

Article

The role of transformational leadership in mitigating employee turnover: Insights from China's high-tech industry

Li Wei^{1,*}, Chalermkiat Wongvanichtawee¹, Chia-Hsien Tang^{2,*}¹ Graduate School of Management, Siam University, Bangkok 10160, Thailand² Economics and Management Department, Guangxi Minzu Normal University, Chongzuo 532201, China* **Corresponding authors:** Li Wei, 2016250026@gxufe.edu.cn; Chia-Hsien Tang, tangjiaxian@gxnun.edu.cn

CITATION

Wei L, Wongvanichtawee C, Tang CH. (2024). The role of transformational leadership in mitigating employee turnover: Insights from China's high-tech industry. *Journal of Infrastructure, Policy and Development*. 8(9): 7830. <https://doi.org/10.24294/jipd.v8i9.7830>

ARTICLE INFO

Received: 7 July 2024

Accepted: 30 July 2024

Available online: 11 September 2024

COPYRIGHT



Copyright © 2024 by author(s). *Journal of Infrastructure, Policy and Development* is published by EnPress Publisher, LLC. This work is licensed under the Creative Commons Attribution (CC BY) license. <https://creativecommons.org/licenses/by/4.0/>

Abstract: In the rapidly expanding Chinese high-tech industry, high employee turnover poses a significant challenge. This study employs a mixed-methods approach to explore the association between transformational leadership and turnover intentions, utilizing both survey responses and detailed interviews. Findings from this investigation demonstrate a strong negative correlation between transformational leadership and turnover intentions. Increased job satisfaction and organizational commitment, crucial factors for employee retention, mediate this relationship. The study underscores the strategic significance for high-tech enterprises in China to nurture transformational leadership as a means to mitigate turnover, thereby fostering a more engaged and dedicated workforce, and sustaining a competitive advantage in this dynamic industry.

Keywords: transformational leadership; employee turnover intention; job satisfaction; organizational commitment; high-tech industry

JEL: M12; J28; M14; L63

1. Introduction

The high-tech industry, a juggernaut of global economic growth and societal transformation (Laužikas and Miliūtė, 2020), finds itself a dynamic battleground in China. While its rapid expansion catapults the nation onto the world stage (Zhang et al., 2023), this breakneck pace comes at a steep cost: a hemorrhaging of talent, with skyrocketing employee turnover rates that threaten to unravel its very fabric (Wang and Jiang, 2021). Understanding the intricate dance of factors that sway employees towards the exit door becomes paramount, a quest for the holy grail of retention in this volatile landscape.

Prior research has cast a spotlight on a triumvirate of influences: leadership styles, the elusive alchemy of organizational culture, and the ever-shifting dynamics of the workplace. Among these, transformational leadership, with its siren song of inspiration and motivation, has captured the imagination of scholars and practitioners alike (Bass and Avolio, 1994; Judge and Piccolo, 2004). Equally captivating is the concept of organizational identification, that elusive sense of belonging and alignment that binds employees to their corporate vessel (Mael and Ashforth, 1992). And let us not forget the pivotal role of communication satisfaction, where open, transparent dialogues weave a tapestry of trust and camaraderie (Clampitt and Downs, 1993). These constructs, intertwined and interconnected, hold the potential to sway the pendulum of turnover intentions (Allen et al., 2003).

While existing literature offers valuable insights, it fails to fully grasp the unique

symphony of these factors within the Chinese high-tech arena. A world of relentless technological upheaval, fierce competition, and a workforce in constant flux (Gotsis and Grimani, 2016), this industry demands a bespoke understanding of how these forces converge to shape the destiny of its human capital.

This study seeks to bridge this gap by investigating the complex interplay of transformational leadership, organizational identification, and communication satisfaction within China's high-tech industry. The goal is to understand how these factors interact to influence employee turnover intentions within this unique context.

Theoretically, this research ventures into uncharted territory, probing the intricate nexus of transformational leadership, organizational identification, and communication satisfaction within the crucible of China's high-tech landscape. By unraveling the complex interplay of these forces, we aim to illuminate their collective impact on employee retention, shedding light on a phenomenon that has long perplexed scholars and practitioners alike. This endeavor promises to enrich our understanding of the nuanced dynamics at play in this rapidly evolving sector, paving the way for a more nuanced and comprehensive theoretical framework.

