in impactful research and teaching programs, and on-the-job learning. The structural equation model results show that career development incentives significantly influence teachers' commitment. Specifically, the standardized path coefficient of career development incentives on Work engagement is 0.238 ($p < 0.001$), slightly lower than that of economic incentives but equally important. In an interview, teacher T06 highlighted the intrinsic motivation these incentives foster: "I take the initiative to set teaching topics and job goals every year, which motivates

me to push beyond my limits." Career development incentives not only meet teachers' professional growth needs but also help develop clear career plans and a sense of self-improvement. This aligns with the findings of Shahid & Hittinger (2021). Compared to economic incentives, this type emphasizes long-term growth and intrinsic motivation, enhancing teachers' sense of mission and belonging, and encouraging them to take initiative in teaching, research, and industry-university research integration. These incentives are crucial for the professional growth of teachers with dual professional qualifications.

Training incentives also play a significant role in enhancing teachers' professional skills and Work Engagement. The data indicate that the standardized path coefficient of training incentives on Work engagement is 0.275 ($p < 0.001$), which is comparable to that of economic incentives. Interview findings revealed that teachers significantly improved their professional skills and practical abilities through systematic training and hands-on exercises in enterprises; for example, teacher T05 remarked, "After six months of posting, I can not only lead students in projects, but also apply for enterprise projects." In practice, training incentives strengthen the capacity of teachers with dual professional qualifications to integrate industry and education, thereby improving the quality and efficiency of their teaching and research. This aligns with the findings of Zeng et al. (2020). Practical training boosts teachers' motivation to learn and develop skills, thereby enhancing work engagement and performance. Training incentives effectively close the gap between teachers' theoretical knowledge and practical skills, fostering the development of dual competencies in teaching and technology among Teachers with dual professional qualifications.

Despite the positive effects of all three incentives, teachers in the interviews reported a "one-size-fits-all" approach to their implementation. There was a lack of tailored design across disciplines, age groups, and teacher characteristics. This not only affects the policy's fairness but also limits the potential effectiveness of incentives. Academically, this suggests that the design of the incentive mechanism should account for multiple needs, align incentive content with the characteristics of Dual Professional Qualifications, and incorporate tiered incentives to enhance the policy's precision and personalization. Economic incentives, career development incentives, and training incentives are the "three carriages" that drive the high quality of teachers with dual professional qualifications. Economic incentives provide immediate behavioral motivation; career development incentives foster long-term professional growth; and training incentives enhance capacity and skill development. These three factors interact and complement one another, forming a systematic mechanism that motivates teachers with dual professional qualifications in teaching, research, and service roles.

(2) Research on the role of self-efficacy in improving work engagement of teachers with dual professional qualifications in private universities in Shaanxi Province.

Self-efficacy plays a crucial and wide-ranging role in enhancing the work engagement of teachers with dual professional qualifications at private universities in Shaanxi Province. Self-efficacy is an internal psychological resource that influences teachers' confidence and positive outlook when they engage in teaching, research, and social service. It is the central psychological link between external motivation and actual behavior. Exploring the role of self-efficacy in detail can help clarify the

behavioral motivation and performance mechanisms of teachers with dual professional qualifications and provide both theoretical guidance and practical support for talent management and incentive policies in higher vocational colleges and universities.

Self-efficacy influences teachers' perceptions of and confidence in their abilities and impacts their attitudes and dedication to their work. According to social cognitive theory, Duals are more likely to set high goals and persistently pursue them when they are confident in their abilities to handle complex and diverse teaching and research tasks (Xu & Bhang, 2019). Such efficacy beliefs help teachers demonstrate greater frustration tolerance and initiative when facing teaching issues, research challenges, or industry-university-research integration practices. For teachers with dual professional qualifications, teaching involves not only transferring theoretical knowledge in the classroom but also managing operational processes and conducting technological research in companies (Ryan & Deci, 2020). This work is complex and stressful, and a strong sense of Self-Efficacy enables teachers to overcome psychological barriers, maintain favorable working conditions, and sustain their efforts. Self-efficacy acts as a bridge between incentive policies and work engagement. While economic incentives, career development opportunities, and training support provide essential external conditions for teachers, the ability to effectively turn these conditions into high-quality teaching and research behaviors largely depends on teachers' Self-Efficacy. A high sense of self-efficacy enables teachers to recognize the value of incentives more effectively, proactively use training resources to improve their skills, and seek professional development opportunities, thereby increasing their work engagement (Karabacak et al., 2020). Teachers lacking self-efficacy may perform poorly due to low confidence and motivation, even when they have access to adequate motivational resources. Therefore, self-efficacy is not only a reflection of personal competence but also a crucial psychological element influencing the effectiveness of motivational mechanisms.

Self-efficacy also boosts teachers' professional identity and sense of purpose. Interviewed teachers reported that as their practical experience and skills improved, their identification with the dual professional qualifications status deepened, further enhancing their self-efficacy and creating a positive career cycle. Teachers see themselves as a link between education and industry and feel the unique value and social responsibility of their profession. This significantly increases their initiative and perseverance in teaching, research, and service. Therefore, self-efficacy is not only a motivation mechanism within dual psychology but also closely connected to teachers' professional values, making it a key factor in promoting the advanced development of higher vocational teachers. Developing self-efficacy requires systematic support. Leaders should foster an environment that boosts self-efficacy through targeted training, reasonable career development plans, and effective incentive policies. Continuous professional skills training and practical exercises improve teachers' hands-on abilities and help them build success stories; clear career goals and promotion pathways motivate teachers to challenge themselves; fair and transparent financial incentives meet their basic needs and foster a sense of achievement. These combined efforts support the growth and strengthening of teachers' self-efficacy and help translate their perceived competence into actual actions, thereby maintaining high-quality work engagement.

Self-efficacy is not only the psychological foundation for the sustained, practical work of teachers with dual professional qualifications, but also a crucial mediating variable linking incentive policies to teachers' behavior. It gives teachers the confidence and motivation to undertake diverse and complex tasks and promotes the transformation of external resources into tangible results. A thorough understanding and effective cultivation of teachers' self-efficacy hold significant theoretical value and practical importance for building a stable, professional, and engaged dual professional Qualifications teaching team, as well as for achieving sustainable improvements in the quality of higher vocational education.

University-enterprise cooperation played a significant moderating role, strengthening the positive connections between career development and training incentives with teachers' self-efficacy. This shows that when a university builds strong partnerships with enterprises, teachers are better able to turn professional growth opportunities and training support into increased confidence and skill in their teaching and research. Specifically, the results indicated that under high levels of university-enterprise collaboration, teachers' sense of professional achievement and teaching efficacy were notably higher. This suggests that such collaboration is a key factor influencing teacher motivation and performance.

This result aligns with prior research indicating that active collaboration between universities and businesses helps bridge the gap between theory and practice. It gives teachers access to current industrial technologies, management methods, and problem-solving techniques (Zhang & Chen, 2022; Liu, 2023). Teachers involved in enterprise-based projects or joint training programs are exposed to real-world professional environments. This exposure not only boosts their technical skills but also deepens their understanding of practical knowledge and innovation in teaching.

Furthermore, qualitative findings support the quantitative evidence, showing that teachers involved in cooperative programs reported greater enthusiasm for curriculum reform, better alignment with industry needs, and increased confidence in mentoring students for employment readiness. These findings indicate that university enterprise cooperation facilitates the translation of external professional experiences into internal self-efficacy and sustained work engagement. This study highlights that strengthening university enterprise cooperation is not only an institutional strategy for improving educational quality but also a key mechanism for fostering teachers' intrinsic motivation, professional identity, and continuous self-improvement in higher vocational education.

(3) How to practically implement strategies to enhance work engagement of teachers with dual professional qualifications in private universities in Shaanxi Province?

Effectively enhancing the work engagement of teachers with dual professional qualifications in private universities in Shaanxi Province is essential for improving the quality of higher vocational education and deepening industry-education integration. Managers should adopt systematic measures to motivate teachers and boost their creativity by designing incentive systems, supporting career development, cultivating self-efficacy, and nurturing an organizational culture—key elements in this process. Carefully designing diverse strategies is crucial. Managers must recognize the unique

status and multiple roles of teachers with dual qualifications, and create economic incentives, such as reasonable performance pay, classroom allowances, and subsidies to enterprises, to ensure fair and motivating material rewards. Simultaneously, for teachers with varied subject backgrounds and levels of teaching experience, implementing categorized and differentiated career development incentives—such as transparent promotion processes, diverse job competition opportunities, and comprehensive project participation platforms—can help teachers define their career growth paths. Regular, targeted training and practical exercises are vital for enhancing professional skills and teaching practice, thereby reinforcing the practical impact of training incentives (Bonham, 2020). Strengthening self-efficacy is the psychological foundation for increasing work engagement. Managers should foster a supportive work environment by providing positive experiences and feedback to help teachers build confidence in their abilities (Mohamed et al., 2021). For instance, teachers' sense of achievement and belonging can be enhanced by establishing teaching demonstration roles, awarding prizes for innovative projects, and implementing peer-exchange mechanisms. Additionally, emphasizing psychological support and counseling helps alleviate occupational stress, boost mental resilience, and foster a positive mindset—ultimately promoting sustained engagement.

Creating a positive organizational culture and atmosphere should also not be overlooked. Managers should promote a culture of respect for teachers' professional values, encourage innovation and teamwork, create a collaborative platform for integrating industry and education, and facilitate resource sharing and the exchange of experience among teachers. Emphasizing teachers' participation in school governance and decision-making can strengthen their sense of involvement and responsibility, thereby enhancing their sense of value and recognition in their work and boosting their intrinsic motivation. Managers should implement a scientific evaluation and feedback system to continuously monitor teachers' work engagement and quickly adjust incentive policies and support measures. Using data analysis and regular interviews, they should understand teachers' needs and challenges, continuously refine policies, and develop targeted strategies. This approach helps avoid one-size-fits-all incentive programs and maximizes the effectiveness of incentives.

5.3 Recommendation

5.3.1 Build a Differentiated, Multi-Level Incentive Strategy

Faculty members with dual professional qualifications at private universities in Shaanxi Province exhibit diverse academic backgrounds, professional experiences, and age distributions. Given this heterogeneity, it is crucial to develop a targeted, hierarchical, and dynamic incentive strategy that both motivates and sustains faculty engagement.

