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The Influence Mechanism of Family-Supportive Supervisor Behaviors on Employee Work Engagement

CHEN Shi

Doctor of Management

Supervisors:

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ISCTE University Institute of Lisbon
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University of Electronic Science and Technology of China

April, 2025



BUSINESS
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Abstract

Employee engagement is a key factor affecting the development of an organization. In order to improve employee engagement and help employees balance the “work-family” conflict, Family Supportive Supervisory Behavior (FSSB) has attracted the attention of academics and practitioners, but the research on its mechanism is still unclear. This study focuses on the mechanism of FSSB on employee engagement, and conducts diary study on 30 driving team members for 12 consecutive working days. Through baseline regression, intra-individual mediation test, and cross-layer moderation test, FSSB is found to positively affect employee engagement; work-family enrichment mediates the relationship between FSSB and employee engagement, and emotional wellbeing, and beneficiary gratitude play a sequential mediation role in the relationship between FSSB and employee engagement; team relationship balance has a negative cross-layer moderating effect on the relationship between FSSB and work-family enrichment, and power distance has a positive cross-layer moderating effect on the relationship between FSSB and employee engagement. The study reveals that local micro and small companies have problems such as hidden work-family conflicts among employees, and trade-off dilemmas in the implementation of FSSB by leaders, for which the study proposes four strategies: work-family balance, co-development, shared growth, and multiple evaluations. This study enriches the theory of the influence mechanism of FSSB on employee engagement, and provides practical reference for the management of small and micro private companies in China.

Keywords: FSSB; Employee engagement; Work-family enrichment; Emotional wellbeing; Beneficiary gratitude; Cross-layer moderation

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Resumo

O envolvimento dos funcionários é um fator chave que afeta o desenvolvimento de uma organização. Com o objetivo de melhorar o envolvimento dos funcionários e ajudar-os a equilibrar o conflito "trabalho-família", o Comportamento Supervisório de Apoio à Família (FSSB, na sigla em inglês) tem atraído a atenção de acadêmicos e profissionais, mas as pesquisas sobre seu mecanismo ainda não estão claras. Este estudo concentra-se no mecanismo do FSSB sobre o envolvimento dos funcionários e realiza um estudo em diário com 30 membros de equipes de motoristas durante 12 dias úteis consecutivos. Por meio da regressão de referência, do teste de mediação intraindivíduo e do teste do efeito moderador entre camadas, descobriu-se que o FSSB afeta positivamente o envolvimento dos funcionários; o enriquecimento trabalho-família medeia a relação entre o apoio social da FSSB e o envolvimento dos funcionários, o bem-estar emocional e a gratidão do beneficiário desempenham um papel de mediação em série na relação entre o FSSB e o envolvimento dos funcionários; o equilíbrio da relação da equipe modera negativamente o efeito moderador entre camadas na relação entre o FSSB e o enriquecimento trabalho-família, e a distância de poder exerce um efeito moderador positiva na relação entre o FSSB e o envolvimento dos funcionários. As entrevistas revelam que as pequenas e microempresas locais têm problemas como a falta de incentivos baseados no cuidado sob o liderazgo autoritário, os conflitos trabalho-família ocultos entre os funcionários e os dilemas de compensação na implementação do FSSB pelos líderes. Para isso, o estudo propõe cinco estratégias: incentivos emocionais, equilíbrio trabalho-família, co-desenvolvimento, crescimento compartilhado e múltiplas avaliações. Este estudo enriquece a teoria sobre o mecanismo de influência do FSSB sobre o envolvimento dos funcionários e fornece uma referência prática para a gestão das pequenas e microempresas privadas na China.

Palavra-chave: Comportamento de liderança de apoio familiar; Engajamento dos funcionários; Ganhos entre trabalho e família; Saúde emocional; Benefícios e gratidão; Regulação entre níveis

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摘要

员工敬业度是影响组织发展的关键因素，为提高员工敬业度、帮助员工平衡“工作—家庭”冲突，家庭支持型上司行为（FSSB）引起学术界和实践的关注，然而对其作用机制的研究还不甚清晰。本研究聚焦 FSSB 对员工敬业度的影响机制，采用日记调查法，连续 12 个工作日对 30 名车组成员开展日记调查。通过基准回归、个体中介作用检验、跨层调节作用检验，发现 FSSB 正向影响员工敬业度；工作-家庭增益在 FSSB 与员工敬业度的关系中发挥着中介作用，情绪健康、受惠感恩在 FSSB 与员工敬业度的关系中发挥着链式中介作用；团队关系平衡对 FSSB 与工作-家庭增益的关系起到负向跨层调节作用，公司权力距离对 FSSB 与员工敬业度的关系起到正向跨层调节作用。通过访谈发现本土小微公司存在着威权领导下的关怀激励缺失、员工工作与家庭矛盾隐匿、领导执行 FSSB 的权衡困境等问题，对此研究提出了情感激励、工作家庭平衡、共建发展、共享成长、多元评价五项策略。本研究丰富了 FSSB 对员工敬业度影响机制的理论，为中国小微型民营企业管理提供了实践参考。

关键词：家庭支持型上司行为；员工敬业度；工作—家庭增益；情绪健康；受惠与感恩；跨层调节

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Chapter 1: Introduction

1.1 Research background

Over the past few decades, the study of employee engagement has received increasing attention in the field of organizational management. Engagement is considered to be one of the key factors affecting organizational development and performance (Bakker et al., 2008). Employee engagement refers to their level of commitment in their work and their enthusiasm and motivation for their work (Schaufeli et al., 2006). Such employee engagement and passion for their work can lead to many positive effects, including improved individual and organizational performance (Bakker & Demerouti, 2007). Employees with high engagement are more likely to devote more time and energy to their work, resulting in increased productivity and efficiency. Employee engagement affects not only their individual performance, but also the overall performance of the organization (Christian et al., 2010). Employees with high engagement are more active in their work, more willing to make extra efforts to complete tasks, and more likely to be active advocates for the company and promote their products and services; such employee behavior can greatly improve the image of the organization, increase customer satisfaction, and ultimately improve organizational performance (Harter et al., 2002). In addition, work engagement also shows a significant correlation with employee turnover, with employees who are more engaged being more likely to stay with the organization rather than look for other job opportunities (Halbesleben & Wheeler, 2008). Employees show higher loyalty when they are satisfied with their jobs and have a stronger sense of belonging to the organization. And such employee retention ability is important for organizations to reduce the cost of recruiting and training new employees, as well as to maintain organizational stability and continuity. Yet despite the fact that engagement has a significant impact on organizational development and performance, at this stage, many organizations have not fully recognized the importance of managing employee engagement behavior. Work engagement is a difficult concept to measure or observe directly (Macey & Schneider, 2010). This requires organizations to conduct deeper surveys and assessments to understand employee engagement and how to improve it.

As China's economy continues to grow and the standard of living of its residents improves, the number of dual-earner families is also increasing. However, this growth poses new

challenges for both employees and companies, focusing on how to balance work and family responsibilities (L. Chen et al., 2018). In addition, work-family balance has become an important aspect of corporate employee management and team research as societal expectations for quality of life continue to rise. Studies have shown that employees' work-family conflict has a significant impact on their career satisfaction, job performance, health, and family life satisfaction (X. Li & Wu, 2021). This conflict may lead to increased workload and psychological stress, and may even lead to physical and mental problems (M. Wang et al., 2010). At this stage, many organizations, represented by hospitals, have started to implement various policies and measures to help their members better balance their work and family life (S. Xiao et al., 2022). Some companies offer relatively flexible work schedules, while some companies are gradually implementing long-term telecommuting models and even paid holidays to help employees cope with family responsibilities (C. Yang et al., 2022). These measures can reduce the "work-family" conflict of employees to some extent, while improving job satisfaction and loyalty of employees, thus improving organizational performance (L. Chen et al., 2018). The concept of Family-Supportive Supervisor Behaviors (FSSB) has received increasing attention in the academic community to improve employee engagement and help employees effectively balance work-family conflict.

FSSB refers to the behaviors of supervisors in understanding and supporting employees when dealing with work-family conflicts (Hammer et al., 2009), and indicates that supervisors' behaviors and attitudes at work have a significant impact on employees' behaviors and attitudes. In terms of conceptual discernment, there is a significant difference between FSSB and Perceived Supervisor Support (PSS) in terms of concepts and connotations, and understanding this difference is of great significance to the theoretical framework and empirical analysis of this study. First, FSSB is a specific behavioral manifestation that emphasizes supervisors' support for employees' work-family balance through practical actions, focusing on the way supervisors behave in daily management, especially how supervisors help employees reconcile work-family conflicts through specific behaviors, such as understanding employees' family needs, offering flexible work arrangements, and providing support and care on family issues (Jolly et al., 2022). FSSB is more contextual and behaviorally oriented, focusing on practical management measures and behavioral interventions (S. Y. Pan, 2018). In contrast, PSS is a subjective perception of supervisor support, which is more of a psychological cognition or attitude, where employees form an overall evaluation of their supervisor's supportiveness based on their personal experience and organizational climate (Wong, 2018). The scope of support in PSS is broader, covering the supervisor's help and support for employees in terms of work

organization, task allocation, and emotional support, but is not limited to family aspects of support (Astivian & Pusparini, 2020; M. H. Jin & McDonald, 2017). PSS is usually associated with employees' sense of trust and security, but does not emphasize specific supportive behaviors of supervisors in work-family balance (Uddin et al., 2020). Thus, it can be learned that the difference between FSSB and PSS is that FSSB is a behavioral orientation concept that focuses on supervisors' direct support of employees' family needs, while PSS is a perceptual orientation concept that emphasizes employees' general perceptions of supervisors' supportiveness. The core difference between the two lies in the different dimensions of behavioral performance and subjective perception. By exploring FSSB in depth, this study is able to complement the analytical perspective of PSS at the specific behavioral level, especially in the context of work-family balance, where FSSB has a clearer practical guidance as a more specific management strategy.

Research has shown that FSSB can increase employee engagement in several ways. Firstly, when supervisors provide adequate support and understanding, employees are better able to manage work-family conflicts and devote more energy and attention to their work (Odle-Dusseau et al., 2012). Secondly, support and understanding from superiors can increase employees' job satisfaction and their engagement (Eisenbeiss et al., 2008). However, although some studies have been conducted to explore the relationship between FSSB and employee engagement, there are still some shortcomings in theoretical studies.

First, the current studies on FSSB and employee work engagement have mainly focused on Western countries, and studies in China mainly on the influence of FSSB on employee innovation, performance, and life satisfaction, while the relationship between FSSB and employee engagement in non-Western cultural contexts has not been adequately studied (C. P. Li et al., 2023). Secondly, further research is needed on the mechanism of the impact of FSSB on employee engagement and how the impact occurs through which paths (C. P. Li et al., 2023; Youliwasi & Tian, 2024). In addition, most of the existing studies have focused on the impact of FSSB on individual employees, while the cross-layer impact of FSSB has been less studied (Kossek et al., 2011). Existing literature has shown that leaders' management style plays an important role in influencing employees' cognition, attitudes and behaviors, and team atmosphere also plays an important role in this process (W. A. Hu & Luo, 2020). At present, relevant Chinese scholars have mainly explored from various perspectives, including leader-manager (L. Ma et al., 2023), team characteristics (D. K. Yu & Xue, 2018), and employee characteristics (M. Qi & Song, 2018). Referring to foreign research results on FSSB and employee work engagement, combined with Chinese scholars' research frameworks in the

domestic workplace, exploring the concentration of rights and power and managerial experience situation (Luo et al., 2016), teamwork situation (Chi et al., 2023; Lu et al., 2016) is an important direction in dissecting the impact of leaders' FSSB on employees in the Chinese workplace (R. Y. Zhou et al., 2019).

Therefore, the research in this thesis explores the influence mechanism of FSSB on work engagement from two directions: team work engagement and employee work engagement (Chi et al., 2023). The aim is to understand how FSSB affects employee engagement and its effect in a team environment. This thesis combines the characteristics of centralized power and teamwork in Chinese companies (M. K. Yu et al., 2018), discusses whether FSSB can be an effective factor in motivating employee engagement in China, and presents the research theory and hypotheses. Then the thesis analyzes how FSSB affects employee engagement, identifies three situational factors that can facilitate the impact of FSSB on engagement: work-family enrichment, beneficiary gratitude, and team relationship balance, and also proposes manager experience, employee power distance, and FSSB differentiation as moderating variables. It further attempts to reveal the specificity of the impact of FSSB on employee engagement in the Chinese cultural context, i.e., the localized mechanism of action. This is supposed to complement the existing research and provide reference for the improvement and optimization of enterprise organizational management model.

1.2 Research questions, content, and significance

1.2.1 Research questions

This thesis focuses on the role and influence mechanism of FSSB in local small-sized private companies in China. The research questions are as follows:

- (1) Can FSSB be an effective factor in motivating Chinese employees' engagement in the local small-sized private companies in China?
- (2) If the answer to Question 1 is positive, how does FSSB affect employee engagement?
- (3) What situational factors can facilitate or inhibit the process of FSSB's influence on engagement?
- (4) What are the problems existing in the management of influence mechanism of FSSB on employee engagement in local small-sized private companies in China? How to solve such problems?

1.2.2 Research content

The main research objectives of this thesis are to understand the role of FSSB in the local companies in China and its influence mechanism, and to try to reveal how FSSB affects employee engagement, and the role and impact of FSSB in team contexts. This will help to better understand and apply FSSB to improving employee engagement and team performance. First, the thesis explores whether FSSB can be an effective factor to motivate Chinese employees' engagement in the local small-sized private companies in China. The internal management and leadership characteristics of private firms in China, represented by traditional family-owned private enterprises, are influenced by unique cultural backgrounds and historical traditions, the most notable feature of which is the centralization of decision-making and management power in the firm (Y. D. Ren & Wang, 2020; Sun, 2022). Many Chinese companies exhibit a high degree of departmental employee compliance to higher levels of leadership in their day-to-day management. Employees' opinions are consulted and considered in the decision-making process, but the final decision often remains centralized in the hands of leadership (Y. Wu & Zhang, 2021). At the same time, the teamwork and groupism emphasized by Chinese companies is also a prominent feature of their internal management (Q. Y. Xie et al., 2022), and this collective tendency makes Chinese company culture more focused on teamwork and harmony (Chi et al., 2023), and employees are more willing to carry out the relevant work for the sake of the collective interests. The research model constructed in this study takes FSSB as the core variable to explore the mechanism of its influence on employee engagement.

The research content of the thesis is organized as follows:

Chapter 1: Introduction. It includes the research background, research questions, research content and framework, relevant theories, and methods, and summarizes the significance and innovation points of the study.

Chapter 2: Literature Review. Focusing on FSSB and work engagement, the chapter reviews the current research status, summarizes the shortcomings of the current research and the development trend of future research, and then provides research support to explore the role of FSSB and its influence mechanism in the Chinese cultural context, reveal how FSSB affects employees' work engagement, and analyze the role and influence of FSSB in the team context.

Chapter 3: Research Model, Hypotheses, and Survey Design. Concepts including Family Supportive Supervisor Behavior (FSSB) (Hammer et al., 2009), employee work engagement (Schaufeli et al., 2002), managerial experience (Derue et al., 2011), power distance (Earley,

1997; Hofstede, 1980; B. Miao et al., 2023; Schwartz, 1994), beneficiary gratitude (Emmons & McCullough, 2003), and team relationship balance (Tjosvold et al., 2004) are defined, and the theoretical underpinnings are centered around the social exchange theory (Eisenbeiss et al., 2008), the job requirement-resource model (Bakker & Demerouti, 2007), and leader-member exchange theory (Graen & Uhl-Bien, 1995). This constructs the theoretical framework and research hypotheses of the role of FSSB and its influence mechanism in the Chinese cultural context.

Chapter 4: Empirical Study of the Models. Based on the introduction of the diary analysis method and the design and implementation of the research, this chapter explores that FSSB enhances employee engagement directly and through the mediating variable of work-family enrichment, managerial experience, and team relationship balance moderates the relationship between FSSB and work-family enrichment across layers, and emotional wellbeing and beneficiary gratitude as sequential mediator variables further explains the path by which FSSB affects engagement. Meanwhile firm power distance enhances this effect.

Chapter 5: Conclusion and Discussion. This chapter provides a targeted discussion of the research results, elaborates the main issues identified during the research process and the improvement measures to be taken, summarizes the contribution of this thesis, describes the shortcomings of this thesis, and looks forward to future research.

1.3 Research significance

1.3.1 Theoretical significance

This study thoroughly explores the role of FSSB and its influence mechanism in the Chinese cultural context, and its theoretical significance is reflected in the following three aspects:

On one hand, this study enriches the field of research on the work engagement of frontline employees in China. Specifically, it focuses on whether FSSB can be a key factor to effectively motivate employees' work engagement in the Chinese cultural context (Allen, 2001; Chi et al., 2023). This research perspective helps to understand the way and extent to which cultural factors influence FSSB on employee engagement, thus providing a theoretical basis for employee management and motivation.

On the other hand, this study constructs and validates a model of the influence of FSSB on employee engagement (Hammer et al., 2007). It confirms the direct positive effect of FSSB on employee engagement, then explores the mediating role of work-family enrichment in this

relationship, revealing how FSSB indirectly increases employee engagement by improving employees' work-family balance (Eby et al., 2015). To understand this mechanism more comprehensively, this study introduces managerial experience and team relationship balance as cross-layer moderating variables (Finkelstein et al., 2009; S. E. Kaplan et al., 2012), and examines their moderating effects on the relationship between FSSB and work-family enrichment, respectively. In addition, this study further analyzes the transmission role of emotional well-being and beneficiary gratitude in the process of FSSB affecting employee engagement through a sequential mediation model (Grant & Gino, 2010; Marks et al., 2001), and verifies the reinforcing effect of power distance as a cross-layer moderating variable on this path. An attempt is made in this thesis to find out whether there is a special mechanism of action, i.e., whether the process of the FSSB's influence on employee engagement is specific to the local small-sized private companies in China (Chao et al., 2022).

Additionally, this study extends the theoretical analysis of FSSB at the employee-team level. It investigates the role of FSSB as a leadership behavior that meets the individual needs of different employees in a team context, esp. when team members perceive different levels of FSSB, and how this affects the effectiveness of FSSB and the team as a whole. The study of this issue provides a new understanding of the role and influence of FSSB at the team level and offers a new theoretical perspective on team building and management.

1.3.2 Practical significance

At the practical level, this study provides a practical strategy to improve employee engagement by focusing on employees' "work-family" conflict. In modern society, the work-family conflict is becoming more and more significant, which seriously affects employees' motivation and engagement. The application of FSSB provides a possible way to solve this problem. The "work-family" conflict of employees' provides theoretical support and practical guidance (H. X. Chen & Guan, 2021), and provides an important reference for modern enterprises to optimize the management mode and construct the FSSB leadership mechanism. This study is of great significance in the practice of corporate management and human resource management. By identifying the positive effects of FSSB on employee engagement, it provides specific behavioral guidance to help companies improve employee engagement and productivity (W. C. Guo & Cao, 2022; S. J. Ma, 2017; X. M. Zhou et al., 2019). Studies have shown that supporting employees' work-family balance can improve their mental health and productivity. Enhancing managerial experience and optimizing team relationships can help strengthen this management

effect (C. P. Li et al., 2023). The importance of psychological support and emotional management is emphasized through the sequential mediating effects of emotional wellbeing and beneficiary gratitude, providing companies with more refined employee management strategies. Adjusting the power distance of the organization can improve the effectiveness of FSSB, make them more adaptable to different cultural backgrounds and employee characteristics, and promote the diversity of management modes and precise motivation.

1.4 Research theories

1.4.1 Social Exchange Theory

Social Exchange Theory (SET), which originated from the fields of economics and sociology, emphasizes that in interpersonal relationships, people always expect the greatest possible return from their inputs (Blau, 1964). This theory asserts that people always have a psychological account of the relationship between inputs and rewards during social interactions, and they seek to maximize benefits as much as possible to achieve fairness and balance. In the workplace, social exchange theory can be used to explain the interrelationships between employees and supervisors, and between employees and organizations. Social exchange theory plays a very important role in understanding the role of FSSB and the mechanisms of its influence in the Chinese cultural context. First, FSSB can be viewed as a form of social exchange in which supervisors provide support for employees' family life and in return, employees may increase their engagement and work commitment (Eisenbeiss et al., 2008). In other words, employees may feel a social exchange pressure that they need to reciprocate their supervisor's support by showing higher levels of engagement and productivity. Second, in the Chinese cultural context, respecting and returning favors from elders or superiors is a deeply rooted value (Hofstede, 1980). Therefore, when supervisors demonstrate FSSB, employees may feel stronger social exchange pressure and therefore are more willing to reciprocate their supervisors' support by increasing their work engagement. From this, it can be proposed that FSSB can positively influence employee work engagement.

Thus, the Social Exchange Theory plays a central supporting role in analyzing the mechanism of the influence of FSSB on work engagement. The theory suggests that each party in a social interaction expects to maximize benefits from the exchange. In the work environment, when employees perceive family support from their supervisors, such as understanding, flexible work arrangements, and emotional support, they feel a sense of social debt, which motivates

them to repay their supervisors with higher levels of work engagement. This engagement is reflected in employees' positive work attitudes, efficient performance, and loyalty to the organization. In addition, the Social Exchange Theory emphasizes the principle of reciprocity, which means that this process of support and reciprocation is mutual. Supervisors' family supportive behaviors not only increase employees' work engagement, but also enhance the trust and respect between supervisors and employees, thus creating a positive cycle that promotes the harmonious and efficient operation of the entire organization. Thus, the Social Exchange Theory provides a powerful theoretical framework for understanding the complex relationship between FSSB and work engagement, revealing how such behaviors can enhance employee engagement through the establishment of a working relationship based on trust and reciprocity.

1.4.2 Job Demands-Resources Model

The Job Demands-Resources (JD-R) Model is a theoretical model that explains how employees cope with work stress and job engagement (Bakker & Demerouti, 2007). This model suggests that the work environment can be divided into two categories of factors: job demands and job resources. Job demands refer to job characteristics that require sustained effort and that may be associated with physical and mental costs. Job resources, on the other hand, refer to a variety of physical, psychological, social, and organizational resources that can help accomplish job tasks, reduce the stress associated with job demands, and promote personal development and learning. The JD-R Model plays an important role in understanding the role of FSSB and its influencing mechanisms in the Chinese cultural context. First, FSSB can be viewed as an important work resource that helps employees better cope with stress and conflict at work and at home (Kossek et al., 2011). When employees feel that their supervisors support them in dealing with family issues, they may feel less stressed and thus have more energy to devote to their work and improve their work engagement. Second, the JD-R Model emphasizes the accumulation effect of resources, i.e., the presence of resources leads to more resources (Hobfoll, 2001). In this case, FSSB not only helps employees cope with work and family stress directly, but also helps them access more job resources, such as career development opportunities and job satisfaction, by increasing their work engagement.

Therefore, this thesis further deduces that, under the JD-R Model, Beneficiary Gratitude plays a key role in mediating the positive effects of FSSB on employees' work engagement (Fredrickson, 2012). Specifically, when employees perceive the family supportive behaviors of their supervisors, they feel a strong sense of benefit and gratitude, which not only enhances

their sense of belonging and loyalty to the organization, but also increases their dedication and commitment to their work (Grant & Gino, 2010). Therefore, Beneficiary Gratitude plays the role of a bridge and catalyst between FSSB and employee work engagement, and promotes positive work attitudes and behaviors. This leads to the hypothesis that “beneficiary gratitude” plays a mediating role in the effect of FSSB on employees’ work engagement.

1.4.3 Leader-Member Exchange Theory

The Leader-Member Exchange Theory (LMX) is a theory that describes the differences in the quality of relationships between leaders and individual team members (Graen & Uhl-Bien, 1995). This theory asserts that the leader’s relationship with each member is unique and that the quality of this relationship can affect the member’s job satisfaction, job performance, and level of commitment to the leader. When applied to the study of FSSB in the Chinese cultural context, the LMX theory plays an important role. First, the LMX theory suggests that the quality of the leader-member relationship has a significant impact on members’ work engagement. When employees feel supported by their supervisors, esp. when dealing with work-family conflict issues, they may feel more respected, thus increasing their work engagement (Matthews et al., 2014). In addition, high-quality leader-member relationship may enhance employees’ perceptions of FSSB, thereby enhancing the positive impact of FSSB on work engagement. Second, the LMX theory emphasizes the reciprocal relationship between leaders and members. This principle of reciprocity is particularly important in the Chinese cultural context. When employees feel support from their supervisors for their families, they may pay back their supervisors’ support with higher levels of work engagement. This reciprocal relationship may reinforce the impact of FSSB on work engagement.

Based on the above research, this thesis proposes a further inference that FSSB has a significant impact on employee engagement through Work-Family Enrichment under the framework of LMX. Specifically, FSSB facilitates Work-Family Enrichment by providing emotional support and resource allocation to enhance employees’ coordination and balance between work and family roles. This enrichment not only reduces work-family conflicts, but also increases employees’ job satisfaction and engagement, and ultimately, significantly improves work engagement. Therefore, Work-Family Enrichment plays an important mediating role between FSSB and employee work engagement, and is the key to understanding changes in employee behavior and attitudes. This leads to the hypothesis that “work-family enrichment” plays a mediating role in the effect of FSSB on employees’ work engagement.

The theoretical contribution of this study is to reveal the differences between FSSB as a unique model of supervisor behavior in promoting employee engagement and the Social Exchange Theory and the Leader-Member Exchange (LMX) Theory. The social exchange theory focuses on individuals' reciprocal exchange behaviors in organizations and emphasizes long-term reciprocal relationships between employees and organizations or leaders. The LMX theory, on the other hand, focuses on differential relationships between leaders and subordinates and emphasizes that different leader-member relationships lead to different work attitudes and behaviors. Although these two theories can explain the effects of supervisors' behaviors on employees, they pay less attention to employees' needs in terms of work-family balance and fail to adequately reflect the profound effects of family factors on employees' work attitudes and behaviors.

The FSSB theory introduces the unique dimension of family support, emphasizing that supervisors promote employees' work-family balance through understanding and supporting their family needs, which in turn enhances employees' emotional wellbeing, job satisfaction, and engagement. Unlike the social exchange theory and the LMX theory, FSSB focuses on the balance between employees' roles in the workplace and at home. This study shows that FSSB not only directly enhances employees' work-family enrichment through specific behaviors, such as flexible work arrangements and caring and understanding of family matters, but also indirectly promotes engagement through psychological mechanisms such as enhancing employees' emotional wellbeing and sense of gratitude. These mechanisms have not been fully explored in the framework of the social exchange theory and the LMX theory (Q. Q. Yu, 2014). In addition, the implementation of FSSB shows significant variability across managerial experiences and team relationship situations, which is also different from the "individualized relationship" of LMX (J. Z. Pan & Yang, 2024). This study further explores the positive effects of FSSB in high power distance situations, suggesting that FSSB has more applicability and explanatory power than the social exchange theory and LMX in local small-sized private companies in China (J. Liang, 2014). Therefore, this study not only enriches the theoretical connotation of FSSB, but also provides new perspectives on how to improve employees' work-family balance through supervisor behavior in practice.

1.5 Research methods

1.5.1 Literature research

The literature research method is an important research tool in the study of understanding the role of FSSB and its influencing mechanisms in the Chinese cultural context. The issues addressed in this study require not only an in-depth exploration of the theoretical definition and related concepts of FSSB, but also an understanding of how FSSB affects employee engagement as well as the role and impact of FSSB in a team context. All of the above issues require theoretical knowledge and empirical hypothesis supporting evidence from the existing relevant literature. The literature research can provide theoretical definitions, empirical evidence, and theoretical explanations to help understand and reveal more deeply and comprehensively the role of FSSB and its influencing mechanisms in local small-sized private companies in China.

First, literature research is used to understand the theoretical definition and characteristics of FSSB and how it relates to key variables such as employee engagement and team effectiveness. This theoretical exploratory literature study can provide basic knowledge about FSSB and help to understand the research questions in greater depth.

Second, through a detailed review of the existing literature, theoretical rationale and empirical evidence on the role of FSSB and its influence mechanisms in the Chinese cultural context are obtained. In particular, through in-depth reading and analysis of FSSB studies in local small-sized private companies in China, it is possible to understand the characteristics and influencing factors of FSSB and how it affects employees' engagement in local small-sized private companies in China (Yuan et al., 2019). Such a literature research can help understand the research questions more comprehensively and provide theoretical guidance and empirical support for the study.

Third, an in-depth study of the literature on the role and influence of FSSB in team contexts is conducted to understand and reveal the role and influence of FSSB in team contexts. These literatures may cover various aspects of team dynamics, leadership behaviors, and team performance, which can be used to understand and appreciate the role and influence of FSSB in team situations, as well as the related influencing factors and mechanisms.

1.5.2 Diary study

The diary study method is a form of data collection that requires research participants to record

their experiences, behaviors, feelings, or reflections on a regular basis (e.g., daily or weekly) over a period of time (e.g., weeks or months) (Bolger et al., 2003). The main advantage of this method is its ability to capture the subtle changes in daily life and the reactions of individuals in specific contexts. The diary study method has been widely used in various research fields, such as psychology, sociology, education, and organizational behavior. In organizational behavior research, the diary study method is often used to study topics such as emotions, stress, job satisfaction, and leadership behavior in the workplace. An important feature of the diary study method is its time-series nature. Individuals' daily diary data can be analyzed to understand how a phenomenon develops over time and the dynamic relationships between different variables (Ohly et al., 2010). Diary study can be used to understand how employees' job stress affects their job satisfaction, or how leadership behaviors affect employees' work engagement.

The objective of this study is to understand the role of FSSB in solving employees' "work-family" conflict, and improving sense of belonging, beneficiary gratitude, personal and team commitment, and ultimately overall departmental performance. The subjects of this study are 30 employees in the operations department of the author's micro firm, excluding the management team. Focusing on employees' work-family conflict and FSSB, the study aims to enhance the sense of belonging, emotional commitment and professionalism of employees in the operations department by focusing on the work system and employees' psychology. The method of the study is based on the diary method, in which employees are asked to record their work challenges, family conflicts, supervisors' supportive styles, and changes in their sense of belonging and level of engagement every day for 12 working days to capture the relevant information. Data collection will be analyzed qualitatively and quantitatively to understand the impact of FSSB on employee and departmental performance. To ensure the validity of the study, employee diary entries will be checked and guided regularly and confidentiality will be ensured. All participants have been clearly informed of the purpose and procedures of the study and are free to withdraw at any time. Their personal information will be kept strictly confidential and the results of the study will be used for academic purposes only.

1.6 Research innovation

The innovations of this study are mainly on research perspective and research method:

In terms of research perspective, this study is the first to examine the relationship between FSSB and work engagement in the Chinese cultural context, which is an important expansion

of the current research status. Most of the existing studies focus on Western companies, ignoring specific study on the influence of FSSB on employee engagement in local SMEs in China. Therefore, this study attempts to investigate the application and effects of FSSB in China from the perspective of local SMEs in China, analyzing the different effects of “work-family enrichment” as a mediating variable with “managerial experience” as a moderating variable, and “beneficiary gratitude” as a mediating variable with “power distance” as a moderating variable, which is an important addition to the existing research theories. In addition, this study explores the role and influence of FSSB in team situations with “team relationship balance” as a mediating variable and “emotional wellbeing” as a moderating variable, which is a new attempt and expansion of FSSB research.

In terms of method, this study adopts the diary study method, which is a less used but very effective research method in domestic FSSB research and fits with the limited case samples in this study. Compared with the traditional questionnaire method, the diary study method can better capture the real feelings and behavioral changes of employees, and more accurately assess the impact of FSSB. In addition, this study adopts an empirical analysis method to reveal the actual impact of FSSB on the work engagement of employees in the operational department through the analysis of actual data, which enhances the scientific validity and credibility of the study.

Chapter 2: Literature Review

2.1 Research on FSSB

2.1.1 Dimensions and measurement of FSSB

“Family Supportive Supervisor Behaviors” (FSSB) is a relatively new concept that plays an important role in employee job satisfaction, work engagement, and work-family balance. According to Hammer et al. (2009), FSSB is a specific type of leadership behavior that manifests itself in the form of supervisors expressing understanding and support for employees’ family needs through specific actions. Such behaviors include providing emotional support, valuing employees’ family life, and achieving work-family balance. Another study by Bagger and Li (2014) further clarifies the four dimensions of FSSB: emotional support, behavioral role model, work resource support, and time flexibility. Among them, emotional support refers to supervisors showing empathy and understanding for the difficulties employees encounter in their work life; behavioral role model refers to supervisors modeling how to balance work and family life through their own behaviors; work resource support involves supervisors providing the work resources employees need to help them with family matters; and time flexibility refers to supervisors giving employees more freedom so that they can be more flexible in organizing work and family life. The study by King et al. (2016) further shows that FSSB may not only increase employees’ job satisfaction and work engagement, but also reduce their job stress and family conflict. Meanwhile, Eby et al. (2015) shows that even though FSSB brings many benefits, its effects may vary depending on factors such as national geographic culture, organizational climate, and individual differences. S. J. Han and McLean (2020), in their study, view FSSB as the ability of leaders to provide appropriate assistance to employees to enable them to balance family life matters with daily work and to achieve good physical and mental health. Qin et al. (2022) in their study define FSSB as supportive behaviors provided by the management to employees in fulfilling their family roles, and suggest that since employees have their own different backgrounds, and thus different levels of needs for work and family, formal family support systems provided by organizations such as flexible work schedules, paid leaves, and childcare are not sufficient to maintain the work-family balance of the employees; and that informal organizational family support systems such as FSSB, more flexible and

humanized, are more likely to help employees strike a balance between work and family.

The measurement and dimensions of FSSB is an important aspect of research. Hammer et al. (2009), after proposing the concept of FSSB, further develops a set of scales with high reliability and validity to measure and assess supervisors' family support behaviors. The scale contains four dimensions: emotional support, role modeling behaviors, creative work-family management, and instrumental support.