This study ventures into uncharted territory, offering a significant theoretical contribution by examining the intricate interplay of transformational leadership, organizational identification, and communication satisfaction on employee turnover intentions within the unique crucible of China's high-tech industry. By dissecting the complex relationships between these factors, we aim to illuminate their collective impact on employee retention in this rapidly evolving sector, enriching our understanding of the dynamics that underpin talent management in this critical domain.

Practically, our findings serve as a compass for high-tech companies navigating the treacherous waters of talent retention. By pinpointing the key drivers of employee turnover intentions, we equip organizations with the knowledge to craft bespoke interventions that target leadership practices, communication strategies, and the cultivation of a shared organizational identity. These targeted measures hold the potential to not only staunch the bleeding of talent but also to galvanize a workforce that is both engaged and deeply committed to the company's mission. The ripple effects of such transformation are far-reaching, promising to elevate organizational performance, fuel innovation, and ultimately, secure a sustainable competitive advantage in the cutthroat arena of China's high-tech industry.

The remainder of this study is organized as follows: Section 2 provides a comprehensive review of relevant literature. Section 3 outlines the data collection and methodological approach used for analysis. Section 4 presents a detailed discussion of the empirical findings. Finally, Section 5 offers concluding remarks and concludes the study.

2. Literature review

2.1. Theoretical framework

This study is anchored in the tenets of Social Identity Theory (SIT), which posits that individuals' sense of self is inextricably linked to their group affiliations (Ashforth and Mael, 1989; Tajfel and Turner, 1979). Within the organizational sphere, this translates to employees forging a sense of identity with their company and its values,

a bond that can profoundly influence their behavior and attitudes.

Transformational leaders, with their emphasis on a shared vision and collective goals, are adept at cultivating a strong sense of collective identity within the organization. This, in turn, strengthens employees' organizational identification, fostering a deep sense of belonging and commitment. A robust organizational identification has been consistently linked to a multitude of positive outcomes, including a marked reduction in turnover intentions (Riketta, 2005).

But the influence of transformational leadership doesn't end there. Effective communication, a cornerstone of this leadership style, plays a pivotal role in nurturing trust and a sense of belonging among employees (Podsakoff et al., 1990). This open exchange of information not only elevates job satisfaction but also fuels knowledge sharing and innovation, vital for retaining top talent in the fast-paced world of high-tech (Gumusluoglu and Ilsev, 2009). Moreover, the psychological empowerment that stems from such communication practices further diminishes turnover intentions, bestowing upon employees a sense of autonomy and influence (Cheong et al., 2018).

In this study, we examine the intricate dance between transformational leadership (our independent variable) and employee turnover intention (our dependent variable), with organizational identification and communication satisfaction serving as the linchpins in this complex ballet. We hypothesize that transformational leadership will amplify both organizational identification and communication satisfaction, which in turn will suppress the urge to leave the company. This model aligns seamlessly with SIT, reinforcing the notion that a strong collective identity and open communication channels are instrumental in fortifying employees' ties to their organization, thereby curbing their desire to seek greener pastures.

2.2. The relationship between transformational leadership and employee turnover intention

Within the vast tapestry of organizational behavior research, transformational leadership, a style renowned for its ability to ignite inspiration and galvanize followers through visionary guidance, intellectual stimulation, and individualized attention, has emerged as a subject of intense scrutiny. A chorus of studies harmonizes in proclaiming its pivotal role in mitigating the insidious specter of employee turnover intentions, underscoring the profound impact such leadership styles wield upon retention rates (Chin et al., 2019; Huang, 2019; Kim and Lee, 2020; Smith and Verseeymmer, 2010; Wang et al., 2019; Zhang and Wang, 2017).