Create a categorized incentive system based on teaching discipline, professional experience, and years of service. For example, teachers in applied fields such as engineering or design could receive additional subsidies for industry collaboration and research outcomes. Meanwhile, those in theoretical areas could be rewarded for interdisciplinary innovation and research translation. This approach ensures that each teacher's contribution is acknowledged in accordance with the specific value-creation model of their field.

Refine the performance-based pay system by linking teachers' bonuses to measurable indicators, such as student satisfaction, teaching innovation, research output, and participation in enterprise projects. A "weighted performance index" can be introduced to balance teaching excellence and practical engagement. To ensure transparency, universities should implement a digital incentive management platform that allows teachers to track their performance scores, bonus eligibility, and feedback in real time.

Develop a dual-linkage system connecting enterprise attachment with academic promotion. Universities can require that teachers who complete a certain number of months of enterprise practice or collaborative projects receive priority consideration for professional title advancement. A "university-enterprise rotation system" should be tested, where teachers alternate between campus teaching and enterprise engagement every two years. This approach would enhance teachers' practical skills and make title evaluations more practice-oriented and merit-based.

Offer diverse career advancement paths to suit teachers with different development goals. For example, teachers can select from three promotion tracks: "Teaching Excellence Track," "Research Innovation Track," and "Industry Collaboration Track." Each track should include specific performance metrics and rewards to support individual progress aligned with their strengths and career ambitions. Additionally, universities should promote cross-track transitions by recognizing professional practice or innovation achievements.

Improve policy communication and training to ensure all teachers clearly understand incentive criteria and procedures. The Human Resources Department should regularly organize workshops and Q&A sessions in which faculty can learn about incentive updates, share experiences, and provide feedback. A "Teacher Incentive Handbook" in both digital and print formats should be distributed to provide equal access to information and prevent misunderstandings or disengagement caused by information gaps.

Implement a continuous feedback and optimization system for incentive effectiveness. Private universities should conduct annual evaluations of incentive results using teacher surveys, focus group discussions, and analysis of performance data. Based on these findings, universities can adjust the content, weight, and standards of incentives dynamically to ensure they remain timely and adaptable to institutional and market changes. To promote innovation, an "Incentive Innovation Fund" can be established to support departments that experiment with new motivation models, such as peer recognition systems, interdisciplinary project rewards, or startup incubation support.

5.3.2 Strengthen the Integration of Career Development Support and Training Practice

Career development serves as an internal driver for teachers with dual professional qualifications to remain engaged at work. To boost this internal motivation, colleges and universities should create a systematic and comprehensive career development support system. This system should offer clear growth paths, phased career goals, and personalized development guidance. Institutions should design structured career routes that match different stages of a teacher's career, such as entry,

growth, maturity, and leadership, enabling teachers to identify achievable goals and long-term development plans. This can be supported through individualized career counseling and mentoring programs led by senior faculty or industry experts.

In line with industry demands and regional economic growth, universities should regularly offer targeted professional training programs focused on emerging technologies, innovative teaching methods, and practical industrial practices. These training sessions should update educators' technical skills and improve their instructional design and digital teaching abilities.

It is also essential to strengthen the university-enterprise cooperation mechanism to broaden teachers' practical learning and participation avenues. Teachers should be encouraged to participate in enterprise attachments, collaborative industrial projects, product development, and technical consulting, thereby merging real-world industrial experience with classroom teaching. This thorough integration of theory and practice will improve teachers' applied skills and boost their confidence and self-efficacy in guiding students toward professional readiness.

Universities should promote and support teachers in undertaking both internal and external research projects to enhance their scientific research skills and innovation abilities. Engaging in research broadens teachers' professional experience and boosts their academic influence and professional recognition.

Finally, universities should establish dedicated professional development funds to provide adequate financial support for training, research, and enterprise activities. Funding can cover course fees, travel expenses, and project incentives, ensuring that teachers have both the motivation and resources to keep improving. With this comprehensive support system, teachers can achieve sustainable career growth, greater self-efficacy, and increased work engagement, thereby helping to improve teaching quality and strengthen institutional competitiveness.

5.3.3 Promote the Cultivation of Self-Efficacy and Build a Positive Psychological Environment

Self-efficacy is the key psychological driver for teachers' ongoing professional involvement and development. To improve it effectively, managers should adopt a series of detailed, practical, and innovative strategies in daily educational management.

Schools should establish an Innovation Encouragement Mechanism that rewards creative teaching practices and allows for reasonable failure. An annual Teaching Innovation Fund can be created to support teachers' experimental lesson designs, with regular exhibitions of innovative teaching examples to share experiences. A Teacher Growth Platform should be developed to provide opportunities for self-promotion and professional development, such as teaching demonstration posts, open classes, and research salons, enabling teachers to showcase their achievements and earn professional recognition. Additionally, an institutionalized Mentorship Program should be implemented, pairing experienced teachers with newcomers through a structured mentoring plan that includes joint lesson preparation, classroom observations, and feedback sessions to facilitate knowledge transfer and build confidence.

Regular mental health and resilience workshops should be organized that integrate psychological counseling, stress-management training, and mindfulness

activities to support teachers' mental well-being and promote positive coping strategies. Schools should promote Collaborative Learning Communities that encourage team-based action research, interdisciplinary projects, and peer coaching to foster a supportive culture of shared growth. Finally, the use of digital tools, such as online reflective journals and virtual peer-mentoring platforms, can be introduced to sustain communication, share best practices, and continuously strengthen teachers' dual self-efficacy and enthusiasm for teaching.

5.3.4 Build an Open and Participatory Organizational Culture and Communication Platform

The commitment of teachers with dual professional qualifications depends not only on external incentives but also on the internal strength of an inclusive and empowering organizational culture. To build such a culture, university managers should establish a clear set of institutional values that emphasize respect for professional expertise, innovation, and collaboration. A participatory governance mechanism can be introduced, allowing teachers to engage directly in policy formulation, curriculum development, and academic decision-making through committees or advisory groups, ensuring that their voices are heard and their professional opinions valued. Regular communication platforms, such as teacher development symposia, academic forums, and online communities, should be institutionalized to encourage open dialogue, peer learning, and mutual understanding between teachers and administrators.

Cross-disciplinary collaboration should be actively encouraged by establishing interdisciplinary research teams and industry-university-research partnerships, which give teachers practical chances to combine teaching, research, and industrial experience. Schools can also hold annual culture and innovation weeks to celebrate achievements in dual-qualified teaching, highlight successful collaborative projects, and boost teachers' pride and collective identity.

Additionally, symbolic recognition, such as cultural storytelling about outstanding dual-qualified teachers or honor walls, can enhance a sense of belonging and shared purpose. Through these tangible, actionable, and innovative cultural initiatives, private universities can create a cohesive and motivating environment that continually boosts teachers' professional dedication and engagement.

5.3.5 Establish a Dynamic Monitoring and Feedback Mechanism to Ensure the Accurate Implementation of Strategies

Effective incentive policies must be based on ongoing monitoring, feedback, and data-driven improvements to ensure long-term effectiveness and fairness. Universities should develop a comprehensive, adaptable monitoring and evaluation system that integrates quantitative and qualitative methods, including regular surveys, in-depth interviews, peer evaluations, and analyses of performance data. This approach helps capture teachers' changing needs, satisfaction levels, and genuine engagement in teaching and research. The gathered data should be systematically analyzed to identify patterns and gaps in policy implementation, allowing administrators to make timely, evidence-based adjustments to incentive mechanisms.

A transparent performance appraisal system should be strengthened to accurately align teachers' contributions with rewards, ensuring that outstanding

performance in teaching quality, innovation outcomes, and enterprise collaboration receives appropriate recognition. To improve accuracy, universities should develop a data-driven decision-support platform that integrates performance analytics, teacher feedback, and incentive outcomes, thereby creating a closed-loop feedback mechanism for ongoing policy refinement. Additionally, universities can hold regular policy review meetings with teacher representatives to jointly evaluate the effectiveness of incentives and explore strategies for improvement, thereby increasing transparency and trust. By incorporating data intelligence and participatory evaluation into the management process, private universities can ensure that incentive policies stay adaptable, fair, and genuinely motivating, ultimately promoting sustainable growth and high-quality engagement among Teachers with dual professional qualifications.

5.3.6 Establish a Long-Term and Institutionalized Cooperation Mechanism

Based on the findings that University-Enterprise Cooperation significantly enhances the positive effects of career development and training incentives on teachers' self-efficacy, several practical strategies can be implemented to increase its impact in vocational universities. Institutions should establish a long-term, institutionalized mechanism for cooperation by signing strategic partnership agreements with enterprises, creating dedicated cooperation offices, and incorporating cooperation performance into annual evaluations to ensure continuity and accountability. Universities and enterprises should collaborate to develop professional development platforms, such as enterprise-based training centers and teacher internship programs, that enable teachers to engage in real-world projects, gain industry experience, and enhance their applied skills.

Integrating industry expertise into curriculum design and teaching practices is crucial; this can be achieved through joint curriculum development, guest lectures by industry experts, and the co-creation of teaching materials based on industrial data. Universities should establish incentive mechanisms that connect cooperation outcomes to teacher evaluation and promotion, offering financial rewards and public recognition to encourage active participation. Additionally, research collaboration between universities and enterprises should be enhanced through the creation of joint laboratories, co-authored publications, and technology innovation projects. Together, these strategies can turn university-enterprise cooperation into a sustainable system that fosters teachers' professional growth, increases self-efficacy, and promotes high-quality development in vocational education.