The emotional support dimension measures supervisors' empathy and understanding of employees and their willingness to listen to employees' problems and concerns. The dimension of role modeling behaviors assesses how supervisors demonstrate to employees through their behaviors how to balance work and family. The Creative Work-Family Management dimension assesses whether supervisors respect their employees' non-work lives and understand their employees' need to find a balance between work and family. The instrumental support dimension assesses whether supervisors can promote and enforce employee-friendly work arrangements and policies at the organizational level. The scale contains 14 questions with multiple questions measuring each dimension. The scale is rated on a 5-point Likert scale ranging from 1 (very poorly) to 5 (very well). The reliability of the scale is very high, with Cronbach's alpha for all questions above 0.80, which is significantly higher than the conventional criterion for reliability, 0.70. This shows that the scale meets high standards of reliability and validity for measuring FSSB. It is worth noting that this scale by Hammer et al. (2009) is not just used in their own study, but in many subsequent studies. For example, Kossek et al. (2011) uses the scale to measure FSSB in their study, and their study further validates the reliability and validity of the scale. S. J. Han and McLean (2020) also use the FSSB short form (FSSB-SF) developed by Hammer et al. (2009) for measurement, which determines validity through predictive measures using a confirmatory factor analysis (CFA), and determines an overall reliability of 0.82 through Cronbach's alpha for the sample population in his study. Qin et al. (2022) also use the scale developed by Hammer et al. (2009), which had a Cronbach's alpha of 0.927 in their study.

2.1.2 Antecedents of FSSB

The factors influencing FSSB are a complex and important area of research, with influences spanning multiple individual, organizational, and societal levels. Here, several important studies are drawn upon to provide an in-depth look at the factors influencing FSSB.

At the individual level, superiors' own experiences and attitudes may influence their

family-supportive behaviors. Thomas and Ganster's (1995) study suggests that superiors' experiences of work-family conflicts, as well as their perceptions of their work and family roles, may influence their understanding of, and attentiveness to, their employees' family needs. This idea was further confirmed in a study by Crain and Hammer (2013), who found that supervisors with work-family conflict experiences were more inclined to be supportive of their employees' family needs. Additionally, Odle-Dusseau et al. (2012) found that supervisors who also served in a parental role tended to be more understanding and supportive of their employees' family needs. Z. Y. Wang et al. (2022) show that along with the increase of employees' ages, family-work conflict significantly affects employees' intergenerational knowledge transfer, especially mediated by the organizational self-esteem of high-age groups, and organizational innovation will be greatly inhibited if family-work conflict is not effectively coordinated by transformational leaders.

At the organizational level, studies of relevant researchers have also revealed a range of factors that influence the behavior of family-supportive supervisors. Kossek et al. (2011) notes that organizational culture and climate largely determine supervisors' family-supportive behaviors. Specifically, if an organization encourages employees to balance work and family life and respects employee's family needs, supervisors in such an organization are more likely to demonstrate family-supportive behaviors. In addition, supervisors' behavior is influenced by their superiors, which is known as the "up-down effect" (Allen, 2001). Subordinate supervisors are more likely to exhibit family supportive behaviors when their own supervisors have a positive attitude toward family friendly behaviors. In addition, from a wider perspective, the level of organizational support for family-friendly policies also influences supervisors' family supportive behaviors (Kelly et al., 2008).

Employees' own needs and attitudes also influence supervisors' family support behaviors. Hammer et al. (2009) find that employees' need for family support, and the way they express that need, affects whether and to what extent supervisors provide support. Specifically, if employees were able to clearly express their family needs, their supervisors were more likely to provide support (Q. Li et al., 2022).

In addition, relevant researches show the existence of socio-cultural influences on FSSB. Kossek et al.'s (2011) study show that societal expectations of gender roles influence supervisors' family-supportive behavior. For example, male supervisors may be less likely to exhibit family-supportive behaviors in societal cultures where it is believed that men should be the primary financial supporters of the family. Z. V. Zhang and Hyland (2011) also show that work-family conflict have a significant negative impact on the innovative behavior of female

knowledge workers. In addition, society's general awareness and understanding of work-family conflict also influence FSSB (H. H. Miao et al., 2023; Ryan & Kossek, 2008).

2.1.3 Consequences of FSSB

FSSB has attracted widespread attention in the field of organizational behavior in recent years, and a large number of studies have explored its impact on employees and organizations in various aspects. Taking the existing research results into account, it can be found that FSSB has a significant positive effect on alleviating work-family conflict, enhancing job satisfaction, strengthening organizational commitment, improving career satisfaction, and reducing turnover intention. These effects are mainly realized through mediating variables such as work-family interaction and work-family enrichment.

First, FSSB can effectively alleviate employees' work-family conflict, which in turn enhances their job satisfaction and engagement. Hammer et al. (2006) stated that FSSB can significantly reduce employees' work-family conflict and enhance job satisfaction. In addition, Eby et al.'s (2015) study found that FSSB can also increase employees' work engagement and organizational commitment. Therefore, FSSB not only helps employees cope with family problems, but also enhances their job performance. Such behaviors include supervisors' understanding and support when employees face family matters, providing flexible work arrangements and emotional support. By reducing the interference of work with family life, employees can focus more on their tasks, which leads to higher job performance and satisfaction. At the same time, reduced work-family conflict can also enhance employees' overall quality of life and enable them to find a better balance between work and family.

Second, FSSB significantly enhance employees' organizational commitment and work engagement. O'Driscoll et al. (2003) found that FSSB also increase employees' career satisfaction. Crain and Hammer (2013) found that such behaviors also significantly reduce employees' turnover intentions. These findings suggest that FSSB has a significant positive impact on employees' career development. That is, when supervisors show understanding and support for employees' family needs, employees feel the organization's recognition and respect for their own values, thus enhancing their sense of belonging and loyalty to the organization. Enhanced organizational commitment not only reduces employees' turnover intention, but also promotes employees to participate more actively in their work and show higher work enthusiasm and commitment.

In addition, FSSB has a significant impact on employees' career satisfaction and life

satisfaction. Allen's (2001) study found that FSSB increased employees' job satisfaction and work engagement by reducing employees' work-family conflict. Similar conclusions were drawn in Crain and Hammer's (2013) study, which showed that FSSB reduces employees' turnover intention by increasing their sense of work-family balance. Matthews et al. (2016) used work-family conflict and family-work conflict as mediating variables to argue that FSSB can have an impact on employees' emotional fatigue. Their study showed that FSSB can reduce employees' work-family conflict and family-work conflict, thus reducing their emotional fatigue. Shockley and Allen (2013) used work-family satisfaction as a mediating variable to argue that FSSB can have an impact on employees' work engagement and organizational commitment. Their findings showed that FSSB increases employees' work-family satisfaction, which in turn increases their work engagement and commitment to the organization. Odle-Dusseau et al. (2012) used work-family enrichment as a mediating variable to argue that FSSB can have an impact on employees' career satisfaction. Their study found that FSSB could enhance employees' work-family enrichment and thus increase their career satisfaction. McNall et al. (2015) employed family-work enrichment as mediating variables to argue that FSSB would have an impact on employees' health and job performance. Their study shows that FSSB can increase employees' work-family enrichment and family-work enrichment, which can improve their health and job performance. All of these findings suggest that FSSB can have a positive impact on employees' behavior and psychology by improving their work-family interactions. This behavior increases work-family enrichment by improving employees' work-family interactions, so that employees can receive more support and recognition in their career development, thus enhancing their career satisfaction. At the same time, the supportive behavior of supervisors can improve the overall quality of life of employees, enabling them to gain satisfaction and fulfillment in both work and life.

The influence mechanism of FSSB has also been widely studied. Many studies show that work-family interaction, work-family enrichment, and family-work enrichment are the key mediating variables through which such behaviors function. Kossek (2005) employed work-family interaction as a mediating variable to argue that FSSB can have an impact on employees' life satisfaction. Specifically, their study shows that FSSB improves employees' work-family interactions, which in turn increases their life satisfaction. Lapierre et al. (2008) employed work-family conflict and work-family enrichment as mediating variables to argue that FSSB can have an impact on employees' job satisfaction and life satisfaction. Their findings suggest that FSSB can reduce employees' work-family conflict and thus increase their job satisfaction; specifically, FSSB ultimately improves employees' job satisfaction, life satisfaction, and health

by improving their work-family interactions, decreasing the negative impact of work on family, and increasing the positive interactions between work and family. In addition, by increasing employees' positive enrichment between work and family, supervisors' supportive behaviors can further enhance employees' career satisfaction and job performance.

In summary, FSSB plays an important role in the modern workplace, positively affecting employees' work, life, and psychological status through a variety of ways. Understanding the effect and mechanism of this behavior is of great significance to organizational management practice. Organizations should encourage and cultivate FSSB to build a more supportive and humane work environment to achieve a win-win situation for both employees and organizations.

2.2 Research on employee work engagement

Employee work engagement is a widely discussed topic in the study of organizational behavior and human resources management. In modern organization management, employee work engagement is an essential factor which directly affects organizational performance and development. Schaufeli et al. (2002), in their seminal study, define employee work engagement as a positive, fulfilling, and work-focused state of mind, characterized by vigor, dedication, and absorption. Employees in this state exhibit high levels of energy, profound immersion, and a sense of enthusiasm and passion for their work. Kahn (1990) provides a broader perspective, proposing that work engagement involves the degree to which employees personally invest themselves in their work roles, encompassing the physical, cognitive, and emotional resources they devote to their tasks. In other words, work engagement reflects how much employees "bring their full selves" into their roles and wholeheartedly commit to their responsibilities. Bakker and Demerouti (2008) expand the understanding of work engagement, arguing that it is not merely about active involvement in work but also about identifying with and actively upholding one's work role. This form of engagement influences performance, fosters a positive work environment, and enhances team collaboration. C. H. Zhang (2019) conceptualizes employee work engagement within the framework of self-determination theory as a sustained passion, proactive dedication, and persistent attitude toward one's profession. It manifests in employees' heightened focus on tasks, willingness to exert extra effort, and strong commitment to professional goals (J. Q. Xie & Fu, 2018). S. J. Ma (2017) further emphasizes that engagement encompasses emotional investment in work, including loyalty to the organization and a sense of self-identity derived from professional achievements. This engagement not only enhances individual performance but also cultivates a collaborative work atmosphere and drives

team success.

2.2.1 Dimensions and measurement of employee work engagement

In studying employee engagement, Kahn (1990) first proposes three basic dimensions of engagement, namely physiological, cognitive and emotional engagement. Physiological engagement refers to the fact that an employee has physical strength and energy and is willing to devote it to his or her work role. Cognitive engagement refers to the cognitive judgment of the employee to recognize the importance of the job role and the sense of mission, and to realize that he or she has the ability and resources to perform the job. Emotional engagement is when employees develop a sense of meaning for their work and trust in their coworkers, and are then willing to dedicate their time and resources to their work. However, although Kahn (1990) clearly delineates these three dimensions, no specific scale was developed to measure them. As a result, subsequent researchers have continued to build on them. Scholars represented by Schaufeli developed the Utrecht Work Engagement Scale (UWES), which was gradually accepted by academics and led to a gradual harmonization of the measurement of work engagement. Schaufeli et al. (2002) develops the full version of the UWES, which contains 17 items, and an abridged version of the UWES, which contains 9 items, through interviews with high-performing employees to measure three dimensions of working employees: vigor, dedication, and absorption. The UWES scale has been validated in several countries around the world, including developed countries in the West (Schaufeli & Bakker, 2010), China (Y. W. Zhang & Gan, 2005), and less developed countries such as South Africa (Storm & Rothmann, 2003). The results of most of these validated factor analyses confirm the three-factor model proposed by Schaufeli et al. (2002), and their internal consistency reliabilities and cross-cultural stability were well validated. However, some scholars (Bakker et al., 2006) point out that due to the high correlation of the individual dimensions of the UWES scale, which increases the risk of interference with multilayer covariance, it is recommended that the UWES be used as a unidimensional scale in empirical studies instead of the conceptually delineated three-dimensional scale.

In addition to this, an extended study was conducted by Rich et al. (2010), who extended the study of Schaufeli et al. to the organizational level and introduced a new model of engagement measurement which included cognitive, emotional, and behavioral dimensions intertwined to form the employee's total engagement. Their measurements have also been widely recognized and have demonstrated high reliability and validity in their applications.

Macey and Schneider (2010) proposes three important dimensions of engagement, namely trait engagement, mental state engagement, and behavioral engagement, in their study, and their measurements were based on behavioral observations and self-reports, which have been widely applied in subsequent studies. Their studies also provide new perspectives on the measurement of engagement, but at the same time, more empirical studies are needed to verify the applicability and validity of these measurement dimensions. Saks (2006), in his study, proposes a model for the measurement of engagement that contains cognitive, emotional, and behavioral components. This model emphasizes the influence of employees' cognitive attitudes, emotional attitudes, and actual behaviors toward their jobs, providing a comprehensive perspective on engagement measurement. Saks' model has been recognized by many subsequent studies and has demonstrated good reliability and stability in empirical research.

The above research results show that in current organizational behavior research, employee work engagement is widely regarded as a multidimensional concept covering employees' physical, cognitive, and emotional inputs at work. Kahn (1990) proposes three basic dimensions, physical, cognitive and emotional engagement, where physical engagement means that employees are physically energized and fully engaged in their work, cognitive engagement emphasizes employees' perceptions of the importance of their work and their personal capabilities, and emotional engagement emphasizes employees' sense of meaning and emotional engagement in their work. Schaufeli et al. (2002) develop the Utrecht Work Engagement Scale (UWES) scale, which has become a widely used instrument by measuring the three dimensions of energetic, willingness to work, and dedication, but some scholars (Bakker et al., 2006) have suggested that it should be used as a unidimensional scale to minimize the problem of multilayer covariance. Further studies, such as Rich et al. (2010) and Saks (2006), extended the framework of dedication measurement by adding behavioral dimensions and emphasizing the interaction of cognition, emotion, and behavior. The models of trait dedication, mental state dedication, and behavioral dedication proposed by Macey and Schneider (2010) also provide new perspectives on the measurement of dedication, especially through behavioral observations and self-reports. These studies have enriched the theoretical framework of engagement and contributed to the diversification and validation of measurement instruments. The current stage of research suggests that the research dimensions of employee engagement and measurement methods complement each other and together form a complete framework for assessing and enhancing the level of employee engagement at work. Through a comprehensive understanding of the interplay of physiological, cognitive, and affective dimensions, organizations can more effectively develop strategies to promote the overall

development of their employees and the long-term success of the organization.

2.2.2 Antecedents of employee work engagement

By synthesizing and analyzing a large number of studies, this study systematically describes the multiple factors that influence employee engagement, mainly including income, job characteristics, leadership behavior, organizational culture, individual characteristics, and job satisfaction.

Income is one of the important factors affecting employee engagement. The study by Xiang et al. (2023) suggests that income level is a key factor affecting employees' job satisfaction and engagement. Satisfying employees' basic material and spiritual needs can stimulate their intrinsic motivation and enhance their dedication. A fair and reasonable compensation system not only satisfies employees' material needs, but also enhances their sense of identity and belonging to the organization, thus increasing their work engagement and job satisfaction. Employees' income preference and belongingness preference also affect their level of engagement. J. Li and Li (2022) suggest that in different work scenarios, reasonable task volume allocation and income satisfaction are the keys to improving employee satisfaction and corporate earnings. Employees with different income preferences show significant differences in their engagement levels when faced with different pay and task volumes. Therefore, organizations need to consider the individual differences and needs of employees when designing compensation and task allocation in order to improve their job satisfaction and engagement.

Job characteristics are one of the key factors affecting employee work engagement. Rich job resources, such as job feedback, job autonomy, and job meaning, can significantly increase employee work engagement. Bakker and Demerouti's (2008) model of job characteristics suggests that resource-rich work environments not only provide employees with the support they need to accomplish their tasks, but also stimulate their intrinsic motivation. A balance between job resources and job demands is the basis for maintaining employee work engagement. Job feedback allows employees to understand the value and effectiveness of their work, which increases their sense of meaning and accomplishment; job autonomy gives employees more control and decision-making power, which enhances their sense of responsibility and ownership; and job significance makes employees feel the importance of their work to the organization and society, which enhances their sense of mission and work engagement.

Leadership behavior and leadership style have a significant effect on employee work

engagement. Transformational and emotionally intelligent leadership can significantly increase employee work engagement. Tuckey et al. (2012) showed that transformational leadership can enhance employees' intrinsic motivation by inspiring vision, challenging the status quo, and providing support to make them more engaged in their work. Meanwhile, emotionally intelligent leaders can create a supportive and positive work environment by understanding and managing their own and others' emotions, further increasing employee work engagement. In addition, Z. Y. Wang et al. (2022) found that transformational leadership is particularly effective in managing older employees and enhancing their level of knowledge innovation and sharing. These leadership styles enhance employees' enthusiasm and work engagement by stimulating their potential and creativity.

Organizational culture and atmosphere are also important factors that influence employee work engagement. An organizational culture that is fair, equitable, and respectful to employees can significantly increase employee work engagement. Schaufeli et al. (2002) showed that a fair and equitable organizational culture makes employees feel respected and valued, which increases their sense of identity and belonging to the organization. In addition, an organizational atmosphere that is supportive and encourages innovation can further enhance employee work engagement. Such an atmosphere not only provides a safe and friendly working environment, but also encourages employees to experiment and innovate, thus stimulating their enthusiasm and creativity. The study by S. J. Ma (2017) further shows that the fairness of a company's compensation directly affects the level of employees' emotional engagement, which in turn affects their level of job performance. A fair and reasonable compensation system not only meets the basic needs of employees, but also enhances their work motivation and satisfaction.

Employees' individual characteristics also affect their level of dedication. Psychological capital, including self-esteem, self-efficacy, hope, and resilience, is significantly related to employee work engagement. Xanthopoulou et al. (2009) find that employees with high psychological capital are more able to cope with work stress and maintain a positive attitude toward their work, which in turn improves their work engagement. Psychological capital makes employees more resilient and proactive in facing work challenges by increasing their self-confidence and stress tolerance. This is further confirmed by the study of G. L. Yu and Xu (2019), especially among scientific and technological researchers and developers, the enhancement effect of psychological capital on work engagement is particularly obvious. This suggests that employees' work engagement and job satisfaction can be effectively enhanced by improving their psychological capital.

There is a significant positive correlation between job satisfaction and work engagement.

W. C. Guo and Cao (2022) showed that highly satisfied employees are more likely to be engaged in their work and thus show a high degree of dedication. Job satisfaction comes not only from material treatment and work environment, but also from the employees' sense of identification and fulfillment with their work. When employees are satisfied with their jobs, they are more likely to put in extra effort and time to complete their tasks, thus showing a higher degree of engagement. Job satisfaction further enhances employees' job performance and organizational commitment by increasing their motivation and responsibility.

In summary, there are various factors that influence employee work engagement, including job characteristics, leadership behaviors, organizational culture, individual characteristics, and job satisfaction. Among them, supportive supervisor behavior has an important role and mechanism in enhancing employee engagement. By providing abundant job resources, adopting transformational and emotionally intelligent leadership styles, establishing a just and fair organizational culture, enhancing employees' psychological capital, and increasing job satisfaction, employee work engagement can be significantly increased, thereby promoting sustainable organizational development. These factors interact with each other to form a complex mechanism that affects employee work engagement and requires comprehensive consideration and systematic management in practice.

2.2.3 Consequences of employee work engagement

Employee work engagement plays a crucial role in organizational performance and personal satisfaction, whose effects and mechanisms have been widely studied and validated. Through a systematic literature review, it can be found that employee work engagement not only directly affects job performance and job satisfaction, but also indirectly affects employees' health and life satisfaction through a variety of psychological and behavioral mechanisms. These mechanisms are intertwined and together shape the full impact of engagement.

Employee work engagement has a significant effect on job performance. Employees with high levels of engagement usually show greater work engagement and higher job satisfaction, which are factors that directly contribute to their job performance. Halbesleben's (2010) study states that work engagement further enhances job performance by increasing work engagement to improve job satisfaction. Work engagement refers to the amount of energy and concentration that an employee displays during the work process, while job satisfaction reflects the employee's overall level of satisfaction with his or her work environment and job content. Employees with high levels of engagement are more likely to find a sense of value and

fulfillment in their work, which makes them willing to put in more effort and time to complete their tasks, thus showing higher job performance.

Work engagement significantly affects employees' job satisfaction and willingness to leave their jobs. Employees with high levels of engagement usually have higher satisfaction with their work environment and job content, which reduces the tendency to leave their jobs. Saks's (2006) study reveals that employees with high levels of engagement derive more satisfaction from their work, which not only increases their identification with the organization, but also strengthens their willingness to stay in their jobs. On the contrary, employees with low engagement are more likely to leave their jobs due to a lack of engagement and satisfaction in their work. Therefore, improving employee work engagement can be an important strategy for organizations to reduce employee turnover.

Work engagement also has a significant impact on employee health and life satisfaction, and Hakanen et al. (2006) show that employees with high levels of dedication not only show high levels of satisfaction at work, but also have relatively better life satisfaction and health. This is because employees with high levels of engagement experience more positive emotions and fulfillment at work, and these positive experiences carry over into their daily lives, enhancing their overall quality of life and psychological well-being. On the contrary, employees with low levels of engagement may be more prone to stress and health problems due to a lack of positive experiences at work, which in turn affects their life satisfaction.

The psychological mechanisms of engagement have also received extensive research and attention. Xanthopoulou et al. (2009) found that engagement enhances employees' psychological capital, including self-esteem, self-efficacy, hope, and resilience. These psychological capitals not only enhance employees' positive emotions and behaviors, but also improve their job performance and job satisfaction. Self-esteem and a sense of self-efficacy give employees more confidence and competence in facing work challenges, while hope and resilience help them maintain a positive attitude and sustained effort at work. These psychological mechanisms enhance employees' motivation and engagement by improving their psychological capital.

Overall, employee work engagement affects organizational performance and personal satisfaction through multiple mechanisms. First, work engagement directly improves job performance by increasing work engagement and job satisfaction; second, work engagement promotes employee retention by increasing job satisfaction and decreasing willingness to leave; in addition, work engagement further enhances job satisfaction and job performance by increasing employees' psychological capital and enhancing their positive emotions and

behaviors. Income and human resource flexibility is an important factor affecting work engagement, and a reasonable compensation system and workload distribution can significantly enhance employees' job satisfaction and work engagement. Finally, employees' income preference and affiliation preference also affect their engagement level, and organizations need to carry out reasonable task allocation and management according to employees' individual differences to achieve higher organizational performance and personal satisfaction.

By systematically analyzing the effect and mechanism of employee work engagement, it can be seen that enhancing employee work engagement is a key way for organizations to improve performance and employee satisfaction. Organizations should start from various aspects to enhance employees' psychological capital and job satisfaction through the provision of rich work resources, reasonable compensation system and flexible human resource practices, to comprehensively enhance employees' work engagement and promote the sustainable development of the organization.

2.3 Research on power distance

Power Distance is a concept widely used in cross-cultural research and is primarily concerned with the degree to which individuals accept the unequal distribution of power. First, Hofstede (1980) seminal study provides a basic definition of "power distance", stating that power distance is the degree to which members of a social system accept the unequal distribution of power. This definition identifies the sociocultural component of power distance as an important indicator of social hierarchy. Based on this, Schwartz (1994) further develops this concept by suggesting that power distance exists not only at the social level but also at the individual level as the degree of acceptance of authority, including the implementation of instructions from superiors and respect for authority. Finally, Earley (1997) proposes in his study that employee power distance is also manifested in their perception of hierarchy and authority in the organization. The amount of employee power distance influences their leadership expectations, decision-making styles, and perceptions of organizational fairness. Miao et al. (2023) in their study points out that employee power distance refers to the variability in the distribution and acceptance of power among employees at different levels within an organization. X. X. Zheng et al. (2023) suggest that power distance reflects employees' acceptance of authority and hierarchy, as well as their tendency to centralize or decentralize power. In organizations with high power distance, employees usually accept stricter hierarchical differences and are respectful of the authority and decision-making of their superiors. On the contrary, in low power

distance environments, employees are more inclined to participate in the decision-making process and emphasize equal and democratic management styles (Cui et al., 2022; Huang et al., 2022). Employee power distance not only affects the communication style and decision-making process within the organization, but also determines the organizational culture and employee behavioral patterns to a large extent, and is written to be particularly prominent in Chinese Confucianism and family culture characteristics of enterprise management characteristics (Rao et al., 2022).

In summary, “power distance” is defined as an individual’s acceptance of the uneven distribution of power, which is reflected in their recognition of social hierarchy, respect for authority, and perception of hierarchy and authority in the organization. This perception and acceptance affect employees’ leadership expectations, decision-making styles, and perceptions of organizational fairness.

The actual level of power distance between leaders and subordinates is subject to change with the influence of different scenarios because the interaction and exchange relationship between the two is not static (J. Z. Pan & Yang, 2024; J. Wu et al., 2025). In this study, a driving team consists of leaders and crew members, and since the combination of leaders and crew members is randomly matched by the company for each task, there are different power distances between different combinations of leaders and members.

2.3.1 Dimensions and measurement of power distance

Power distance, as a key cultural dimension, has been widely used in cross-cultural research to analyze and understand differences in the distribution and acceptance of power in different societies and organizations. The dimensions and measurement of power distance have undergone many developments and expansions, from the initial basic concepts to today’s complex multidimensional measurement tools, providing a rich theoretical and empirical foundation for academic research and practical applications.

In studying the concept of power distance, Dutch psychologist Hofstede (1980) defined it as the acceptance of unequal distribution of power by members of society through the Power Distance Index (PDI). In Hofstede’s framework, power distance is centered around two core dimensions: employees’ fear of managers and leaders’ authority. The scale has a total scale alpha coefficient of 0.82, showing good reliability. This initial definition and measure set the stage for subsequent research, demonstrating significant differences in power distance across cultural contexts. Subsequently, Dorfman and Howell (1988) expanded the dimensions of

power distance by adding three more dimensions of leader's authority, subordinate's obedience, and centralization of decision making. Their study further refined the concept of power distance and constructed a corresponding scale, which demonstrated high reliability with an alpha coefficient of 0.85. This expansion makes the measurement of power distance more comprehensive and can more accurately reflect the power structure and interaction patterns in different organizational and cultural contexts.

In the Global Leadership and Organizational Behavior Effectiveness (GLOBE) project, House et al. (2004) further subdivided power distance into social and organizational power distance, adding new measurement items such as social status acceptance and the degree of power concentration. The alpha coefficient of the GLOBE project's power distance scale was 0.87, showing excellent reliability and validity. This breakdown allows for more depth in the study of power distance, examining not only power relationships within organizations, but also considering power dynamics at a broader societal level.

Further research was conducted by Chhokar et al. (2007), who added aspects of how leaders and subordinates interact and the decision-making process within the organization to the dimensions of power distance and expanded the corresponding scale items. The alpha coefficient of the power distance scale obtained from this study was 0.86, which demonstrated high reliability. This extension not only enhances the comprehensiveness of the scale, but also makes it more precise and relevant in analyzing communication and decision-making patterns within organizations. Taras et al. (2010)'s study extended the measurement of power distance using a scale that included ten dimensions, which included power concentration, hierarchical structure, and directive authority, among others. The scale had an alpha coefficient of 0.88 and demonstrated high reliability. This multidimensional measure provides a more nuanced and multifaceted analytical framework that enables researchers to more fully understand and explain the manifestations and effects of power distance across cultures and organizations.

Studies by Schwartz (2014) and Brewer and Venaik (2012) refine the dimensions and measures of power distance to cover a variety of aspects such as the way decisions are made within the organization, the degree of employee obedience to superiors, and the way in which communication between superiors and subordinates occurs. The alpha coefficients of the scales of these studies are above 0.85, showing high reliability. These refined dimensions and measurement tools not only enhance the accuracy and reliability of power distance research, but also make it more instructive in practical application.

Through the development of the above studies, the dimensions and measures of power distance have gradually evolved from simple single dimensions to complex

multidimensionality, with each new study and measurement tool providing us with a richer and more nuanced framework of understanding. From the initial basic concepts to today's multidimensional measurement tools, the study of power distance has not only deepened the understanding of cultural differences, but also provided important theoretical and empirical support for the study of cross-cultural management and organizational behavior. The measurement of power distance is constantly evolving and improving so that it can more accurately reflect power structures and interaction patterns in different cultural contexts. Through multidimensional measurement tools, researchers can more comprehensively analyze and understand the impact of power distance on organizational behavior, leadership styles, decision-making processes, and employee attitudes and behaviors. These measurement tools are not only valuable in academic research, but also provide powerful guidance in practical management and cross-cultural communication.

In summary, power distance, as a key cultural dimension, has undergone many developments and expansions in its dimensions and measurement methods, from the initial simple concept to today's complex multidimensional measurement tools, which provide a rich theoretical foundation and empirical support for cross-cultural research and practical applications.

2.3.2 Antecedents of power distance

In the field of organizational behavior and management, Power Distance refers to the extent to which members of an organization or society accept and expect unequal distribution of power. Hofstede (2009) describes the differences in the distribution of power in different cultural contexts in his study. However, power distance is not only applicable to cross-cultural studies, but also within companies where it exists and has a profound impact on the management and performance of the organization. Existing research broadly classifies the influencing factors of power distance into five aspects: cultural factors, organizational structure, leadership style, employee characteristics, and external environment.

First, cultural factors are an important basis for influencing power distance within a company. The cultural background and values of organizational members profoundly affect their attitudes and expectations towards power distribution. In high power distance cultures, such as some Asian and Latin American countries, organizational members generally accept the unequal distribution of power, believing that superiors have more decision-making power and authority, while subordinates show stronger obedience and dependence (X. X. Zheng et al.,

2023). In this cultural context, the power hierarchy of the organization is clearly defined, and communication is mostly top-down (Shang et al., 2022). In contrast, in low power distance cultures, organizational members tend to view the distribution of power equally, emphasize participation and democratic decision-making, have relatively flat power structures, and communicate more openly and bidirectionally (C. G. Mao & Zhang, 2023). Such cultural differences are not only reflected between countries, but may also exist in different firms or industries in the same country (C. Y. Chen et al., 2023).

Second, organizational structure has a direct impact on power distance. The traditional hierarchical organizational structure emphasizes clear hierarchy and division of responsibilities, and the decision-making power is concentrated in the hands of top managers, and this structure is usually accompanied by a high power distance (Huang et al., 2022). In this environment, employees tend to maintain a high level of respect and dependence on superior authority. However, with the development of management theory and practice, many firms have begun to implement flat organizational structures that reduce management levels and emphasize teamwork and autonomous decision-making. This structure helps to reduce the power distance and promotes the flow of information and innovation (Song & Zhao, 2024). In addition, matrix-type structure is widely used in some project-oriented firms, which can reconcile the inequality of power distribution and enhance organizational flexibility to some extent through cross-management and multiple reporting relationships (D. Q. Hu & Gu, 2022).

Third, leadership style plays a key role in the formation and maintenance of power distance within a firm. Authoritarian Leadership usually tends to centralize decision-making power, emphasizes obedience and control, and is prone to form a high power distance in the organization (B. Miao et al., 2023). Participative Leadership, on the other hand, encourages employees to participate in the decision-making process, emphasizes communication and equal dialogue, and can effectively reduce the power distance (W. W. Li & Liu, 2024; Y. C. Zou et al., 2024). In addition, Transformational Leadership, through incentives and vision guidance, gives employees more autonomy, promote organizational culture change and innovation, also help to reduce the power distance.

Fourth, Employee characteristics are also important factors affecting power distance. Employees' education level, work experience, and stage of career development all affect their perceptions and attitudes toward power distribution to varying degrees (Cui et al., 2022). Employees with higher levels of education and experience usually have higher expectations of autonomy and participation, and tend to challenge authority and seek an equal communication and cooperation environment (M. M. Wang et al., 2023). In contrast, for new employees or

employees in the early stages of career development, they may be more willing to accept authoritative guidance and rely on superior decision-making. In addition, employees' personality traits, such as self-confidence, independence, and need for power, significantly affect their acceptance of power distance (Dong et al., 2022).

Fifth, external environmental factors cannot be ignored. External factors such as the macroeconomic environment, industry competition dynamics, laws and regulations, and social opinion have an indirect impact on the power structure and management mode of enterprises. In a favorable economic environment, companies may be more willing to try flat management and give more power and autonomy to their employees; while in a situation of increasing economic pressure, companies may return to the traditional centralized decision-making model to cope with uncertainty through strict control. Competitive dynamics are also a key factor. Highly competitive industries often require rapid response and flexible decision-making, which pushes firms to reduce power distance and increase teamwork and innovation. In addition, laws and regulations, as well as the direction of public opinion, also play a role in influencing firms' power distribution patterns. Labor laws and antitrust regulations in some countries require firms to safeguard employees' rights and interests and promote fair and transparent power distribution.

To sum up, existing researchers and scholars have explored the influence factors of power distance in a company in a multidimensional and complex way, with cultural factors, organizational structure, leadership style, employee characteristics and external environment playing a joint role in shaping the power distribution pattern of a company. In actual management, companies should consider these factors comprehensively and adopt appropriate management strategies and organizational change measures to optimize power distance and enhance organizational performance and employee satisfaction.

2.3.3 Consequences of power distance

Power distance is an important variable in cross-cultural research with far-reaching implications for organizational behavior and business management. Hofstede (1980) systematically illustrates power distance, pointing out that high power distance situations have a clear hierarchy within the organization, with managers interacting with employees in a more formal and hierarchical manner, whereas low power distance situations are characterized by equality and openness in the interaction. Afterwards, Minkov and Hofstede (2013) further expand the concept of power distance, finding that power distance has a significant effect on cross-cultural communication and negotiation. In cultures with high power distance, communication and

negotiation are usually conducted in a more formal and hierarchical manner, while in cultures with low power distance, communication and negotiation are usually more direct and open. In a study by Chhokar et al. (2007), they find that power distance affects communication styles and teamwork within an organization. In high power distance environments, subordinates are usually more accustomed to receiving instructions from their superiors, while in low power distance environments, subordinates are more willing to offer their own ideas and suggestions. Brewer and Venaik (2012) emphasize the effect of power distance on innovation and adaptability in organizations. Their study finds that organizational innovativeness may be limited in high power distance environments because employees may be less involved in decision-making and innovation activities; whereas in low power distance environments, organizations may be more adaptive and innovative.