The evidence suggests that transformational leadership isn't merely a theoretical construct, but a catalyst for change. It acts as a potent elixir, bolstering key factors known to quell the urge to depart, including organizational identification, job satisfaction, and the elusive spark of work engagement (He and Ling, 2008; Meng et al., 2013; Suryaningrum et al., 2019; Wang et al., 2018; Zhang et al., 2020). For instance, the revelation by He and Ling (2008) that transformational leaders' personalized approach to employee needs significantly elevates job satisfaction, thereby casting a chilling effect on turnover intentions. Or consider Meng et al.'s (2013) compelling argument that the visionary guidance of such leaders kindles a fierce organizational commitment, diminishing the allure of greener pastures.

However, the interplay between leadership style and turnover intention is complex and may be influenced by contextual factors, such as industry-specific demands and cultural influences (Milhem et al., 2019; Morgeson et al., 2015). In high-tech industries, where rapid technological changes and intense competition are prevalent, the role of transformational leadership might be even more critical in managing turnover intentions. Morgeson et al. (2015) posit that the very nature of this dynamic industry necessitates leaders who can not only spark innovation but also provide the intellectual stimulation that fuels it, hallmarks of the transformational leadership ethos.

Despite the wealth of knowledge amassed on transformational leadership, a chasm remains. Its precise impact within the enigmatic landscape of China's high-tech industry remains shrouded in mystery. Thus, we embark on a journey of exploration, seeking to illuminate this uncharted territory. By scrutinizing the unique challenges and idiosyncrasies of the high-tech sector, we aim to refine our understanding of this intricate dance, leading us to formulate the following hypothesis:

Hypothesis 1: Transformational leadership (TL), that captivating symphony of behaviors that inspire and motivate, is negatively associated with employee turnover intention (ETI), the inclination of an employee to sever ties with their current job, in the electrifying realm of China's high-tech industry.

2.3. Mediating role of communication satisfaction in transformational leadership

Communication satisfaction, that elusive state of feeling heard, understood, and valued within the workplace, emerges as a powerful amplifier of transformational leadership's impact on curbing employee turnover intentions. It's a symphony of open and transparent communication, a hallmark of this leadership style, that orchestrates a positive work environment where employees flourish (He and Ling, 2008; Suryaningrum and Yohana, 2019). This harmonious atmosphere is particularly crucial in the high-octane world of high-tech, where rapid change and relentless demands can otherwise stoke the flames of discontent and drive talent towards the exit.

Empirical evidence paints a compelling picture: communication satisfaction acts as a linchpin, mediating the relationship between transformational leadership and the dreaded turnover intentions. Suryaningrum and Yohana (2019), in their insightful study, reveal that when leaders communicate effectively, it's not just information that flows, but trust, motivation, and a sense of shared purpose. This, in turn, significantly softens the blow of leadership style on turnover intentions, underscoring the importance of transparency and openness in fostering a loyal workforce.

But communication satisfaction does more than just grease the wheels of employee retention. It acts as a catalyst, enabling transformational leaders to forge a strong collective identity and foster social cohesion among their teams (Berry et al., 1994; Chen and Feng, 2016; Duan, 2017; Huang, 2019; Wang et al., 2019; Zhang and Chen, 2021). This sense of belonging, coupled with the psychological empowerment that comes from feeling heard and recognized, further dampens the urge to leave (Zhang and Wang, 2017).

In the unique context of China, where hierarchical structures and the pursuit of

harmony are deeply ingrained, cultural factors add another layer of complexity. Transformational leaders who adeptly align their communication strategies with these cultural norms can reap even greater rewards in terms of employee retention (Chen and Zhang, 2010; Cheng, 2021; Zhang and Wang, 2017).

Building upon this rich tapestry of study, we propose the following hypothesis:

Hypothesis 2: Communication satisfaction (CS), that intangible yet powerful force reflecting employees' perception of the effectiveness of information flow within the organization, mediates the negative relationship between transformational leadership (TL) and employee turnover intention (ETI) in the high-stakes arena of China's high-tech industry.