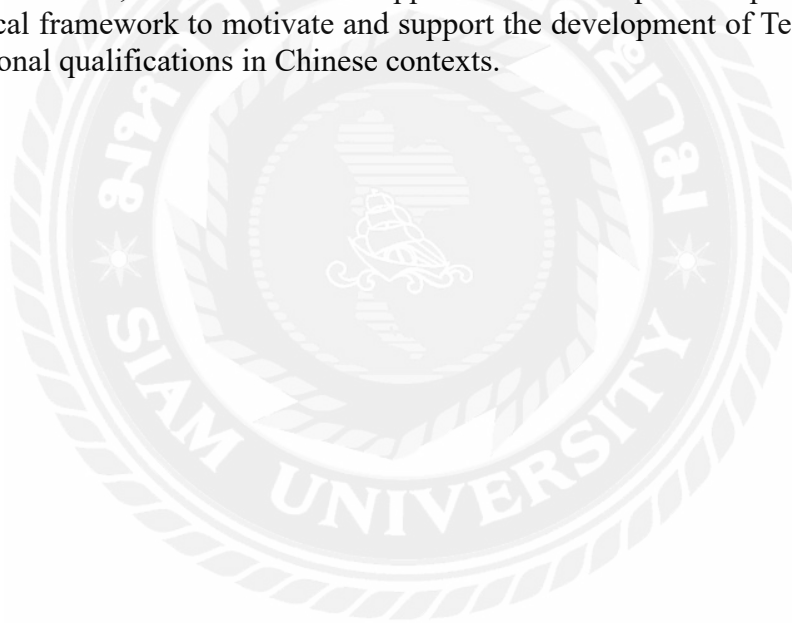
5.4 Future Research

This study systematically examined teachers' work engagement among those holding dual professional qualifications at private universities in Shaanxi Province. Although some conclusions are drawn, the study's scope, methodology, and control of variables remain limited, offering directions for future research.

Future research should expand the sample to include additional provinces and types of colleges and universities (e.g., applied undergraduate programs, higher vocational colleges, and vocational and technical universities) to enhance the external validity of the findings. Given the rapid growth of vocational education in western and central regions, differences in economic bases and the distribution of educational resources across regions influence the mechanisms of work engagement among

teachers with dual professional qualifications, necessitating broader comparative analysis. Future studies might adopt a longitudinal design to examine how changes in incentive policy, shifts in self-efficacy, and teachers' work engagement interact over time, thereby overcoming the limitations of cross-sectional studies, which struggle to establish causal relationships. Additionally, future research could explore variable selection to identify mediating and moderating mechanisms, such as organizational identity, burnout, and psychological contract. Variables like collective efficacy, leadership style, and organizational climate could also be examined at the team or organizational level to facilitate empirical modeling of multilevel nested structures.

As artificial intelligence and big data technologies continue to reshape the education sector, future research could focus on how teachers' roles and methods evolve amidst technological advances. For instance, investigating whether AI-assisted teaching boosts teachers' dedication to their work and how to enhance the professional enthusiasm and creativity of Teachers with dual professional qualifications through technological support is a valuable area for further exploration. Using in-depth, multidimensional, and multimethod approaches can help develop a comprehensive theoretical framework to motivate and support the development of Teachers with dual professional qualifications in Chinese contexts.



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APPENDIX



APPENDIX A: Questionnaire

Title: A Study on The Effects of Incentive Strategies on Work Engagement For “Teachers with Dual Professional Qualifications” in Private Universities in Shaanxi, China: Self-Efficacy as Mediator

To Questionnaire Respondent:

Thank you for your participation. This questionnaire consists of two parts. Part One collects demographic information. Part Two investigates strategies for cultivating Dual Professional Qualifications teachers in private undergraduate universities in Shaanxi Province, China. Thank you once again for your participation. If you require further information or assistance, please contact us.

To ensure the objectivity and accuracy of the research findings, please provide objective responses.

Mr. [Zhao Wei], Ph.D. Student Siam University

Part 1: Demographic Information

Remark: Please indicate your choice by marking √ in [] or filling in the blank.

1. **Gender:** [] Male [] Female
2. **Age:**
 - ☐ Below 25 years old
 - ☐ 25-30 years old
 - ☐ 31-40 years old
 - ☐ Above 40years old
3. **Highest Education Level:**
 - ☐ Bachelor's Degree
 - ☐ Master's Degree
 - ☐ Doctoral Degree (Ph.D.)
 - ☐ Other (Please specify): _____
4. **Institution Type:**
 - ☐ Comprehensive University
 - ☐ Science & Engineering University
 - ☐ Liberal Arts & Law University
 - ☐ Arts University
5. **Professional Title:**
 - ☐ Teaching Assistant
 - ☐ Lecturer
 - ☐ Associate Professor
 - ☐ Professor

6. Years of Teaching Experience:

- ☐ More than 3 years
☐ 3 years or less

Part 2: Relational Factors

This section uses a five-point Likert scale. Please select the option that best reflects your genuine feelings based on the following scale:

- 1 = Strongly Disagree
- 2 = Disagree
- 3 = Neutral
- 4 = Agree
- 5 = Strongly Agree

Please review each statement and select the number corresponding to your opinion.

Variable	No.	Item	1	2	3	4	5
Economic incentives	1	I am satisfied with the current per-class-hour allowance.					
	2	Performance-based pay effectively reflects my work contributions.					
	3	I receive corresponding subsidies for participating in industry-academia collaboration projects/research projects.					
	4	I can benefit from the income-sharing system for external part-time work.					
	5	The school provides sufficient funding support for practical teaching activities.					
	6	The mechanism linking the completion of practical training tasks to bonuses is fair.					
	7	The project achievement reward system is motivating.					
	8	I am satisfied with the mechanism for annual salary increases.					
	9	Teachers with dual professional qualifications are eligible for additional financial incentives.					
	10	I receive various subsidies promptly.					
	1	I have opportunities for professional title promotion.					
	2	The school provides diverse					

Variable	No.	Item	1	2	3	4	5
Career Development		pathways for career advancement.					
	3	I have opportunities to participate in important projects or research topics.					
	4	Teachers with Dual Professional Qualifications receive bonus points in evaluations for excellence and recognition.					
	5	I can obtain opportunities for external secondments or exchange learning.					
	6	The outcomes I participate in can be included in materials for professional title evaluation.					
	7	Teaching and practical achievements receive equal emphasis in performance assessments.					
	8	I receive support for interdisciplinary career development.					
	9	The school values my career development aspirations.					
	10	My career growth path planning receives attention.					
Training & Development	1	The school regularly organizes teacher training programs.					
	2	I can participate in practical training experiences within enterprises.					
	3	In-house training content is helpful for my practical work.					
	4	I can participate in provincial-level or higher-level training programs for teachers with dual professional qualifications.					
	5	Training resources meet my professional development needs.					
	6	I receive support for obtaining continuing education credits.					
	7	Practical skills training content is updated promptly.					
	8	Training schedules account for teachers' teaching workload.					
	9	I am satisfied with the training					

Variable	No.	Item	1	2	3	4	5
		assessment mechanism.					
	10	The school's training system motivates me to learn.					
Self-Efficacy	1	I am capable of handling the practical teaching tasks assigned by the school.					
	2	I can design and implement industry-education integration projects.					
	3	I maintain confidence when facing teaching challenges.					
	4	I am confident in my ability to lead students in achieving practical training goals.					
	5	I can independently solve practical problems encountered in teaching.					
	6	I can continuously improve my teaching and technical skills.					
Teachers with Dual Professional Qualifications	1	I believe my dual qualifications significantly enhance my teaching effectiveness.					
	2	My dual professional qualifications enable me to teach a broader range of subjects effectively.					
	3	I am provided with sufficient opportunities to integrate my academic and industry expertise into my teaching.					
	4	My dual qualifications enable me to adapt my teaching methods to meet students' evolving needs.					
	5	I feel that both students and faculty members highly value my dual qualifications.					
Work Engagement							
Practice Teaching Engagement	1	I invest significant time in preparing for practical courses.					
	2	I emphasize the quality of teaching in practical courses.					
	3	I utilize extracurricular time to guide students in practical training projects.					

Variable	No.	Item	1	2	3	4	5
Technical R&D Engagement	4	I actively participate in the reform of experimental/practical training courses.					
	5	I regard practical teaching as a vital component of my work.					
	6	I participate in the school's technical development or research tasks.					
	7	I play a key role in the technical implementation of projects.					
	8	I can integrate technological innovation with teaching activities.					
Regional Service Engagement	9	I maintain a continuous learning mindset throughout technical R&D.					
	10	I participate in projects serving local industries.					
	11	I guide students in participating in practical activities at local enterprises.					
	12	I proactively monitor the technological needs of regional industries.					
University-Enterprise Cooperation							
University-Enterprise Cooperation	1	My university maintains a close cooperative relationship with enterprises.					
	2	The cooperation between the university and enterprises provides strong support for teachers' teaching and research.					
	3	I can gain practical teaching or research experience from university-enterprise cooperation.					

APPENDIX B: English-Chinese Questionnaire

题目：“中国陕西省民办本科高校“双师型”教师培养的激励策略与工作投入研究：
自我效能感的中介效应

致问卷调查受访者：

感谢您的参与。本问卷分为两部分。第一部分是基本信息。第二部分是对“中国陕西省民办本科高校“双师型”教师培养的激励策略与工作投入研究：自我效能感的中介效应”的调查。再次感谢您的参与。如果您需要更多信息或需要我们的帮助，请联系我们。

为确保研究结果的客观性和准确性，请给出客观的答案。

赵伟，
泰国暹罗大学博士生

第一部分：基本信息

备注：请使用✓ 在□ 或在空白处填写信息。

1. 性别 ☐男 ☐女

2. 年龄

☐18岁以下

☐18-25岁

☐26岁-35岁

☐35岁以上

3. 受教育程度

☐本科

☐硕士

☐博士

☐其他

4. 学校类型

☐综合类

☐理工类

☐ 文法类

☐ 艺术类

5. 职称

☐ 助教

☐ 讲师

☐ 副教授

☐ 教授

6. 实践工作经验年限

☐ 三年以上

☐ 小于等于三年

第二部分 关系因素

本问卷采用李克特五级量表，请您根据自己真实的感受选择最符合的选项，具体含义如下：1 代表“非常不同意”，2 代表“不同意”，3 代表“一般”，4 代表“同意”，5 代表“非常同意”；请您根据每一项陈述内容，选择最符合您意见的数字选项进行作答。

Variables	No	Item	1	2	3	4	5
经济激励	1	我对当前的课时津贴感到满意。					
	2	绩效工资能有效反映我的工作付出。					
	3	我参与横向/纵向项目可获得相应补贴。					
	4	我能享受校外兼职的收入分成制度。					
	5	学校为实践教学安排了足够的经费支持。					
	6	实训任务完成度与奖金挂钩机制公平。					
	7	项目成果奖励制度具有激励作用。					
	8	我对年度薪酬增长机制感到满意。					
	9	双师型教师享有额外经济激励政策。					
	10	我能及时领取各类补贴。					
职业发展	1	我能获得职称晋升的机会。					