The power distance variable has been introduced in recent years into micro studies of leadership behavior and employee interactions to explore its moderating role in specific managerial situations. B. Miao et al. (2023) study the cross-layer effects of abusive leadership on employee work engagement and its mechanisms, and propose that abusive leadership at the team level has a significant negative effect on employee work engagement. It is found that subordinates' sense of fairness plays a mediating role between abusive leadership and employees' work engagement, while power distance orientation plays a positive moderating role between abusive leadership and subordinates' sense of fairness between abusive leadership and work engagement. M. M. Wang et al. (2023) studied the double-edged sword effect of dual leadership on employees' work engagement and proposed that dual leadership can enhance employees' work engagement by increasing their affective commitment to their leaders, and at the same time can reduce work engagement by enhancing employees' work stress. The study shows that for employees with high power distance, dual leaders are more likely to enhance the positive effects of leadership affective commitment, while for employees with low power distance, dual leaders are more likely to have negative effects by increasing work stress. X. X. Zheng et al. (2023) studied the mechanism of leadership political skills on employees' silent behavior and the moderating effect of power distance, and proposed that leadership political skills are significantly and negatively related to employees' silent behavior at the team level, but not at the individual level.

The impact of the power distance variable also exhibits differential mechanisms in different organizational contexts. Shang et al. (2022) find that township cadres' stresses from their superiors significantly enhance their power distance, and negative expectations play a fully mediating role. In addition, public service motivation moderates the relationship between

superior leadership stressors and negative expectancies, and the positive relationship is enhanced at high public service motivation; negotiable fate perception moderates the relationship between negative expectancies and power distance perception, and the positive relationship was enhanced at low negotiable fate perception. Huang et al. (2022) study the relationship between leadership silence and employee proactive behavior and its mechanism of action, and proposed that there are two dimensions of leadership silence, positive and negative, that affect employee proactive behavior. The study found that pro-social, testing silence positively acts on employee proactive behavior, while power and prestige silence inhibits employee proactive behavior. The study also confirmed that trusting supervisors mediated the relationship between leadership silence and employee proactive behavior and that this mediation was moderated by power distance orientation. Cui et al. (2022) study the effect of job mission on inhibitory constructive behavior and its mechanism of action and suggested that job mission helps to promote inhibitory constructive behavior. The study suggests that psychological job ownership mediates the relationship between sense of job mission and inhibitory constructive behavior, and power distance negatively moderates the relationship between sense of job mission and psychological job ownership, i.e., the effect of sense of job mission on psychological job ownership is more significant in low power distance contexts. D. Q. Hu and Gu (2022) study the effects of team power distance and collectivism on team creativity and proposed that team power distance significantly negatively affects shared leadership, while team collectivism positively affects shared leadership. The study found that shared leadership mediated the negative relationship between team power distance and team creativity, and the positive relationship between team collectivism and team creativity, suggesting that team cultural characteristics have a significant effect on team creativity.

Taking the above research results together, it can be learned that power distance is a key variable in cross-cultural research, which has a profound impact on organizational behavior and business management. In different cultural contexts, power distance affects hierarchy, decision-making process, leadership style, communication, teamwork, innovation, and employees' attitudes and behaviors within an organization. Through the comprehensive analysis of related studies, the effects and mechanisms of power distance can be systematically elaborated.

First, power distance has a direct impact on the hierarchy and decision-making process within an organization. In a cultural environment with high power distance, the hierarchy within the organization is usually stricter, and the interaction between managers and employees is strictly in accordance with the hierarchy. Managers have higher authority and the decision-making process tends to be centralized at the top, with employees having less involvement in

the decision-making process. This hierarchical management style may lead to increased dependence of employees on their superiors, reducing their opportunities for autonomous decision-making and innovation. On the contrary, in a cultural environment with low power distance, there is more equality and openness within the organization, and the interaction between managers and employees is more frequent and direct. Employees have a higher degree of participation in the decision-making process, which not only enhances their sense of responsibility and ownership, but also promotes organizational flexibility and innovation.

Second, power distance significantly affects cross-cultural communication and negotiation. In high power distance cultures, communication and negotiation are usually conducted in a more formal and hierarchical manner. Employees pay more attention to protocol and respect for hierarchical differences when interacting with superiors or external partners, and communicate in a more indirect and cautious manner. While this style of communication helps to maintain hierarchical order and stability, it may also limit the free flow of information and the exchange of innovative ideas. In a low power distance culture, communication and negotiation are more direct and open, and employees are more willing to express their opinions and suggestions. This open communication style helps the rapid transmission of information and the timely resolution of problems, thus enhancing the organization's decision-making efficiency and adaptive capacity.

Third, the influence of power distance is also very significant in terms of communication style and teamwork within the organization. In a high power distance environment, subordinates are usually more accustomed to accepting instructions from superiors without taking the initiative to put forward their own views and suggestions. This kind of top-down communication may lead to information asymmetry and decision-making errors, as superiors may not be able to fully understand the actual situation and opinions of frontline employees. On the contrary, in a low power distance environment, employees are more willing to participate in discussions and decisions, and offer their own insights and suggestions. This bottom-up communication not only contributes to the comprehensive collection of information and scientific decision-making, but also enhances employees' sense of participation and motivation, and promotes teamwork and innovation.

Fourth, power distance also has an important impact on the innovative capacity and adaptability of an organization. In a high power distance environment, since decision-making power is centralized at the top, employees' innovation participation is low, and innovation activities mainly rely on the decision-making and promotion of a few top managers. This centralized approach to innovation may lead to slow innovation and poor adaptability, as top

managers are unable to access and respond to the innovation needs and feedback of frontline employees in a timely manner. On the contrary, in a low power distance environment, innovation power is more decentralized and employees at all levels can participate in innovation activities. This decentralized approach to innovation helps to respond quickly to market changes and customer needs, and improves the organization's adaptability and competitiveness.

The impact of power distance is equally significant in terms of employee work attitudes and behaviors. Managers in high power distance environments tend to adopt a more authoritative and controlling leadership style, which may lead to increased job stress and lower job satisfaction among employees. Research has shown that abusive leadership has a significant negative effect on employee work engagement in high power distance environments, with employee perceptions of fairness playing a mediating role. In contrast, in low power distance environments, the relationship between leaders and employees is more equal and trusting, and employees experience relatively lower job stress and higher job satisfaction and work engagement. Dual leaders can enhance work engagement by increasing employees' affective commitment to their leaders in high power distance environments, whereas in low power distance environments they may increase employees' work stress and decrease work engagement. In addition, power distance influences the relationship between leadership style and employee behavior. In high power distance environments, where leaders are more authoritative and controlling, employee behavior tends to be more constrained and regulated, and innovative and proactive behavior may be inhibited. In low power distance environments, leaders are more likely to adopt a supportive and participative leadership style, employee autonomy and creativity are encouraged, and innovative and proactive behaviors are more common.

At the team level, power distance influences team leadership patterns and creativity. Team leadership is more centralized in high power distance environments, where the leader has more control over the team and team members are less autonomous and collaborative. This leadership pattern, while helpful in maintaining order and stability, may limit the team's creativity and innovation potential. The shared leadership model is more prevalent in low power distance environments, where team members have higher levels of autonomy and participation, and team creativity is greater. This shared leadership model not only contributes to team flexibility and adaptability, but also promotes cooperation and mutual trust among team members and improves overall team creativity.

In summary, power distance profoundly affects organizational behavior and business management through a variety of mechanisms. Hierarchical management, formal styles of

communication, top-down communication, centralized innovation, authoritative leadership styles, and lower employee autonomy and innovation in high-power-distance environments, while contributing to the maintenance of organizational stability and order, may also limit information flow, decision-making efficiency, and innovation potential. On the contrary, equal interaction, open sociability, bottom-up communication, decentralized innovation, participative leadership style, and higher employee autonomy and creativity in low power distance environments contribute to organizational flexibility, adaptability, and innovation. Therefore, understanding and adapting the mechanisms of power distance in organizations is a key way to enhance organizational performance and employee satisfaction.

2.4 Research on employee emotional wellbeing

Emotional well-being is a core concept in psychology and health sciences that refers to an individual's emotional well-being, including the experience of positive emotions, the ability to regulate emotions, and the ability to maintain mental balance in the face of life challenges. Specifically, emotional well-being involves not only the frequent experience of positive emotions such as happiness, contentment, and hope, but also the effective management and regulation of negative emotions such as sadness, anxiety, and anger (Pradhan & Kumar, 2021). In a state of good emotional well-being, individuals are able to recognize and understand their own emotional states, express and manage their emotions appropriately, and maintain appropriate emotional responses and mental resilience in the face of stresses and challenges (Drigas & Papoutsi, 2020). Emotional well-being is critical to an individual's overall health and quality of life, and is closely related to mental health, social functioning, and physical health. Research has shown that emotional well-being not only affects an individual's daily behavior and psychological state, but also has a profound impact on interpersonal relationships, job performance, and life satisfaction (Braun et al., 2020). Therefore, maintaining and promoting emotional well-being has become an important topic in the field of contemporary mental health and an important part of realizing overall health (Bemme & Kirmayer, 2020). Therefore, this study defines employee emotional well-being as: the good state of employees at the emotional level, including the experience of positive emotions, the ability to effectively regulate emotions, and the ability to maintain psychological balance in the face of stress and challenges at work and in life.

2.4.1 Dimensions and measure of employee emotional wellbeing

In the academic world, the research of employee emotional well-being has formed a multidimensional framework, mainly including emotional affect, emotional intelligence, and other major dimensions.

2.4.1.1 Emotional affect

Employee emotional affect refers to the various emotional states experienced by employees in the work environment, and is an important part of work experience and mental health. Emotional affect can be divided into two main aspects: positive emotion and negative emotion. Positive emotions include such emotions as happiness, satisfaction, excitement, pride, which can enhance employees' motivation and creativity, promote teamwork, and improve work performance. On the contrary, negative emotions such as anxiety, anger, frustration, disappointment and other emotions may lead to a decrease in employees' job satisfaction, increase job stress and psychological burnout, and may even trigger turnover intentions and behaviors (Diener et al., 2020). In recent years, the importance of emotional affect in the workplace has received increasing attention because it not only affects individual performance and career development, but also has a profound impact on the overall performance and culture of the organization (Zapf & Holz, 2006).

Research has shown that positive affect is significantly associated with employees' innovativeness, work engagement, and career commitment. When employees experience more positive emotions, they are more likely to show initiative and creativity, which drives organizational innovation and growth. In addition, positive affect enhances employees' resilience to stress, enabling them to maintain a positive attitude and motivation to solve problems in the face of challenges and difficulties (Goswami et al., 2016; Zhen et al., 2020). Conversely, negative emotions may have a negative impact on employees' mental and physical health, leading to decreased work efficiency and the onset of burnout. Long-term negative affective experiences may not only impair employees' work status, but also affect their quality of life and interpersonal relationships.

The dynamics and complexity of emotional affect make it face many challenges in research and management. First, the generation and experience of emotional affect are influenced by a variety of factors, including individual personality traits, work environment, organizational leadership culture, and external social environment (Patzelt et al., 2021). Employees with high emotional stability are likely to show less negative affect in the face of stress, while a supportive

work environment helps to enhance employees' positive affective experiences (Reisel et al., 2010). Second, emotional affect is characterized by transience and change, and its intensity and type may fluctuate with time and context. Therefore, understanding and managing employees' emotional affect requires a dynamic and multilevel perspective that combines quantitative and qualitative approaches to fully capture its complexity and diversity.

To accurately measure employees' emotional affect, a variety of tools and methods have been developed in academia and practice.

First, the Positive and Negative Affect Schedule (PANAS) scale. The PANAS scale is a classic instrument for measuring emotional affect developed by Watson et al. (1988). The scale contains two subscales to assess positive and negative affect, each containing 10 affective entries. Subjects are asked to rate each entry based on their own emotional experience over a specific period (e.g., past week, past month). The PANAS scale can quickly quantify an individual's affective state through a straightforward self-assessment, and has good reliability and validity (Kercher, 1992). Because of its simplicity and validity, the PANAS scale has been widely used in research in the fields of psychology, organizational behavior, and work psychology (Cotigă, 2012; Petrie et al., 2013).

Second, Affective Events Diary. This method captures the dynamic changes of emotions by allowing employees to record the emotional events they experience at work and their emotional reactions. Employees need to record in detail the specific context of each emotional event, the emotional experience and its impact on work in their daily work (Conway & Briner, 2002; Grandey et al., 2002). The emotional event recording method not only provides rich emotional data, but also reveals the relationship between emotional events and work behaviors (Cropanzano et al., 2017).

Third, Experience Sampling Method (ESM). ESM is a method for measuring affective states in real time in natural contexts. Through mobile applications or electronic logs, researchers can send questionnaires to employees at random or at specific points in time, allowing them to instantly report their current affective state (Yearick, 2017). ESM is able to capture instantaneous changes in emotional affect and provide data with high temporal resolution, thus providing a more comprehensive understanding of the dynamic nature of affect during the work process (Ono, 2016).

Fourth, Psychophysiological Measures. By measuring physiological indicators such as heart rate, galvanic skin response, brain waves, the emotional state of an individual can be indirectly reflected (Hodges, 2010). These methods are more commonly used under laboratory conditions and can provide objective affective data, avoiding the subjective bias in self-

assessment methods (Mansi et al., 2021).

2.4.1.2 Emotional intelligence

Employee emotional intelligence (EI) refers to the ability of employees to recognize, understand, and manage their own and others' emotions in the work environment. This concept was proposed by Salovey and Mayer (1990), and later promoted by Goleman (1995). It has become an important research topic in the field of organizational behavior and human resource management. Emotional intelligence includes four core dimensions: perception of emotion, understanding of emotion, managing emotion, and use of emotion. Perception of emotion refers to the ability to recognize and express emotions accurately, understanding of emotion involves the knowledge of the complex relationship between emotions and their changes, managing emotion refers to the ability to regulate one's own and others' emotions, and use of emotion is the ability to use emotions to promote thinking and problem solving. Employees with high emotional intelligence are better able to cope with work stress, establish harmonious interpersonal relationships, and enhance job satisfaction and performance. Research shows that emotional intelligence is not only closely related to employees' mental health, but also has a significant impact on leadership effectiveness, teamwork and organizational climate. Leaders with high emotional intelligence can motivate and guide team members more effectively, improving team cohesion and overall performance. In addition, emotional intelligence can be enhanced through training and development, so the assessment and cultivation of emotional intelligence is increasingly emphasized in employee recruitment, training and career development.

To accurately measure the emotional intelligence of employees, academics have developed a variety of measurement tools and methods. The following are a few commonly used measures of emotional intelligence:

a) Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT): Developed by Mayer, Salovey and Caruso in 2002, MSCEIT is a standardized tool for measuring emotional intelligence. The test is based on a four-point model of emotional intelligence and consists of 141 items assessing the four dimensions of emotional perception, emotional understanding, emotional management, and emotional use (Bru-Luna et al., 2021; Maul, 2012; Mayer et al., 2002). MSCEIT assesses the level of emotional intelligence by using situational questions and tasks in which the participant responds to simulated situations. The test has high reliability and validity and is widely used in academic research and practical work scenarios.

b) Emotional Quotient Inventory 2.0 (EQ-i 2.0): The EQ-i 2.0 was developed by Bar-On,

and is another widely used instrument for measuring emotional intelligence. The scale consists of 133 items assessing five domains: self-perception, self-expression, interpersonal relationships, decision-making, and stress management (Bar-On, 2004; Multi-Health Systems, 2011). EQ-i 2.0 quantifies the level of emotional intelligence of the participant through a self-report questionnaire in which the participant scores each item. The scale has been translated into several languages and used in research and practice worldwide.

c) Emotional Intelligence Scale (EIS): Developed by Schutte et al. in 1998, EIS is another commonly used self-assessment tool. The scale contains 33 items that assess the level of emotional intelligence of an individual (Austin et al., 2004; Xu et al., 2021). Despite the small number of items, the EIS is easy to use and suitable for large-scale surveys and studies. d) 360-degree feedback: this method provides a comprehensive portrait of emotional intelligence by collecting assessments of emotional intelligence from individuals, coworkers, subordinates, and supervisors. 360-degree feedback not only reveals an individual's performance of emotional intelligence in different contexts, but also helps him/her to identify his/her own strengths and points of improvement.

To sum up, different emotional intelligence measurement tools have their own advantages and disadvantages, and it is often necessary to combine multiple methods in practical application to comprehensively and accurately assess the level of emotional intelligence of employees, to provide a scientific basis for organizational management and employee development.

2.4.2 Antecedents of employee emotional wellbeing

Employee emotional well-being refers to the positive emotions and overall psychological state experienced by employees at work and in life. This concept covers various aspects of an individual's emotional, cognitive, and behavioral well-being, and has a significant impact on employees' work performance, career development, and quality of life. Existing studies have comprehensively explored the factors affecting employees' emotional wellbeing through single or systematic studies. The influencing factors are multifaceted, including both internal individual factors and external factors involving the work and social environments.

First, individual factors. Individual factors are important aspects affecting employees' emotional wellbeing, including personality traits, emotional intelligence, coping strategies, and physiological states. First, personality traits such as neuroticism and extraversion have a significant impact on emotional wellbeing (Costa & McCrae, 1980; Vittersø, 2001). Employees

high in neuroticism are prone to experience negative emotions such as anxiety and depression, whereas employees high in extraversion tend to experience positive emotions such as happiness and enthusiasm (Otonari et al., 2012). Second, emotional intelligence refers to an individual's ability to recognize, understand, and manage their own and others' emotions. Employees with high emotional intelligence can cope with work stress and emotional conflicts more effectively and maintain good emotional wellbeing (Schutte et al., 2002). Thirdly, coping strategies such as problem solving and seeking social support play a key role in emotional well-being. Positive coping strategies help relieve stress and enhance emotional well-being, while negative coping strategies such as avoidance and repression may exacerbate emotional distress (Gustems-Carnicer & Calderón, 2013; Nakano, 1991). Finally, physiological states such as sleep quality, dietary habits, and physical health are also important factors that influence emotional wellbeing. A good physiological state can enhance an individual's ability to regulate emotions and promote emotional wellbeing (Nashwan et al., 2021; Steptoe et al., 2008).

Second, work environment factors. Work environment is one of the key external factors affecting employees' emotional wellbeing, including work stress, work load, interpersonal relationships, and work resources. First, work stress is an important influence on employees' emotional wellbeing. Work stressors include heavy workloads, time constraints, and complex tasks. Excessive work stress can cause employees to experience negative emotions such as anxiety, exhaustion, and burnout, which affects emotional wellbeing (C. E. Yang et al., 2020). Workload refers to the amount of tasks and responsibilities that employees undertake at work. Excessive workload not only increases the physical burden of employees, but also negatively affects their mental health. Again, interpersonal relationships play an important role in the work environment (C. E. Yang et al., 2020). Good coworker relationships and teamwork can provide emotional support and a sense of psychological security, and promote emotional wellbeing; on the contrary, conflicts, contradictions, and interpersonal friction at work can lead to emotional distress. Finally, work resources such as career development opportunities, training support, and reasonable work arrangements also have an important impact on employees' emotional wellbeing. Adequate work resources can enhance employees' job satisfaction and emotional wellbeing.

Third, organizational culture factors. Organizational culture refers to the values, beliefs, behavioral norms, and work atmosphere prevalent in an organization, which has a profound impact on employees' emotional wellbeing (Belias & Koustelios, 2014; L. Wang et al., 2024). A supportive organizational culture can provide a positive work atmosphere and enhance employees' sense of belonging and emotional wellbeing. Supportive organizational leadership

culture includes good communication mechanisms, respect and care for employees, and encouragement of innovation and cooperation (Patzelt et al., 2021). A fair organizational culture enhances employees' trust and satisfaction (C. E. Yang et al., 2020) and promotes emotional wellbeing. Fairness in organizations includes pay equity, promotion equity, and job opportunity equity. Value-oriented organizational culture provides employees with clear work goals and a sense of value, enhancing their work engagement and emotional wellbeing (Reisel et al., 2010). An organizational culture that focuses on social responsibility and sustainable development can enhance employees' sense of mission and achievement. Finally, a flexible organizational culture can provide flexible work arrangements and work styles to help employees balance work and life and enhance emotional wellbeing.

Fourth, social environment factors. Social environment factors, including family support, social support, economic status and cultural background, have an important impact on employees' emotional wellbeing. Family support is an important source of employees' emotional wellbeing (Thompson & Prottas, 2006). The understanding, support and care of family members can provide emotional support and psychological comfort to help employees cope with stress and challenges at work (Zakaria & Ismail, 2017). Social support refers to the emotional support and help from friends, coworkers, and the community (Bavik et al., 2020; B. H. Kaplan et al., 1977). A good social support network can enhance employees' psychological resilience and emotional wellbeing. Economic status is an important factor that affects emotional wellbeing (Navarro-Carrillo et al., 2020). A stable economic status can provide a sense of security and psychological stability and reduce the negative impact of economic stress on emotional wellbeing. Cultural background has a profound effect on employees' values, behaviors, and emotional regulation strategies. A centripetal culture emphasizes teamwork and social support, which contributes to the emotional wellbeing of employees (Dóra et al., 2019).

In summary, employee emotional wellbeing is influenced by multiple factors, including individual factors, work environment factors, organizational culture factors, and social environment factors. These factors are both independent of each other and interact with each other to influence the state of employees' emotional wellbeing.

2.4.3 Consequences of employee emotional wellbeing

Employee emotional wellbeing is not only an important component of individual mental health, but also a key factor in organizational performance and sustainable development. Existing studies, taken together, have demonstrated that emotional wellbeing has a profound impact on

individual employee job satisfaction, career development, and quality of life, while also affecting organizational productivity, innovation, and culture. Throughout the existing research results, the research on the effect of employees' emotional wellbeing and its internal mechanism mainly focuses on four aspects: individual level, team level, organizational level, and social level.

2.4.3.1 Consequences at the individual level

At the individual level, employees' emotional wellbeing directly affects their work performance, career development and mental health. First, employees with good emotional wellbeing tend to show higher job satisfaction and work engagement (Wright & Cropanzano, 2000). Research has shown that positive emotional experiences enhance employees' motivation and focus, enabling them to show greater efficiency and creativity at work (Lahat & Ofek, 2020). Positive emotions also promote employees' career development by enabling them to maintain a positive attitude in the face of challenges and opportunities, leading to more opportunities for promotion and development (Reisel et al., 2010). Secondly, emotional wellbeing has a protective effect on employees' mental health. A good state of emotional wellbeing can enhance an individual's psychological resilience, help him or her better cope with stress and dilemmas at work, and reduce the occurrence of psychological problems such as anxiety and depression (Alexander, 2001; P. Shen & Slater, 2021). In addition, emotional wellbeing is closely related to employees' quality of life. Employees with good emotional wellbeing maintain a positive attitude toward life outside of work and enjoy higher life satisfaction and happiness (Baker & Kim, 2020).

The mechanisms by which emotional wellbeing affects employees' personal performance mainly include affective motivational mechanisms and cognitive resource mechanisms. Emotional motivation mechanism refers to the fact that positive emotions enhance employees' intrinsic motivation to be more active and engaged in their work. Positive emotions motivate individuals by enhancing their self-efficacy and sense of accomplishment, promoting efficient and high-quality work performance (Maddux, 2016; Milam et al., 2019). The cognitive resource mechanism, on the other hand, refers to the positive contribution of emotional well-being to employees' cognitive functions (Leblanc et al., 2015), such as attention, memory, and decision-making. Positive emotions expand employees' cognitive resources, allowing them to perform better in problem solving and innovative thinking, while negative emotions may lead to the depletion of cognitive resources, affecting performance (Maranges et al., 2017).

2.4.3.2 Consequences at the team-level (among individuals)

At the team level, employee emotional wellbeing has important effects on teamwork, communication, and performance. First, employees with good emotional wellbeing can work more effectively with coworkers and establish good interpersonal relationships and team atmosphere. Positive emotions help to enhance trust and support among team members, making teams more harmonious and productive (Ogbonnaya, 2019). Research has shown that team members with good emotional wellbeing are more inclined to exhibit collaborative and supportive behaviors, which enhance team cohesion and overall performance (Kim et al., 2022). Second, emotional wellbeing also has a significant effect on team communication. A good state of emotional well-being promotes employees' communication skills, enabling them to convey information and resolve conflicts more effectively in teams. Positive emotions enhance employees' ability to express and listen, reduce communication barriers and misunderstandings, and thus improve the quality and efficiency of team decision-making (Ogbonnaya, 2019).

The mechanisms that influence emotional wellbeing at the team level mainly include emotional contagion mechanisms and emotional regulation mechanisms. Emotional contagion mechanism refers to the ability of an individual's emotional state to be transmitted to other members of the team through nonverbal behaviors, facial expressions, and tone of voice, thus affecting the emotional climate of the entire team. Positive emotions can form a positive emotional contagion effect in the team, enhancing the positive atmosphere and work motivation of the team. Negative emotions, on the other hand, may trigger negative emotional contagion, leading to low team morale and reduced work efficiency. Emotional regulation mechanism refers to the emotional regulation strategies used by team members to maintain the emotional balance and psychological health of the team in the face of stress and conflict. Team members with high emotional intelligence can help the team better cope with challenges and pressures through effective emotion regulation strategies, such as cognitive reappraisal and emotional expression, to maintain the team's emotional wellbeing and efficient operation.

2.4.3.3 Consequences at the organizational level

At the organizational level, employee emotional wellbeing has a profound effect on organizational productivity, innovation and culture building (Sharifirad, 2013). First, employees with good emotional wellbeing in a good leadership environment can enhance the overall productivity of the organization. Positive emotions enhance employees' motivation and focus to show higher efficiency and quality in their work, thus increasing the productivity and economic efficiency of the organization (Y. Zhang, 2024). Studies have shown that employee

groups with high levels of emotional wellbeing in organizations have significantly lower turnover and absenteeism rates, further contributing to organizational stability and sustainability. Second, emotional wellbeing has a significant impact on an organization's ability to innovate (Athota & Malik, 2019). Positive emotions can stimulate employees' creativity and innovative thinking, enabling them to exhibit more innovative behaviors and outcomes at work (Richardsen, 2019). A good emotional wellbeing state can also promote knowledge sharing and collaborative innovation among employees, enhancing the innovation and competitiveness of the organization (Baker & Kim, 2020).

Emotional wellbeing influence mechanisms at the organizational level mainly include organizational support mechanisms and emotional management mechanisms. Organizational support mechanisms refer to the organization's efforts to help employees improve their emotional wellbeing by providing emotional support, career development opportunities and resources (Arnold & Dupré, 2012). Organizational support enhances employees' sense of belonging and satisfaction, reduces work stress and emotional distress, and thus improves overall emotional wellbeing (C. Wang et al., 2020). Emotion management mechanism, on the other hand, refers to the organization's efforts to help employees improve their emotion regulation ability and maintain good emotional wellbeing through the development and implementation of effective emotion management strategies, such as emotion management training, psychological counseling and employee assistance programs (Panaccio & Vandenberghe, 2009). An efficient emotion management mechanism can prevent and alleviate employees' emotional problems and promote the healthy development and efficient operation of the organization.

2.4.3.4 Effects and mechanism at the social level

At the social level, employee emotional wellbeing has an important impact on socio-economic development, public health and social harmony (Delhey & Dragolov, 2015). Employees with good emotional wellbeing can increase labor productivity and promote socio-economic development. Positive emotions enhance individuals' work motivation and creativity, enabling them to demonstrate higher productivity and innovation in their careers, thus contributing to socioeconomic prosperity and development (Chuang & Chuang, 2013). Employee emotional wellbeing also has a significant impact on public health. Employee groups with high levels of emotional wellbeing have better mental health, lower rates of illness and healthcare costs, which can reduce the pressure on social healthcare resources and promote public health and social well-being (McQuaid & Bergmann, 2009). In addition, employee emotional wellbeing has a

positive effect on social cohesion. A good state of emotional wellbeing can enhance an individual's sense of social participation and social responsibility, so that he or she can show more positive behaviors and citizenship in the family, community and society, thus promoting social harmony and stability.

Emotional wellbeing influence mechanisms at the social level mainly include policy support mechanisms and social support mechanisms. The policy support mechanism refers to the government and public institutions to support and promote the development of employees' emotional wellbeing by formulating and implementing relevant policies and regulations (Nahum-Shani & Bacharach, 2011). A supportive social environment is created through policies and regulations such as the labor protection law and the mental health law to protect employees' working conditions and mental health rights and interests. Social support mechanism, on the other hand, refers to the society's efforts to help employees improve their emotional wellbeing by providing emotional support, psychological counseling and community services. Social support can enhance the psychological resilience and emotional support network of individuals, reduce social pressure and emotional distress, and thus promote the emotional wellbeing and well-being of the overall society.

In summary, employee emotional wellbeing has important roles and far-reaching effects on all levels of the individual, team, organization and society. Understanding and managing these effects and their underlying mechanisms not only helps to enhance employees' emotional wellbeing and work performance, but also promotes the efficient operation of organizations and the harmonious development of society. Organizational managers should take these factors into account and adopt diverse management strategies and interventions to create a supportive and healthy work environment that promotes employees' emotional wellbeing and career development.

2.5 Research on beneficiary gratitude and team relationship balance

2.5.1 Research on beneficiary gratitude

The concept of "Beneficiary Gratitude" encompasses the positive emotional reactions and behavioral tendencies that individuals experience after receiving kindness or favors from others. In an early study of the psychology of gratitude, Emmons and McCullough (2003) define gratitude as feelings of appreciation for others' acts of kindness, which stem from positive evaluations of others' kindness and expectations of their possible reciprocity. Later, Tsang

(2006) further clarifies the beneficiary role of gratitude, stating that beneficiary gratitude is a positive emotional response that arises after receiving a favor from another. This reaction may further lead to positive reciprocal behaviors, such as offering help, sharing resources. Finally, Grant and Gino (2010) find in their study that gratitude is not only an emotional response, but can also serve as a social norm that motivates individuals to give back to their benefactors. Their findings suggest that gratitude can motivate individuals to engage in socially reciprocal behavior, i.e., to give back to the person or organization that gave them the favor. Lamberta et al. (2012), in their study, find that gratitude enhances employees' psychological health and well-being at work, which they attribute to the fact that gratitude reduces workplace stress and enhances employees' positive attitudes towards work. The application of gratitude is further extended by Kini et al. (2014), whose study shows that gratitude can improve employees' teamwork and leadership skills since gratitude enhances employees' social exchange relationships and trust in leaders. The study by J. W. Hur et al. (2014) emphasizes even more on the employees' relationship between receiving benefits and gratitude, and their study shows that when employees feel that they are cared for and supported by the organization, their gratitude is enhanced, which leads to more positive work attitudes and behaviors. In summary, "Beneficiary Gratitude" can be defined as positive emotional reactions and tendencies to give back after receiving favors from others, which may further promote social reciprocity and create a positive social exchange cycle. In an organizational context, employees may develop emotions of benefit and gratitude for the help, support, and care they receive from their supervisors or colleagues. Such emotions may lead employees to be more motivated to work and improve their performance, and may also create a social exchange dynamic in which employees return the favor to those who have helped them when they have the opportunity to do so in the future.

2.5.1.1 Dimensions and measurement of beneficiary gratitude

The dimensions and measurement of employee beneficiary gratitude are of great significance in organizational behavior, and through systematic research and scale construction, we can more comprehensively understand and assess employees' emotional and behavioral responses in the workplace. These measurement tools and research dimensions provide valuable references for organizational managers, enabling them to better motivate their employees and improve the organizational climate, thereby enhancing overall performance.

Regarding the dimensions and measurement of employee beneficiary, Blau (1964) viewed it as a social exchange process, and although his study did not provide specific measurement

criteria, it laid the theoretical foundation for subsequent research. Eisenberger et al. (1986) proposed the theory of Perceived Organizational Support (POS), and developed a highly reliable and validated scale, which consisted of 36 questions covering various aspects such as emotional support, resource support, which was used to measure employees' perceptions of organizational support. Rhoades and Eisenberger (2002) further refined the POS scale by adding measures of dimensions such as work environment, organizational climate, and managerial behavior. By quantifying employees' perceptions of organizational support, these scales provide a reliable data base for research and practice, enabling organizations to better understand employees' needs and feelings for effective management and motivation.

In terms of measuring employee gratitude, Emmons and McCullough (2003) first proposed the gratitude diary method, which allows participants to record daily gratitude events to measure their level of gratitude. Although innovative, this method suffers from high subjectivity and is susceptible to participants' memory bias and emotional state. To overcome these problems, McCullough et al. (2002) developed the Gratitude Questionnaire-Six Item Form (GQ-6), a six-item scale with high reliability and validity to measure an individual's level of gratitude. The scale provided reliable measurements with a short number of questions, enabling the researcher to effectively assess individuals' feelings of gratitude.

Further research has deepened the multidimensional measurement of gratitude. McCullough et al. (2004) suggested that gratitude is not only the perception of an individual's benefit, but also includes positive evaluations of the helper, valuing the helping behavior, and willingness to give back in the future. These dimensions were incorporated into their new scale, which had a reliability of 0.92, providing a more comprehensive measure of gratitude. The Multidimensional Gratitude Scale (MGS), developed by B. Fehr et al. (2008), consists of 20 questions covering all three of these dimensions. Its reliability and validity is 0.93. The construction of this scale provides a more precise and comprehensive tool for gratitude research, enabling researchers to delve deeper into the different dimensions of employee gratitude and its role in the workplace.