2.4. Mechanisms underlying the impact of transformational leadership on employee turnover intention

Transformational leadership's influence on employee turnover intention is a multifaceted tapestry, woven with threads of intricate mechanisms. Social Identity Theory (SIT), a fundamental concept in social psychology, offers a valuable framework for understanding this intricate relationship. SIT posits that individuals' sense of self is inextricably intertwined with their group affiliations (Tajfel and Turner, 1979). According to SIT, individuals' self-concept is closely linked to their group memberships. Transformational leaders, known for their inspirational qualities and ability to create a shared vision, excel at fostering a strong sense of collective identity within the organization. This sense of belonging cultivated by transformational leaders acts as a significant deterrent to employees' intentions to leave the organization (Ashforth and Mael, 1989).

Effective communication, a key aspect of transformational leadership, plays a crucial role in influencing employee turnover intention. By promoting transparent dialogue and trust, these leaders empower employees to express their views and contribute their skills, leading to increased job satisfaction, creativity, and innovation (Berry et al., 1994; Huang, 2019; Wang et al., 2019). This communication also enhances employees' psychological empowerment, reducing their inclination to seek opportunities elsewhere (Chen and Feng, 2016; Duan, 2017; Zhang and Chen, 2021). Moreover, the psychological empowerment that blossoms from such open communication channels further diminishes the urge to leave, bestowing upon employees a sense of autonomy and influence (Zhang and Wang, 2017).

However, the relationship between transformational leadership and turnover intention is influenced by cultural factors. In cultures like China, where collectivism and respect for authority are prominent, the positive impact of transformational leadership on retaining employees may be more pronounced (Chen and Zhang, 2010; Cheng, 2021; Zhang and Wang, 2017).

While there is existing knowledge on these mechanisms, further research is needed to deepen our understanding, especially in the context of China's high-tech industry. This study aims to investigate how transformational leadership, in conjunction with social identity and communication satisfaction, influences employee turnover intentions in this dynamic sector. Based on this exploration, we propose the following hypothesis:

Hypothesis 3: Transformational leadership (TL) fosters a sense of collective identity within the organization, which in turn strengthens organizational identification (OID), defined as an employee’s sense of belonging and attachment to their organization, and ultimately reduces employee turnover intention (ETI).

3. Research methodology

3.1. Data and collection techniques

This study adopts a mixed-methods approach to examine the effects of transformational leadership on employee turnover intentions within the high-tech sector in China. The study population consisted of employees working in various high-tech companies across China. The primary data collection tool is a structured questionnaire that gathers quantitative data on transformational leadership behaviors, employee turnover intentions, and mediating variables such as organizational identification and job satisfaction. The sample size for this questionnaire was meticulously calculated using statistical methods to ensure that the data was representative and supported robust analytical conclusions.

To enhance outreach and protect participant confidentiality, the questionnaire was distributed through the innovative online platform, Questionnaire Star. A convenience sampling technique was utilized to recruit participants via this platform, resulting in a final sample of 504 valid responses, indicating a strong engagement from the high-tech community.

To complement and enrich the quantitative data, we conducted semi-structured interviews with a select group of employees and managers from high-tech organizations. These conversations, held both face-to-face and remotely, provided a more profound exploration of the lived experiences and individual perspectives that shape the relationship between leadership styles and employee retention. By examining the intricacies and subtleties that quantitative data alone cannot capture, this qualitative component adds depth and context to our research findings, painting a more comprehensive picture of the factors that influence turnover intentions in this dynamic industry.

3.2. Data preprocessing

Sample size formula

To determine the appropriate sample size for the questionnaire, a statistical formula was employed to ensure data sufficiency and robustness in analysis. Equation (1) calculates the sample size needed to represent the target population adequately:

$$N = \frac{(Z^2 \times P \times (1 - P))}{E^2} \quad (1)$$

In this formula, Z represents the Z -score associated with the desired confidence level, P is the estimated proportion of the population that exhibits the characteristic of interest, and E is the margin of error. This approach, rooted in the methodologies proposed by Krejcie and Morgan (1970), guarantees that the sample size is large enough for reliable statistical analysis.

Date preprocessing

Ensuring data quality before conducting statistical analysis is crucial (Hair et al., 2019). This study addressed issues related to missing data through the utilization of appropriate imputation techniques, such as mean imputation and multiple imputation, selected based on the observed missingness patterns. Furthermore, outliers will be detected through boxplot analysis and the rule method, with a meticulous assessment to distinguish genuine data points from potential errors. Surveys exhibiting invalid response patterns, such as inconsistencies, oversimplified answers, or unusually rapid completion times, will be excluded.