Variables	No	Item	1	2	3	4	5
	2	学校提供丰富的职业晋升通道。					
	3	我有机会参与重要项目或课题。					
	4	双师型教师在评优评先中有加分政策。					
	5	我能获得外出挂职或交流学习机会。					
	6	我参与的成果可计入职称材料。					
	7	教学与实践成果在考核中被同等重视。					
	8	我能获得跨界发展的支持。					
	9	学校重视我的职业发展意愿。					
	10	我的成长路径规划得到关注。					
培训激励	1	学校定期组织教师培训。					
	2	我能参与企业实践锻炼。					
	3	校内培训内容对我实际工作有帮助。					
	4	我能参加省级以上“双师型”教师培训。					
	5	培训资源能满足我的专业发展需求。					
	6	我能获得继续教育学分的支持。					
	7	实践技能培训内容更新及时。					
	8	培训安排考虑教师教学任务负担。					
	9	我对培训考核机制感到满意。					
	10	学校培训制度激发了我的学习动力。					
自我效能感	1	我能胜任学校安排的实践教学任务。					
	2	我有能力设计并实施产教融合项目。					
	3	我在面对教学挑战时能保持信心。					
	4	我有信心带领学生完成实践训练目标。					
	5	我能独立解决教学中遇到的实际问题。					
	6	我能不断提升自己的教学与技术能力。					
	1	我相信双师型显著增加我的教学有效性。					

Variables	No	Item	1	2	3	4	5
双师型教师资格	2	我的双师经验让我能够有效完成更广泛的目标。					
	3	我将我的教学和学术研究结合到我的课堂中。					
	4	双师经验让我能够采用符合实际需要的教学方法。					
	5	我感觉双师经验有利于学生和我个人的提升。					
实践教学投入	1	我在实践课程准备上投入了大量时间。					
	2	我注重实践课程的教学质量。					
	3	我会利用课余时间指导学生实训项目。					
	4	我积极参与实验/实训课程的改革。					
	5	我将实践教学视为工作的重要组成部分。					
技术攻关投入	6	我参与了学校的技术开发或攻关任务。					
	7	我在项目技术实施中发挥了关键作用。					
	8	我能结合教学开展科技创新。					
	9	我在技术攻关中持续保持学习状态。					
区域服务投入	10	我参与了服务地方产业的项目。					
	11	我指导学生参与地方企业实践。					
	12	我主动关注区域产业的技术需求。					
校企合作	1	我校与企业保持着紧密的合作关系。					
	2	校企合作为教师的教学与科研提供了有力支持。					
	3	我能从校企合作中获得实践性的教学或科研经验					

APPENDIX C: Focus Group Interview Outline

Focus Group Interview Outline (Teachers with Dual Professional Qualifications)

This interview outline is used to explore the impact of university strategies on the Self-Efficacy and Work Engagement of Dual Professional Qualifications teachers, in order to supplement the questionnaire survey that cannot reveal the differences between Dual experience and the operation of the system.

I. Basic information of the interview

1. Interview time: _____
2. Place of interview: _____
3. Moderator: _____
4. Recorder: _____
5. Interviewed Teacher No.: T1 ~ T7
6. School Type: General / Science & Engineering / Arts & Law
7. Teaching experience: _____
8. Whether Dual Professional Qualifications: ☐ Yes / ☐ No
9. Years of practical teaching: ☐ <3 years / ☐ ≥ 3 years

II. Introduction to the Interview

Hello to all the teachers! Thank you very much for participating in this focus group interview in your busy schedule. We are conducting a study on the relationship between incentives, self-efficacy, and Work Engagement of Dual Professional Qualifications teachers in private universities in Shaanxi Province. Based on the questionnaire survey, the purpose of this interview is to gain a deeper understanding of the real feelings, dilemmas and feedback on incentives of Dual Professional Qualifications teachers in the actual teaching and working process. The interviews will focus on four aspects: motivational strategies, Self-Efficacy, Work Engagement and the unique experience of Dual Professional Qualifications status. Please feel free to speak freely based on your experience, without being bound by the order of the questions, as any viewpoints you may have will be important to our study.

We promise that all interviews will be kept strictly confidential and used only for academic research, and your personally identifiable information will never be disclosed. The interview will be recorded in written or audio form by a note-taker, so if you have any concerns, you may raise them at any time.

Thank you again for your participation and support, and now we will officially begin.

III. Core issue guidance (sub-themes)

- (i) Incentive Strategy Perceptions and Preferences

1. How do you perceive the current economic incentives (e.g., performance bonuses, program subsidies, part-time job sharing, etc.) of the university? Do they serve as incentives?

2. In terms of career development support (e.g., title promotion, merit assessment, cross-border development, outbound exchanges, etc.), what positive or negative impacts do you perceive?

3. Do you think the school's resources for teacher training are sufficient? Is it really helpful to your teaching or practicing ability?

4. In your opinion, which type of incentives is most attractive to Dual Professional Qualifications teachers? Why?

5. Are there any types of incentives that are "formalized" or ineffective in their implementation? Can you give us some examples?

(ii) Changes in Self-Efficacy

6. Do you feel that you have the ability to carry out practical teaching and industry-teaching integration programs? Where does this confidence come from?

7. How do you typically respond when faced with pedagogical or technological challenges? Do you feel supported by your school or team?

8. How has your teaching or technology self-confidence changed as you have gained practical teaching experience?

9. Did the school's incentives enhance your professional beliefs and Self-Efficacy in any way? If so, in what ways?

(iii) Work Engagement experience

10. How much time do you devote on average per week to practicing teaching? Does it exceed the regular teaching load?

11. Are you willing to participate continuously in technology research or industry-teaching integration projects? Is there a sense of accomplishment?

12. What regional service or school-enterprise cooperation programs have you participated in? What is your sense of commitment in these processes?

13. Do you feel that the current incentive mechanism can effectively drive your balanced effort in teaching, R&D and social service?

(iv) Dual Professional Qualifications Status and Incentive Adaptation

14. Do you think the incentive policies of the university have fully considered the special characteristics of Dual Professional Qualifications teachers? Is there any status mismatch problem?

15. Do you feel that you are under more pressure in terms of task allocation or assessment criteria than non-Dual Professional Qualifications?

16. If you have experienced a change in status (from regular teacher to Dual Professional Qualifications), how has this process effected your professional mindset and competency development?

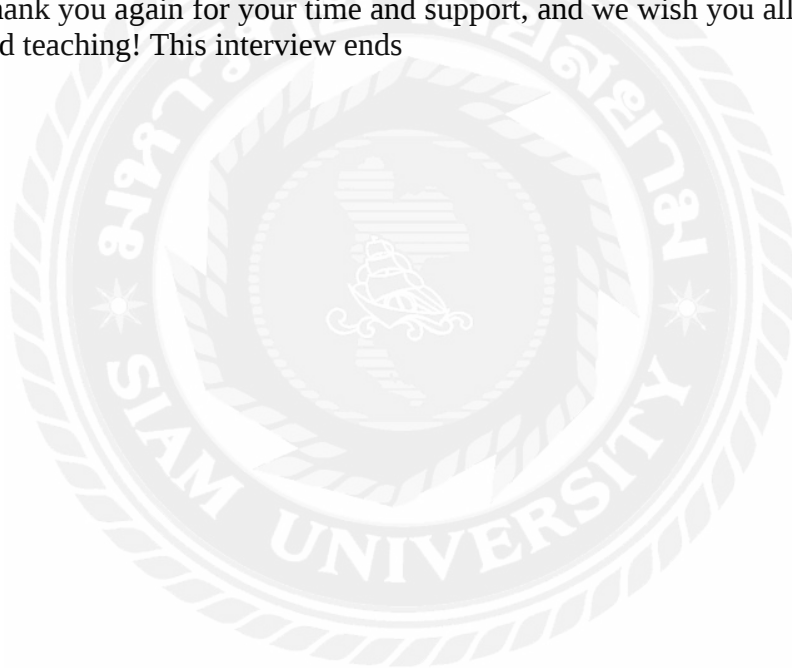
Summarizing questions

17. If you could make one suggestion for the school to improve incentives, what would you most like to change?

18. How do you understand the relationship between "effective incentives" and "sustained growth of Teachers with Dual Professional Qualifications"?

Concluding Remarks

Thank you very much for your sincere sharing and active participation in this interview. Your valuable opinions and real-life experiences have provided us with very important references for our in-depth understanding of the current work situation, motivational needs, and Self-Efficacy of Dual Professional Qualifications teachers. They will greatly enrich the depth and practical value of our study. If you have any additional ideas, please feel free to contact us. All information from this interview will be kept strictly confidential and the research results will be used for academic purposes only. Thank you again for your time and support, and we wish you all the best in your work and teaching! This interview ends



APPENDIX D: English-Chinese Interview Outline

焦点小组访谈提纲（双师型教师）

本访谈提纲用于探索高校激励策略对“双师型”教师自我效能感与工作投入的影响，以补充问卷调查无法揭示的个体体验与制度运行过程中的差异性。

I. 访谈基本信息

1. 访谈时间：_____
2. 访谈地点：_____
3. 主持人：_____
4. 记录人：_____
5. 受访教师编号：T1 ~ T5
6. 学校类型：综合类 / 理工类 / 文法类
7. 教龄：_____
8. 是否双师型教师：☐是 / ☐否
9. 实践教学年限：☐ < 3年 / ☐ ≥ 3年

II. 访谈导语

各位老师，大家好！非常感谢大家在百忙之中参与本次焦点小组访谈。我们正在进行一项关于陕西省民办本科高校“双师型”教师激励机制、自我效能感与工作投入之间关系的研究。本次访谈的目的是在问卷调查的基础上，更深入地了解“双师型”教师在实际教学和工作过程中的真实感受、面临的困境以及对激励措施的反馈。访谈将围绕激励策略、自我效能感、工作投入以及双师身份的独特体验四个方面展开。请大家根据自己的实际经验畅所欲言，不必拘泥于问题顺序，您的任何观点都对我们研究非常重要。