Taken together, the measurement dimensions of employee beneficiary gratitude cover a wide range of aspects. Perceived beneficiary is mainly measured by the Perceived Organizational Support (POS) scale, whose dimensions include emotional support, resource support, work environment, organizational climate, and managerial behavior. The measurement of gratitude is more complex, involving not only the direct perception of benefit, but also evaluations of the helper, valuing of the helping behavior, and willingness to give back in the future. Through these multidimensional measurement tools, researchers and managers can gain

a comprehensive understanding of employees' affective states and behavioral tendencies and thus develop more effective management strategies.

The development of these studies and scales not only provides solid tools for academic research, but also provides guidance for business management practices. In practical application, organizations can use these scales to conduct employee surveys to understand employees' perceptions of organizational support and gratitude levels, so that targeted adjustments can be made in management. Enhancing employees' perception of beneficiary by improving organizational support can increase employees' job satisfaction and organizational commitment. By fostering and stimulating employees' feelings of gratitude, positive behaviors such as increased willingness to cooperate, enhanced work engagement, and reduced tendency to leave can be enhanced. In addition, understanding employees' levels of beneficiary gratitude can help organizations identify potential problems and room for improvement. If the survey shows that employees' perception of organizational support is low, managers can review the organization's support mechanisms and management style to find improvement measures. If the level of gratitude is low, the organization can enhance employees' awareness of gratitude and gratitude behaviors through training and cultural construction, thus improving the organizational climate and employee relations. The dimensions and measurements of employee beneficiary gratitude have important application value in organizational management. Through scientific measurement tools, organizations can gain a deeper understanding of employees' emotions and behaviors, and thus develop more effective management strategies to enhance organizational performance and employee satisfaction. These researches and practices complement each other and together promote the development of organizational behavior, which provides strong support for the success and sustainable development of companies.

2.5.1.2 Antecedents of beneficiary gratitude

In the field of organizational behavior and psychology, employee beneficiary gratitude is an important concept, which not only affects the individual's work attitude and behavior, but also has a far-reaching impact on the overall atmosphere and performance of the organization. Employee beneficiary refers to the sense of benefit that employees experience because of receiving support, resources, or help in the work environment; gratitude is the cognitive and emotional response of employees to these benefits, usually expressed as gratitude. Existing research has systematically analyzed the influencing factors of employee beneficiary gratitude, which can be broadly explored from five aspects: individual factors, organizational culture and climate, management practices and leadership styles, social support systems, and the external

environment.

First, individual factors are important variables that affect employees' beneficiary gratitude. Employees' personality traits, psychological capital, cognitive styles, and values significantly affect their feelings of beneficiary gratitude (J. M. Qi et al., 2020). In terms of personality traits, employees with high self-esteem and high self-efficacy are more likely to identify and feel support from the organization and colleagues, resulting in a stronger sense of gratitude. Meanwhile, employees with high emotional intelligence are better at understanding and expressing gratitude, and such employees tend to give positive feedback of gratitude when they feel help from others (P. M. Tang et al., 2022). In terms of psychological capital, studies have shown that employees with positive psychological capital, such as optimism, self-confidence and resilience, are more likely to feel positive emotional experiences at work, including a sense of beneficiary gratitude (Y. Han et al., 2012; Luthans et al., 2006). In terms of cognitive styles, employees who tend to adopt positive reframing strategies are better able to interpret and evaluate positive messages from the work environment, which leads to an enhanced sense of beneficiary. In addition, employees' values also influence the way they express their gratitude feelings to some extent. Employees who emphasize interpersonal relationships and teamwork are more inclined to appreciate the help of others and express gratitude through rewarding behaviors (Hameed & Khwaja, 2023).

Second, organizational culture and atmosphere have a significant impact on the formation of employees' beneficiary gratitude, and both are bidirectional (Patil et al., 2018). Organizational culture refers to the values, beliefs, and behavioral norms shared by members of an organization, which shape the way of interaction and emotional expression within the organization (R. Fehr et al., 2017). Organizations with supportive and caring cultures usually encourage mutual support and cooperation among members, making it easier for employees to feel support and help from the organization and their colleagues, resulting in a strong sense of beneficiary. In this kind of cultural atmosphere, the emotion of gratitude is also more likely to be expressed and transmitted, forming a positive emotional cycle. In addition, the sense of fairness and trust in the organizational atmosphere also has a significant effect on employees' sense of beneficiary gratitude (M. Wang et al., 2010). Employees are more willing to acknowledge and appreciate the help of the organization and others when they feel the fairness of organizational decision-making and resource allocation; while the existence of a sense of trust further enhances emotional connection and mutual support among employees (Yue et al., 2021).

Third, management practices and leadership styles are important factors influencing

employee beneficiary gratitude (Baykal et al., 2018). In terms of management practices, companies can effectively enhance employees' sense of beneficiary by establishing systematic support and reward mechanisms (R. Fehr et al., 2017). Employee training and development programs, employee assistance programs, health benefits, can make employees feel that the organization values and supports their development and enhance their sense of beneficiary. Meanwhile, fair performance evaluation and reward system also help employees feel recognized and motivated by the organization, which leads to gratitude (Lee et al., 2019). In terms of leadership styles, transformational leaders can stimulate employees' intrinsic motivation and positive emotions by inspiring and motivating them, which makes it easier for employees to feel the support and attention of their leaders and generate gratitude (Xu et al., 2021); benevolent leaders are able to enhance their sense of beneficiary and sense of belonging by caring for employees' personal needs and development (Huang et al., 2022). In addition, leaders' expressions of gratitude also have a modeling effect on employees' feelings of gratitude; leaders can create a culture of gratitude and promote gratitude interactions among employees by openly expressing their appreciation for employees (Chang et al., 2024).

Fourth, the influence of social support systems on employee beneficiary gratitude cannot be ignored. Social support systems include support networks inside and outside the workplace, such as coworker support, family support and community support, customer and other support (Nicuță et al., 2024). Inside the workplace, mutual help and support among coworkers can enhance employees' sense of beneficiary and make them feel the cohesion and cooperation of the team. Outside the workplace, family support and understanding is also an important source of employees' sense of beneficiary; the care and encouragement of family members can alleviate work pressure and make it easier for employees to maintain a positive mindset and gratitude at work. In addition, community support and social resources, such as career counseling and psychological counseling, also provide additional support and assistance to employees and enhance their sense of well-being.

Fifth, external environmental factors also have an important impact on the formation of employees' beneficiary gratitude. Macroeconomic environment, social and cultural atmosphere, as well as policies and regulations affect employees' work experience and emotional responses to varying degrees (L. Ren et al., 2023). In a favorable macroeconomic environment, companies usually have more resources for employee support and welfare, which helps to enhance employees' sense of beneficiary; while in an economic downturn, employees may face greater work pressure and uncertainty, and become more sensitive to the support and help of the organization and colleagues, which leads to stronger feelings of gratitude (Çera et al., 2021).

Policies and regulations, labor laws and social security policies that require and regulate employee support measures in companies (Reid & Robertson, 2021) also influence employees' sense of beneficiary gratitude to some extent. Welfare policies such as paid vacations and health insurance required by law can directly enhance employees' sense of beneficiary.

To summarize, existing studies show that the influencing factors of employee beneficiary gratitude are multidimensional and complex. Individual factors provide the psychological foundation for employees' sense of well-being and gratitude, while organizational culture and climate influence their formation by shaping the way they interact and express their feelings. Management practices and leadership styles directly enhance feelings of appreciation by providing support and motivation, while social support systems reinforce these feelings through internal and external support networks. External environmental factors provide a macro background and policy guarantee for employees' feelings of beneficiary gratitude. In actual management, enterprises should consider these factors comprehensively and adopt scientific management strategies and measures to optimize employees' work experience and promote the formation and dissemination of positive emotions, to enhance organizational performance and employee satisfaction.

2.5.1.3 Consequences of beneficiary gratitude

The impact effects and mechanisms of employee beneficiary gratitude are of great importance in organizational behavior, and related studies have shown that these two variables affect employees' work attitudes, behaviors, psychological well-being, and overall organizational performance in a variety of ways. A systematic literature review allows us to gain a deeper understanding of these effects and mechanisms.

The social exchange theory provides a theoretical basis for understanding the mechanisms that influence employee beneficiary. Blau (1964) introduced this theory by stating that employee beneficiary motivates them to engage in give-back behavior to the organization. This feedback behavior is usually manifested in the form of higher productivity and stronger organizational commitment. When employees feel supported and resourced by the organization, they tend to respond with more positive work attitudes and behaviors in return for the organization's goodwill. Eisenberger et al. (1986) further linked employee beneficiary to perceived organizational support (POS) and found a significant positive relationship between POS and employees' job satisfaction, work engagement, and organizational commitment. This suggests that when employees feel recognized and supported by the organization, their job satisfaction and organizational commitment increase, which makes them more willing to invest

more energy and resources to achieve organizational goals. Gratitude, as a positive emotion, also plays an important role in employees' work attitudes and behaviors, and Emmons and McCullough (2003) showed that gratitude significantly enhances individuals' well-being and psychological well-being because it helps individuals to "psychologically account" for positive experiences in their lives and enhances their positive emotions and psychological well-being. Fredrickson's (2012) Broad Positive Emotion Theory further illustrates the broad positive effects of gratitude. She found that gratitude not only enhances an individual's well-being and satisfaction, but also expands an individual's thinking and behavior, and enhances creativity and social skills. This effect of expanding thinking and behavior is particularly important in organizational contexts because it promotes innovative thinking and teamwork among employees, thereby enhancing overall organizational performance.

The positive effects of gratitude on employee performance and innovative behavior have also been validated in specific organizational contexts. Grant and Gino (2010)'s study found that gratitude enhances employee performance and innovative behavior, which is due to the fact that gratitude enhances employees' self-efficacy and sense of belonging to the organization. When employees feel recognized and cared for by the organization, their gratitude is enhanced, resulting in more positive work attitudes and behaviors. This gratitude not only motivates employees to perform better in their daily work, but also stimulates their creativity and willingness to innovate.

Further studies have also explored the relationship between employee beneficiary gratitude and its impact on work attitudes and behaviors. W. M. Hur et al. (2018) found that when employees feel cared for and supported by their organizations, their gratitude is enhanced, and this gratitude in turn promotes more positive work attitudes and behaviors, including higher job performance and organizational citizenship behaviors. Increased gratitude reinforces employees' sense of identity and belonging to the organization, making them willing to put in more effort for the organization. This suggests that by providing support and resources, organizations can not only directly increase employees' job satisfaction and organizational commitment, but also indirectly enhance their job performance and innovative behaviors by enhancing employees' gratitude. In addition, the role of gratitude in employees' mental health and social relationships cannot be ignored. Gratitude enhances employees' well-being and psychological health, enabling them to show greater resilience and motivation in the face of work pressures and challenges. Gratitude also promotes the quality of social relationships among employees, enhancing teamwork and mutual support. Such positive social relationships not only contribute to individual psychological well-being and job satisfaction, but also to a

more harmonious and productive organizational climate. Overall, employee beneficiary gratitude affects organizational performance and employee psychological well-being through a variety of mechanisms. Beneficiary enhances employees' job satisfaction, organizational commitment, and work engagement, making them more willing to give back to the organization's goodwill. Gratitude, on the other hand, further promotes job performance and innovative behavior by enhancing employees' well-being, self-efficacy, and the quality of social relationships. Together, these mechanisms make employee beneficiary gratitude an important factor in enhancing organizational performance and employee satisfaction.

In summary, understanding the effects and mechanisms of employee beneficiary gratitude is of great practical significance to organizational management. Organizations can enhance their sense of beneficiary gratitude by strengthening the support and recognition of employees, thereby stimulating positive work attitudes and behaviors and improving overall organizational performance. This not only helps to build a harmonious organizational culture, but also enhances the competitiveness and sustainability of the organization. Therefore, managers should pay attention to the management of employee beneficiary gratitude, and give full play to its positive impact through scientific methods and strategies to promote the common development of the organization and employees.

2.5.2 Research on team relationship balance

2.5.2.1 Dimensions and measurement of team relationship balance

Team relationship balance is of great significance in organizational management and team effectiveness research. Through systematic scales and multidimensional measures, scholars have revealed different aspects of team relationship balance and provided efficient and reliable measurement tools. These studies not only help to understand the dynamics of internal and external team relationships, but also provide a theoretical basis for management practices.

First, H. L. Chen et al. (2008) developed a scale containing two dimensions: internal team relationship balance and team-environment relationship balance. This scale contains 10 items, of which the intra-team relationship balance dimension includes 5 items covering openness of communication and fairness of work distribution among team members. These items, such as "Our team members are very open in their communication with each other" and "Our team is fair in the distribution of work", can fully reflect the quality of interaction and the sense of fairness within the team. In addition, the team-environment balance dimension also includes 5 items, such as "Our team communicates well with other teams" and "Our team adapts well to

changes in the external environment”, which help assess the team’s position in the organization as a whole and its ability to adapt to changes in the external environment. These questions help to assess the team’s position in the organization as a whole and its ability to adapt to changes in the external environment. The reliability of the scale was very high with a Cronbach’s α of 0.88, indicating good reliability and internal consistency.

The scale proposed by Marks et al. (2001) further refined the role of team relationship balance in team synergy. Their scale consists of 12 question items focusing on cooperation and conflict management among team members. The items “We work very closely together as a team” and “There is little conflict between our team members” are effective measures of the level of harmony and conflict management when working together as a team. The reliability of the scale was high, with a Cronbach’s α of 0.87, further validating its validity in practical applications.

DeDreu and Weingart (2003), on the other hand, focused on role allocation and task distribution fairness within teams. They designed a scale with 10 question items to assess team members’ perceived fairness of role and task allocation. Questions such as “The roles in our team are assigned fairly” and “The tasks in our team meet the needs of the team members” not only examined the fairness of the assignment process, but also focused on the fulfillment of members’ needs. The reliability of this scale was 0.85, indicating high measurement accuracy and consistency.

Lencioni (2005) investigated the effect of team relationship balance on team conflict management using a set of scales containing eight question items. The scale mainly assesses the team’s ability in conflict management and communication, and the items such as “Our team is able to deal with conflict effectively” and “Communication among our team members is very smooth” can fully reflect the team’s performance in conflict management and communication efficiency. The reliability of this scale was found to be high. The reliability of this scale is 0.86, which also shows its reliability in research and practice.

In addition, some researchers have further explored the defining characteristics of team relationship balance from the perspective of interdependence between teams. The scale proposed by Stewart and Barrick (2000) consisted of five items, which were later measured by Bai et al. (2011) using the translated questionnaire designed by Pearce and Gregersen (1991). These items, such as “Our team’s success depends on the support of other teams” and “Our team works closely with other teams”, emphasize the degree of interdependence among teams and help to reveal the relationships and interactions of teams within a larger organizational network. This scale provides new perspectives and measurements for assessing team balance

through the dependencies between different teams.

In summary, a more systematic and multifaceted research framework has been developed for the dimensions and measurement of team relationship balance. Through detailed measurements of intra-team relationships and team-environment relationships, researchers have revealed the key factors affecting team relationship balance and provided reliable scale tools. These scales cover not only intra-team communication, cooperation, role allocation, and conflict management, but also the team's interaction and adaptability with the external environment. The high reliability and validity measurement tools provide us with reliable data support to help managers effectively assess and improve team relationship balance in practice. Specifically, internal team relationship balance includes communication openness, fairness, cooperation, and conflict management, which directly affect the internal dynamics of the team and member satisfaction. Team-environment relationship balance, on the other hand, focuses on the team's interactions with other teams and the external environment, emphasizing the team's adaptability and level of collaboration. Measurement of these dimensions not only helps us understand the internal workings of the team, but also provides information about the team's positioning and performance in the larger organizational context. Through systematic analysis and scientific measurement, the study of team relationship balance provides a solid theoretical foundation and practical guidelines for enhancing team effectiveness. Managers can utilize these scale tools to regularly assess team relationship balance, identify potential problems and take targeted measures to ensure that their teams are on a steady track of efficient cooperation and healthy development. The dimensions and measurements of team relationship balance provide important theoretical support and practical application value for organizational management and team research.

2.5.2.2 Antecedents of team relationship balance

Team Relationship Balance refers to the degree of harmony in the relationship between team members and its impact on the overall performance of the team. Team Relationship Balance is not only related to the collaboration and trust among team members, but also directly affects the team's innovation ability, decision-making quality, and organizational performance. The systematic elaboration of the influencing factors of team relationship balance can help to understand its formation mechanism and optimization path, to provide a scientific basis for team management practice. The main influencing factors can be divided into six aspects: individual factors, team structure, leadership style, organizational culture and atmosphere, task characteristics, and external environment.

First, individual factors are the basis for influencing the balance of team relationships. Team members' personality traits, emotional intelligence, values, and professional competence can have a profound effect on team relationships (Murmu, 2022; Neuman et al., 1999). In terms of personality traits, members with openness, cooperation and high emotional stability are more likely to build good team relationships. Members with high emotional intelligence are better able to understand and regulate their own emotions and are sensitive to the emotional states of others, thus playing an active role in team interactions (Druskat & Wolff, 2001; Feyerherm & Rice, 2002). In addition, the consistency of team members' values largely determines the degree of harmony in team relationships. Team relationships are usually more balanced and stable when members have a high degree of congruence in goals, behavioral norms, and work attitudes (Gander et al., 2020). In terms of professional competence, team members with complementary abilities can support and enhance each other in cooperation, thus forming a positive interaction and promoting balanced team relationships.

Second, team structure has an important impact on the balance of team relationships. Team structure includes team size, role allocation, communication and power distribution. Moderate team size can promote effective interaction and communication among members and avoid communication barriers and relationship alienation caused by too large a team (Gander et al., 2020). In terms of role allocation, a clear division of roles and responsibilities can help reduce conflict and friction among team members, while it can ensure that each member can utilize his or her strengths and advantages in the team (Belbin, 2010). Communication styles are also crucial for balanced team relationships; open and transparent communication channels promote information sharing and trust among members (Shatti et al., 2018), while closed and opaque communication styles can lead to misunderstandings and conflicts. Regarding power distribution, fair and reasonable power distribution can enhance members' sense of participation and belonging, thus promoting harmonious and balanced team relationships.

Third, leadership style plays a key role in the formation of balanced team relationships (Stubbs, 2005). Different leadership styles can have different effects on team climate and member interactions. Transformational leaders can create a positive team climate and enhance members' cohesion and willingness to cooperate through motivation and visionary guidance. Benevolent leaders, through caring and support, can effectively reduce tensions among members and promote balance and harmony in team relationships (C. Y. Wu et al., 2020). In contrast, authoritarian leaders may lead to centralization of power and increased member dependence, which is not conducive to the balance of team relationships (Chiang et al., 2020). In addition, the role of leaders in conflict management is also very important to effectively

resolve conflicts and maintain stable and harmonious team relationships.

Fourth, the influence of organizational culture and climate on the balance of team relationships is also significant (Krentz et al., 2021). A supportive and inclusive organizational culture can provide a good environmental foundation for balanced team relationships. A cultural climate that encourages cooperation, innovation, and open communication can help build trust and mutual support among team members and promote harmonious and balanced team relationships (Portaankorva, 2024). The sense of fairness and trust in the organizational climate also has a significant impact on team relationships. If team members perceive fairness in organizational decision-making and resource allocation, trust and willingness to cooperate among them will significantly increase, and team relationships will be more balanced and stable (Cuadrado & Tabernero, 2015). In addition, the organization's incentive mechanism and assessment system also affect the quality of team relationships to a certain extent. Reasonable incentives and fair assessment systems can motivate team members, reduce internal competition and conflict, and promote balanced team relationships (Luciano et al., 2020).

Fifth, the impact of task characteristics on the balance of team relationships is equally important. Task complexity, interdependence, and uncertainty all affect how team members interact with each other and the quality of their relationships. Tasks high in complexity typically require close collaboration and information sharing among team members, which helps to increase bonding and trust among members (Berntzen & Wong, 2021). Tasks high in interdependence require team members to rely on and support each other in accomplishing goals, which promotes balance and stability in team relationships. Tasks with high uncertainty, on the other hand, require team members to have a high degree of flexibility and adaptability (Mayo, 2022), which tests the team's ability to collaborate and the quality of the relationship to some extent. Teams that communicate and collaborate effectively when dealing with high uncertainty tasks (Um & Oh, 2020) will have significantly improved team relationships.

Sixth, external environmental factors also have a significant impact on team relationship balance. External factors such as macroeconomic environment, industry competitive dynamics, laws and regulations, and social culture all have an indirect impact on team relationships. In a favorable macroeconomic environment, firms usually have more resources to spend on team building and development, which helps to enhance team members' support and trust (Ranta & Ylinen, 2023). In the competitive environment of the industry, teams need to work more closely and innovate to cope with external pressures, which contributes to a certain extent to the balance and harmony of team relationships (Naidoo & Sutherland, 2016). Laws and regulations and social culture also affect the quality of team relationships to some extent. For example, labor

laws and social security policies protect the rights and benefits of team members and enhance their welfare, which help to enhance their sense of belonging and the harmony of team relationships (Balser & Winkler, 2012; Burton & Mitchell, 2016).

In summary, the influencing factors of team relationship balance are multidimensional and complex. Individual factors provide the psychological and behavioral basis for balanced team relationships, and team structure promotes relationship harmony by optimizing role allocation and communication styles. Leadership style plays a key role in guiding and motivating team members, and organizational culture and climate further enhance relationship balance by creating a supportive and fair environment. Task characteristics and external environmental factors provide specific situations and challenges for the formation of team relationships. In actual management, companies should consider these factors comprehensively and adopt scientific management strategies and measures to optimize team relationships and enhance team performance and organizational competitiveness.

2.5.2.3 Consequences of team relationship balance

In a related study on the effects and mechanism of the role of team relationship balance, N. Chen (2008) used intra-team relationship balance and team-environment relationship balance as independent variables to demonstrate the significant effect of team relationship balance on team performance. They find that intra-team relationship balance can improve team performance by facilitating information sharing and trust building and increasing team collaboration efficiency and innovation. In contrast, team-environmental relationship balance can improve team performance by increasing the team's environmental adaptability so that the team can better cope with changes in the external environment. DeDreu and Weingart (2003) further reveals the internal mechanism of team relationship balance. They use the fairness of team members' role assignment and task allocation as independent variables and find that when team members feel that their roles and tasks are allocated fairly, employees will be more willing to actively participate in team activities and share knowledge and information, thus improving team synergy and performance. Marks et al. (2001) uses team relational balance as an independent variable and investigates its effect on team synergy. They find that team relationship balance can improve team synergy by increasing team members' trust, reducing team conflict, and promoting team members' cooperation and information sharing. Lencioni (2005) investigates the effect of team relationship balance on team conflict management. They find that when team relationships are balanced, team members are more able to deal with conflict effectively and are more willing to communicate and cooperate effectively, thus

improving overall team performance. Zhu et al. (2022) studied the effect of entrepreneurial team relationship governance on enhancing decision commitment, and proposed that entrepreneurial team relationship governance has a significant positive effect on team decision commitment. The study reveals that the sense of distributive fairness and procedural fairness partially mediate between entrepreneurial team relationship governance and decision-making commitment, respectively, and that the mediating effect of the sense of distributive fairness is no longer significant when both fairness senses are considered simultaneously. Fu et al. (2021) studied the effects of cognitive conflict and emotional conflict on team members' well-being and the moderating role of team relationship governance in entrepreneurial teams, and proposed that cognitive conflict positively affects team members' well-being by enhancing self-efficacy, while emotional conflict negatively affects well-being. The study also found that team relationship governance positively moderates the relationship between cognitive conflict and entrepreneurial well-being. B. Chen et al. (2020) studied team relational conflict and employee procrastination behavior and its mechanism of action, and proposed that relational conflict in teams significantly and positively affects employee procrastination behavior, and emotional exhaustion partially mediates this relationship. The study also pointed out that core self-evaluation can weaken the direct and indirect effects of team relationship conflict on procrastination behavior through emotional exhaustion. Tu et al. (2019) studied the moderating effect of team leadership political skills on the relationship between team conflict and individual knowledge team members and team creativity, and proposed that there is an inverted U-shaped relationship between team task conflict and team creativity, and that relational conflict negatively affects team and individual creativity. Team leadership political skills significantly inhibit the negative effect of relational conflict on creativity, enhance the positive effect of task conflict on individual creativity, and negatively regulate the inverted U-shaped relationship between team task conflict and team creativity. M. K. Yu et al. (2018) studied the effects of clinical nursing team efficacy and team relationship conflict on nurse burnout and proposed that nursing team efficacy is negatively related to nurse burnout, while team relationship conflict is positively related to nurse burnout. The study emphasized the importance of improving nursing team efficacy and mitigating team relationship conflict to reduce the level of nurse burnout. Gu et al. (2018) studied the impact of team relationship conflict on shared leadership and its mechanism of action, and proposed that team relationship conflict was significantly negatively related to shared leadership. It was found that team emotional exhaustion played a mediating role between team relationship conflict and shared leadership, and that task interdependence and team member creativity reinforced the positive effect of team relationship conflict on team

emotional exhaustion and moderated the indirect effect of team relationship conflict negatively affecting shared leadership. Y. Zheng and Zhang (2017) studied the effects of head nurses' integrity leadership behaviors and team relationship conflict on nurses' retention intentions, and proposed that team relationship conflict and relationship transparency and internalized morality in head nurses' integrity leadership behaviors are the main factors affecting nurses' retention intentions. The study pointed out that by improving head nurses' honest leadership behavior and creating a harmonious nursing team atmosphere, nurses' willingness to stay in their jobs can be improved.

Taking the above research results together, it can be clearly seen that at this stage, team relationship balance is an important concept in the study of organizational behavior and team management. It not only involves the relationship between internal team members, but also covers the interaction between the team and the external environment. On the one hand, team relationship balance can enhance the team's collaborative efficiency and innovative ability by promoting information sharing and building trust. Information sharing is the core element of teamwork, while trust is the cornerstone of efficient cooperation among team members. When relationships within a team are balanced, communication among members is smoother and information flows more freely, which enables teams to deal with complex problems and innovation needs faster and more effectively. In addition, the establishment of trust reduces internal conflicts and unnecessary conflicts, enhances team members' cohesion and willingness to work together, and thus improves overall team performance. The balance of the team's relationship with the external environment is equally important. Dynamic changes in the external environment require teams to be highly adaptable. When teams can effectively balance internal and external relationships, they can be more agile to respond to environmental changes, seize opportunities and avoid risks. This adaptive ability not only improves the survival and development ability of the team, but also enhances the team's advantage in market competition.

Meanwhile, the fairness of role and task allocation plays a key role in terms of the mechanism for balancing relationships within a team. When team members feel that role and task allocation is fair, they will participate more actively in team activities and be willing to share their knowledge and information. This sense of fairness not only enhances team members' satisfaction and loyalty, but also enhances team synergy, which in turn improves team performance. Fair distribution of roles and tasks allows each member to maximize his or her strengths, reduces internal disagreements and conflicts, and creates a harmonious working environment for the team. In addition, team relationship balance plays an important role in team conflict management. When relationships within a team are balanced, members are more able

to deal with conflict effectively and are willing to engage in constructive communication and cooperation. Effective conflict management not only reduces the negative impact of negative conflict on team performance, but also promotes understanding and tolerance among team members, thus improving overall team performance. Good conflict management can transform potential conflicts into positive discussions that stimulate creativity and innovation.

The balance of team relationships within organizations with different traits is highly variable, and in entrepreneurial teams, team relationship governance also has a significant effect on team decision-making commitment and well-being. Team relationship governance enhances team members' commitment to decision making by increasing the sense of distributive and procedural fairness. This enhanced commitment means that team members are more willing to invest time and energy in supporting and executing team decisions, which in turn enhances overall team performance. At the same time, team relationship governance also positively moderates the relationship between cognitive conflict and members' well-being and reduces the negative impact of emotional conflict on members' well-being. This positive moderating effect not only enhances members' well-being, but also increases team cohesion and willingness to cooperate. The political skills of team leaders should also not be ignored in the balance of team relationships. Leaders with stronger political skills can effectively inhibit the negative effects of relationship conflict on team and individual creativity and enhance the positive effects of task conflict on individual creativity. This suggests that in a balanced team relationship, the political skills of the leader can help the team to better utilize the conflict and transform it into a source of creativity and innovation, thus enhancing the overall performance of the team. Research on nursing teams suggests that balanced team relationships play an important role in reducing burnout. Effective nursing teams not only improve productivity and service quality, but also reduce nurses' burnout levels by reducing team relationship conflict. This finding emphasizes the importance of improving team relationship balance, which can significantly increase team members' job satisfaction and career fulfillment by enhancing team effectiveness and reducing conflict. The impact of team relationship balance on shared leadership should not be overlooked. Shared leadership is a team management model that emphasizes team members' joint participation in leadership and decision-making. When team relationships are balanced, team emotional exhaustion is reduced and synergy among members is enhanced, which contributes to the effective implementation of shared leadership. This leadership model not only improves the team's decision-making quality and execution, but also enhances members' sense of responsibility and sense of belonging, thus improving the team's overall performance.

In summary, team relationship balance significantly affects team performance through a variety of mechanisms. These mechanisms include facilitating information sharing and trust building, improving environmental adaptability, fair role and task allocation, effective conflict management, team relationship governance, and political skills of leaders. Through these mechanisms, team relationship balance not only enhances the team's collaborative efficiency and innovation, but also enhances the team's adaptive capacity and overall performance. Therefore, valuing and maintaining team relationship balance is a key strategy for enhancing team performance in organizational management.

2.6 Summary

Through the combing and summarizing of the above research results, it is known that Chinese and foreign scholars have carried out targeted research on related topics. Research on FSSB focuses on understanding how supervisors can improve the work environment and enhance employee effectiveness by understanding and supporting employees' family life. FSSB is defined as behaviors that provide understanding and support for employees' family life, such as time flexibility and emotional support. The dimensions and measurements of this behavior are based on employees' perceptions, which are mainly based on employees' perceptions of whether their supervisors understand and respect their family commitments. Factors influencing FSSB include the supervisor's family status, gender, and leadership style. Its effect is mainly manifested in improving employees' job satisfaction and performance and reducing work-family conflicts. However, most studies at the current stage have focused on employees' direct reactions, while deeper factors such as managerial experience and power distance have been under-explored. In addition, studies tend to ignore the influence of cultural context, where superiors' behaviors may be interpreted differently in different cultures, thus affecting their effects. The research on employee work engagement focuses on the connotation, definition, and mechanism. Specifically, the connotation mainly refers to the degree of enthusiasm and energy employees put into their work, including love for work, concentration on work and job satisfaction. Its measurement is mainly based on the Utrecht Work Engagement Scale, which obtains data in the form of employee self-report. Employee engagement is influenced by a variety of factors, including the employee's personal characteristics, job characteristics, and organizational environment. The effects of high employee engagement are manifested in terms of increased work efficiency, reduced turnover, and increased innovation. Regarding the research on managerial experience and power distance, managerial experience is usually related

to its factors such as leadership effectiveness, decision-making ability, and innovation ability. Power distance, on the other hand, mainly describes the degree of acceptance of unequal power distribution by subordinates in an organization. The effects and mechanisms of the two are often studied with power distance as a mediating variable to examine the impact of managerial experience on team decision-making, teamwork, and innovative behavior. Research on managerial experience and power distance is deficient in theoretical depth and empirical testing. When combining the experience dimension of managers with the specific effects of power distance, existing research often lacks an in-depth exploration of the interaction between the two in the context of different management styles and organizational cultures. Besides, there is a lack of research methods and data analysis techniques to quantify the actual impact of managerial experience and power distance on organizational effectiveness and employee behavior, as well as on corporate governance and the management of employees' family-work conflict in China. Studies on beneficiary gratitude and team relationship balance show that employee benefit and gratitude involves how employees develop appreciation for benefits and favors at work and repay the organization with higher work engagement and better performance. Team relationship balance emphasizes the effects of balanced relationships among members within a team on team effectiveness, such as equal communication, fair role distribution, and rational task allocation. The correlation between these two variables is mainly characterized by the fact that employee gratitude can improve the balance of team relationships and further enhance team effectiveness. However, as a whole, there is a significant lack of research on employee beneficiary gratitude and its impact on team relationship balance. Existing research mostly focuses on the emotional responses of employees at the individual level, and there is insufficient exploration of how this emotion translates into specific behaviors and interaction patterns at the team-individual cross-layer level. Meanwhile, there is insufficient systematic research on how gratitude plays a role in different team cultures and structures, and its long-term impact on overall team performance and relationship stability. In addition, there is a lack of diversity and innovation in research methods, and tools and theoretical frameworks for quantifying and parsing complex team dynamics and psychological processes need to be further developed.

Furthermore, research combing shows that most of the existing research focuses on the Western cultural context, ignoring local small-sized private companies in China. Many Chinese companies exhibit a high degree of departmental employee compliance with higher levels of leadership in their day-to-day management. Employees are consulted and their opinions are taken into account in the decision-making process, but the final decision tends to remain

centralized in the hands of the leadership. At the same time, teamwork and groupwork are emphasized as a prominent feature of Chinese companies' internal management, and this tendency makes Chinese corporate culture focus more on teamwork and harmonious coexistence, and employees are more willing to carry out related work for the benefit of the collective, which may result in the application and effect of FSSB in China being different from that in the West. Therefore, this study attempts to investigate the application and effects of FSSB in China from the perspective of Chinese culture, analyzing the effects of "work-family enrichment" as a mediator, "managerial experience" as a moderator, "beneficiary gratitude" as a mediator, and "power distance" as a moderator, so as to supplement the existing research theories. In addition, this study explores the role and influence of FSSB in team situations with "team relationship balance" as a mediator and "emotional wellbeing" as a moderator, which is a new attempt to expand the research on FSSB.