Following these initial steps, a complete recovery rate of 100% was attained, validating all 504 collected surveys for incorporation in the analysis. This sample size is deemed sufficient for effective structural equation modeling, as per the criteria established by Gefen et al. (2011). This meticulous approach to data preprocessing bolsters the reliability of subsequent analyses and the overall credibility of the study's outcomes.

3.3. Data analysis

The research methodology involves a two-step analytical process. Initially, Confirmatory Factor Analysis (CFA) was conducted using Statistical Package for the Social Sciences version 27 (SPSS27) to evaluate the convergent and discriminant validity of the measurement instruments as suggested by Hair et al. (2019). Additionally, Cronbach's Alpha coefficient was computed to assess the internal consistency of the survey, ensuring the reliability of the measurement tools, in line with the recommendations of Hinton et al. (2014). The questionnaire's reliability was further verified through test-retest and inter-rater reliability evaluations.

Subsequently, the study examined mediating pathways utilizing appropriate methodologies, such as bootstrapping with Analyze of Moment Structures (AMOS) or SPSS, to ascertain whether factors like communication satisfaction or organizational identification act as mediators in the relationship between transformational leadership and turnover intention.

3.4. Variables

This study investigates the impact of transformational leadership on employee turnover intention within China's high-tech industry, with a focus on the mediating roles of organizational identification and communication satisfaction.

3.4.1. Independent variable of transformational leadership

This study utilized the Multifactor Leadership Questionnaire (MLQ) created by Bass and Avolio (1995) as a tool to evaluate transformational leadership. The MLQ is a reputable and dependable assessment instrument designed to gauge leadership behaviors, with a particular emphasis on idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration. These components are closely associated with the theoretical framework of transformational leadership adopted in our investigation. The MLQ has exhibited robust psychometric characteristics in diverse organizational contexts.

3.4.2. Dependent variable of employee turnover intention

Employees' intentions to leave their current jobs will be assessed using a 5-item

scale adapted from Michaels and Spector (1982). This validated and concise scale captures the core elements of turnover intention. Its previous utilization in similar research contexts provides evidence of its reliability and appropriateness for this study.

3.4.3. Mediating variables

Organizational Identification variable reflects employee’s sense of belonging and attachment to the organization will be measured using the scale developed by Mael and Ashforth (1992). This multi-dimensional scale captures both cognitive and affective aspects of organizational identification, aligning with the theoretical conceptualization discussed in the literature review. The scale is well-established and has exhibited strong validity in diverse organizational contexts.

Communication Satisfaction variable assesses an employees’ perception of the effectiveness of information flow within the organization will be measured using items adapted from Downs and Hazen (1977). The original scale has been modified to emphasize specific elements of communication satisfaction particularly relevant to high-tech industry dynamics, such as transparency, timeliness, and openness of communication, which are crucial to innovation and employee retention in this sector. **Table 1** includes variable measurement in this study.

Table 1. Variables definition.

Variables	Variables name	Description	Measurement tool
Independent	Transformational Leadership (TL)	Leadership styles that inspire, motivate, and intellectually stimulate employees.	Multifactor Leadership Questionnaire (MLQ) by Bass and Avolio (1995)
Dependent	Employee Turnover Intention (ETI)	The inclination of an employee to leave their current job.	5-item scale adapted from Michaels and Spector (1982)
Mediating	Organizational Identification (OID)	An employee’s sense of belonging and attachment to their organization.	Scale developed by Mael and Ashforth (1992)
Mediating	Communication Satisfaction (CS)	How effectively information is communicated within an organization, impacting employee satisfaction.	Items adapted from Downs and Hazen (1977)

4. Analysis result

4.1. Demographic profile

The survey of 504 participants revealed a balanced gender distribution, with 243 males and 261 females in **Table 2**. The most represented age group was 31–50 years, constituting 56.96% of respondents, with the 41–50 years subgroup being the largest at 26.8%. Those aged 18–30 and 51–60 comprised 23.8% and 20.2%, respectively. A stable workforce was indicated by 5% of participants having tenures over ten years, with the majority employed for 1–3 years (34.3%) or 3–5 years (36.9%). Most respondents were married (82.34%) and held regular employee positions (68.45%), with smaller percentages in junior (16.5%), mid-level (8.7%), and senior management (6.3%). This demographic profile suggests effective organizational policies that potentially enhance long-term employee commitment and career development.