我们承诺：所有访谈内容将严格保密，仅用于学术研究，绝不会透露您的个人身份信息。访谈过程中将有记录员进行书面或录音记录，如您有任何顾虑也可随时提出。

再次感谢各位的参与与支持，现在我们正式开始。

III. 核心问题引导（分主题）

（一）激励策略感知与偏好

1. 您如何看待目前学校在经济激励方面的措施（如绩效奖金、项目补贴、兼职分成等）？是否起到激励作用？
2. 在职业发展支持方面（如职称晋升、评优、跨界发展、外出交流等），您感受到哪些积极或消极的影响？
3. 您认为学校在教师培训方面的资源是否充分？是否真正对您的教学或实践能力有帮助？
4. 在您看来，哪一种激励方式对“双师型”教师最具吸引力？为什么？
5. 有没有哪一类激励措施在执行过程中存在“形式化”或失效的情况？能否举例说明？

（二）自我效能感变化

6. 您是否觉得自己具备开展实践教学和产教融合项目的能力？这种信心来自哪些方面？
7. 在遇到教学或技术挑战时，您通常如何应对？是否感受到学校或团队的支持？
8. 随着实践教学经验的积累，您的教学或技术自信心有何变化？
9. 学校的激励机制是否在某种程度上增强了您的职业信念和自我效能？如果有，是哪些方面？

（三）工作投入体验

10. 您在实践教学方面平均每周投入多少时间？是否超出常规教学任务？
11. 在技术攻关或产教融合项目中，您是否愿意持续参与？是否有成就感？
12. 您参与过哪些区域服务或校企合作项目？在这些过程中，您的投入感如何？
13. 您觉得当前激励机制是否能有效驱动您在教学、研发和社会服务三方面的平衡投入？

（四）双师身份与激励适配

14. 您认为学校的激励政策是否充分考虑了“双师型”教师的特殊性？是否存在身份错配问题？

15. 与非双师型教师相比，您是否觉得自己在任务分配或考核标准上承担了更多压力？

16. 如果您曾经历身份转变（从普通教师到双师型），这一过程对您的职业心态和能力发展有何影响？

总结性问题

17. 如果您可以为学校提出一项改进激励机制的建议，您最想改变什么？

18. 您如何理解“有效激励”与“双师型教师持续成长”之间的关系？

结束语

非常感谢各位老师在本次访谈中的真诚分享与积极参与。大家的宝贵意见和真实经验，为我们深入理解“双师型”教师的工作现状、激励需求以及自我效能感的形成提供了非常重要的参考。这些内容将极大丰富我们研究的深度与实际价值。如后续还有补充想法，欢迎随时与我们联系。本次访谈的所有信息将严格保密，研究成果也仅用于学术用途。再次感谢大家的时间与支持，祝各位老师工作顺利、教学顺心！本次访谈到此结束。

APPENDIX E: PIM



ใบรับรองจริยธรรมการวิจัยในมนุษย์
สถาบันการจัดการปัญญาภิวัฒน์

หมายเลขใบรับรอง: PIM-REC 007/2568

ข้อเสนอการวิจัยนี้ และเอกสารประกอบของข้อเสนอการวิจัยตามรายการแสดงด้านล่าง ได้รับการพิจารณาจากคณะกรรมการจริยธรรมการวิจัยในมนุษย์ สถาบันการจัดการปัญญาภิวัฒน์แล้ว คณะกรรมการฯ มีความเห็นว่าข้อเสนอการวิจัยนี้จะดำเนินการมีความสอดคล้องกับหลักจริยธรรมสากล ตลอดจนกฎหมาย ข้อบังคับและข้อกำหนดภายในประเทศ จึงเห็นสมควรให้ดำเนินการตามข้อเสนอการวิจัยนี้ได้

ชื่อข้อเสนอโครงการ: Incentive Strategies for the Cultivation of Double-Qualified Teachers in Private Universities in China

รหัสข้อเสนอการวิจัย (ถ้ามี):

หน่วยงาน: Siam University

ผู้วิจัยหลัก: ZHAO WEI

ลงนาม

(อาจารย์ ดร. พิเชษฐ มุสิกะโปดก)

ประธานคณะกรรมการจริยธรรมการวิจัยในมนุษย์
สถาบันการจัดการปัญญาภิวัฒน์

วันที่รับรอง: 10 มีนาคม 2568

วันหมดอายุ: 10 มีนาคม 2569

เอกสารที่คณะกรรมการรับรอง

1. โครงการการวิจัย
2. จดหมายรับแจ้งจากหน่วยงานที่รับผิดชอบในส่วนที่เกี่ยวข้อง และ ใบแสดงความยินยอมจากหน่วยงานที่รับผิดชอบในส่วนที่เกี่ยวข้อง
3. เครื่องมือที่ใช้ในการวิจัยกับกรรวบรวมข้อมูล เช่น แบบสอบถาม แบบสัมภาษณ์ ประเด็นในการสนทนากลุ่ม เป็นต้น

เงื่อนไขการรับรอง

1. นักวิจัยดำเนินการวิจัยตามหัวข้อไปในโครงการวิจัยอย่างเคร่งครัด
2. นักวิจัยรายงานผลการดำเนินงานที่ประสงค์ให้ทราบถึงข้อเปลี่ยนแปลงเชิงจริยธรรมวิจัยใดๆ ต่อคณะกรรมการพิจารณาจริยธรรมการวิจัยในมนุษย์ภายในกำหนด
3. นักวิจัยส่งรายงานความก้าวหน้าต่อคณะกรรมการพิจารณาจริยธรรมการวิจัยในมนุษย์ตามเวลาที่กำหนดหรือเมื่อได้รับการร้องขอจากคณะกรรมการฯ
4. หากการวิจัยไม่สามารถดำเนินการเสร็จสิ้นภายในกำหนด ผู้วิจัยต้องยื่นรายงานฉบับใหม่ก่อนวันอายุ 1 เดือน
5. หากการวิจัยเสร็จสมบูรณ์ ผู้วิจัยต้องแจ้งปิดโครงการตามแบบฟอร์มที่กำหนด

APPENDIX F: Invitation Letter for an Expert

List of Experts for IOC of Research Instrument

No.	Name	Organization	Position	Graduation Institution	Education Level	Years of Experience
1	Cheng Guojian	Xi'an University of Petroleum	Professor at Xi'an University of Petroleum	University of T ü bingen in Germany	PhD in Science	28
2	Jiang Bo	Xi'an Peihua University	Chairman and Professor of Xi'an Peihua University	Ryukoya University in Kyoto, Japan	PhD in Economics	27
3	Zhu Xiaoyu,	Shaanxi Normal University	the Director of the Department of Broadcasting and Hosting Arts at Shaanxi Normal University	Shaanxi Normal University	Ph.D. in Literature	30
4	Ma Wenbao	Xi'an Jiaotong University	Deputy Director of the Philosophy Department at Xi'an Jiaotong University	Xi'an Jiaotong University	Ph.D. in Philosophy	23
5	Ding Wenfeng	Northwestern University	Vice Dean of the School of Economics and Management at North-western University	Northwestern University	Ph.D. in Economics	33



SU. 0210.04/23

Graduate School of Education
38 Siam University
PetchkasemBangwa,
Phasicharoan Bangkok 10160

January 2025

Dear Professor Cheng Guojian,
Professor at Xi'an University of Petroleum, Ph.D. in Science, graduated
from the University of T ü bingen in Germany

Subject: Invitation to be an expert to examine research tools

Since Mr. Zhao Wei, student ID 6419000012, a doctoral student in English program, Graduate School of Education works on dissertation: "A Study on The Effects of Incentive Strategies on Work Engagement For "Teachers with Dual Professional Qualifications" in Private Universities in Shaanxi, China: Self-Efficacy as Mediator" with Assoc. Prof. Dr. Boonmee Nenyod (an advisor) and Dr. Leehsing Lu (a co-advisor), the Graduate School of Education would like to invite you to be an expert to examine the research tools.

Questionnaire regarding current circumstances is a significant tool of the research which is needed to be considered and examined including suggestion for research tools. Mr. Zhao Wei, will contact and coordinate all details by himself.

We really appreciate your help.

Best regards

A handwritten signature in blue ink, appearing to read "Chanita".

Professor Emeritus Dr.Chanita Rukspollmuang
Dean of the Graduate School of Education



SU. 0210.04/23

Graduate School of Education
38 Siam University
PetchkasemBangwa,
Phasicharoan Bangkok 10160

January 2025

Dear Professor Jiang Bo
Chairman and Professor at Xi'an Peihua University, Ph.D. in Economics,
Graduated from Ryukoya University in Kyoto, Japan.

Subject: Invitation to be an expert to examine research tools

Since Mr. Zhao Wei, student ID 6419000012, a doctoral student in English program, Graduate School of Education works on dissertation: "A Study on The Effects of Incentive Strategies on Work Engagement For "Teachers with Dual Professional Qualifications" in Private Universities in Shaanxi, China: Self-Efficacy as Mediator" with Assoc. Prof. Dr. Boonmee Nenyod (an advisor) and Dr. Leehsing Lu (a co-advisor), the Graduate School of Education would like to invite you to be an expert to examine the research tools.

Questionnaire regarding current circumstances is a significant tool of the research which is needed to be considered and examined including suggestion for research tools. Mr. Zhao Wei, will contact and coordinate all details by himself.

We really appreciate your help.

Best regards

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Professor Emeritus Dr.Chanita Rukspollmuang
Dean of the Graduate School of Education



SU. 0210.04/23

Graduate School of Education
38 Siam University
PetchkasemBangwa,
Phasicharoan Bangkok 10160

January 2025

Dear Professor Zhu Xiaoyu.
The Director of the Department of Broadcasting and Hosting Arts at Shaanxi Normal University, Ph.D. in Literature, graduated from Shaanxi Normal University

Subject: Invitation to be an expert to examine research tools

Since Mr. Zhao Wei, student ID 6419000012, a doctoral student in English program, Graduate School of Education works on dissertation: “A Study on The Effects of Incentive Strategies on Work Engagement For “Teachers with Dual Professional Qualifications” in Private Universities in Shaanxi, China: Self-Efficacy as Mediator” with Assoc. Prof. Dr. Boonmee Nenyod (an advisor) and Dr. Leehsing Lu (a co-advisor), the Graduate School of Education would like to invite you to be an expert to examine the research tools.