Chapter 3: Research Model, Hypotheses, and Survey Design

3.1 Research model and hypotheses

3.1.1 Research model

Synthesizing the previous findings from the relevant literature, the following key findings can be observed: there are limitations in the systematic aspects of the current research. Although there is a relative abundance of research in the respective areas of FSSB, employee engagement, managerial experience, power distance, beneficiary gratitude, and team relationship balance, these studies fail to adequately sort out and explore the impact of FSSB on employee engagement in Chinese organizational and managerial practices. Most of the existing studies obtain a large amount of reorganization data by selecting multiple companies as samples (Huang et al., 2022; Luo et al., 2016; Shang et al., 2022; J. Q. Xie & Fu, 2018); however, this approach ignores the impact of factors such as management systems and personality differences of leaders within different companies on the findings. As a result, systematic research on FSSB and employee engagement within specific organizations remains scarce. Data collection relied mainly on 2-3 questionnaires administered over a period of time, and samples were paired using authoritative scales to validate the model. However, this research method fails to adequately track the details of respondents' changes and the interval between data collection may be too large, thus ignoring possible intermediate fluctuations. Therefore, data collection using the diary method would provide more detailed data. The data formed based on the diary tracking research format presents a two-tier nested structure, in which multiple time points of repeated measurements are the first tier (intra-individual level) and the differences formed by each individual subject are the second tier (inter-individual level).

In this study, an influence model of FSSB on employee engagement is constructed using a group of driving team members in a small and medium-sized transportation company as subjects, as shown in Figure 3.1.

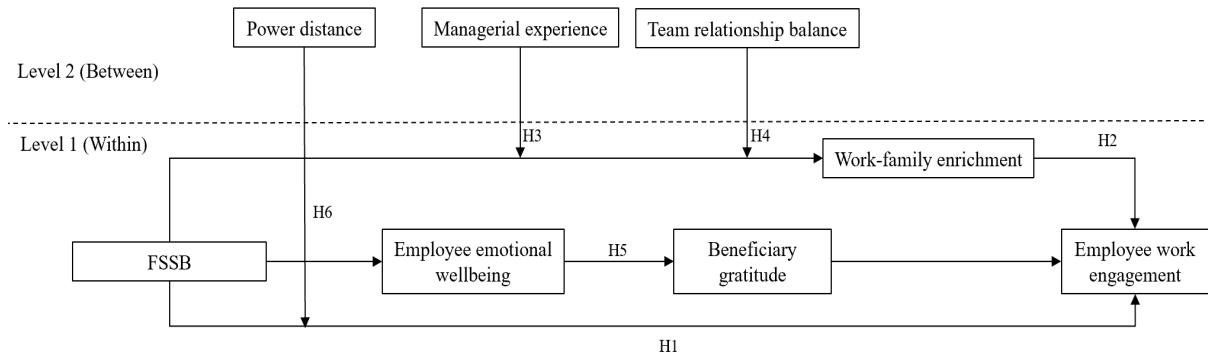


Figure 3.1 Research model

3.1.2 Research hypotheses

In the previous research on the role and effects of FSSB, it was clearly shown that it has a significant impact on employees and organizations. This behavioral pattern significantly reduces employee work-family conflict (Hammer et al., 2007), and effective reduction of work-family conflict further increases the level of employee engagement (Eby et al., 2013). To some extent, employee engagement can be used as a measure of job dedication, however, job dedication is more often viewed as an indicator of an employee's long-term performance. Therefore, it can be inferred that FSSB has the potential to indirectly change employees' long-term engagement levels through its effect on work-family enrichment. However, this effect may vary depending on individual differences, supervisor motivation, and other environmental factors. In addition, managerial experience is seen as an important factor influencing organizational performance and strategic choices (Finkelstein et al., 2009; S. E. Kaplan et al., 2012). The experience of managers directly determines the effectiveness of the implementation of management and leadership strategies. Therefore, it is reasonable to hypothesize that managerial experience affects the effects of FSSB, i.e., managerial experience level may modulate the extent to which FSSB affects the effects of employee work-family enrichment, thus indirectly affecting employee engagement.

Based on the employee analysis perspective, a leader's FSSB is usually oriented to each person on the team he or she manages, rather than being unique to a single employee. In the previous literature review process, it can be learned that the degree of team relational balance is a measure of the degree of balance in the interaction and relationship dynamics among members, as well as an important factor in the stability and effectiveness of the management team (Tjosvold et al., 2004), which includes both the emotional and affective balance of the team members (Marks et al., 2001), involving the team balance of roles and responsibilities within the team (González-Romá et al., 2009). Team relationship balance, which reflects the

state of intra-team interactions, is more likely to function as a negative moderator in the cross-level relationship between FSSB and work-family enrichment. Although collaborative dynamics and information sharing can enhance team performance (Kirono & Hadiwidjojo, 2019), the potential negative effects of team relationship balance warrant critical attention when examining FSSB's influence on work-family enrichment. Emerging evidence from research suggests that an excessive emphasis on team relationship balance may yield negative outcomes. Under the situation where relationship balance is prioritized, employees may be pressured to maintain superficial harmony and suppress or avoid expressing their individualized work-family needs (X. A. Zhang et al., 2009). Consequently, even when FSSB is performed by supervisors, its effectiveness or utility may be discounted due to employees' concerns about disrupting group harmony or being perceived as exceptional (J. Li et al., 2020; X. Y. Li & Gao, 2011), thereby attenuating the intended benefits of FSSB. Under the pressure of maintaining team relationship balance, team interactions present a superficial harmony, leaving conflicts still covered and emotional tensions still unsolved (Chai & Ding, 2008). Sustaining counterfeit harmony amplifies employees' emotional exhaustion (W. Cheng et al., 2019) and depletes their psychological resources, thus diminishing employees' capacity to effectively perceive or leverage FSSB for promoting work-family enrichment (Jiang et al., 2015). Furthermore, when team relationship balance equates to conflict avoidance, the team lacks a genuinely effective problem-solving mechanism, which may erode the perceptions of fairness (P. Ma & Cai, 2021; X. A. Zhang et al., 2009). In this context marked by emotional conflicts or resource competition, employees are particularly susceptible to interpersonal strain and exhaustion. Team relationship balance, at this time, fails to act as a buffer. Instead, it exacerbates the negative effects of conflicts and impedes employees from perceiving and translating FSSB (N. Liu & Zhao, 2012), thus attenuating the promotion of FSSB on work-family enrichment. Therefore, increasing empirical studies uncovered the negative moderating role of team relationship balance in the cross-level mechanism linking FSSB to work-family enrichment. This moderation operates through suppressing individualized need expression, promoting superficial harmony and psychological resource depletion, and impeding constructive conflict resolution. Consequently, employees' capacity to effectively perceive and utilize supervisor-provided FSSB resources is undermined. Understanding the boundary conditions of this negative moderation, such as the team conflict typology, emotional exhaustion thresholds, and the authenticity of team harmony, remains essential for managerial practice. Such insights enable organizations to reconcile collaborative imperatives while preventing team relationship balance from evolving into a structural barrier that obstructs employees' access to supervisory support resources. Thus, the

following hypotheses are proposed:

H1: FSSB enhances employee work engagement.

H2: Work-family enrichment plays a mediating role between FSSB and employee work engagement.

H3: Managerial experience plays a positive cross-layer moderating role between FSSB and work-family enrichment, and higher managerial experience amplifies the positive effect of FSSB on work-family enrichment.

H4: Team relationship balance plays a negative cross-layer moderating role between FSSB and work-family enrichment, and higher team relationship balance mitigates the positive effect of FSSB on work-family enrichment.

Employees' emotional wellbeing plays a key role as a moderating variable in this process. Employees with good emotional wellbeing are more effective in handling work stress and actively participating in team activities, and this positive emotional state allows for the positive effects of FSSB on employee engagement to be enhanced (Marks et al., 2001). In other words, when employees can manage their emotions effectively, they are more likely to feel and value the support of their supervisors, and in turn, demonstrate higher levels of engagement in their teams. In addition, a good state of emotional wellbeing helps employees to better integrate into the team and promotes harmonious and balanced team relationships, which in turn enhances the positive effect of FSSB on engagement. In the previous literature study, it was revealed that individuals tend to develop positive feelings of gratitude after receiving favors from others, and such feelings drive positive give-back behaviors (Grant & Gino, 2010). In addition, gratitude behavior after receiving a favor has been shown to enhance an individual's innovative thinking and the quality of social relationships (Fredrickson, 2012). In the context of business organizations, beneficiary gratitude plays a key mediating role between FSSB perceptions and employee engagement. FSSB enables employees to feel cared for by the organization and respected by the leader by providing emotional support, instrumental support, innovative management, and role modeling (Hammer et al., 2007). This care can substantially relieve the conflict between work and family issues (Matthews et al., 2016), creating a sense of "benefit" for employees. This sense of benefit, in turn, stimulates feelings of gratitude and leads to more positive work attitudes and behaviors (Fredrickson, 2012). In organizational contexts, gratitude not only enhances employees' self-efficacy and sense of belonging to the organization, but also motivates employees to respond to this perceived support by giving back (Grant & Gino, 2010). Thus, beneficiary gratitude is a key mediating mechanism through which FSSB perceptions

influence employee engagement.

Based on the above analysis, FSSB can gradually improve employees' engagement by affecting their emotional wellbeing, sense of benefit and gratitude. FSSB, which includes supervisors' understanding, support and provision of resources for employees' family life, can effectively improve employees' emotional wellbeing. Good emotional wellbeing can help alleviate negative emotions at work, improve employees' motivation, and then enhance their engagement at work. On this basis, employees will form a strong sense of beneficence after feeling support from their supervisors. Employees will realize that they have received additional care and help, and this sense of beneficence prompts employees to produce an emotional tendency to reciprocate at the psychological level, i.e., the psychology of gratitude. Gratitude, as a positive response to employees' inner emotions, can further stimulate employees' sense of responsibility and loyalty to their work, thus enhancing their dedication. Therefore, emotional wellbeing, sense of well-being and gratitude constitute a chain mediation path, and through the progressive psychological mechanism, FSSB can effectively enhance employees' engagement and contribute to their positive behavioral performance.

Thus, the following hypotheses are proposed:

H5: Employee emotional wellbeing and beneficiary gratitude play a sequential mediating role in the positive effect of FSSB on employee engagement. FSSB positively influences employee engagement sequentially through emotional wellbeing and beneficiary gratitude.

In addition, findings suggest that power distance significantly affects the leader-subordinate relationship. There are differences in leaders' authority and influence in organizations with different power distances (Farh et al., 2007), and power distance affects communication styles and teamwork within organizations (Minkov & Hofstede, 2013). Therefore, it can be inferred that employees' perceptions of power distance may moderate the extent to which the FSSB affects the employee engagement variable.

Thus, the following hypotheses are proposed:

H6: Power distance plays a positive cross-layer moderating role between FSSB and employee engagement, and higher power distance amplifies the positive effect of FSSB on employee engagement.

The hypotheses are summarized in Annex Table 1.

3.2 Research variables and measurement scales

Each variable and question item in this study is derived from well-established scales in the past authoritative literature and constructed in conjunction with the models of this study, as shown in Table 3.1.

Table 3.1 Basic information of variables and research tools

Variable	Questionnaire	Questionnaire Source
Dependent Variable	Employee Work Engagement (EWE)	Schaufeli et al. (2002)
Independent Variable	FSSB	Hammer et al. (2009)
Mediator Variable (level 1)	Emotional Well-being Beneficiary Gratitude (BG) Work-family Enrichment (WFE)	Generalized Anxiety Disorder Scale (GAD-7) N. G. Wei and Zhang (2021) B. S. Cheng et al. (2004)
Moderator Variable (level 2)	Team Relationship Balance (TRB) Managerial Experience (ME) Power Distance (PD)	Carlson et al. (2006) C. B. Zheng et al. (2017) W. Xiao and Luo (2016)
Control variable	Gender, Years of Working, Education, Position	Dorfman and Howell (1988) Self-established

3.3 Introduction of research samples

The samples are driving team members (non-leadership positions) of the author's transportation firm, and the sample selection criteria are as follows: non-leadership positions within the team; no leave during the survey; through prior communication, the orientation of the survey and the specific details of the operation are known, with voluntary participation. In the end, a total of 30 members in the non-leadership positions who undertake the driving tasks participated in the survey. The data collected from 30 respondents over 12 consecutive working days is feasible and reasonable for model validation under the reasonable application of methodological and statistical techniques.

First, the suitability of research methods and data characteristics. This study uses a structured diary study method for data collection, aiming to capture the dynamic changes of variables and individual differences in the short term. The core advantage of the diary study method lies in its ability to deeply explore the dynamic changes of variables within individuals through high-frequency measurements (such as FSSB, work-family enrichment, and employee emotional wellbeing). Compared to traditional cross-sectional or single-wave surveys, the diary

study method is better suited for capturing short-term effects and immediate reactions. Each participant recorded information on multiple variables daily over 12 workdays, yielding a total of 360 valid data observations. This dense, repeated-measurement data allows for a more detailed revelation of short-term interactions between variables, thereby aligning with the analytical requirements of multilayer models.

Second, the rationality and validity of statistical analysis methods. This study explicitly uses SPSS and Mplus for analysis. SPSS is suitable for preliminary exploratory data analysis and correlation testing, while Mplus, as a professional structural equation and multilevel linear model analysis software, has advantages in handling longitudinal data and multilevel data structures. For studies with a between-group sample size of 30, the Bayesian estimation method and robust maximum likelihood (MLR) in Mplus can effectively address parameter estimation and model convergence issues in small-sample scenarios. The use of these statistical techniques can mitigate the limitations of small samples on model testing efficacy to some extent.

Third, the conditions for a multilayer data structure. The data in this study constitute a typical multilayer data structure, where the intra-individual level (longitudinal time points) is nested within the inter-individual level (individual employees). Generally, the inter-group sample size for multilayer models is recommended to be at least 30 or more (Raudenbush & Bryk, 2002), and this study meets this requirement. Additionally, the 12 time points within the group meet the minimum longitudinal observation requirement for hierarchical linear modeling (HLM) (at least five time points) (Bolger & Laurenceau, 2013). Therefore, the data scale of this study is reasonable from the perspective of the minimum standards required by statistical methods and meets the basic requirements for cross-level analysis.

Fourth, the practical rationality and feasibility of model validation. This study proposes sequential mediating role and cross-layer moderation effects, involving complex variables. However, the research environment is confined to a single company, where environmental differences between individuals are controllable and homogeneity is relatively high, thereby reducing inter-individual hierarchical errors and making cross-layer moderation effects easier to capture. Additionally, participants in the diary study were all voluntary and fully engaged employees, ensuring high data quality and consistency. The refined data collection management and daily monitoring measures (such as daily WeChat group reports and regular data checks) during the research process ensured the high reliability of the data quality.

Fifth, the study is supported by its practicality and innovation. In diary studies, the typical sample size for longitudinal data ranges from 7 to 14 working days, with 12 working days falling within the moderate range. Numerous empirical studies have also shown that such a

sample size has acceptable statistical power for validating chained mediation effects and short-term cross-layer moderation effects. Especially in exploratory research or the initial validation of new variable relationships, studies with such sample sizes are not uncommon. The diary study method, as a refined measurement tool, has been widely recognized as a typical method for effectively capturing dynamic effects and short-term cross-layer moderation effects.

Considering the 30 respondents' continuous 12-working-day data in this study, combined with the measurement characteristics of diary methods, the application of multilevel model statistical analysis techniques, the effective implementation of data quality control, and the support of relevant statistical literature, the data can meet the model validation requirements of this study and effectively capture the dynamic effects, chained mediation effects, and cross-level moderation effects between the variables set.

Annex Table 2 shows the descriptive statistics of the surveyed samples, and the age, position type and marital status of the members of the team show a more obvious centralized distribution. In terms of age distribution (mean age 38.3; SD=9.09), the samples were concentrated in the range of 26-55 years old, with the 26-35 and 36-45 years old age groups accounting for 33.33% and 30.00% respectively, and the 46-55 years old age group also accounting for 30.00%, and the three age groups together accounting for 93.33%, indicating that the age structure of the members of the driving team is dominated by the middle-aged group. The age group of 18-25 years old has fewer members, accounting for only 6.67%. In terms of job types, 36.67% of the posts are at the junior level, 16.67% at the intermediate level, and 13.33% at the senior level, indicating that the distribution of the posts of the team members is more concentrated at the junior level, and the proportion of job promotion shows a decreasing trend, with fewer members at the senior level. In terms of marital status, married members occupy the vast majority, reaching 86.67%, while unmarried and divorced members account for 6.67% respectively, showing that married members occupy a dominant position among the members of the vehicle team and their marital status is relatively stable. Overall, the age and marital status of the members of the team are highly stable, and there is a greater concentration of personnel in junior positions.

3.4 Design of diary study

3.4.1 Suitability of diary study

Due to the limited sample size, the diary study method is adopted in this thesis.

Specifically: first, each task as a scenario will inevitably lead to not being home during the task, and the family situation changes at any time (various things, life stages, different periods of the year, changes in the emotional needs of the family), which will result in different specific Work-Family conflicts for each task. Therefore, this indicator is reflective of the research objectives. Leaders show relatively different FSSB on each task (which involves different manifestations of employees' "family complaints" and leaders' "understanding or disregarding behaviors" given the importance of the task). Secondly, the leader's experience in dealing with sudden events in different task scenarios (difficult customers, handover issues, road emergencies) is different, and the "managerial experience" applies in the analysis of the task scenario unit. Third, "beneficiary gratitude" is accumulated from various small things, including the leader's daily care for the employee before and after the task, the encouragement after returning from the task, and the convenience given by the leader (allowing shift transfer, shift replacement, and work flexibility), which is suitable for the task scenario unit. Fourth, the "power distance" also changes from time to time through the completion of work, the importance of the task, and the leader's own behavior. Each time when the driver returns from a task, he or she interacts with the leader to see if he or she is "one step closer" or if "the leader is not considerate this time", so it fits the research objective. Fifth, the "team relationship balance" can be reflected after the task, in whether there is a conflict or harmony among the team members involved in the task, and the importance as well as convenience of different tasks (whether it is a good task, the relative ease of distribution among different groups), and affect the team relationship.

In summary, the diary study method can be adopted to better obtain the sample data corresponding to the study and achieve the purpose of this research.

3.4.2 Content structure of diary study

The questionnaire is designed to provide an in-depth exploration of Employee Work Engagement (EWE) and its relationship with FSSB in outbound transporting tasks. The design of the questionnaire follows the research principles of psychology and management, and combines with a specific work scenario - outbound transportation tasks - to ensure the usefulness and relevance of the data.

First, the basic information section of the questionnaire is designed to collect basic data about employees, task types, and team members to provide background information for further analysis. In the dependent variable section, employees' work engagement is measured through

three questions, which is based on the findings of Schaufeli and Bakker (2010). They focus on the level of employees' work engagement, fulfillment, and ability to cope with challenges in a given task. The independent variable section focuses on supervisors' family supportive behaviors, which is based on the scale design of Hammer et al. (2011). This section of questions focuses on assessing the extent to which supervisors support employees' family-work balance in transportation tasks.

Second, the mediating variables section includes Beneficiary Gratitude (BG), Work-family Enrichment (WFE), and Team Relationship Balance (TRB), which is designed based on existing psychological and management theories and aims to explore the mediating mechanisms between supervisor supportive behaviors and employee work engagement. BG reflects employees' perceptions of and reactions to supervisor support, WFE focuses on the positive impact of work on family life, and TRB focuses on the impact of team relationships on work attitudes.

Third, the section of moderating variables, including FSSB Differences, Managerial Experience (ME), and Power Distance (PD), is designed to reveal external factors that may affect the aforementioned relationships. For example, variability in supervisor behaviors may influence employees' perceptions of supportive behaviors, while managerial experience and employee acceptance of PD may moderate such perceptions.

Fourth, the section of open-ended questions is designed to gather more specific personal experiences and suggestions from employees, providing qualitative data to enrich and complement the quantitative analysis results.

The purpose of this questionnaire is to help the management better understand employees' needs and improve management strategies by assessing employee work engagement and the impact of supervisors' supportive behaviors on them through specific transportation task scenarios.

This chapter introduces the research models, hypotheses, and survey design. Through the literature review, it is found that the influence mechanism of FSSB in enhancing employee engagement has not been adequately or systematically studied. For this reason, this thesis proposes the research model based on frontline employees in a small and medium-sized transportation company, and uses the diary study method for data collection to better track employees' psychological and behavioral changes. The research hypotheses clarify the mechanism by which FSSB influences employee engagement. The hypotheses state that FSSB indirectly promotes employee engagement by improving work-family enrichment, enhancing employees' emotional wellbeing and gratitude. Variables such as managerial experience, team

relationship balance and power distance play a moderating role in this. This chapter also describes the design of the research variables and measurement instruments, including the mediating variables of employee engagement, FSSB, emotional wellbeing, work-family enrichment, and beneficiary gratitude, as well as the measurement of the moderating variables of managerial experience, team relationship balance, and other variables to ensure the validity and reliability of the measurement instruments. In the survey design section, this study collects data through the diary survey method, focusing on employee engagement in transportation tasks and its relationship with FSSB. The questionnaire is designed to incorporate employees' personal information, task types, and team situation to fully reflect the impact of FSSB on employee engagement.

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Chapter 4: Empirical Study of the Model

4.1 Process of empirical study

4.1.1 Process of diary study

The total number of diary respondents is 30, and the diary survey was conducted from August 15 to August 30, 2024 for a total of 12 consecutive working days.

(1) Objectives of the diary study: to understand the role of FSSB in improving employees' "work-family" conflict, sense of belonging, emotional commitment, individual and team commitment, and ultimately overall departmental performance.

(2) Subjects of the diary study: 30 drivers of the author's company who volunteered to participate in the study.

(3) Data collection method: using the structured diary research, and employees are required to fill out a pre-determined structured "diary" after each task, such as (including and not limited to), (i) the main challenges and problems encountered at work; (ii) the specifics of "work-family" conflicts; (iii) how their supervisors help them solve problems and conflicts through FSSB; (iv) changes in their sense of belonging to the workplace and their emotional commitment; (v) changes in their level of engagement and teamwork; and (vi) the department's daily performance fulfillment.

(4) Data collection period: it is expected to conduct diary records for a period of nearly 3 weeks (12 working days), and the drivers are required to record the relevant contents every time they complete the car trip tasks. Because most of the tasks occurred in parallel and were ongoing, multiple, matchable data collections were conducted to capture long-term effects and dynamic changes, and the survey was conducted from August 15 to August 30, 2024.

(5) Data analysis: upon completion of data collection, quantitative analyses will be conducted to understand the mechanism of action and cross-layer moderating effects of FSSB's impact on employee engagement.

(6) Implementation and monitoring of the study: to ensure the validity of the study, employees' diary entries will be checked regularly to confirm that they have made entries as required and to provide necessary guidance and support. In addition, the confidentiality of employees' diary entries will be ensured to encourage them to record their experiences and

feelings more honestly.

(7) Ethical considerations: all participants will be clearly informed of the purpose and procedures of the study and will have the option to withdraw from the study at any time. Their personal information will be strictly protected.

4.1.2 Process of statistical analysis

Since this study conducts repeated measures of individual employee subjects at multiple points in time on multiple variables, based on the level of reliability and validity of the questionnaire information, CFA analysis, followed by descriptive statistical analysis and correlation analysis of the data using SPSS 29.0, and subsequently confirming the convenience of each variable at the intra-individual level (within-groups) and between-individuals level (between-groups), i.e., the use of intra-group correlation coefficients ICC (1) was conducted to determine whether the data presented a multilayered nested structure and whether it was suitable for multilevel analysis, including the correlation coefficients at the intra-individual level and the correlation coefficients at the inter-individual level for each variable, and a multilevel model was constructed using Mplus 8.0 to further analyze the mediating role (1→1→1), and the cross-sectional moderating role 2× (1→1), where 1 indicates that the variable is at the intra-individual level (intra-group) and 2 represents that the variable is at the inter-individual level (inter-group).

4.2 Reliability analyses of data

When conducting the reliability analysis of the diary study results of the members of the transportation companies, the Cronbach's α coefficient was mainly used as the reliability measurement. The calculation results of this index are shown in Annex Table 3. The overall standardized Cronbach's α coefficient is 0.894, indicating a high level of internal consistency of the scale. Specifically, the corrected item-total correlations (CITC) of each item range from 0.336 to 0.618, indicating a relatively high level of correlation between each item and the total score. Meanwhile, the α coefficients after item deletion show that none of the individual items have an α coefficient exceeding the overall standardized Cronbach's α coefficient. This further illustrates the contribution of each item to the overall reliability of the scale. Among the specific items, Y1 ("I feel excited and committed in the task today.") has the highest CITC at 0.618, with an α coefficient after item deletion of 0.884 and a Cronbach's α coefficient of 0.892, indicating a significant contribution of this item to the reliability of the scale. On the other hand, X6-2 ("In performing the transportation task, the decision made by leaders was efficient.") has

the lowest CITC at 0.336, which has a deleted alpha coefficient of 0.891. Although its correlation is relatively low, it still makes a positive contribution to the overall reliability.

Overall, the CITC values of all the entries exceeded 0.3, which meets the basic requirements of reliability analysis and shows a strong consistency among the entries. Meanwhile, the standardized Cronbach's alpha coefficient is close to 0.9, indicating that the scale has high internal consistency and can reliably reflect the psychological and behavioral performance of the car crew task members in the transportation task. Therefore, the diary survey scale has high reliability in measuring the psychological state and performance of car crew task members in motor transportation companies.

When analyzing the results of the reliability test of each subdimension, we can start from the Cronbach α coefficient of each dimension. The results of the reliability test for each dimension are shown in Table 4.1, and the Cronbach α coefficients of all dimensions exceeded 0.7, indicating that these dimensions have high internal consistency. The Cronbach's α coefficients for each subdimension ranged from 0.671 to 0.887, with good overall reliability, and the dimensional scales had high reliability in measuring the psychological state and behavioral performance of the members of the car fleet tasks of the motor transport company.

Table 4.1 Reliability test results of all dimensions

Dimension	Cronbach's α	95% confidence interval
Y- Employee Work Engagement (EWE)	0.828	0.795
X1- FSSB	0.852	0.823
X2- Beneficiary Gratitude (BG)	0.671	0.596
X3- Work-family Enrichment (WFE)	0.704	0.636
X4- Team Relationship Balance (TRB)	0.762	0.707
X5- Managerial Experience (ME)	0.773	0.721
X6- Power Distance (PD)	0.713	0.647
X7- Emotional Wellbeing	0.887	0.860

4.3 Confirmatory factor analysis (CFA)

CFA was conducted on the data collected using the diary study method, and the corresponding factor loadings are shown in Table 4.2.

Table 4.2 Factor loadings

Factor (latent variable)	Measured items (variable)	Non-standard load factor (Coef.)	Std. Error	z (CR value)	p	Standard load factor (Std. Estimate)	SMC
Y- Employee Work Engagement (EWE)	Y1. I feel excited and committed in the task today.	1.000	-	-	-	0.803	0.645
Y- Employee Work Engagement (EWE)	Y2. I am satisfied and proud of the results of the transportation task I completed today.	1.043	0.071	14.604	0.000	0.776	0.602
Y- Employee Work Engagement (EWE)	Y3. I was willing to go the extra mile to make sure the task was completed, even when there were difficulties (e.g., traffic jams, cargo problems).	1.061	0.072	14.662	0.000	0.779	0.608
X1- FSSB	X1-1. My supervisor was understanding and supportive when dealing with family-related emergencies that arose during transportation task.	1.000	-	-	-	0.804	0.646
X1- FSSB	X1-2. My supervisor provided resources and assistance that enabled me to better balance transportation duties with family responsibilities.	1.102	0.069	15.861	0.000	0.835	0.697
X1- FSSB	X1-3. My supervisor encouraged me to balance my family and personal life with my busy transportation schedule.	1.098	0.072	15.329	0.000	0.797	0.634
X2- Beneficiary Gratitude (BG)	X2-1. I feel grateful for my supervisor's support during transportation the assignment.	1.000	-	-	-	0.702	0.492
X2- Beneficiary Gratitude (BG)	X2-2. I am willing to repay my supervisor's support and understanding by doing a better job in the transportation task.	1.036	0.148	7.021	0.000	0.720	0.519
X3- Work-family Enrichment (WFE)	X3-1. I think the transportation job has brought about positive changes in my family life.	1.000	-	-	-	0.701	0.491
X3- Work-family Enrichment (WFE)	X3-2. My family experiences have helped me deal more effectively with problems in transportation tasks.	1.120	0.152	7.394	0.000	0.776	0.602
X4- Team Relationship Balance (TRB)	X4-1. I felt that there was a good rapport among team members during today's transportation task.	1.000	-	-	-	0.794	0.631
X4- Team Relationship Balance (TRB)	X4-2. Effective communication and cooperation among team members contributed to the successful completion of the transportation task.	0.986	0.115	8.608	0.000	0.775	0.600

The Influence Mechanism of Family-Supportive Supervisor Behaviors on Employee Work Engagement

Factor (latent variable)	Measured items (variable)	Non-standard load factor (Coef.)	Std. Error	z (CR value)	p	Standard load factor (Std. Estimate)	SMC
X5- Managerial Experience (ME)	X5-1. My supervisor demonstrated extensive management experience when dealing with the complexities that arose during the transportation task.	1.000	-	-	-	0.848	0.719
X5- Managerial Experience (ME)	X5-2. In performing the transportation task, I believe the leaders are experienced.	0.887	0.086	10.257	0.000	0.743	0.552
X6- Power Distance (PD)	X6-1. In performing the transportation task, I believe that the leaders' management and rules were reasonable.	1.000	-	-	-	0.781	0.610
X6- Power Distance (PD)	X6-2. In performing the transportation task, the decisions made by leaders were efficient.	0.899	0.119	7.554	0.000	0.710	0.504
X7- Emotional Well-being	X7-1. I often felt nervous, anxious, or rushed at this task.	1.000	-	-	-	0.698	0.488
X7- Emotional Well-being	X7-2. I was often unable to stop or control worrying at this task.	1.077	0.083	13.044	0.000	0.751	0.564
X7- Emotional Well-being	X7-3. I often worried too much about various things at this task.	1.107	0.084	13.171	0.000	0.759	0.576
X7- Emotional Well-being	X7-4. I often had difficulty relaxing at this task.	1.086	0.089	12.261	0.000	0.703	0.494
X7- Emotional Well-being	X7-5. I was often unable to sit still at this task because I was restless.	1.180	0.092	12.759	0.000	0.733	0.538
X7- Emotional Well-being	X7-6. I often became easily annoyed or impatient at this task.	1.059	0.083	12.776	0.000	0.734	0.539
X7- Emotional Well-being	X7-7. Often on this mission I felt as if something terrible was going to happen and was afraid.	1.101	0.088	12.499	0.000	0.717	0.514

Note: '-' indicates that the item is a reference item.

Table 4.3 shows the results for the model's Average Variance Extracted (AVE) and Composite Reliability (CR) indicators, which reveal that all factors have an AVE value greater than 0.5 and a CR value greater than 0.7. This suggests that the measurement model for each factor in this study has good convergent validity and internal consistency. The AVE value for Employee Engagement (Y) is 0.618, and the CR value is 0.829, reflecting the factor's ability to effectively capture the variance of related items while maintaining high internal consistency. The AVE value for FSSB (X1) is 0.659, and the CR value is 0.853, indicating high reliability and validity for measuring family support behavior. The AVE value for Beneficiary Gratitude (X2) is slightly lower at 0.506 but still above 0.5, with a CR value of 0.672, suggesting sufficient validity in capturing gratitude behavior, though with somewhat lower internal consistency compared to other factors. The AVE value for Work-Family Enrichment (X3) is 0.546, and the CR value is 0.706, reflecting good validity and reliability in measuring the mutual benefits between work and family. The AVE value for Team Relationship Balance (X4) is 0.615, and the CR value is 0.762, indicating high validity and reliability in measuring team relationship balance. The AVE value for Managerial Experience (X5) is 0.635, and the CR value is 0.776, demonstrating high convergent validity and internal consistency in measuring managerial experience. The AVE value for Power Distance (X6) is 0.557, and the CR value is 0.715, reflecting high validity and reliability in measuring power distance perception. The AVE value for Emotional Well-being (X7) is 0.530, and the CR value is 0.888, the highest CR value among all factors, indicating very high internal consistency and validity in measuring emotional well-being. In summary, the factors in the model exhibit good convergent validity and internal consistency, demonstrating that the measurement model used is reliably valid for measuring the latent variables.

Table 4.3 Results of AVE and CR indicator for the model

Factor	AVE Value	CR Value
Y-employee engagement	0.618	0.829
X1-FSSB	0.659	0.853
X2-beneficiary gratitude	0.506	0.672
X3-work-family enrichment	0.546	0.706
X4-team relationship balance	0.615	0.762
X5-managerial experience	0.635	0.776
X6-power distance	0.557	0.715
X7-emotional well-being	0.530	0.888

For the discriminant validity analysis, as shown in Table 4.4, concerning Y - Employee Engagement, its square root of AVE is 0.786, greater than the maximum absolute value of inter-factor correlation coefficients, which indicates its good discriminant validity. Regarding X1 - FSSB, its square root of AVE is 0.812, exceeding the maximum absolute value of inter-factor

correlation coefficients (0.409), implying its good discriminant validity. For X2 - Beneficiary Gratitude, its square root of AVE is 0.711, surpassing the maximum absolute value of inter-factor correlation coefficients (0.356), suggesting its good discriminant validity. Concerning X3 - Work-Family Enrichment, its square root of AVE is 0.739, higher than the maximum absolute value of inter-factor correlation coefficients (0.327), indicating its good discriminant validity. For X4 - Team Relationship Balance, its square root of AVE is 0.784, greater than the maximum absolute value of inter-factor correlation coefficients (0.390), signifying its good discriminant validity. Regarding X5 - Managerial Experience, its square root of AVE is 0.797, exceeding the maximum absolute value of inter-factor correlation coefficients (0.442), implying its good discriminant validity. For X6 - Power Distance, its square root of AVE is 0.746, surpassing the maximum absolute value of inter-factor correlation coefficients (0.356), indicating its good discriminant validity. Concerning X7 - Emotional Well-being, its square root of AVE is 0.728, higher than the maximum absolute value of inter-factor correlation coefficients (0.417), suggesting its good discriminant validity.

Table 4.4 Discriminant validity: Pearson correlation and square root of AVE

Y- employee engagement	X1- FSSB	X2- beneficiary gratitude	X3- work- family enrichment	X4- team balance	X5- managerial experience	X6- power distance	X7- emotional well- being
Y- employee engagement	0.786						
X1- FSSB	0.409	0.812					
X2- beneficiary gratitude	0.356	0.218	0.711				
X3- work- family enrichment	0.327	0.296	0.184	0.739			
X4- team balance	0.390	0.238	0.225	0.238	0.784		
X5- managerial experience	0.442	0.327	0.293	0.235	0.269	0.797	
X6- power distance	0.356	0.158	0.207	0.227	0.208	0.331	0.746
X7- emotional well-being	0.417	0.389	0.308	0.315	0.307	0.260	0.230 0.728

Note:

Y- Employee engagement as an explanatory variable,

X1-FSSB as an explanatory variable

X2-Beneficiary Gratitude, X3-Work-Family Enrichment, X7-Emotional wellbeing as Mediating Variables

X4-Team Relationship Balance, X5-Manager Experience, X6-Employee Power Distance as Moderating Variables

Table 4.5 shows that the model fit indices are overall better and basically meet the common academic judging criteria. The chi-square test results $\chi^2=247.804$, $df=202$, $p=0.015$, indicate that the model does not fully meet the ideal fit, but the chi-square degrees of freedom ratio $\chi^2/df=1.227$ is lower than 3, which indicates that the degree of fit is better. $gfi=0.943$, $AGFI=0.922$, which are both higher than 0.9, show that the model has a high overall goodness of fit. $cfi=0.986$ $NFI=0.929$, $NNFI=0.982$, $IFI=0.986$, $TLI=0.982$, all much higher than 0.9, reflecting the good performance of value-added fitting indexes. $RMSEA=0.025$, with a 90% confidence interval of $0.012\sim0.035$, $RMR=0.040$, and $SRMR=0.034$, all lower than the judgment standard, showing low residuals. $PGFI=0.690$, $PNFI=0.742$, and $PCFI=0.787$, which are all higher than 0.5, indicating a high parsimony of the model. In summary, except for the p-value, which is slightly lower than the standard, all the fitting indicators are in the desired range, and the model fit is generally superior.

Table 4.5 Model fit indices

commonly used indicators	χ^2	df	p	chi-square (math.) degree-of-freedom ratio χ^2/df	GFI	RMSEA	RMR	CFI	NFI	NNFI
Judgment Criteria	-	-	>0.05 <3	>0.9 <0.10 <0.05 >0.9					>0.9	>0.9
Value Other Indicators	247.804	202	0.015	1.227	0.943	0.025	0.040	0.986	0.929	0.982
Judgment Criteria	TLI	AGFI	IFI	PGFI	PNFI	PCFI	SRMR	RMSEA	90% CI	
Value	>0.9	>0.9	>0.9	>0.5	>0.5	>0.5	<0.1	-		
	0.982	0.922	0.986	0.690	0.742	0.787	0.034	0.012 ~ 0.035		

Default model: $\chi^2(253)=3505.460$, $p=1.000$

The factor covariance in Table 4.6 shows that the correlations between the factors are highly significant ($p < 0.05$), indicating strong linear relationships between the latent variables. Employee Engagement (Y) has relatively high standard estimate coefficients (Std. Estimate) with all factors, especially with Managerial Experience (X5), where the coefficient is 0.544, indicating a significant impact of managerial experience on employee dedication. FSSB (X1) has a standard estimate coefficient of 0.447 with Emotional Well-being (X7), indicating a significant positive effect of supervisor support on employee emotional well-being. Additionally, Work-Family Enrichment (X3) has relatively high correlations with Team Relationship Balance (X4), Managerial Experience (X5), and Emotional Well-being (X7), with standard estimate coefficients of 0.319, 0.339, and 0.397 respectively, indicating that positive interactions between work and family have a positive impact on team relationships, managerial experience, and emotional well-being. The non-standardized estimate coefficients and standard

errors between factors demonstrate the reliability of the estimates, with high z-values further confirming the significance of the correlation coefficients. In summary, the significant correlations between the latent variables indicate that the model in this study has a high construct validity.

Table 4.6 Factor covariance matrix

Factor	Factor	Non-standard estimated coefficients (Coef.)	Std. Error	z	p	Std. Estimate
Y- employee engagement	X1- FSSB	0.344	0.051	6.746	0.000	0.489
Y- employee engagement	X2- beneficiary gratitude	0.308	0.055	5.617	0.000	0.477
Y- employee engagement	X3- work-family enrichment	0.286	0.055	5.189	0.000	0.424
Y- employee engagement	X4- team relationship balance	0.395	0.062	6.319	0.000	0.495
Y- employee engagement	X5- managerial experience	0.467	0.065	7.172	0.000	0.544
Y- employee engagement	X6- power distance	0.350	0.059	5.928	0.000	0.464
Y- employee engagement	X7- emotional well-being	0.285	0.043	6.632	0.000	0.491
X1- FSSB	X2- beneficiary gratitude	0.182	0.047	3.841	0.000	0.289
X1- FSSB	X3- work-family enrichment	0.257	0.052	4.944	0.000	0.391
X1- FSSB	X4- team relationship balance	0.231	0.054	4.240	0.000	0.297
X1- FSSB	X5- managerial experience	0.338	0.059	5.747	0.000	0.405
X1- FSSB	X6- power distance	0.154	0.051	3.024	0.002	0.210
X1- FSSB	X7- emotional well-being	0.253	0.040	6.262	0.000	0.447
X2- beneficiary gratitude	X3- work-family enrichment	0.158	0.050	3.163	0.002	0.262
X2- beneficiary gratitude	X4- team relationship balance	0.227	0.058	3.919	0.000	0.318
X2- beneficiary gratitude	X5- managerial experience	0.310	0.063	4.916	0.000	0.404
X2- beneficiary gratitude	X6- power distance	0.199	0.055	3.600	0.000	0.295
X2- beneficiary gratitude	X7- emotional well-being	0.207	0.042	4.946	0.000	0.397
X3- work-family enrichment	X4- team relationship balance	0.239	0.060	3.994	0.000	0.319
X3- work-family enrichment	X5- managerial experience	0.272	0.063	4.319	0.000	0.339
X3- work-family enrichment	X6- power distance	0.226	0.058	3.916	0.000	0.320
X3- work-family	X7- emotional well-	0.216	0.043	4.976	0.000	0.397

Factor	Factor	Non-standard estimated coefficients (Coef.)	Std. Error	z	p	Std. Estimate
enrichment	being					
X4- team relationship balance	X5- managerial experience	0.325	0.070	4.668	0.000	0.343
X4- team relationship balance	X6- power distance	0.240	0.063	3.801	0.000	0.288
X4- team relationship balance	X7- emotional well-being	0.238	0.047	5.091	0.000	0.370
X5- managerial experience	X6- power distance	0.400	0.070	5.688	0.000	0.447
X5- managerial experience	X7- emotional well-being	0.213	0.047	4.555	0.000	0.309
X6- power distance	X7- emotional well-being	0.175	0.043	4.069	0.000	0.289

The discriminant validity analysis results indicate that there is good discriminant validity between the constructs, indicating significant differences in measurement between different constructs. The HTMT (Heterotrait-Monotrait Ratio) results in Table 4.7 show that the HTMT values between the constructs do not exceed 0.85, indicating high discriminant validity between the constructs. For example, the HTMT value between Employee Work Engagement (Y) and FSSB (X1) is 0.488, and between Employee Work Engagement (Y) and Emotional Well-being (X7) is 0.489. These values are significantly lower than the threshold of 0.85, demonstrating good discrimination between the constructs.

Table 4.7 HTMT (Heterotrait-Monotrait Ratio) results

Y-employee engagement	X1-FSSB	X2-beneficiary gratitude	X3-work-family enrichment	X4-team relationship balance	X5-managerial experience	X6-power distance	X7-emotional well-being
Y-employee engagement	-						
X1- FSSB	0.488	-					
X2- beneficiary gratitude	0.478	0.287	-				
X3- work-family enrichment	0.429	0.382	0.268	-			
X4- team relationship balance	0.492	0.297	0.315	0.325	-		
X5- managerial experience	0.552	0.403	0.407	0.318	0.351	-	

Y- employee engagement	X1- FSSB	X2- beneficiary gratitude	X3- work- family enrichment	X4- team relationship balance	X5- managerial experience	X6- power distance	X7- emotional well- being
experience							
X6- power distance	0.463	0.205	0.300	0.319	0.282	0.446	-
X7- emotional well-being	0.489	0.450	0.400	0.400	0.373	0.315	0.290

Table 4.8 further validates the discriminant validity. The AVE (Average Variance Extracted) values for each construct are all greater than 0.5, and the CR (Composite Reliability) values are all greater than 0.7, indicating high internal consistency of each construct, and the measurement items can effectively reflect the corresponding constructs. The Maximum Shared Variance (MSV) and Average Shared Variance (ASV) indices show that the MSV values for each construct do not exceed their respective AVE values, further indicating good discriminant validity among the constructs. For example, the AVE value for Employee Job Dedication (Y) is 0.618, the MSV value is 0.296, and the ASV value is 0.483, indicating that the measurement items for this construct effectively reflect its specific content without confounding with other constructs.

Table 4.8 Discriminant validity indicators: MSV and ASV

Item	AVE value	CR value	maximum of shared squared variance	average of shared squared variance
Y- employee engagement	0.618	0.829	0.296	0.483
X1- FSSB	0.659	0.853	0.239	0.361
X2- beneficiary gratitude	0.506	0.672	0.227	0.349
X3- work-family enrichment	0.546	0.706	0.179	0.350
X4- team relationship balance	0.615	0.762	0.245	0.347
X5- managerial experience	0.635	0.776	0.296	0.399
X6- power distance	0.557	0.715	0.215	0.330
X7- emotional well- being	0.530	0.888	0.241	0.386

Based on the analysis of HTMT and discriminant validity indicators (MSV and ASV), it can be concluded that each construct demonstrates significant distinctiveness in measurement, thus validating the independence and effectiveness of each construct in the theoretical model.

4.4 Correlation analysis and heterogeneity analysis of employee characteristics

4.4.1 Correlation analysis

A correlation analysis is performed on all 360 pieces of data collected. From the correlation results in Table 4.9 below, employee engagement (Y) shows a significant positive correlation with each variable ($p<0.01$), and the size of the correlation coefficients varies, reflecting the strong and weak differences in the impact of each variable on employee engagement. First, the correlation coefficient between FSSB (X1) and employee engagement is 0.409, showing a strong positive correlation between supervisor's supportive behavior and employee engagement, indicating that when employees feel more family support from their supervisors, their work engagement significantly increases. The correlation coefficient of beneficiary gratitude (X2) with employee engagement is 0.356, reflecting that the gratitude felt by employees also enhances their work engagement. The correlation coefficient between work-family enrichment (X3) and employee engagement is 0.327, indicating that positive interactions between family and work contribute to employee engagement. The correlation coefficient of team relationship balance (X4) is 0.390, which indicates that good team relationship helps to increase employee engagement. The correlation coefficient between managerial experience (X5) and employee engagement is 0.442, which is the highest value and shows that managerial experience has the most significant positive effect on employee engagement. The correlation coefficient between power distance (X6) and employee engagement is 0.356, indicating that employees are more likely to show higher levels of engagement in organizational cultural environments with less power distance. Finally, the correlation coefficient between emotional wellbeing (X7) and employee engagement is 0.417, indicating that good emotional wellbeing significantly enhances employee engagement. These results suggest that a variety of factors positively influence employee engagement to varying degrees, with managerial experience, FSSB, and emotional wellbeing having more significant effects.

Table 4.9 Results of statistical analysis of correlation

	Mean	Standard deviation	Y	X1	X2	X3	X4	X5	X6	X
Y-employee engagement	10.992	2.903	1							
X1-FSSB	12.078	2.868		0.409** 1						
X2-beneficiary gratitude	7.417	1.891		0.356** 0.218** 1						
X3-work-family	7.047	2.010		0.327** 0.296** 0.184** 1						

	Mean	Standard deviation Y	X1	X2	X3	X4	X5	X6	X
enrichment									
X4-team relationship	6.867	2.141	0.390**	0.238**	0.225**	0.238**	1		
balance									
X5-managemerial experience	6.667	2.165	0.442**	0.327**	0.293**	0.235**	0.269**	1	
X6-power distance	7.236	1.994	0.356**	0.158**	0.207**	0.227**	0.208**	0.331**	1
X7-emotional wellbeing	28.156	5.537	0.417**	0.389**	0.308**	0.315**	0.307**	0.260**	0.230**

* p<0.05 ** p<0.01

4.4.2 Heterogeneity analysis of skill levels in different positions

Firstly, different positions are grouped to explore the effect of differentiated skill levels on the relationship between FSSB and employee engagement. The results are shown in Table 4.10 below. The effect of FSSB on the relationship between driving team members' engagement is explored by analyzing the heterogeneity of skill levels in different positions. According to the results of the grouped regression model in Table 4.10, FSSB has a significant positive effect on employee engagement in the overall model ($\beta=0.406$, $p<0.01$). However, when the data is further analyzed in groups, the results for different positions show significant differences. In junior positions (1), the effect of FSSB on employee engagement is insignificant ($\beta=0.123$, $p>0.05$), while in senior positions (3), the effect of FSSB is significantly stronger ($\beta=0.663$, $p<0.01$). This difference may reflect significant differences in employees' responses to engagement when receiving leadership support at different skill levels. Employees in senior positions are perhaps more dependent on their leaders' family support behaviors due to higher job complexity and responsibility, which may explain why the effect of FSSB is more significant in senior positions.

Table 4.10 Regression results of the grouping of positions

	Overall	Junior Position (1)	Senior Position (3)
Constant	5.929** (7.890)	8.745** (7.508)	3.371** (4.128)
X1-FSSB	0.406** (6.738)	0.123 (1.321)	0.663** (10.086)
Sample No.	207	96	111
R ²	0.181	0.018	0.483
Adjusted R ²	0.177	0.008	0.478
F value	F (1,205)=45.404, p=0.000	F (1,94)=1.744, p=0.190	F (1,109)=101.729, p=0.000

* p<0.05 ** p<0.01

The Chow Test is used to test whether the regression relationships between different sample groups are significantly different. Specifically, the test determines whether the grouped data

exhibit different regression structures by comparing the sum of squares of residuals (SSE) for different subsamples and the overall sample. The idea behind this is that if the regression equations for the groups of data are significantly different after grouping the data, then it is not appropriate to use a single regression equation to describe the data in the overall model. The Chow Test tests the significance of differences between groups by calculating the sum of the residual sums of squares of the regression equations after grouping and the overall regression equations and comparing them with the residual sums of squares before grouping, and then calculating the F-statistic. A large F-value and small p-value indicates that the models before and after grouping are significantly different, implying that there is heterogeneity between the groups, and therefore a need to use a post-grouping model to more accurately characterize the data relationship. This test can help identify the effects of different employee positions, skill levels, or other characteristics on the relationship between organizational support and employee engagement, thus providing refined guidance for managerial decision-making. The Chow Test results in Table 4.11 indicate significant model heterogeneity between junior and senior positions ($F=17.953$, $p<0.01$), further confirming the differential response of employees in positions with different skill levels under the influence of FSSB.

Table 4.11 Chow Test for the grouping of team members' positions

SSE			Sample No. (n)			parameter No. (k)	F	df 1	df 2	p value
Total	1.0	3.0	Total	1.0	3.0					
1320.001	680.856	440.755	207	96	111	2	17.953	2	203	0.000

The above results suggest that in management practices, leaders should provide appropriate support according to the positions and skill levels of employees to enhance employee engagement.

4.4.3 Heterogeneity analysis of samples in different survey periods

The survey was divided into three periods, i.e., early, middle and late, and according to the feedback, the early stage is the initial stage of FSSB improvement implementation, the middle stage is the advancement stage, and the late stage is the normal stage after the FSSB is upgraded to stability. The early and late periods are selected to explore the variability of the effect of FSSB on employee engagement. Changes in the impact of FSSB on employee engagement over time are explored through sample heterogeneity analysis across the periods. The results of the overall regression model in Table 4.12 indicate that FSSB had a significant positive effect on employee engagement ($\beta=0.292$, $p<0.01$).

Table 4.12 Regression results of different survey periods

	Overall	Early Stage (1)	Late Stage (3)
Constant	7.243** (9.687)	10.296** (10.512)	0.388 (1.121)
X1-FSSB	0.292** (4.852)	-0.036 (-0.464)	0.950** (33.804)
Sample No.	249	134	115
R ²	0.087	0.002	0.910
Adjusted R ²	0.083	-0.006	0.909
F value	F (1,247)=23.544, p=0.000	F (1,132)=0.215, p=0.644	F (1,113)=1142.703, p=0.000

* p<0.05 ** p<0.01

The results of the Chow Test further in Table 4.13 confirm the significant model heterogeneity between the initial and later phases (F=71.279, p<0.01), which suggests that there is a significant difference in the impact of FSSB on employee engagement across the different stages of implementation.

Table 4.13 Chow Test for different survey periods

	SSE		Sample No. (n)			parameter No. (k)	F	df 1	df 2	p value
Total	1.0	3.0	Total	1.0	3.0					
1945.086	1164.410	65.199	249	134	115	2	71.279	2	245	0.000

4.5 HLM suitability test

The two ICC tests for each of the following indicators meet the standard (ICC(1) > 0.059), and the 1-ICC(1) values for each of the above variables in Table 4.14 also reflect a certain amount of within-group variation. Therefore, the research design of the empirical sampling method and cross-layer analysis adopted in this study is scientific and reasonable.

Table 4.14 Result of suitability test

Item	Difference	Quadratic sum	Mean square	F	p value	ICC1
Y- employee engagement	Intergroup	73.336	3.492			
	Within Groups	285.664	0.845	4.132	0	0.1637
	Total	359				
X1-FSSB	Intergroup	69.083	3.29			
	Within Groups	289.917	0.858	3.835	0	0.1505
	Total	359				
X2-beneficiary gratitude	Intergroup	49.004	2.334			
	Within Groups	309.996	0.917	2.544	0	0.0881
	Total	359				
X3-work-family enrichment	Intergroup	54.547	2.597			
	Within Groups	304.453	0.901	2.884	0	0.1053
	Total	359				

X4-team relationship balance	Intergroup	48.859	2.327	2.536	0	0.0875
	Within Groups	310.141	0.918			
	Total	359				
X5-managerial experience	Intergroup	53.953	2.569	2.847	0	0.1034
	Within Groups	305.047	0.903			
	Total	359				
X6-power distance	Intergroup	41.469		2.102	0.003	0.0645
	Within Groups	317.531	1.975 0.939			
	Total	359				
X7-emotional wellbeing	Intergroup	334.765		222.33	0	0.9323
	Within Groups	24.235	15.941 0.072			
	Total	359				

4.6 Intra-individual mediation test

4.6.1 Mediating effect of work-family enrichment

In the intra-individual mediation test, work-family enrichment plays a partial mediating role between FSSB and employee engagement, and from the model results in Table 4.15, the direct effect of X1 (FSSB) on Y (employee engagement) is significant (the effect value was 0.347, $p<0.001$), which indicates that without considering work-family enrichment, FSSB can significantly enhance employee engagement. However, after the introduction of the mediating variable X3 (work-family enrichment), the direct effect of FSSB on employee engagement is slightly weakened, with the effect value decreasing from 0.414 to 0.347, indicating that part of the effect is transmitted through the mediating variable. Second, the effect (path a) of X1 on X3 was significant (effect value of 0.207, $p<0.001$), suggesting that FSSB can significantly contribute to the increase in work-family enrichment. Work-family enrichment further has a significant positive effect (path b, effect value of 0.326, $p<0.001$) on Y, suggesting that family enrichment experienced by employees at work can directly enhance their work engagement. The indirect effect $a*b$ was 0.067 ($p=0.001$), which implies that part of the effect of FSSB on employee engagement is transmitted through the mediating variable of work-family enrichment. Therefore, FSSB not only directly affects employee engagement, but also indirectly enhances employee work engagement through enhancing work-family enrichment. Finally, the change of R^2 value also supports the conclusion that the explanatory power of the model increases from 0.167 to 0.214 after adding the mediator variable, indicating that work-family enrichment plays a mediating role between FSSB and employee engagement.

Table 4.15 Results of mediation model test of work-family enrichment

	Y- Employee Engagement	X3-Work-Family Enrichment	Y- Employee Engagement
Constant	5.990** (9.888)	4.546** (10.352)	4.510** (6.712)
term			
X1-FSSB	0.414** (8.486)	0.207** (5.853)	0.347** (6.975)
X3- Work-Family Enrichment			0.326** (4.588)
Sample Number	360	360	360
R2	0.167	0.087	0.214
Adjusted R2	0.165	0.085	0.209
F value	F (1,358)=72.010, p=0.000	F (1,358)=34.262, p=0.000	F (2,357)=48.548, p=0.000

* p<0.05 ** p<0.01 t-values inside parentheses p < 0.05 (** t = value)

Table 4.16 demonstrates the results of mediating effect analysis of the impact of FSSB (X1) on employee engagement (Y) through work-family enrichment (X3). The study uses the indirect effect decomposition method and estimates 95% confidence intervals based on Bootstrap method to test the effect path, direct effect, and total effect at three levels. In the mediating effect analysis, the indirect effect value of FSSB on employee engagement through work-family enrichment is significantly 0.067 (95% CI: 0.031 to 0.109, z = 3.333, p = 0.001), which indicates that work-family enrichment partially mediates the effect in this path. Further disaggregating the paths, the coefficient of FSSB on work-family enrichment is 0.207 (95% CI: 0.138 to 0.276, z = 5.853, p < 0.01), whereas the coefficient of work-family enrichment on employee engagement 0.326 (95% CI: 0.186 to 0.465, z = 4.588, p < 0.01), both of which show a significant positive effect. The direct effect value of 0.347 (95% CI: 0.249 to 0.444, z = 6.975, p < 0.01) for FSSB on employees engagement remains significant after controlling for the mediating variable, indicating that the mediating effect does not fully explain the role of FSSB. In addition, its total effect value of 0.414 (95% CI: 0.318 to 0.510, z = 8.486, p < 0.01) further confirms the strong positive effect of FSSB on employee engagement. This shows that work-family enrichment partially mediates the relationship between FSSB and employee engagement, which not only directly enhances employee engagement, but also further enhances employees engagement by promoting work-family resource enrichment.

Table 4.16 Mediation test results of mediation effect of work-family enrichment

Item	sign meaning	Effect	95% CI		Standard Error	z value/t value	p value	conclusion
			Lower limit	Upper limit	Value			
X1-FSSB=>X3-Work-Family Enrichment =>Y- Employee Engagement								
	a*b	Indirect effect	0.067	0.031	0.110	0.020	3.331	0.001
X1- FSSB =>X3-Work-Family Enrichment =>Y- Employee Engagement								
	a	X=>M	0.207	0.138	0.276	0.035	5.853	0.000
X3- Work-Family Enrichment =>Y- Employee Engagement								
	b	M=>Y	0.326	0.186	0.465	0.071	4.588	0.000
X1- FSSB =>Y- Employee Engagement								
	c'	Direct effect	0.347	0.249	0.444	0.050	6.975	0.000
X1- FSSB =>Y- Employee Engagement								
	c	Total effect	0.414	0.318	0.510	0.049	8.486	0.000

4.6.2 Sequential mediating effects of beneficiary gratitude and emotional wellbeing

With the help of PROCESS plug-in in SPSS 29.0.1.0 statistical software, the mediating effect study was conducted using Bootstrap sampling test with 5,000 samples and the results show that for the mediating path ‘X1-FFSB \Rightarrow X7-Emotional Wellbeing \Rightarrow Y-Employee Engagement’, the 95% interval did not include the number 0 (95% CI. 0.048 to 0.150), thus indicating the existence of this mediating effect path. For the mediation path ‘X1-FSSB \Rightarrow X2-Beneficiary Gratitude \Rightarrow Y-Employee Engagement’, the 95% interval includes the number 0 (95% CI: -0.001~0.055), thus indicating that this mediation effect path does not exist. Next, the sequential mediation effect path was analyzed for the mediation path ‘X1-FSSB \Rightarrow X7-Emotional Wellbeing \Rightarrow X2-Beneficiary Gratitude \Rightarrow Y-Employee Engagement’, and the 95% interval did not include the number 0 (95% CI:0.008~0.042), which indicates that this mediation effect path exists.

Specifically, Table 4.17 demonstrates the results of the sequential mediating model regression of employee emotional wellbeing and gratitude. The results show that FSSB (X1) has a significant positive effect on emotional wellbeing (X7), beneficiary gratitude (X2), and employee engagement (Y) at 0.751 ($t=7.988$, $p<0.01$), 0.076 ($t=2.127$, $p<0.05$), and 0.414 ($t=8.486$, $p<0.01$), respectively. In addition, the effect of emotional wellbeing (X7) on employee engagement (Y) is 0.129 ($t=4.909$, $p<0.01$), while the effect of beneficiary gratitude

(X2) on employee engagement is 0.342 ($t=4.720$, $p<0.01$). The degree of model fit is reflected by R^2 and adjusted R^2 , which shows that the sequential mediating model had high explanatory power in explaining employee engagement, especially when both emotional wellbeing and gratitude are included, with a model R^2 of 0.290.

Table 4.17 Sequential mediation model test of beneficence gratitude and emotional wellbeing

	X7-emotional wellbeing	X2- beneficiary gratitude	Y-employee engagement	Y- employee engagement
constant	19.088** (16.362)	3.965** (7.326)	5.990** (9.888)	1.588* (1.997)
X1-FSSB	0.751** (7.988)	0.076* (2.127)	0.414** (8.486)	0.268** (5.437)
X7-emotional wellbeing		0.090** (4.850)		0.129** (4.909)
X2-beneficiary gratitude				0.342** (4.720)
Sample number	360	360	360	360
R^2	0.151	0.106	0.167	0.290
Adjusted R^2	0.149	0.101	0.165	0.284
F value	$F (1,358)=63.815$, $p=0.000$	$F (2,357)=21.246$, $p=0.000$	$F (1,358)=72.010$, $p=0.000$	$F (3,356)=48.575$, $p=0.000$

* $p<0.05$ ** $p<0.01$ t-values inside parentheses

The Bootstrap analysis of the indirect effects of the sequential mediating model is presented in Table 4.18. The results show that the indirect effect of FSSB on employee engagement through emotional wellbeing (X7) is 0.097 (95% CI: 0.048 to 0.150, $z = 3.705$, $p < 0.01$), and this path is significant. Meanwhile, the indirect effect of FSSB on employee engagement through beneficiary gratitude (X2) is 0.026, but its confidence interval across zero (95% CI: -0.001 to 0.055, $z=1.807$, $p=0.071$) is not significant. In addition, the indirect effect of 0.023 (95% CI: 0.008 to 0.042, $z=2.666$, $p<0.01$) through the sequential pathway, i.e., FSSB affecting emotional wellbeing, which in turn acts on employee engagement through beneficiary gratitude, turns out to be significant. This suggests that the core path of the sequential mediating model is valid, especially the role of emotional wellbeing is more prominent.

Table 4.18 Analysis of indirect effects in sequential intermediation

Item	Effect	Boot SE	BootLLCI	BootULCI	z	p
X1-FSSB \Rightarrow X7-emotional wellbeing \Rightarrow Y- employee engagement	0.097	0.026	0.048	0.150	3.705	0.000
X1-FSSB \Rightarrow X2-beneficiary gratitude \Rightarrow Y- employee engagement	0.026	0.014	-0.001	0.055	1.807	0.071
X1-FSSB \Rightarrow X7- emotional wellbeing \Rightarrow X2- beneficiary gratitude \Rightarrow Y- employee engagement	0.023	0.009	0.008	0.042	2.666	0.008

Note: BootLLCI refers to the lower limit of the Bootstrap sampling 95% interval, BootULCI refers to the upper limit of the Bootstrap sampling 95% interval, bootstrap type: percentile bootstrap method; The 3rd row is the sequential mediator, and the rest are parallel mediators

Table 4.19 analyzes the total indirect effect of FSSB on employee engagement. The results

show that the total indirect effect of FSSB through emotional wellbeing and gratitude is 0.146 (95% CI: 0.082 to 0.210, $z = 4.485$, $p < 0.01$) and the result is significant. This analysis suggests that emotional wellbeing and beneficiary gratitude, as important mediating variables, can effectively transmit the positive effects of FSSB on employee engagement. With the combined effect of sequential mediation and total indirect effect, the model further validates the importance of employees' psychological state and emotion in the process of enterprise management, and provides practical guidance for enhancing employee engagement.

Table 4.19 Total indirect effects of sequential mediation of beneficiary gratitude and emotional wellbeing

Item	Total indirect effect	Boot SE	z value	p value	BootLLCI	BootULCI
X1-FSSB=>Y-employee engagement	0.146	0.033	4.485	0.000	0.082	0.210
Sum of indirect effects	0.146	0.033	4.485	0.000	0.082	0.210

Note: BootLLCI refers to the lower limit of the Bootstrap sampling 95% interval, BootULCI refers to the upper limit of the Bootstrap sampling 95% interval, bootstrap type = percentile bootstrap method

4.7 Tests of cross-layer moderation

4.7.1 Level 2 aggregation analysis

This study uses a Hierarchical Linear Model (HLM) to analyze the impact path of FSSB on employee engagement and its cross-layer moderating mechanism. Specifically, to explore the moderating effects of firm-level factors such as managerial experience, power distance, and team relationship balance on the FSSB-engagement relationship, the raw individual data need to be integrated to the organizational or team level.

According to Table 4.20 below, the variance at different levels in the model was first estimated based on a one-way random-effects ANOVA for ICC (1) (Bartko, 1976; Bliese, 2000; Bliese & Halverson, 1998; James, 1982; McGraw & Wong, 1996), which was calculated to produce intra- and inter-group Variance estimates were calculated for both within- and between-groups, which served as the basis for the subsequent analyses ICC(1) and ICC(2). ICC(1) was used to assess the proportion of between-groups variance in the total variance, reflecting whether between-individuals variation was significant enough to support the need for multilevel analyses; if the value was significant, it indicated that the within-individuals data had a significant between-group effect. In this thesis, the three variables of team relationship balance, managerial experience, and power distance were analyzed separately, and the resulting ICC(1) values were 0.0875, 0.1034, and 0.0645, respectively, which all indicate the presence of some between-group variation.

Table 4.20 ICC(1) and ICC(2) results

Indicator	Variance	Sum	MS	F	p value	ICC1	ICC2
X4-team relationship	Inter-relationship	48.859	2.327				
	Intra-balance	310.141	0.918	2.536	0	0.0875	0.6055
	total	359					
X5-managerial experience	Inter-	53.953	2.569				
	Intra-	305.047	0.903	2.847	0	0.1034	0.6485
	total	359					
X6-power distance	Inter-	41.469	1.975				
	Intra-	317.531	0.939	2.102	0.003	0.0645	0.5246
	total	359					

To further validate the reliability of the group means, the ICC(2) index was used to examine the reliability of intra-individual data when integrated into intergroup data. ICC(2) was sought based on a one-way random effects ANOVA (Bartko, 1976; Bliese, 1998; Glick & Roberts, 1984; James, 1982; McGraw & Wong, 1996). ICC(2) calculation was based on ANOVA results using the formula to assess the reliability of group means:

$$ICC(2) = \frac{MS_{between} - MS_{within}}{MS_{between}} \quad (4.1)$$

According to Castro's (2002) suggestion, ICC(2) value greater than 0.6 can be regarded as the between-group mean with high reliability, and it is suitable to use the mean of intra-individual level to represent the between-group data. As in Table 4.20, the ICC(2) values of team relationship balance, managerial experience, and power distance in the study were 0.6055, 0.6485, and 0.5246, respectively, and all of them exceeded 0.6 except for firm power distance, which was slightly lower, indicating a high level of confidence in the between-group means. These three variables can thus be applied as between-group level variables for cross-layer moderation in a 2-1-1 cross-layer moderation analysis to examine the moderating effect of firm-level traits in the relationship between FSSB and engagement.

In the estimation of the model, the maximum likelihood estimation (MLE) method was used to assess the model parameters and estimate the fixed and random effects at each level. Fixed effects reflect the average effect of the variable in the whole, while random effects capture the variance distribution of the variable across groups and characterize its variation under different levels.

4.7.2 Cross-layer moderating effects of power distance

4.7.2.1 Model design

Based on the previous study, an HLM is constructed to measure the cross-layer moderating role of power distance between FSSB and employee engagement.

First, the Level 1 model

$$Y_{ij} = \beta_{0j} + \beta_{1j}X_{1ij} + r_{ij} \quad (4.2)$$

where:

Y_{ij} denotes the job dedication of the i^{th} employee in the j^{th} firm.

X_{1ij} denotes the FSSB of the i^{th} employee in the j^{th} firm.

β_{0j} is the random intercept that represents the average effect of firms on employees' engagement.

β_{1j} is the random slope indicating the effect of FSSB on employee engagement.

r_{ij} is the individual level random error.

Second, the Level 2 model

$$\beta_{0j} = \gamma_{00} + \gamma_{01}X_{6j} + u_{0j} \quad (4.3)$$

$$\beta_{1j} = \gamma_{10} + \gamma_{11}X_{6j} + u_{1j} \quad (4.4)$$

where:

X_{6j} denotes the power distance.

γ_{00} is the overall intercept.

γ_{01} is the direct effect of power distance on employee engagement.

γ_{10} denotes the basic effect of FSSB on employee engagement.

γ_{11} represents the moderating effect of power distance on the relationship between FSSB and employee engagement.

u_{0j} and u_{1j} are firm-level random errors.