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Dean of the Graduate School of Education



SU. 0210.04/23

Graduate School of Education
38 Siam University
PetchkasemBangwa,
Phasicharoan Bangkok 10160

January 2025

Dear Professor Ma Wenbao,

Deputy Director of the Philosophy Department at Xi'an Jiaotong University, Ph.D.
in Philosophy, graduated from Xi'an Jiaotong University.

Subject: Invitation to be an expert to examine research tools

Since Mr. Zhao Wei, student ID 6419000012, a doctoral student in English program, Graduate School of Education works on dissertation: "A Study on The Effects of Incentive Strategies on Work Engagement For "Teachers with Dual Professional Qualifications" in Private Universities in Shaanxi, China: Self-Efficacy as Mediator" with Assoc. Prof. Dr. Boonmee Nenyod (an advisor) and Dr. Leehsing Lu (a co-advisor), the Graduate School of Education would like to invite you to be an expert to examine the research tools.

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Dean of the Graduate School of Education



SU. 0210.04/23

Graduate School of Education
38 Siam University
PetchkasemBangwa,
Phasicharoan Bangkok 10160

January 2025

Dear Professor Ding Wenfeng,
Vice Dean of the School of Economics and Management at Northwestern
University, Ph.D. in Economics, graduated from Northwestern University.

Subject: Invitation to be an expert to examine research tools

Since Mr. Zhao Wei, student ID 6419000012, a doctoral student in English program, Graduate School of Education works on dissertation: “A Study on The Effects of Incentive Strategies on Work Engagement For “Teachers with Dual Professional Qualifications” in Private Universities in Shaanxi, China: Self-Efficacy as Mediator” with Assoc. Prof. Dr. Boonmee Nenyod (an advisor) and Dr. Leehsing Lu (a co-advisor), the Graduate School of Education would like to invite you to be an expert to examine the research tools.

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Dean of the Graduate School of Education

Results of the IOC score of the questionnaire

No.	Item	Expert/Professor Score					IOC Score
		E1	E2	E3	E4	E5	
EI1	I am satisfied with the current per-class-hour allowance.	1	1	1	1	1	1
EI2	Performance-based pay effectively reflects my work contributions.	1	1	1	1	1	1
EI3	I receive corresponding subsidies for participating in industry-academia collaboration projects / research projects.	1	0	1	1	1	0.8
EI4	I can benefit from the income-sharing system for external part-time work.	1	1	1	0	1	0.8
EI5	The school provides sufficient funding support for practical teaching activities.	1	1	1	1	1	1
EI6	The mechanism linking practical training task completion to bonuses is fair.	1	0	1	1	0	0.6
EI7	The project achievement reward system is motivating.	1	1	1	1	1	1
EI8	I am satisfied with the annual salary increase mechanism.	1	1	0	1	1	0.8
EI9	Teachers with Dual Professional Qualifications enjoy additional financial incentive policies.	1	1	1	1	1	1
EI10	I receive various subsidies in a timely manner.	1	1	1	0	1	0.8
CD1	I have opportunities for professional title promotion.	1	1	1	1	1	1
CD2	The school provides diverse career advancement pathways.	1	1	1	1	1	1
CD3	I have opportunities to participate in important projects or research topics.	1	1	1	1	1	1
CD4	Teachers with Dual Professional Qualifications receive bonus points in evaluations for excellence and recognition.	1	1	1	1	1	1
CD5	I can obtain opportunities for external secondments or exchange learning.	1	1	1	1	1	1
CD6	The outcomes I participate in can be included in materials for professional title evaluation.	1	0	1	1	1	0.8

No.	Item	Expert/Professor Score					IOC Score
		E1	E2	E3	E4	E5	
CD7	Teaching and practical achievements receive equal emphasis in performance assessments.	1	1	1	1	1	1
CD8	I receive support for interdisciplinary career development.	1	1	1	0	1	0.8
CD9	The school values my career development aspirations.	1	1	1	1	1	1
CD10	My career growth path planning receives attention.	1	1	1	1	1	1
TI1	The school regularly organizes teacher training programs.	1	1	1	1	1	1
TI2	I can participate in practical training experiences within enterprises.	1	1	1	1	1	1
TI3	In-house training content is helpful for my practical work.	1	1	1	1	1	1
TI4	I can participate in provincial-level or higher Teachers with Dual Professional Qualifications training programs.	1	1	1	1	1	1
TI5	Training resources meet my professional development needs.	1	1	1	1	1	1
TI6	I receive support for obtaining continuing education credits.	1	1	1	1	1	1
TI7	Practical skills training content is updated promptly.	1	1	1	1	1	1
TI8	Training schedules account for teachers' teaching workload.	1	1	1	1	1	1
TI9	I am satisfied with the training assessment mechanism.	1	1	1	1	1	1
TI10	The school's training system motivates me to learn.	1	1	1	1	1	1
SE1	I am capable of handling the practical teaching tasks assigned by the school.	1	1	1	1	1	1
SE2	I can design and implement industry-education integration projects.	1	1	1	1	1	1
SE3	I maintain confidence when facing teaching challenges.	1	1	1	1	1	1
SE4	I am confident in my ability to lead students in achieving practical training goals.	1	1	1	1	1	1
SE5	I can independently solve practical	1	1	1	1	1	1

No.	Item	Expert/Professor Score					IOC Score
		E1	E2	E3	E4	E5	
	problems encountered in teaching.						
SE6	I can continuously improve my teaching and technical skills.	1	0	1	1	1	0.8
PTI1	I invest significant time in preparing for practical courses.	1	1	0	1	1	0.8
PTI2	I place emphasis on the teaching quality of practical courses.	1	1	1	1	1	1
PTI3	I utilize extracurricular time to guide students in practical training projects.	1	1	1	0	1	0.8
PTI4	I actively participate in the reform of experimental/practical training courses.	1	1	1	1	1	1
PTI5	I regard practical teaching as a vital component of my work.	1	1	1	1	1	1
TRI1	I participate in the school's technical development or research tasks.	0	1	1	1	1	0.8
TRI2	I play a key role in the technical implementation of projects.	1	1	1	1	1	1
TRI3	I can integrate technological innovation with teaching activities.	1	1	1	1	1	1
TRI4	I maintain a continuous learning mindset during technical R&D efforts.	0	1	1	1	1	0.8
RSI1	I participate in projects serving local industries.	1	1	1	1	1	1
RSI2	I guide students in participating in practical activities at local enterprises.	1	1	1	1	1	1
RSI3	I proactively pay attention to the technological needs of regional industries.	1	1	0	1	1	0.8

G1:
of

姜波
Jiang Bo

程国建
Cheng Guo Jian

马文宝
Ma Wen Bao

List

丁文峰
Ding Wen Feng

朱晓斌
Zhu Xiao Bin

Experts for Evaluating the Research Results

No.	Name	Organization	Position	Graduation Institution	Education Level	Years of Experience
1	Qi Zhanyong	Shaanxi Normal University	Associate Professor at the School of Education, Shaanxi Normal University	Shaanxi Normal University	PhD in Education	20
2	Liao Jingqian	Shaanxi Normal University	Associate Professor at the School of Education, Shaanxi Normal University.	Southwest University	PhD in Education	15
3	Chao Qiuling ,	Xi'an Jiaotong Liverpool University	Vice President of Xi'an Jiaotong Liverpool University	Xi'an Jiaotong University	PhD in Education	23
4	Lu Genshu,	Xi'an Jiaotong University	The current director and professor of the Higher Education Research Institute at Xi'an Jiaotong University	Chinese University of Hong Kong	PhD in Education	32
5	Tian Lijuan	Northwestern University	Associate Professor at the School of Public Relations and Management, Northwest University	Beijing Normal University	PhD in Education	18
6	Luo Yun	Shaanxi Science and Technology University	Vice Dean and Professor of the School of Education at Shaanxi Science and Technology University	Huazhong University of Science and Technology	PhD in Education	18
7	Liu Lixia	Jimei University	Vice Dean of the School of Ocean Culture and Law at Jimei University,	Shaanxi Normal University	Doctor of Literature	31
8	Wang Xiya	Shaanxi Normal University	Professor at Shaanxi Normal University	Shaanxi Normal University	PhD in Education	28
9	Liu Yu	Xi'an Peihua College,	Professor at Xi'an Peihua College,	Xi'an Jiaotong University	PhD in Management	15



SU. 0210.04/23

Graduate School of Education
38 Siam University
Petchkasem Bangwa,
Phasicharoan Bangkok 10160

31 March 2025

Dear Professor Qi Zhanyong, Associate Professor at the School of Education, Shaanxi Normal University, Ph.D. in Education, graduated from Shaanxi Normal University.

Subject: Invitation to be an expert to evaluate the research results

Since Mr. Zhao Wei, student ID 6419000012, a doctoral student in English program, Graduate School of Education has now completed his graduation thesis "A Study on The Effects of Incentive Strategies on Work Engagement For "Teachers with Dual Professional Qualifications" in Private Universities in Shaanxi, China: Self-Efficacy as Mediator" with Assoc. Prof. Dr. Boonmee Nenyod (an advisor) and Dr. Leehsing Lu (a co-advisor), the Graduate School of Education would like to invite you to be an expert to evaluate the research results Mr. Zhao Wei, will contact and coordinate all details by himself.

We really appreciate your help.

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38 Siam University
Petchkasem Bangwa,
Phasicharoan Bangkok 10160

31 March 2025

Dear Professor Liao Jingqian, Associate Professor at the School of Education,
Shaanxi Normal University, Ph.D. in Education, graduated from Southwest
University

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31 March 2025

Dear Professor Chao Qiuling, Vice President of Xi'an Jiaotong Liverpool University
Shaanxi Normal University, Ph.D. in Education, graduated from Xi'an Jiaotong
University.

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38 Siam University
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Dear Professor Lu Genshu, The current director and professor of the Higher Education Research Institute at Xi'an Jiaotong University, Ph.D. in Education, graduated from Chinese University of Hong Kong.

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Phasicharoan Bangkok 10160

31 March 2025

Dear Professor Luo Yun, Vice Dean and Professor of the School of Education at Shaanxi Science and Technology University, Ph.D. in Education, graduated from Huazhong University of Science and Technology

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38 Siam University
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Phasicharoan Bangkok 10160

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Dear Professor Wang Xiya, Professor at Shaanxi Normal University, Doctor of Literature, Ph.D. in Education, graduated from Shaanxi Normal University.