Third, the integrating model formulas

Integrating the above two-level model formulas yields the following multilevel linear model with cross-layer moderation:

$$Y_{ij} = (\gamma_{00} + \gamma_{01}X_{6j} + u_{0j}) + (\gamma_{10} + \gamma_{11}X_{6j} + u_{1j})X_{1ij} + r_{ij} \quad (4.5)$$

Expanding and simplifying yields:

$$Y_{ij} = \gamma_{00} + \gamma_{01}X_{6j} + \gamma_{10}X_{1ij} + \gamma_{11}(X_{1ij} \cdot X_{6j}) + u_{0j} + u_{1j}X_{1ij} + r_{ij} \quad (4.6)$$

This model demonstrates the cross-layer moderating effect of power distance (X_6) on the relationship between FSSB (X_1) and employee engagement (Y). In this model, the significance of the interaction term $\gamma_{11}(X_{1ij} \cdot X_{6j})$ reflects the cross-layer moderating effect of power distance.

4.7.2.2 Calculation results

The analysis was conducted for random effects versus fixed effects. Table 4.21 below shows

that the standard deviation of the intercept in the random effects covariance estimation is 0.909, the variance is 0.827, the z-value is 0.942, and the p-value is 0.346. The variance of X6 is 0.002, the z-value is 0.106, and the p-value is 0.916, and the intragroup correlation coefficient ICC is 0.137, which indicates that there is less variation within the group.

Table 4.21 Results of random effects covariance estimation a

Item	SD	Variance	standard deviation	z	p	95% CI
intercept	0.909	0.827	0.878	0.942	0.346	-0.893 ~ 2.547
X6-power distance	0.039	0.002	0.014	0.106	0.916	-0.027 ~ 0.030
Residual	2.290	5.230				

Note: Intra-group correlation coefficient ICC = 0.137

From Table 4.22 below, it can be seen that when X1-FSSB has an effect on Y-Employee Engagement, this path does not show direct significance ($z=1.527$, $p=0.127>0.05$), thus suggesting that X1-FSSB does not have an effect on Y-Employee Engagement. X6- Power Distance has an effect on Y-Employee Engagement, the standardized regression coefficient value is $0.323>0$ and this path shows significance at the 0.01 level ($z=4.769$, $p=0.000<0.01$), thus indicating that X6- Power Distance has a significant positive relationship on Y-Employee Engagement. The standardized regression coefficient value is $0.028>0$ when the interaction term X1*X6 has an effect on Y-employee engagement, and this path shows significance at the 0.01 level ($z=5.416$, $p=0.000<0.01$), thus indicating that X1*X6 will have a significant positive influence relationship on Y-employee engagement. That is, there is a cross-layer moderating effect of corporate power distance.

Table 4.22 Parameter estimation of cross-layer moderating effects of power distance

Item	Regression coefficient	Standard deviation	z	p	95% CI
intercept	5.180	0.779	6.650	0.000	3.653 ~ 6.707
X1-FSSB	0.098	0.064	1.527	0.127	-0.028 ~ 0.223
X6-power distance	0.323	0.068	4.769	0.000	0.190 ~ 0.456
X1*X6	0.028	0.005	5.416	0.000	0.018 ~ 0.038

Annex Figure 1 “Simple slope chart” shows a significant positive moderating effect of power distance on the relationship between FSSB and employee engagement. The positive effect of FSSB on employee engagement is stronger in the high power distance condition.

4.7.3 Cross-layer moderating effects of managerial experience

4.7.3.1 Model design

Based on the material presented, an HLM can be constructed to represent the cross-layer moderating role of managerial experience between FSSB and work-family enrichment. The following are the formulas of the model:

First, the Level 1 model

$$X3_{ij} = \beta_{0j} + \beta_{1j}X1_{ij} + r_{ij} \quad (4.7)$$

Where:

$X3_{ij}$ denotes the work-family enrichment of the i^{th} employee in the j^{th} time period.

$X1_{ij}$ denotes the FSSB of the i^{th} employee in the j^{th} time period.

β_{0j} is the random intercept indicating the average effect of time on work-family enrichment.

β_{1j} is the effect of FSSB on work-family enrichment.

r_{ij} is the individual-level random error.

Second, the Level 2 model

$$\beta_{0j} = \gamma_{00} + \gamma_{01}X5_j + u_{0j} \quad (4.8)$$

$$\beta_{1j} = \gamma_{10} + \gamma_{11}X5_j + u_{1j} \quad (4.9)$$

Where:

$X5_j$ denotes managerial experience.

γ_{00} is the overall intercept.

γ_{01} is the direct effect of managerial experience on work-family enrichment.

γ_{10} denotes the basic effect of FSSB on work-family enrichment.

γ_{11} represents the moderating effect of managerial experience on the relationship between FSSB and work-family enrichment.

u_{0j} and u_{1j} are time-level random errors.

Third, the Integration of Model Formulas

Integrating the above two-level model formulas yields a multilevel linear model with cross-layer regulation:

$$X3_{ij} = (\gamma_{00} + \gamma_{01}X5_j + u_{0j}) + (\gamma_{10} + \gamma_{11}X5_j + u_{1j})X1_{ij} + r_{ij} \quad (4.10)$$

Expanding and simplifying yields:

$$X3_{ij} = \gamma_{00} + \gamma_{01}X5_j + \gamma_{10}X1_{ij} + \gamma_{11}(X1_{ij} \cdot X5_j) + u_{0j} + u_{1j}X1_{ij} + r_{ij} \quad (4.11)$$

This model shows the cross-layer moderating effect of managerial experience ($X5$) on the relationship between FSSB ($X1$) and work-family enrichment ($X3$). However, according to the parameter estimates in the table, the significance of the interaction term $\gamma_{11}(X1_{ij} \cdot X5_j)$ measures whether there is a significant cross-layer moderating effect of managerial experience in this relationship.

4.7.3.2 Calculation results

Table 4.23 below shows that the intra-group correlation coefficient ICC value is 0.241, which means that 24.10% of the variation in X3-Work-Family Enrichment in terms of the cause of change is due to the difference between different times.

Table 4.23 Random effects covariance estimation results b

Item	SD	Variance	Standard deviation	z	p	95% CI
intercept	1.016	1.031	0.669	1.542	0.123	-0.279 ~ 2.342
X5-managerial experience	0.128	0.016	0.012	1.386	0.166	-0.007 ~ 0.040
Residual	1.805	3.248				

Note: Intra-group correlation coefficient ICC = 0.241

Table 4.24 below shows that the standardized regression coefficient value for X1-FSSB for X3-Work-Family Enrichment is 0.221>0 and this path presents significance at the 0.05 level (z=2.072, p=0.038<0.05), thus indicating that X1-FSSB produces a significant positive effect on X3-Work-Family Enrichment. This path does not show significance when X5-Manager Experience has an effect on X3-Work-Family Enrichment (z=1.258, p=0.208>0.05), thus suggesting that X5-Manager Experience will not have an effect relationship on X3-Work-Family Enrichment. The interaction term X1*X5 does not show significance (z=-0.707, p=0.479>0.05) for this path when it comes to the effect of X3-Work-Family Enrichment, thus suggesting that X1*X5 would not have an impact relationship on X3-Work-Family Enrichment. That is, there is no moderating effect of managerial experience across strata.

Table 4.24 Cross-layer moderated fixed-effects parameter estimation of managerial experience

Item	regression coefficient	standard deviation	z	p	95% CI
intercept	3.573	1.305	2.738	0.006	1.015 ~ 6.131
X1-FSSB	0.221	0.107	2.072	0.038	0.012 ~ 0.430
X5-managerial experience	0.268	0.213	1.258	0.208	-0.150 ~ 0.687
X1*X5	-0.012	0.017	-0.707	0.479	-0.045 ~ 0.021

4.7.4 Cross-layer moderating effects of team relationship balance

4.7.4.1 Model design

Based on the results of the previous study, an HLM can be constructed to represent the cross-layer moderating role of team relationship balance between FSSB and work-family enrichment.

First, the Level 1 model

$$X3_{ij} = \beta_{0j} + \beta_{1j}X1_{ij} + r_{ij} \quad (4.12)$$

where:

$X3_{ij}$ denotes the work-family enrichment of the i^{th} employee in the j^{th} time period.

$X1_{ij}$ denotes the FSSB of the i^{th} employee in the j^{th} time period.

β_{0j} is the random intercept indicating the average effect of time on work-family enrichment.

β_{1j} is the effect of FSSB on work-family enrichment.

r_{ij} is the individual-level random error.

Second, the Level 2 model

$$\beta_{0j} = \gamma_{00} + \gamma_{01}X4_j + u_{0j} \quad (4.13)$$

$$\beta_{1j} = \gamma_{10} + \gamma_{11}X4_j + u_{1j} \quad (4.14)$$

Where:

$X4_j$ denotes the team relationship balance.

γ_{00} is the overall intercept.

γ_{01} is the direct effect of team relationship balance on work-family enrichment.

γ_{10} denotes the basic effect of FSSB on work-family enrichment.

γ_{11} represents the moderating effect of team relationship balance on the relationship between FSSB and work-family enrichment.

u_{0j} and u_{1j} are time-level random errors.

Third, the integrating the model formulas

Integrating the above two-layer model formulas yields a multilayer linear model with cross-layer regulation:

$$\begin{aligned} X3_{ij} = & (\gamma_{00} + \gamma_{01}X4_j + u_{0j}) \\ & + (\gamma_{10} + \gamma_{11}X4_j + u_{1j})X1_{ij} + r_{ij} \end{aligned} \quad (4.15)$$

Expanding and simplifying yields:

$$\begin{aligned} X3_{ij} = & \gamma_{00} + \gamma_{01}X4_j + \gamma_{10}X1_{ij} + \gamma_{11}(X1_{ij} \cdot X4_j) \\ & + u_{0j} + u_{1j}X1_{ij} + r_{ij} \end{aligned} \quad (4.16)$$

The model demonstrates the cross-layer moderating effect of team relationship balance ($X4$) on the relationship between FSSB ($X1$) and work-family enrichment ($X3$). According to the results of parameter estimation, the significance of the interaction term γ_{11} ($X1_{ij} \cdot X4_j$) measured whether the team relationship balance had a significant cross-layer moderating effect on the relationship between FSSB and work-family enrichment.

4.7.4.2 Calculation results

Table 4.25 below shows that: the ICC value of intra-group correlation coefficient is 0.071, which means that 7.06% on the cause of change of X3-Work-Family Enrichment is caused by the difference between different times.

Table 4.25 Random effects covariance estimation results c

Item	SD	Variance	Standard deviation	z	p	95% CI
intercept	0.491	0.241	1.345	0.179	0.858	-2.395 ~ 2.877
X4-team relationship balance	0.019	0.000	0.026	0.014	0.989	-0.050 ~ 0.051
Residual	1.784	3.173				

Note: Intra-group correlation coefficient ICC = 0.071

Table 4.26 below shows that the standardized regression coefficient value for X1-FSSB for X3-Work-Family Enrichment impacts when the standardized regression coefficient value is $0.544 > 0$ and this path presents significance at the 0.01 level ($z=5.038$, $p=0.000 < 0.01$), thus suggesting that X1-FSSB will produce a significant positive effect on X3- Work-Family Enrichment. The standardized regression coefficient value for X4-Team Relationship Balance for X3-Work-Family Enrichment is $0.926 > 0$ and this path shows significance at the 0.01 level ($z=4.738$, $p=0.000 < 0.01$), thus indicating that X4-Team Relationship Balance will have a significant positive influence relationship on X3-Work-Family Enrichment. The standardized regression coefficient value is $-0.066 < 0$ when the interaction term $X1*X4$ has an effect on X3-Work-Family Enrichment and this path shows significance at the 0.01 level ($z=-4.088$, $p=0.000 < 0.01$), thus suggesting that $X1*X4$ will have a significant negative effect relationship on X3-Work-Family Enrichment. That is, there is a cross-layer moderating effect of team relationship balance.

Table 4.26 Cross-layer moderated fixed-effects parameter estimates for team relationship balance

Item	Regression coefficient	Standard deviation	z	p	95% CI
intercept	-0.337	1.287	-0.262	0.793	-2.860 ~ 2.186
X1-FSSB	0.544	0.108	5.038	0.000	0.333 ~ 0.756
X4-team relationship balance	0.926	0.195	4.738	0.000	0.543 ~ 1.309
$X1*X4$	-0.066	0.016	-4.088	0.000	-0.097 ~ -0.034

Annex Figure 2 “Simple slope chart” shows that team relationship balance has a significant negative moderating effect on the relationship between FSSB and work-family enrichment. The positive effect of FSSB on work-family enrichment diminishes in the high team relationship balance condition.

4.8 Conclusion

Table 4.27 demonstrates the results of testing each of the research hypotheses, all of which were supported. First. H1 verifies that FSSB has a positive effect on employee engagement, suggesting that FSSB is effective in enhancing employee engagement and motivation at work.

H2 shows that work-family enrichment mediates the relationship between FSSB and employee engagement, further suggesting that FSSB indirectly enhances engagement by enhancing the positive interactions between an employee's work and family. H3 and H4 validate the cross-layer moderating effects of managerial experience and team relationship balance on the relationship between FSSB and work-family enrichment, which suggests that there are differences in the effects of FSSB on work-family enrichment under different levels of managerial experience and team relationship status. H5 focuses on the psychological factors of employees, suggesting that employees' emotional wellbeing and their recipients' beneficiary gratitude plays a sequential mediating role, suggesting that these psychological factors play an important conductive role in the path of FSSB. H6, on the other hand, points out the cross-layer positive moderating effect of firm power distance on the relationship between FSSB and employee engagement, i.e., the positive effect of FSSB on employee engagement is more significant in contexts where power distance is greater.

Table 4.27 Research hypotheses

Hypothesis	Result
H1: FSSB enhances employee work engagement.	Accepted
H2: Work-family enrichment plays a mediating role between FSSB and employee work engagement.	Accepted
H3: Managerial experience plays a positive cross-layer moderating role between FSSB and work-family enrichment, and higher managerial experience amplifies the positive effect of FSSB on work-family enrichment.	Rejected
H4: Team relationship balance plays a negative cross-layer moderating role between FSSB and work-family enrichment, and higher team relationship balance mitigates the positive effect of FSSB on work-family enrichment.	Accepted
H5: Employee emotional wellbeing and beneficiary gratitude play a sequential mediating role in the positive effect of FSSB on employee engagement. FSSB positively influences employee engagement sequentially through emotional wellbeing and beneficiary gratitude.	Accepted
H6: Power distance plays a positive cross-layer moderating role between FSSB and employee engagement, and higher power distance amplifies the positive effect of FSSB on employee engagement.	Accepted

Comprehensive analysis of the above hypothesis testing results reveals that FSSB significantly plays a positive role in enhancing employee engagement and promoting work-family enrichment. Beneficiary gratitude, team relationship balance, and emotional well-being play important mediating and moderating roles in this process, while the influence of managerial experience and power distance is relatively weak. Comparison of HLM with the mechanism tests of the samples in different survey periods shows that as the diary study goes deeper, the explanatory and moderating mediator mechanism of the FSSB on employee engagement is gradually revealed and strengthened from the early stage to the late stage. These findings provide valuable theoretical basis for enterprise management practices, suggesting that

companies should value the role of supervisors in supporting employees' families in management, while also paying attention to employees' emotional well-being and team relationship building, to further enhance employee work enthusiasm and organizational effectiveness.

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Chapter 5: Conclusions and Discussions

5.1 Conclusions

5.1.1 Significant positive impact of FSSB on employee engagement

The results of this study indicate that FSSB has a significant positive effect on employee engagement. This finding is consistent with the findings of the existing literature that FSSB, as a positive organizational resource, is effective in increasing employees' work engagement and organizational identification (Bakker & Demerouti, 2007; Hammer et al., 2009). However, unlike previous studies, which mostly focused on Western corporate contexts, this study takes Chinese small and medium-sized transportation firms' driving team members as the research subjects, further highlighting the important role of FSSB in specific cultural and industrial contexts, and enriching the existing theoretical framework on the influence mechanism of FSSB. Through the theoretical lens of the job-demand-resource (JD-R) model, this study emphasizes the importance of FSSB as a key resource to alleviate employees' job-demand stress. Previous studies have pointed out the central role of job resources in the enhancement of employee engagement (Bakker & Demerouti, 2007; Bauer et al., 2014), but less attention has been paid to the practice in specific organizational contexts, especially in SMEs. This study adds to this research theoretical gap and finds that FSSB is particularly important for SME transportation company driving team members due to the intense workload and frequent family separation conditions arising from frequent long-distance transportation assignments, and that supervisors effectively reduce the stress of employees' family responsibilities through specific supportive behaviors such as reasonable work time allocation, flexible leave arrangements, and emotional care, thereby promoting their job satisfaction and engagement.

The contribution of this study at the practice level is reflected in the clarification of the specific implementation paths and conditions of FSSB in organizational management practices. While previous literature has indicated that FSSB facilitates employee engagement (Hammer et al., 2009; Mazzetti et al., 2023), the specific implementation paths are still under-explored. This study further refines the management strategy by suggesting that in resource-limited SME environments, business managers should effectively respond to employees' work-family conflicts through targeted FSSB initiatives, such as implementing flexible work arrangements

and providing psychological support for family issues. This practical insight not only provides specific operational recommendations for firms, but also provides a theoretical basis for future management practices. This study extends the applicable context and cultural background of the effect of FSSB on employee engagement at the theoretical level, highlighting the moderating role of cultural factors and organizational size in this relationship. The study also provides a clear practical path for managers to implement family supportive behaviors, which can help companies effectively improve employee engagement and organizational performance, especially in the environment of small and medium-sized enterprises with relatively limited resources and high employee pressure, and has important theoretical value and practical significance.

5.1.2 Significant mediating effect of work-family enrichment

This study explores the effects of FSSB on work-family enrichment as well as employee engagement. The results show that FSSB significantly promotes the positive transformation of employees' work experience to the family domain and forms a virtuous cycle of interaction between work and family among driving teams members of a local small and medium-sized transportation firm in China. Existing literature suggests that work-family enrichment reflects employees' feedback of positive emotions, fulfillment, and resources gained in the work domain to the family domain, which in turn strengthens employees' engagement at work (Le et al., 2020; Meira & Hancer, 2021). The findings of this study are generally consistent with existing research findings that FSSB effectively enhances employees' positive experiences and satisfaction in the work domain by providing resources and emotional support, further contributing to the generation and sustainability of work-family enrichment.

Unlike previous studies that have mostly focused on general corporate employees, this study pays special attention to a specific group of driving team members in a Chinese small and medium-sized transportation firm. This group generally faces a special working environment of high intensity and frequent missions, resulting in significantly higher work-family balance stress than employees in other industries (Tsen et al., 2022). By focusing on this specific group, this study enriches the existing literature on the mechanisms influencing work-family enrichment and FSSB, and further expands the applicability of social exchange theory in different cultural and industry contexts. The study reveals that driving team members are able to more effectively transfer positive experiences at work to the family domain and reflect higher levels of work dedication after perceiving flexible work arrangements and emotional attention

provided by their supervisors. This finding validates the principle of reciprocal interaction emphasized by social exchange theory, which states that employees' positive perceptions of supervisors' support significantly strengthen employees' engagement.

The theoretical contributions of this study are mainly in the following two aspects. On the one hand, this study clarifies the boundaries of the applicability of the FSSB to the work-family enrichment mechanism of action, confirms its validity among the members of the driving teams of a regional small and medium-sized transportation firm in China, and provides empirical evidence for the application of the social exchange theory to specific occupational groups. On the other hand, the study refines the cultural contextual explanation of work-family enrichment theory, further revealing the unique role that leader supportive behaviors in the Chinese cultural context produce on the employee family domain. In terms of practical implications, the study suggests that small and medium-sized transportation firms should focus on training their supervisors to implement family supportive behaviors, and guide managers to pay attention to the individual needs and emotional experiences of their employees, which includes rationalizing working hours, providing flexible working patterns, and psychological support. In this way, companies can not only enhance the well-being of employees in the family domain, but also effectively contribute to the improvement of overall employee engagement and organizational performance.

5.1.3 Significant sequential mediating effect of emotional wellbeing and beneficiary gratitude

Based on the social exchange theory, this study explores the mechanism of FSSB on employee engagement, especially analyzing the moderating and mediating roles of emotional well-being and beneficiary gratitude. The findings suggest that after receiving FSSB, driving team members in a Chinese regional small and medium-sized transportation firm can effectively enhance their work engagement through emotional wellbeing and gratitude mechanisms. This is consistent with related findings in the existing literature that employees who feel family support from their organizations and leaders tend to give back to their organizations through more positive work attitudes and behaviors in order to achieve resource exchange and emotional reward in reciprocal relationships (Hammer et al., 2011; Russo et al., 2018).

Comparisons with the existing literature find that the present study further clarifies the important moderating role of emotional wellbeing between FSSB and work-family enrichment. Odle-Dusseau et al. (2012) note that an individual's ability to regulate his or her emotions can

determine the degree to which he or she responds to leadership support, and that employees with good emotional wellbeing are more able to take full advantage of the resources provided by their leaders to positively cope with the work-family challenges and stresses between work and family. The findings of this study are consistent with this viewpoint and emphasize the importance of emotional wellbeing in the specific context of the transportation industry. Due to the high work pressure and frequent work-family conflicts in the transportation industry (Tsen et al., 2022), employees with good emotional wellbeing are more effective in translating support from their supervisors into positive emotional experiences and work performance, which in turn enhances their engagement and loyalty to the organization.

In addition, this study identifies beneficiary gratitude as a key mediating variable in the relationship between FSSB and employee engagement. It has been noted that when employees perceive support from their organizations or supervisors, they develop a strong sense of beneficiary gratitude, which increases their work engagement and organizational loyalty (Eisenbeiss et al., 2008; N. Yin, 2018). This study further confirms that the psychological mechanism of beneficiary gratitude is particularly significant in the context of small and medium-sized transportation firms in China, as evidenced by employees' willingness to reciprocate with higher levels of engagement when they perceive flexible work arrangements and emotional support provided by their supervisors. This finding not only extends the applicable context of social exchange theory, but also clarifies the specific effect path of leadership supportive behaviors in the Chinese context.

In terms of theoretical contributions, this study complements the application of the social exchange theory in China's specific industry context, and deepens the understanding of the relationship between FSSB and employee engagement by the mechanisms of emotional wellbeing and beneficiary gratitude. In terms of practical implications, managers should pay attention to employees' emotional wellbeing and provide more targeted support measures, such as psychological counseling and stress relief mechanisms. In addition, they should enhance employees' sense of gratitude by improving FSSB, thus stimulating employees' higher work enthusiasm and organizational loyalty, and thus achieving the improvement of overall corporate performance.

5.1.4 Insignificant cross-layer moderating effect of managerial experience

The moderating effect of managerial experience is not significant, and the level of managerial experience is not sufficient to change the mechanism of the effect of FSSB on employee work-

family enrichment. Although managerial experience may be important in other aspects of employee performance, its effect is not significant in the relationship between FSSB and work-family enrichment.

Analyzing the phenomenon that managerial experience does not significantly moderate the relationship between FSSB and work-family enrichment from the Leader-Member Exchange (LMX) theory reveals the underlying mechanisms. The LMX theory emphasizes the impact of the quality of interaction between leaders and subordinates on work outcomes (Day & Mircenko, 2016; Liden et al., 1997). In Chinese regional SMEs, interactions between driving team members and managers rely more on the quality of individual relationships than on managers' accumulated experience. The LMX theory suggests that high-quality leader-member relationships (LMX) promote trust, respect, and a sense of obligation (Nie & Lamsa, 2015), and that these relational traits have a more direct and significant effect on FSSB and work-family enrichment. Managerial experience, while important in decision-making and technical guidance, may have a more limited role in promoting high-quality FSSB. Specifically, FSSB emphasizes managers' understanding and support of employees' family needs (Major & Lauzun, 2010), which relies more on managers' empathy and communication skills than on their level of experience.

In the context of small and medium-sized transportation firms, the work environment and family needs of driving team members are highly individualized and variable, and managers need to be flexible in responding to and providing individualized support (Bagger & Li, 2014; Russo et al., 2018). High-quality LMX relationships mean that managers are better able to understand and respond to the individual needs of their crew members, thereby effectively facilitating work-family enrichment. Experienced managers may not necessarily have higher emotional intelligence or better communication skills (Gardenswartz et al., 2008; Mayer et al., 2001; Mersino, 2013), and thus were unable to significantly enhance the effect of FSSB on work-family enrichment.

Managerial experience did not significantly moderate the relationship between FSSB and work-family enrichment, mainly because LMX quality plays a more critical role in this process. Small and medium-sized transportation firms should focus on improving the quality of interaction between managers and crew members, and developing managers' emotional intelligence and communication skills to enhance the effectiveness of FSSB, which in turn promotes employees' work-family enrichment.

5.1.5 Significant cross-layer moderating effect of power distance

Based on the Leader-Member Exchange (LMX) theory, this study explores the cross-layer moderating role of power distance in the process of FSSB affecting employee engagement. It was found that power distance reinforces the positive impact of FSSB on employee engagement by moderating the quality of the relationship between leaders and employees. This finding is consistent with the existing literature. It has been shown that high-quality LMX relationships usually enhance employees' organizational trust and engagement, and that the greater the power distance, the greater the employees' dependence on the leaders' behaviors, and the resources and support provided by their supervisors are more likely to be regarded as precious and scarce organizational resources by employees (Eisenbeiss et al., 2008; N. Yin, 2018).

Unlike previous literature, this study further emphasizes the cross-layer mechanism of power distance. While much of the existing research focuses on the impact of organizational-level power distance on general managerial behavior, this study specifically reveals how power distance specifically acts on the specific leadership behavior of FSSB, highlighting the importance and specificity of supervisors' provision of family support to employees in organizational contexts with high power distance. Employees in high power distance contexts tend to interpret their supervisors' family support behaviors as special care outside of their roles, inspiring a stronger sense of belonging and motivation to work.

In terms of theoretical contributions, this study expands the scope of application of LMX theory in power distance situations, specifically explains the moderating mechanism of organizational cultural traits on the efficacy of leadership behaviors, and deepens the understanding of the role path of FSSB. In terms of practical insights, organizations, especially those with large power distance, should focus on cultivating leaders' awareness of family supportive behaviors in order to enhance employee engagement and organizational cohesion more effectively. Meanwhile, managers need to be aware of the positive moderating effect of power distance on the effectiveness of leadership behaviors, so that they can implement leadership strategies more accurately to achieve the overall improvement of organizational performance.

5.1.6 Significant cross-layer moderating effect of team relationship balance

This study examines the role of team relationship balance in FSSB facilitating employee work-family enrichment. It reveals that team relationship balance functions as a negative moderator between FSSB and work-family enrichment, such that higher team relationship balance

mitigates the positive effect of FSSB on work family enrichment. This moderation effect derives plausible explanations from cultural factors in the Chinese setting.

Chinese society has long emphasized the cultural values of “harmony as paramount” and “harmony generates prosperity”, and organizational leaders are expected to bear responsibility for maintaining team harmony and relationship balance within this context. Such harmony-oriented norms fundamentally shape organizational climates and collective behavioral expectations. However, an excessive prioritization of team relationship balance, particularly when conflated with superficial uniformity and conflict avoidance, may inadvertently undermine the positive impact of FSSB on work-family enrichment at both individual and team levels. At the individual level, employees tend to suppress or conceal authentic work-family conflict demands under the context that prioritizes collective harmony over individual needs (Fu et al., 2021). Furthermore, sustaining a superficial relationship balance necessitates continuous emotional labor. When employees experience heightened emotional exhaustion, their capacity to detect and utilize environmental support signals is compromised, impairing both recognition and interpretation of FSSB (Liao & Han, 2014). Consequently, the efficacy of FSSB in facilitating work-family enrichment is undermined. At the team level, ostensible harmony predominantly stems from conflict avoidance behaviors. This behavior prioritizes maintaining surface-level harmony over addressing real problems (Z. X. Zhang & Wei, 2017). High team relationship balance may obscure substantive issues beneath superficial harmony, which will engender deficient conflict resolution mechanisms when managing tensions arising from resource allocation or interpersonal dynamics. When employees perceive or anticipate inequitable distribution of FSSB resources, employees’ trust toward FSSB and willingness to accept support will be deteriorated. Moreover, underdeveloped conflict resolution mechanisms may fail to resolve interpersonal tensions or misunderstandings arising from FSSB. Employees’ perceptions of resource allocation inequity critically undermine psychological safety and support-efficacy beliefs (Long & Cheng, 2015). Consequently, high team relationship balance constitutes a barrier that subverts FSSB’s positive influence on work-family enrichment.

5.2 Existing problems

5.2.1 Hidden work-family conflicts behind the “face” of driving team members

In the daily operations of small and medium-sized driving teams, members often face significant work pressure and family responsibilities. However, due to the influence of “face”

culture, many members choose to hide the conflicts between work and family life, and refrain from seeking external help or support. This phenomenon not only exacerbates employees' psychological burdens but also has a negative impact on the overall work efficiency of the team and employees' work engagement.

First, the impact of face culture on driving team members' behavior. In many Asian cultures, face culture is a deeply ingrained social psychological phenomenon. In driving teams of small and medium-sized enterprises, members are often deeply influenced by this culture, leading them to choose to endure conflicts between work and family life, rather than seek help. During the diary study, several members mentioned that they feared exposing their issues would be seen as a sign of weakness or irresponsibility (Feng & Shan, 2020). This behavior of hiding conflicts not only prevents them from receiving the support and assistance they deserve but may also exacerbate the conflicts further (J. Gao, 2011).

Second, the consequences of hiding conflicts and the psychological burden. When driving team members hide work-family conflicts, they often feel immense psychological pressure. This pressure not only affects their emotional state but may also lead to long-term mental health issues (W. S. Wang et al., 2024). This psychological burden not only impacts individual work performance but also has a negative effect on the team's overall efficiency. If team members cannot receive psychological support, they struggle to form effective collaboration and communication, further weakening the team's cohesion and morale.

Third, organizational cultural factors that discourage seeking external help. In driving teams of small and medium-sized enterprises, organizational culture also plays a significant role in discouraging team members from seeking external help. Traditional authoritarian management styles and highly competitive work environments create numerous barriers for employees when expressing personal needs or seeking assistance (L. K. Wang, 2014). One surveyed employee noted, "Our company has strict management; leaders typically focus on results and pay little attention to challenges during the process. Employees also avoid showing weaknesses in front of leaders." In this organizational culture, members tend to endure challenges on their own, fearing that exposing issues could harm their career prospects. Another surveyed employee remarked, "Here, everyone wants to show their strong side, afraid that leaders might think they're not capable, which could affect future promotions." This concern about career prospects leads members to hide issues when facing work-family conflicts rather than seek external help and support.

Fourth, the impact of hiding conflicts on team performance and employee engagement. Driving team members' hiding work-family conflicts not only negatively affects their mental

health and work performance but also has adverse effects on the team's overall performance and employee engagement. Over time, this behavior has led to a lack of necessary communication and support within the team, resulting in reduced trust among team members and decreased collaboration efficiency (Zhou et al., 2016). One surveyed employee mentioned, "Sometimes we don't even know what each other is going through, lacking communication and understanding, so we don't work as smoothly together." This lack of communication and support in the workplace leaves team members feeling isolated and unable to collaborate effectively when facing challenges. Another surveyed employee stated, "If everyone could be more open and supportive of one another, our work might go more smoothly." This opinion highlights the importance of communication and support within the team. The tendency to hide conflicts makes it difficult for employees to develop a positive work attitude and high levels of dedication (C. G. Mao & Sun, 2011).

As can be seen, driving team members often actively hide work-family conflicts due to concerns about "face," and refrain from seeking external help or support. This phenomenon is widespread in driving teams in small and medium-sized enterprises. Factors such as "face" culture, psychological burdens, organizational culture, and team performance all contribute to making this issue difficult to resolve. It is evident that hiding conflicts not only negatively impacts an individual's mental health and work performance but also adversely affects the team's overall efficiency and employees' work engagement. Resolving this issue requires a profound reevaluation of organizational culture and management practices to establish a more open and supportive work environment, thereby enhancing employee satisfaction and dedication.

5.2.2 Leaders' FSSB trade-off dilemmas with employees' beneficiary gratitude differences

In small private domestic transportation companies, leaders have widely adopted FSSB as a management strategy to enhance employee work engagement. However, due to significant differences in employees' perceptions of gratitude for the benefits received, leaders face complex trade-offs when implementing FSSB. These differences not only impact the actual effectiveness of supportive behaviors but also present numerous challenges for leadership management.

First, the impact of differences in gratitude for benefits received on the effectiveness of FSSB implementation. In small private domestic transportation companies, employees respond differently to the support behaviors provided by leaders (S. Y. Wang et al., 2018), and the

significant differences in gratitude levels significantly impact the effectiveness of FSSB implementation. Different employees have varying perceptions and responses to the same support behaviors. One surveyed employee stated, “When the leader allowed me to flexibly arrange my work schedule to care for my family, I was deeply grateful and felt that the leader truly cares about us.” This sense of gratitude enhances employees’ loyalty and commitment to the company, thereby improving work engagement. However, another surveyed employee had a different perspective, “Although leaders have provided support in some areas, I feel that such support is deserved, as our work is also quite demanding.” This lack of gratitude diminishes the effectiveness of FSSB, as employees view leaders’ supportive behaviors as a given and fail to respond positively. Such differences make it challenging for leaders to predict and measure the actual effects of their behaviors when implementing FSSB, thereby increasing management complexity (G. Liang et al., 2014).