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38 Siam University
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31 March 2025

Dear Professor Liu Yu, Professor at Xi'an Peihua College, PhD in Management, and a graduate of Xi'an Jiaotong University.

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Dean of the Graduate School of Education

The invitation letter sent to the expert



研究成果专家评估邀请函

尊敬的 教授：

您好！

我是赵伟，泰国暹罗大学教育学的一名在读博士。目前，我已基本完成了我的博士研究论文，题目为“中国陕西省民办本科高校“双师型”教师培养的激励策略与工作投入研究：自我效能感的中介效应”。现诚挚地邀请您作为该领域的专家对我的研究发现和成果进行评估。

按照学校的要求，我想请您通过适当性、可行性和效用性三个维度对我的研究发现和成果进行评估，其中每个维度都有五个观测点，请您对表中的每一维度中的每一个观测点进行打分，对我的这项研究的价值做出客观、公正、全面的评价，以利于我今后更加深入地研究。

请您针对打分表中每个观测点依据你的认可程度进行打分，使用以下评分标准对打分表中的项目进行评分

- 5：完全认同
- 4：比较认同
- 3：基本认同
- 2：基本不认同
- 1：完全不认同

我将为您提供详细的评估表，您只需根据您的认定结果在评估表中的对应栏打“√”即可，标注“*”为核心指标，请您重点关注。

我会将评估表通过电子邮件发送给您，您可以在审阅后将填写的评估表以电子邮件形式发回。您的评估对我今后进一步地深入研究此类课题具有重要意义。

整个评估过程预计需要 **30 分钟**，我们非常感谢您在百忙之中抽出时间参与此次评估。

您的专业评估将帮助我对此研究的价值有明确的认识并对今后的深入研究帮助巨大。我会在最终报告中感谢您的贡献。

再次感谢您的宝贵时间与支持！

此致！敬礼！

赵伟
暹罗大学 Ph. D.
387864820@qq.com
2025. 10.

Expert Evaluation Results Table

E1. Qi Zhan Yong

Dimension	No.	Evaluation Indicator	1=Strongly Disagree, 5=Strongly Agree				
			5	4	3	2	1
Propriety 0.3	P1*	Alignment with the transformation needs of private universities	√				
	P2*	Logical consistency between theoretical frameworks and empirical analysis		√			
	P3*	Applicability of research methods to the dual professional qualifications teacher cultivation	√				
	P4	Operational feasibility of policy recommendations		√			
	P5	Consideration of cultural differences in incentive strategy design			√		
Feasibility 0.4	F1*	Cost control capability of incentive programs		√			
	F2	Accessibility of industry-academia cooperation resources		√			
	F3	Implementation challenges of Dual Professional Qualifications teacher certification systems			√		
	F4	Compatibility of digital training platforms across disciplines		√			
	F5	Sustainability of dynamic evaluation mechanisms		√			
Utility 0.3	U1*	Enhancement effects on teachers' Self-Efficacy	√				
	U2	Improvement outcomes for students' vocational skills		√			
	U3	Increase in corporate satisfaction with talent cultivation		√			
	U4	Conversion efficiency of social capital into educational resources		√			
	U5	Effectiveness of long-term career development support systems		√			

祁占勇
Qi Zhan Yong

E2. Liao Jing Quan

Dimension	No.	Evaluation Indicator	1=Strongly Disagree, 5=Strongly Agree				
			5	4	3	2	1
Propriety 0.3	P1*	Alignment with the transformation needs of private universities		√			
	P2*	Logical consistency between theoretical frameworks and empirical analysis	√				
	P3*	Applicability of research methods to the dual professional qualifications teacher cultivation	√				
	P4	Operational feasibility of policy recommendations		√			
	P5	Consideration of cultural differences in incentive strategy design		√			
Feasibility 0.4	F1*	Cost control capability of incentive programs	√				
	F2	Accessibility of industry-academia cooperation resources	√				
	F3	Implementation challenges of Dual Professional Qualifications teacher certification systems		√			
	F4	Compatibility of digital training platforms across disciplines	√				
	F5	Sustainability of dynamic evaluation mechanisms		√			
Utility 0.3	U1*	Enhancement effects on teachers' Self-Efficacy	√				
	U2	Improvement outcomes for students' vocational skills	√				
	U3	Increase in corporate satisfaction with talent cultivation		√			
	U4	Conversion efficiency of social capital into educational resources		√			
	U5	Effectiveness of long-term career development support systems	√				

廖靖茜
Liao Jingqian

E3. Chao Qiuling

Dimension	No.	Evaluation Indicator	1=Strongly Disagree, 5=Strongly Agree				
			5	4	3	2	1
Propriety 0.3	P1*	Alignment with the transformation needs of private universities	√				
	P2*	Logical consistency between theoretical frameworks and empirical analysis		√			
	P3*	Applicability of research methods to the dual professional qualifications of teacher cultivation		√			
	P4	Operational feasibility of policy recommendations	√				
	P5	Consideration of cultural differences in incentive strategy design		√			
Feasibility 0.4	F1*	Cost control capability of incentive programs		√			
	F2	Accessibility of industry-academia cooperation resources		√			
	F3	Implementation challenges of Dual Professional Qualifications teacher certification systems		√			
	F4	Compatibility of digital training platforms across disciplines	√				
	F5	Sustainability of dynamic evaluation mechanisms	√				
Utility 0.3	U1*	Enhancement effects on teachers' Self-Efficacy	√				
	U2	Improvement outcomes for students' vocational skills		√			
	U3	Increase in corporate satisfaction with talent cultivation	√				
	U4	Conversion efficiency of social capital into educational resources		√			
	U5	Effectiveness of long-term career development support systems	√				

Chao Qiuling

E4. Lu Gen Sheng

Dimension	No.	Evaluation Indicator	1=Strongly Disagree, 5=Strongly Agree				
			5	4	3	2	1
Propriety 0.3	P1*	Alignment with the transformation needs of private universities	√				
	P2*	Logical consistency between theoretical frameworks and empirical analysis	√				
	P3*	Applicability of research methods to the dual professional qualifications of teacher cultivation	√				
	P4	Operational feasibility of policy recommendations		√			
	P5	Consideration of cultural differences in incentive strategy design		√			
Feasibility 0.4	F1*	Cost control capability of incentive programs	√				
	F2	Accessibility of industry-academia cooperation resources		√			
	F3	Implementation challenges of Dual Professional Qualifications teacher certification systems		√			
	F4	Compatibility of digital training platforms across disciplines	√				
	F5	Sustainability of dynamic evaluation mechanisms	√				
Utility 0.3	U1*	Enhancement effects on teachers' Self-Efficacy	√				
	U2	Improvement outcomes for students' vocational skills	√				
	U3	Increase in corporate satisfaction with talent cultivation		√			
	U4	Conversion efficiency of social capital into educational resources			√		
	U5	Effectiveness of long-term career development support systems		√			

陆根生
Lu Gensheng

E5. Tian Li Juan

Dimension	No.	Evaluation Indicator	1=Strongly Disagree, 5=Strongly Agree				
			5	4	3	2	1
Propriety 0.3	P1*	Alignment with the transformation needs of private universities	√				
	P2*	Logical consistency between theoretical frameworks and empirical analysis	√				
	P3*	Applicability of research methods to Dual Professional Qualifications teacher cultivation		√			
	P4	Operational feasibility of policy recommendations		√			
	P5	Consideration of cultural differences in incentive strategy design			√		
Feasibility 0.4	F1*	Cost control capability of incentive programs		√			
	F2	Accessibility of industry-academia cooperation resources		√			
	F3	Implementation challenges of Dual Professional Qualifications teacher certification systems		√			
	F4	Compatibility of digital training platforms across disciplines		√			
	F5	Sustainability of dynamic evaluation mechanisms		√			
Utility 0.3	U1*	Enhancement effects on teachers' Self-Efficacy	√				
	U2	Improvement outcomes for students' vocational skills		√			
	U3	Increase in corporate satisfaction with talent cultivation	√				
	U4	Conversion efficiency of social capital into educational resources			√		
	U5	Effectiveness of long-term career development support systems		√			

田丽娟
Tian Lijuan

E6. Luo Yun

Dimension	No.	Evaluation Indicator	1=Strongly Disagree, 5=Strongly Agree				
			5	4	3	2	1
Propriety 0.3	P1*	Alignment with the transformation needs of private universities	√				
	P2*	Logical consistency between theoretical frameworks and empirical analysis		√			
	P3*	Applicability of research methods to Dual Professional Qualifications teacher cultivation	√				
	P4	Operational feasibility of policy recommendations	√				
	P5	Consideration of cultural differences in incentive strategy design		√			
Feasibility 0.4	F1*	Cost control capability of incentive programs		√			
	F2	Accessibility of industry-academia cooperation resources	√				
	F3	Implementation challenges of Dual Professional Qualifications teacher certification systems		√			
	F4	Compatibility of digital training platforms across disciplines	√				
	F5	Sustainability of dynamic evaluation mechanisms		√			
Utility 0.3	U1*	Enhancement effects on teachers' Self-Efficacy	√				
	U2	Improvement outcomes for students' vocational skills	√				
	U3	Increase in corporate satisfaction with talent cultivation		√			
	U4	Conversion efficiency of social capital into educational resources		√			
	U5	Effectiveness of long-term career development support systems	√				



Luo Yun

E7. Liu Li Xia

Dimension	No.	Evaluation Indicator	1=Strongly Disagree, 5=Strongly Agree				
			5	4	3	2	1
Propriety 0.3	P1*	Alignment with the transformation needs of private universities	√				
	P2*	Logical consistency between theoretical frameworks and empirical analysis		√			
	P3*	Applicability of research methods to the dual professional qualifications of teacher cultivation	√				
	P4	Operational feasibility of policy recommendations	√				
	P5	Consideration of cultural differences in incentive strategy design		√			
Feasibility 0.4	F1*	Cost control capability of incentive programs	√				
	F2	Accessibility of industry-academia cooperation resources	√				
	F3	Implementation challenges of Dual Professional Qualifications teacher certification systems		√			
	F4	Compatibility of digital training platforms across disciplines		√			
	F5	Sustainability of dynamic evaluation mechanisms		√			
Utility 0.3	U1*	Enhancement effects on teachers' Self-Efficacy	√				
	U2	Improvement outcomes for students' vocational skills	√				
	U3	Increase in corporate satisfaction with talent cultivation	√				
	U4	Conversion efficiency of social capital into educational resources		√			
	U5	Effectiveness of long-term career development support systems	√				