Second, psychological and cultural factors contributing to employee gratitude differences. Employees’ varying responses to gratitude for benefits stem from multiple psychological and cultural factors. During the survey, several employees mentioned that personal background, upbringing, and cultural perceptions influence their perceptions of supportive behaviors (Zeng & Zhang, 2016). One surveyed employee noted, “I grew up in a family that emphasized mutual support, so I am accustomed to gratitude and reciprocity. When leaders provide support, I feel deeply moved and want to reciprocate.” This background makes employees more likely to perceive leaders’ care and willing to repay the company with higher work commitment. Conversely, another surveyed employee mentioned, “In our culture, people typically do not express special gratitude for leaders’ supportive behaviors, viewing them as the leaders’ responsibility.” This cultural perception leads to weaker feelings of gratitude toward supportive behaviors, viewing support as the leader’s obligation rather than extra care. These psychological and cultural differences mean that leaders must consider individual backgrounds and perceptions when implementing FSSB, yet this is extremely challenging in practice (N. Y. Tang & Zhang, 2015).

Third, the managerial dilemma of balancing FSSB. Leaders must weigh various factors when implementing FSSB to ensure the fairness and effectiveness of supportive behaviors. However, differences in gratitude among beneficiaries make this balancing act extremely complex. During the diary study, several leaders mentioned that they often faced the dilemma of how to fairly allocate resources and support when providing assistance (J. Liu, 2009). One leader stated, “We aim to be fair when supporting employees, but some employees express particular gratitude, while others take it for granted, making it difficult for us to strike a balance.”

This trade-off dilemma not only increases leaders' management pressure but may also lead to feelings of unfairness and conflicts within the team (Y. H. Zou, 2005). One surveyed employee mentioned, "Seeing some colleagues receive more support while they don't express much gratitude makes me feel a bit unfair." Such feelings may trigger internal tensions within the team, affecting the overall work atmosphere and team collaboration. When faced with differences in gratitude, leaders may develop biases, tending to prefer supporting employees who express stronger gratitude, thereby further exacerbating feelings of unfairness (Z. Wang, 2013).

Fourth, the impact of gratitude differences on organizational performance. Employee perceptions of gratitude differences not only affect the implementation effectiveness of FSSB but also have a profound impact on the organization's overall performance. Through diary study analysis, gratitude differences lead to fluctuations in employee engagement and organizational loyalty, thereby affecting the team's overall performance (Y. R. Guo et al., 2021). One surveyed employee noted, "Colleagues who are particularly grateful for leadership support work more enthusiastically, and the team atmosphere is better." This positive sense of gratitude promotes team cohesion and cooperation, enhancing overall work efficiency. However, differences in gratitude can also have negative effects. One surveyed employee mentioned: "Some people take leadership support for granted and do not make significant improvements in their work, which has a certain negative impact on the team." This lack of gratitude not only reduces individual work commitment but may also affect the team's overall morale and work atmosphere. When implementing FSSB, if leaders cannot effectively manage and balance these differences, they will struggle to achieve the desired management outcomes, thereby impacting the organization's long-term development.

In summary, significant differences in employee beneficiary gratitude exist within small private domestic transportation companies, presenting leaders with complex trade-off dilemmas when implementing FSSB. Employees' responses to gratitude for benefits are influenced by various psychological and cultural factors, making it challenging for leaders to ensure fairness and effectiveness when providing support. When leaders weigh these factors, they face management pressures and challenges that not only affect the team's sense of internal fairness but also have a profound impact on the organization's overall performance. Through in-depth analysis, it can be seen that addressing the impact of beneficiary gratitude differences on FSSB implementation requires profound reflection and adjustments in management strategies and organizational culture to enhance employee engagement and the organization's overall performance.

5.2.3 Challenges in skills and psychological training due to task succession and cost pressures

Managers and driving team members of small private domestic transportation companies have long faced continuous back-to-back tasks and significant cost pressures, leading to a lack of skill and psychological training, which in turn has reduced employee engagement. The high frequency of back-to-back tasks leaves employees with little time to participate in skill training (Q. Gao, 2006). One member mentioned, “Our tasks come one after another. When training notifications come down, we simply can’t find the time to attend.” Managers also face similar challenges, as they aim to enhance their management skills but are constantly occupied by various urgent tasks, leaving no time for training (Yi, 2008). Another manager stated, “We are constantly dealing with emergencies, so training is repeatedly postponed.” Due to the lack of systematic skill training, employees’ professional competence cannot be improved, affecting work efficiency and quality, which directly reduces their engagement levels.

Cost pressures further limit investment in training resources, with limited budgets making training an easily overlooked expense. Several managers pointed out that when allocating budgets, the company prioritizes maintaining daily operations and addressing emergencies, while training is viewed as a secondary matter (Y. Wei, 2025). One manager admitted, “We know training is important, but funds are tight, and the training budget is very limited.” This situation leaves employees without adequate support for skill development, forcing them to rely on experience and intuition. The psychological stress caused by high-intensity work and consecutive tasks is not effectively addressed, and the absence of psychological training makes it difficult for employees to cope with stress (K. Zhao, 2016). A member stated, “Long hours of high-pressure work have left us physically and mentally exhausted, and the company has not provided psychological support, leading to a decline in our work enthusiasm.” The lack of psychological support and training makes it difficult for employees to maintain positivity and engagement in high-pressure environments (R. J. Mao & You, 2016; Q. Q. Wang et al., 2025), increasing the risk of errors in the workplace. This situation not only impacts the company’s operational efficiency but also hinders employees’ career development.

5.2.4 Difficulty in measuring individual employee engagement in team collaboration

In small private domestic transportation companies, team collaboration among driving teams is the core operational model. The performance and contributions of each member are critical to the team’s overall success. However, in this highly collaborative environment, measuring the

engagement of individual members presents significant challenges. This issue not only affects the accurate assessment of employee performance but also poses a severe challenge to the company's management and incentive mechanisms.

First, the impact of the team collaboration model on engagement measurement. In small private transportation companies, tasks are typically completed through close collaboration, with each member playing distinct roles and contributing their specialized skills. While this collaborative model enhances task efficiency, it also makes it difficult to independently assess the performance of individual members (J. Guo & Liang, 2005; L. B. Zhang, 2007). Several surveyed employees noted that team collaboration often obscures individual contributions behind the team's overall performance. One member stated, "Our work is completed through team collaboration, so it's hard to pinpoint exactly who contributed how much." This situation makes it difficult to accurately measure individual members' commitment and performance during engagement assessments. Another surveyed employee pointed out, "Even if I work very hard, my individual efforts are often overlooked in the face of team performance." This ambiguity in evaluation undermines the precision and objectivity of engagement measurement, affecting employees' trust and acceptance of performance evaluations.

Second, the complexity of the relationship between individual contributions and team performance. In driving team collaboration, the relationship between individual contributions and team performance is complex, further complicating the measurement of engagement. Due to the diversity and complexity of tasks, it is difficult to clearly delineate the contribution ratios of different members across various tasks (R. Y. Zhao et al., 2014). A member mentioned, "In some complex tasks, everyone has different responsibilities. Sometimes the part I am responsible for may require more time and effort, but these details are hard to quantify in the final evaluation. Mutual assistance and support among team members are also key characteristics of team collaboration. In such cases, an outstanding performance by a particular member in a specific task may have been achieved with the support of other members. A manager noted, "Our team works very closely together, with members supporting one another, making it difficult to evaluate the performance of any individual member in isolation." This interdependent and supportive work style further complicates the measurement of individual members' engagement (B. Guo & Wang, 2003), making it challenging to assess accurately using traditional performance evaluation methods.

Third, subjectivity and bias within the team. In team collaboration, subjectivity and bias also significantly impact the measurement of individual engagement. Several team members reported that internal relationships and interactions often affect the objectivity of engagement

assessments (Qiu & Hu, 2015). One surveyed employee stated, “In our team, evaluations are sometimes not entirely based on actual contributions but are influenced by interpersonal relationships.” This subjectivity and bias make engagement assessments unfair, affecting employees’ work motivation and team cohesion (X. Liu & Li, 2014). Another surveyed employee pointed out, “Sometimes leaders have preferences for certain members, whose performance is overestimated, while the efforts of other members are overlooked. This phenomenon is particularly evident in small teams, where interactions among team members and leaders’ personal preferences can influence the results of engagement assessments. Such an unfair evaluation mechanism not only dampens employees’ motivation but may also trigger internal conflicts and dissatisfaction, affecting the team’s overall performance.

Fourth, the challenges of measuring engagement and their impact on organizational management. The difficulty of measuring individual engagement has profound implications for organizational management and incentive mechanisms. During the diary study, several managers mentioned that due to the inability to accurately assess each member’s engagement, they faced numerous challenges when designing incentive measures (J. Yin, 2011). One manager stated, “We aim to motivate employees through performance evaluations, but the current evaluation mechanism struggles to accurately reflect everyone’s contributions, rendering our incentive measures ineffective.” The challenges in measuring engagement also impact employees’ career development and promotion opportunities (W. Wang & Fang, 2015). A crew member mentioned, “I have always worked hard, but my performance is often overlooked in team evaluations, affecting my promotion opportunities.” This situation not only affects employees’ career development prospects but may also lead to the loss of outstanding employees, further impacting the company’s long-term development.

In summary, small private domestic transportation companies face significant challenges in measuring individual engagement within team collaboration. The characteristics of team collaboration models, the complex relationship between individual contributions and team performance, internal subjectivity and bias, and the impact of these factors on organizational management and incentive mechanisms are the underlying causes of this issue. It is evident that addressing this issue requires profound reflection and adjustments to performance evaluation mechanisms and team management approaches to ensure that each member’s efforts and contributions are fairly and impartially evaluated, thereby enhancing employee work enthusiasm and dedication and promoting the company’s sustainable development.

5.3 Systematic solutions based on empirical findings

5.3.1 Work-family balance: constructing a corporate culture with open trust

By fostering an open and trusting corporate culture, implementing family-friendly policies, and enhancing employees' sense of participation and belonging, small private local transportation companies can effectively solve the problem of team members hiding work-family conflicts under the "face-saving" culture. These strategies consider the company's financial and space constraints on the one hand, and on the other hand, they are well adapted to the high-intensity work environment, which can enhance employees' job satisfaction and overall engagement. Through these measures, the company can create a more humane and supportive working environment, enhance employees' sense of belonging and loyalty, and thus promote the long-term development and competitiveness of the company.

First, creating a corporate culture of openness and trust. In small private local transportation companies, due to limited funds and office space, and heavy daily vehicle transportation tasks, employees often choose to hide work-family conflicts to save "face". To solve this problem, companies need to work on creating a culture of openness and trust. First and foremost, leadership must take the lead in demonstrating openness and inclusiveness, encouraging employees to express their difficulties and needs. Leaders can take the initiative to understand what is really going on with employees and show understanding and support through regular one-on-one conversations and team meetings (Vroman, 2019). Second, companies can set up anonymous suggestion boxes or online feedback channels for employees to express their concerns and suggestions in a stress-free environment. Through these measures, employees will gradually feel that the company values and cares about them, and thus be more willing to share their dilemmas. In addition, training leadership and managers on how to effectively listen and respond to employees is key to creating a culture of trust. This corporate culture not only helps employees better balance work and family, but also enhances their sense of belonging and satisfaction.

Second, implementing family-friendly policies. With limited funds and office space, small private local transportation companies can help employees resolve work-family conflicts by implementing flexible and cost-effective family-friendly policies. These policies do not require large-scale investment, but can significantly enhance employees' happiness and dedication. First, companies can provide flexible working hours and shift systems so that employees can flexibly arrange their time to attend to family matters without affecting their work (Crain &

Stevens, 2018). For team members who need to transport children or take care of family members, they can be allowed to adjust the time of their outbound assignments. Second, the company can establish emergency family leave so that employees can take time off to deal with family emergencies without worrying about work being affected. In addition, the company can organize family day activities and invite employees' family members to participate, which not only enhances the relationship between employees, but also allows employees' families to have a deeper understanding and recognition of the company's working environment.

5.3.2 Co-construction and development: employees' participation in the construction of the company's decision-making and development model

When facing the leadership FSSB trade-off dilemma of employee beneficiary gratitude differences, small private local transportation companies can effectively alleviate this dilemma by strengthening employee participation and decision-making rights, optimizing resource allocation and workflow, and constructing a fair and transparent standard mechanism.

First, in the face of the leadership FSSB trade-off dilemma, companies should strengthen employee participation and decision-making rights. By establishing an employee representative system or setting up an employee participation committee, employees can have a more direct say and sense of participation in the company's management decisions (Hammer et al., 2007). This approach not only enhances employees' sense of belonging and gratitude, but also helps leaders get more support and understanding when implementing FSSB. Specifically, regular staff meetings or group discussions can be held to discuss the actual problems and challenges facing the company, allowing employees to put forward their opinions and suggestions and adopting them within a reasonable range. This can effectively alleviate the pressure on leaders in providing supportive behaviors and avoid internal conflicts caused by uneven benefits. At the same time, employee participation can also bring more innovative thinking and practical solutions, which can help improve the overall operational efficiency of the company.

Second, optimizing resource allocation and workflow. Considering the company's limited funds and office space as well as the heavy daily transportation tasks, it is necessary to optimize resource allocation and workflow. By rationally arranging and scheduling transportation tasks, waste of resources and time can be reduced as much as possible. Information technology means can be used to establish an intelligent scheduling system to dynamically adjust the transportation plan according to real-time data and improve the utilization efficiency of vehicles and manpower (X. Jin et al., 2019). In addition, flexible working mechanisms, such as time-

sharing or flexible working system, can be introduced to alleviate the work pressure of employees (X. Y. Liu, 2021), so that they can feel the company's respect and attention to their labor when getting supportive behaviors. Where office space is limited, the use of shared office space or telecommuting technology can be considered to reduce unnecessary space rental costs (Lin, 2019). These measures can not only save the company's costs, but also improve employee satisfaction and work efficiency, thus realizing the best management results with limited resources.

Third, building a fair and transparent standard mechanism. Establishing a fair and transparent standard mechanism is an important means to solve the difference between employee benefits and gratitude. Due to the limited resources of the company, it is impossible to provide the same material standard to all employees, so it is necessary to design a standard mechanism that can fully stimulate the internal motivation of employees. Diversified forms of rewards can be introduced, such as a combination of non-material rewards (e.g., honorary titles, excellent employee recognition) and small material rewards (Z. H. Gao & Zhao, 2007), to standardize employee motivation and loyalty. In the implementation of the standard mechanism, it is important to ensure its transparency and fairness, so that all employees can see the fairness and consistency of the company's standards through clear criteria and open selection procedures (Xue & Sun, 2006). In addition, teamwork can be encouraged to strengthen the spirit of cooperation and sense of team belonging among employees through team performance rewards, thus enhancing the company's working atmosphere and efficiency in general (W. H. Liu, 2007). Through these measures, leaders can be more comfortable in providing FSSB, reduce management dilemmas caused by gratitude differences, and achieve more effective team management.

5.3.3 Shared growth: flexible training arrangements and resource sharing and cooperation

Small private local transportation companies can solve skill and psychological training challenges through flexible training arrangements, resource sharing and cooperation, and the creation of internal knowledge sharing platforms. This can reduce training costs and the impact on daily work, but also enhance the effectiveness of training and the overall quality of staff, thus providing a solid talent guarantee for the company's long-term development.

First, flexible training arrangements. In small private local transportation companies, flexible training arrangements is an important strategy to deal with the skills and psychological

training challenges. Due to the heavy daily transportation tasks, the traditional centralized training mode is difficult to implement, flexible training arrangements can better adapt to the staff's working hours and task requirements. Specifically, a hybrid training model combining online and offline can be used. Online training is conducted through online courses, video teaching and virtual classrooms (Joo et al., 2023), and employees can use fragmented time to learn anytime, anywhere, while offline training is focused on the time when the work tasks are relatively small or by using weekends and holidays. In this way, it does not affect the daily work and can ensure the continuity and effectiveness of training. In addition, micro-courses and modularized training can be used to break down the training content into a few short and concise modules so that employees can master key skills in a short period of time. Through flexible training arrangements, not only can reduce the interference of training on daily work, but also improve the relevance and effectiveness of training.

Second, resource sharing and cooperation. To alleviate the cost pressure and site constraints, small private local transportation companies can achieve training goals through resource sharing and cooperation. First, they can cooperate with other local enterprises or industry associations to jointly conduct training programs. By sharing training resources, such as training instructors, training venues, and teaching materials with partners, not only can the training costs of individual enterprises be reduced, but also the training content can be broadened and the training quality can be improved (C. Wang et al., 2020). In addition, cooperation with vocational colleges or training institutions can be explored to provide employees with more systematic and professional training courses by leveraging the professional training resources of these institutions. The professional courses of vocational colleges and universities can be introduced into the enterprise training system through the form of school-enterprise cooperation, or experts from training institutions can be invited to give lectures and guidance to enterprises on a regular basis. Through resource sharing and cooperation, the company can effectively relieve the pressure of funds and venues in training, and improve the skill level and professionalism of employees.

Third, creating an internal knowledge sharing platform. In addition to external resource sharing and cooperation, creating an internal knowledge sharing platform is also an effective way to solve training challenges (C. Wang et al., 2020). The internal knowledge sharing platform can be used to systematize and share employees' experience, skills and knowledge by building an internal corporate network, forum or WeChat public account. An internal WeChat public community or a corporate WeChat knowledge base can be set up, where experienced employees write professional articles, operation guides and training manuals for other

employees' reference and learning (Deng et al., 2023). At the same time, experience exchange and skill sharing among employees can be encouraged, through internal lectures, WeChat group discussions and seminars, so that employees can learn from each other and make progress together in their actual work. In addition, a mentorship system can be established, with senior employees or management serving as mentors to provide one-on-one guidance and training to new employees or employees with weaker skills (Joo et al., 2023). Through the internal knowledge sharing platform, not only can we make full use of the company's existing human resources, but also create a good learning atmosphere and teamwork spirit, to realize the continuous improvement of employees' skills and mental qualities under the conditions of limited resources.

5.3.4 Multiple evaluations: multi-dimensional performance assessment and feedback mechanism

In small private local transportation companies, teamwork is the key to achieving efficient operations. However, due to heavy tasks and limited resources, individual employee engagement measurement has become a major problem, resulting in the failure to form an external constraint mechanism for overall employee dedication. To solve this problem, a multi-dimensional performance evaluation and feedback mechanism can be constructed through the concept of multi-dimensional evaluation to improve employee engagement and overall work performance.

First, multi-dimensional performance evaluation model. The establishment of a multidimensional performance evaluation model is the basis for solving the difficulty of measuring the engagement of individual employees. The traditional single performance evaluation is often difficult to fully reflect the actual contribution and work attitude of employees, while the multidimensional evaluation can be from multiple perspectives on the employee's all-round evaluation. Specifically, it can start from four main dimensions such as job performance, teamwork, innovation ability, and professional attitude (Ju et al., 2021). Work performance mainly assesses the efficiency and quality of employees in accomplishing specific tasks; teamwork assesses the performance of employees in teamwork, such as communication ability, cooperation spirit and team contribution; innovation ability measures the ability of employees to propose new methods and ideas in their work; and professional attitude focuses on employees' work motivation, responsibility and dedication. In the specific implementation, quantitative and qualitative indicators can be combined to ensure the objectivity and

comprehensiveness of the assessment through a combination of data analysis and behavioral observation. In this way, not only can we have a comprehensive understanding of the performance of the employees, but also find out the potential and shortcomings of the employees, and provide a basis for subsequent improvement.

Second, regular multi-dimensional feedback mechanism. Based on the establishment of a multi-dimensional performance evaluation model, the construction of a regular multi-dimensional feedback mechanism is a key step to improve employee engagement. The feedback mechanism should include immediate feedback, regular evaluation and multi-channel feedback (H. M. Chen, 2005). Immediate feedback can be realized through daily communication and management tools (e.g., instant messaging software) to ensure that employees are informed of their performance and suggestions for improvement. Regular appraisals can be conducted through monthly or quarterly performance review meetings, involving team leaders and coworkers to provide comprehensive and varied feedback. Multi-channel feedback includes feedback from supervisors, mutual evaluation by colleagues and self-assessment to ensure the diversity and comprehensiveness of feedback information. Through such a feedback mechanism, employees can keep abreast of their own work status and direction of improvement (L. Shen, 2012), which helps to improve work motivation and dedication. In addition, the feedback mechanism should also focus on constructive and motivational (Fong et al., 2021), by recognizing employees' strengths and efforts, while putting forward specific suggestions for improvement, to help employees continue to progress and grow in their work.

Third, the application and improvement of feedback results. The application and improvement of feedback results is the ultimate purpose of the multidimensional performance evaluation and feedback mechanism. For small private local transportation companies, how to effectively apply the assessment and feedback results to the actual work is the key to improving employee dedication and teamwork (Crain & Stevens, 2018). First, a personalized employee development plan can be developed based on the assessment results to provide targeted training and development opportunities for each employee's strengths and weaknesses (Muegge, 2019). For employees who excel in teamwork, consideration can be given to elevating their team management responsibilities and encouraging them to play a greater role; for employees who have potential in innovation ability, more innovative programs and opportunities can be given. Second, the results of assessment and feedback can be used as a basis for team building and work process improvement, optimizing work processes and teamwork mechanisms by analyzing common problems in employee feedback to enhance overall work efficiency and employee satisfaction (Nahar et al., 2022). Finally, through an open and transparent evaluation

and feedback mechanism, a fair and positive corporate culture is created to enhance employees' sense of belonging and work motivation (Tulshyan, 2024). In this way, not only can the problem of difficulties in measuring the engagement of individual employees be solved, but it can also promote overall teamwork and efficient company operations.

5.4 Contributions

The theoretical contributions of this study are mainly reflected in deepening the research on the mechanism of FSSB in the Chinese cultural context. First, the study expands the research perspective on Chinese frontline employees' work engagement by focusing on the analysis of FSSB as a key factor in motivating employees' engagement and revealing the moderating role of cultural factors in the path of FSSB's influence on employee engagement (Allen, 2001; Chi et al., 2023). This perspective provides a theoretical basis for understanding changes in Chinese employees' engagement when they are supported by their supervisors. Second, the study constructs and validates a model of the effect of FSSB on employee engagement, establishes the mediating roles of work-family enrichment, emotional wellbeing, and beneficiary gratitude in this relationship, and demonstrates how FSSB indirectly enhances engagement by improving employee work-family balance (Eby et al., 2013). The study also introduces managerial experience, power distance, and team relationship balance as cross-layer moderating variables and examines their moderating effects on the relationship between FSSB and work-family enrichment (Finkelstein et al., 2009; S. E. Kaplan et al., 2012), revealing idiosyncratic features of the cultural context. Third, the study explores the role of FSSB in team contexts, analyzes its potential to meet the individualized needs of different employees, and proposes the effects on the team as a whole when team members perceive different levels of FSSB, expanding the theoretical perspective of the cross-layer impact of FSSB and providing new doctrinal support for team building and management.

The practical contribution of this study is to provide specific and feasible operational guidance for modern enterprises to implement FSSB in employee management, aiming at solving the increasingly prominent "work-family" conflict of employees to enhance their dedication and productivity. First, the study verifies the positive role of FSSB in mitigating employee work-family conflict, which provides a new management strategy for business managers (H. X. Chen & Guan, 2021), and contributes to the creation of a supportive leadership model within the organization, which can enhance employee engagement. Second, research has demonstrated the value of supporting employees' work-family balance in enhancing employees'

psychological well-being and productivity, particularly by optimizing managerial experience and team relationships to further strengthen the management effects of FSSB (W. C. Guo & Cao, 2022; C. P. Li et al., 2023). This study emphasizes the impact of psychological support and affective management on employee engagement through the sequential mediating role of emotional wellbeing and beneficiary gratitude, providing a practical strategy for employee mental health management. Third, by regulating organizational power distance to enhance the effectiveness of FSSB, the study provides guidance for enterprises to achieve adaptability and diversity of management models in different cultural contexts, which can effectively promote the implementation of precision motivation in different cultural contexts and employee characteristics.

5.5 Limitations and future research

Although this study is innovative in exploring the mechanism of FSSB's influence on employee engagement, there are still some limitations. On the one hand, the sample is only from a single company, which may be difficult to comprehensively represent employee experiences in different industries and cultural environments, and the lack of breadth and representativeness of the sample may affect the generalizability of the findings. This study is mainly based on employees' self-reported data, which may result in a certain social expectation bias due to employees' subjective perception of FSSB, and may not fully reflect the actual effects of FSSB objectively. On the other hand, the study focuses on short-term behavioral observations and fails to fully consider the impact of long-term dynamic changes, and lacks an in-depth exploration of the enduring effects of FSSB, making it difficult to reveal the pattern of change and influencing factors of employee engagement in the long term.

Future research can enhance the generalizability and applicability of the findings by expanding the sample scope to cover more industries and cultural backgrounds. First, regarding sample size expansion, although this study selects 30 respondents and a diary study method spanning 12 consecutive working days to preliminarily validate the sequential mediation role and cross-layer moderation effects between variables, it is still necessary to increase the number of participants in future studies to improve the statistical power of the data and the accuracy of model testing. Future studies are to expand the sample size to over 100 respondents and adopt a diary method data collection approach with a longer time span (e.g., 30 days or more) to more effectively capture dynamic changes and long-term effects. Second, regarding the expansion of the research region, the data in this study comes from a single company, limiting the

generalizability of the results. Future research may further collect data across regions and industries, covering enterprises or institutions with different natures, management styles, and cultural backgrounds. By expanding the diversity of research regions and samples, the study will deeply analyze the influence of corporate management culture, local characteristics, and industry features on the relationship between FSSB and employee engagement, verify the applicability of research conclusions in different contexts, and enhance the external validity and academic contribution of the research conclusions.

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Annex A: Employees' Diary Questionnaire After Each Task (Structured)

1. Date:
2. Name:
3. Gender:
4. Years of Work (___years)
5. Education (primary school/junior high/senior high/3-year college/bachelor/master and above)
6. Position (Level ___)
7. Task Type (i.e. long/short-distance transportation, cargo type) :
8. I feel excited and committed in the task today. (1-5 points)
9. I am satisfied and proud of the results of the transportation task I completed today. (1-5 points)
10. I was willing to go the extra mile to make sure the task was completed, even when there were difficulties (e.g., traffic jams, cargo problems). (1-5 points)
11. My supervisor was understanding and supportive when dealing with family-related emergencies that arose during transportation task. (1-5 points)
12. My supervisor provided resources and assistance that enabled me to better balance transportation duties with family responsibilities. (1-5 points)
13. My supervisor encouraged me to balance my family and personal life with my busy transportation schedule. (1-5 points)
14. I feel grateful for my supervisor's support during transportation the assignment. (1-5 points)
15. I am willing to repay my supervisor's support and understanding by doing a better job in the transportation task. (1-5 points)
16. I think the transportation job has brought about positive changes in my family life. (1-5 points)
17. My family experiences have helped me deal more effectively with problems in transportation tasks. (1-5 points)
18. I felt that there was a good rapport among team members during today's transportation task. (1-5 points)
19. Effective communication and cooperation among team members contributed to the successful completion of the transportation task. (1-5 points)
20. My supervisor demonstrated extensive management experience when dealing with the complexities that arose during the transportation task. (1-5 points)
21. In performing the transportation task, I believed that the power distance within the team was reasonable. (1-5 points)
22. What specific situations or events during today's transportation task had an impact on your work dedication? Please explain with details.
23. What do you think could be done to improve FSSB in the transportation task? Please provide specific suggestions or ideas.
24. I often felt nervous, anxious, or rushed at this task.
25. I was often unable to stop or control worrying at this task.
26. I often worried too much about various things at this task.
27. I often had difficulty relaxing at this task.
28. I was often unable to sit still at this task because I was restless.
29. I often became easily annoyed or impatient at this task.
30. Often on this mission I felt as if something terrible was going to happen and was afraid.

Notes: The point in time for completing this diary should be as soon as possible after the completion of the transportation task, to ensure the accuracy and timeliness of the information. Employees are encouraged to answer open-ended questions in detail to exhibit their experiences and feelings during the transportation task.

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Annex B: Annex Tables and Figures

Annex Table 1 Research hypotheses

Research Hypotheses			
H1: FSSB enhances employee work engagement.			
H2: Work-family enrichment plays a mediating role between FSSB and employee work engagement.			
H3: Managerial experience plays a positive cross-layer moderating role between FSSB and work-family enrichment, and higher managerial experience amplifies the positive effect of FSSB on work-family enrichment.			
H4: Team relationship balance plays a negative cross-layer moderating role between FSSB and work-family enrichment, and higher team relationship balance mitigates the positive effect of FSSB on work-family enrichment.			
H5: Employee emotional wellbeing and beneficiary gratitude play a sequential mediating role in the positive effect of FSSB on employee engagement. FSSB positively influences employee engagement sequentially through emotional wellbeing and beneficiary gratitude.			
H6: Power distance plays a positive cross-layer moderating role between FSSB and employee engagement, and higher power distance amplifies the positive effect of FSSB on employee engagement.			

Annex Table 2 Information of survey samples

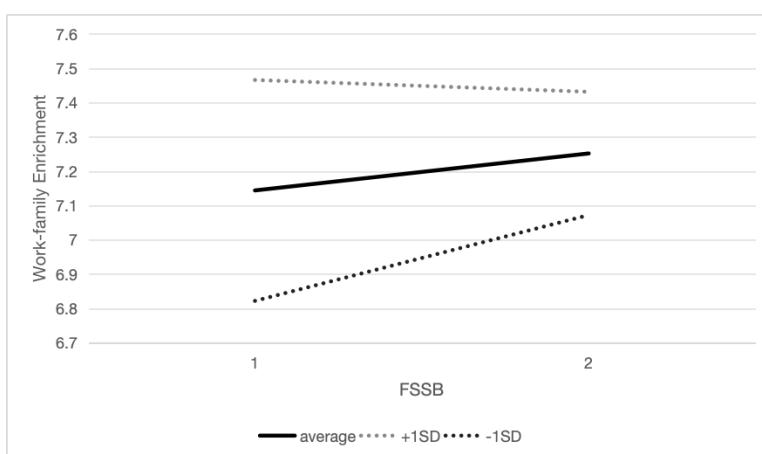
Item	Detail	Number	Percentage
age	18-25	2	6.67%
	26-35	10	33.33%
	36-45	9	30.00%
	46-55	9	30.00%
Type of position	junior level	11	36.67%
	intermediate level	5	16.67%
	senior level	4	13.33%
Marital status	unmarried	2	6.67%
	married	26	86.67%
	divorced	2	6.67%
	other	0	0.00%

Note: The classification of position types is based on the *Skill-Based Position Evaluation Criteria for Employees* from the operational department of the author's company.

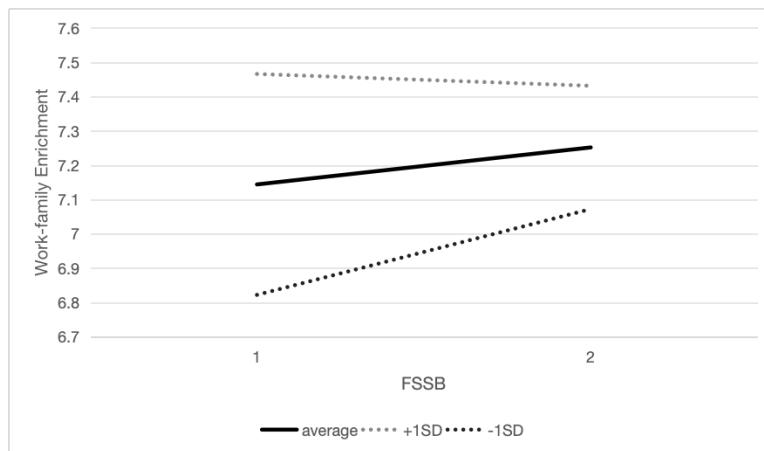
Annex Table 3 Cronbach's reliability analysis of overall data

Questions	Cronbach's CITC	α after item deletion	Cronbach's α
Y1. I feel excited and committed in the task today.	0.618		0.884
Y2. I am satisfied and proud of the results of the transportation task I completed today.	0.584		0.885
Y3. I was willing to go the extra mile to make sure the task was completed, even when there were difficulties (e.g., traffic jams, cargo problems).	0.565		0.885 0.892
X1-1. My supervisor was understanding and supportive when dealing with family-related emergencies that arose during transportation task.	0.531		0.886

Questions	CITC α after item deletion	Cronbach's α
X1-2. My supervisor provided resources and assistance that enabled me to better balance transportation duties with family responsibilities.	0.505	0.887
X1-3. My supervisor encouraged me to balance my family and personal life with my busy transportation schedule.	0.468	0.888
X2-1. I feel grateful for my supervisor's support during transportation the assignment.	0.377	0.890
X2-2. I am willing to repay my supervisor's support and understanding by doing a better job in the transportation task.	0.392	0.890
X3-1. I think the transportation job has brought about positive changes in my family life.	0.386	0.890
X3-2. My family experiences have helped me deal more effectively with problems in transportation tasks.	0.416	0.889
X4-1. I felt that there was a good rapport among team members during today's transportation task.	0.439	0.888
X4-2. Effective communication and cooperation among team members contributed to the successful completion of the transportation task.	0.407	0.889
X5-1. My supervisor demonstrated extensive management experience when dealing with the complexities that arose during the transportation task.	0.481	0.887
X5-2. In performing the transportation task, I believe the leaders are experienced.	0.446	0.888
X6-1. In performing the transportation task, I believe that the leaders' management and rules were reasonable.	0.390	0.890
X6-2. In performing the transportation task, the decisions made by leaders were efficient.	0.336	0.891
X7-1. I often felt nervous, anxious, or rushed at this task.	0.576	0.885
X7-2. I was often unable to stop or control worrying at this task.	0.567	0.885
X7-3. I often worried too much about various things at this task.	0.573	0.885
X7-4. I often had difficulty relaxing at this task.	0.523	0.886
X7-5. I was often unable to sit still at this task because I was restless.	0.558	0.885
X7-6. I often became easily annoyed or impatient at this task.	0.582	0.885
X7-7. Often on this mission I felt as if something terrible was going to happen and was afraid.	0.495	0.887
Standardized Cronbach's α Coefficient: 0.894		



Annex Figure 1 Simple slope chart (power distance plays a significant positive moderating role)



Annex Figure 2 Simple slope chart (Team relationship balance plays a significant negative moderating role)