刘利侠
Liu Lixia

E8. Wang Xi Ya

Dimension	No.	Evaluation Indicator	1=Strongly Disagree, 5=Strongly Agree				
			5	4	3	2	1
Propriety 0.3	P1*	Alignment with the transformation needs of private universities	√				
	P2*	Logical consistency between theoretical frameworks and empirical analysis	√				
	P3*	Applicability of research methods to the dual professional qualifications of teacher cultivation	√				
	P4	Operational feasibility of policy recommendations		√			
	P5	Consideration of cultural differences in incentive strategy design		√			
Feasibility 0.4	F1*	Cost control capability of incentive programs	√				
	F2	Accessibility of industry-academia cooperation resources	√				
	F3	Implementation challenges of Dual Professional Qualifications teacher certification systems		√			
	F4	Compatibility of digital training platforms across disciplines		√			
	F5	Sustainability of dynamic evaluation mechanisms		√			
Utility 0.3	U1*	Enhancement effects on teachers' Self-Efficacy	√				
	U2	Improvement outcomes for students' vocational skills		√			
	U3	Increase in corporate satisfaction with talent cultivation		√			
	U4	Conversion efficiency of social capital into educational resources		√			
	U5	Effectiveness of long-term career development support systems	√				

Wang Xi Ya

E9. Liu Yu

Dimension	No.	Evaluation Indicator	1=Strongly Disagree, 5=Strongly Agree				
			5	4	3	2	1
Propriety 0.3	P1*	Alignment with the transformation needs of private universities		√			
	P2*	Logical consistency between theoretical frameworks and empirical analysis	√				
	P3*	Applicability of research methods to the dual professional qualifications teacher cultivation	√				
	P4	Operational feasibility of policy recommendations		√			
	P5	Consideration of cultural differences in incentive strategy design		√			
Feasibility 0.4	F1*	Cost control capability of incentive programs	√				
	F2	Accessibility of industry-academia cooperation resources		√			
	F3	Implementation challenges of Dual Professional Qualifications teacher certification systems		√			
	F4	Compatibility of digital training platforms across disciplines	√				
	F5	Sustainability of dynamic evaluation mechanisms		√			
Utility 0.3	U1*	Enhancement effects on teachers' Self-Efficacy	√				
	U2	Improvement outcomes for students' vocational skills	√				
	U3	Increase in corporate satisfaction with talent cultivation		√			
	U4	Conversion efficiency of social capital into educational resources		√			
	U5	Effectiveness of long-term career development support systems	√				

柳雨
Liu Yu

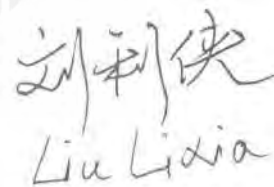
Evaluation opinions on research results

Title: “A Study on The Effects of Incentive Strategies on Work Engagement for Teachers with Dual Professional Qualifications” in Private Universities in Shaanxi, China: Self-Efficacy as Mediator”

This study makes a significant contribution to the cultivation of Teachers with Dual Professional Qualifications in private universities. The feasibility analysis demonstrates a thorough understanding of China’s higher education policy landscape, particularly the "Application-Oriented University Transformation" policy framework. The research design effectively integrates qualitative and quantitative methods, though the sample size (n=500) could be expanded to enhance generalizability.

In terms of accuracy, the structural equation modeling approach appropriately captures the relationship between strategies and teacher efficacy. However, the study could benefit from triangulating data sources (e.g., interviews with university Managers) to validate findings.

In practice, the proposed strategies (financial rewards, career development, professional training) provide actionable recommendations. To increase utility, I suggest incorporating implementation guidelines tailored to regional economic contexts. Future research could examine the longitudinal impact of these strategies on student outcomes.



Liu Lixia

(Liu Lixia, Vice Dean of the School of Ocean Culture and Law at Jimei University,
Professor: Shaanxi Normal University, Doctor of Literature)

Title: “A Study on The Effects of Incentive Strategies on Work Engagement for Teachers with Dual Professional Qualifications” in Private Universities in Shaanxi, China: Self-Efficacy as Mediator”

The study demonstrates rigorous methodology in addressing a critical gap in vocational education research. The conceptual framework integrating Self-Efficacy and Work Engagement theories is innovative. However, the reliance on cross-sectional data limits causal inferences. Longitudinal designs would strengthen validity.

Accuracy is commendable, with validated measurement scales (e.g., Maslow’s hierarchy adapted for teachers). The use of SEM is appropriate for hypothesized relationships. Notably, the moderation effects of industry experience and managerial certification add depth to the analysis.

From a utility perspective, the practical recommendations are well-grounded. However, the study could specify implementation mechanisms (e.g., industry partnerships). Future studies could use mixed methods to capture contextual factors that influence incentive effectiveness.



Luo Yun

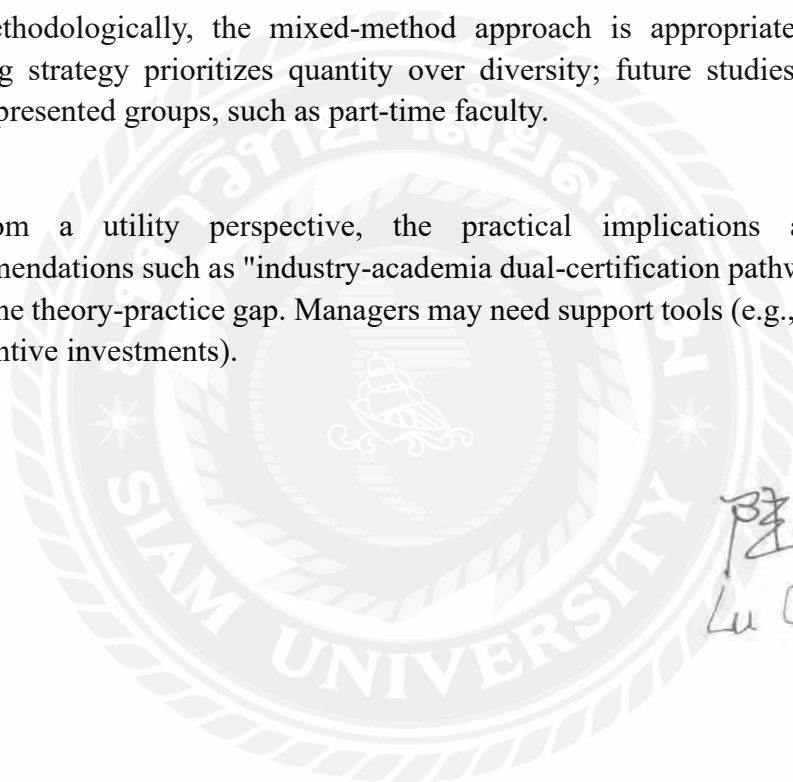
(Luo Yun, Vice Dean and Professor of the School of Education at Shaanxi University of Science and Technology; Huazhong University of Science and Technology, PhD in Education)

Title: “A Study on The Effects of Incentive Strategies on Work Engagement for 'Teachers with Dual Professional Qualifications’ in Private Universities in Shaanxi, China: Self-Efficacy as Mediator”

This research addresses a pressing need in China’s higher education sector. The identified strategies (financial, career, and training) align with industry demands for skilled educators. The focus on private universities is timely, given their growing role in workforce development.

Methodologically, the mixed-method approach is appropriate. However, the sampling strategy prioritizes quantity over diversity; future studies should include underrepresented groups, such as part-time faculty.

From a utility perspective, the practical implications are substantial. Recommendations such as "industry-academia dual-certification pathways" could help bridge the theory-practice gap. Managers may need support tools (e.g., ROI calculators for incentive investments).



陆根生
Lu Gensheng

(Lu Gensheng from Xi'an Jiaotong University; The current director and professor of the Higher Education Research Institute at Xi'an Jiaotong University, with a PhD in Educational Economics from the Faculty of Education at The Chinese University of Hong Kong.)

RESEARCHER VITAE

Name and Surname : Zhao wei
Date of Birth : 8/18/1971
Nationality : Chinese
Birth of Place : Shihezi city, Xinjiang, China
Address : Room 3-3-1203, Block A, QujiangLongdi, No. 3699,
East Section of South Third Ring Road, Yanta District,
Xi'an City, Shaanxi Province, China
E-Mail : 387864820@qq.com
Work Position : Professor
Workplace : Xi'an Peihua University
Education : 38 Petkasem Road, Bangwa, Phasicharoen,
Bangkok, 10160

Bachelor's Degree
Degree : Bachelor
Major : Engineering
Institution : Xinjiang Institute of Technology
(Now: Xinjiang University)
Country : China
Year : 1993

Bachelor's Degree
Degree : Bachelor
Major : Economics
Institution : Central Party School
Country : China
Year : 1997

Master's Degree
Degree : Master
Major : Economics
Institution : Central Party School
Country : China
Year : 2002

Publishing Research

1. The paper "Guiding Online Public Opinion with Marxist News Perspective" was published in the October 2019 issue of the journal "Research on Communication Power".
2. The paper "Practice and Exploration of Cultivating Talents in Applied Technology Media Art" was published in the December 2019 issue of Think Tank Times magazine.
3. My personal monograph "TV Program Planning and Creativity" was officially published by Shanxi Economic Publishing House in December 2019.
4. The paper "Research on the Practice and Innovation of Promoting Moral Education through Curriculum Ideology and Politics in New Era Universities" was published in the December 2021 issue of the journal "Science and Technology Information".
5. The paper "Exploration and Reflection on the Construction of Ideological and Political Education in Higher Education Courses under the Background of New Liberal Arts Construction" was published in the May 2021 issue of the "Writer's World" magazine.
6. CPCI paper: Research on innovation of university leadership network management based on the concept of knowledge management and employed in the 2022 International Conference on Social Sciences, Education, and Management (SSEM 2022).
7. EI paper: Research on Public Resource Management Technology of Private Universities Based on Improved Association Rule Algorithm” Published in Journal of Physics: Conference Series (JPCS) (ISSN: 1742-6588).