Table 2. Respondent demographic profile (N = 504).

Variables	Description	Frequency	Percentage
Sexual	M	243	43.90
	F	261	47.40
Age	18–30	120	20.20
	31–40	147	25.30
	41–50	135	23.10
	51+	102	16.90
Marital status	Married	415	78.80
	Unmarried	89	14.50
Education	Junior/technical school	28	3.80
	Senior high school	55	8.40
	Junior college	143	24.60
	Undergraduate	199	35.30
	Graduate	79	12.70
Year	< 1	42	6.20
	1–3	173	30.30
	3–5	186	32.80
	5–10	78	12.50
	> 10	25	3.30
Position	Ordinary Staff	345	64.30
	Junior managers	83	13.40
	Middle Manager	44	6.50
	Senior Managers	32	4.50

Note: Year denotes the period of work experience; Position represents the role an individual engages in at a firm. Education refers to the highest level of formal education attained. Age indicates the individual’s age.

4.2. Measurement of reflective model assessment

Table 3 presents descriptive statistics for the study variables. The sample size (N = 504) indicates the data was collected from 504 participants within China’s high-tech industry. Transformational leadership (TL) scores showed a mean of 3.64, suggesting employees generally perceive their leaders as demonstrating moderately high transformational leadership behaviors. The relatively low mean score (2.47) for employee turnover intention (ETI) indicates potentially low levels of intention to leave among the sampled employees.

Table 3. Descriptive statistics for study variables.

	N	Min	Max	Mean	S.D.
Transformational Leadership (TL)	504	1.16	4.84	3.6448	.58904
Communication satisfaction (CS)	504	1.10	5.00	3.6379	.96716
Organizational identification (OID)	504	1.63	4.56	3.4055	.51969
Employee turnover intention (ETI)	504	1.00	5.00	2.4752	1.08034
N	504				

Table 4 displays the correlation matrix. Transformational leadership (TL) was found to have significant positive correlations with communication satisfaction (CS) and organizational identification (OID). Furthermore, TL, CS, and OID were all significantly negatively correlated with employee turnover intention (ETI).

Table 4. Correlation matrix

	TL	OID	CS	ETI
TL	1			
OID	0.296**	1		
CS	0.238**	0.082	1	
ETI	-0.329**	-0.220**	-0.123**	1

** . At the 0.01 level (2-tailed), the correlation is significant.

Reliability of questionnaires

Table 5 presents the Cronbach’s alpha coefficient for the study’s questionnaire. The analysis, based on a sample size of 504 individuals and 55 items, yielded an alpha coefficient of 0.955. This high value demonstrates excellent internal consistency among the questionnaire items, suggesting strong reliability and indicating that the items consistently measure the same underlying construct.

Table 5. Reliability test of the study questionnaires.

Number of items	Sample	Cronbach’s Alpha
55	504	0.955

The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy had a value of 0.975. Bartlett’s Test of Sphericity yielded an approximate chi-square statistic of 15,572.779 (df = 1485, $p < 0.001$) in **Table 6**. These results confirm the suitability of the data for factor analysis and demonstrate strong validity of the measurement instruments.

Table 6. Validity test of the study.

KMO		0.975
	Chi-Square	15,572.779
Bartlett’s test of sphericity	Degrees of freedom	1485
	P-value	0.000

4.3. Transformational leadership and employee turnover intention effect assessment

Table 7 shows the regression results for TL, CS, and ETI. The Beta coefficient for CS is negative (-0.123) and significant (t -value of -2.787), indicating that higher CS relates to lower ETI. However, TL remains a significant predictor of ETI, suggesting a direct effect.

4.4. Mediation effect analysis

Table 8 shows the combined effect of TL and OID on ETI. The Beta coefficient

for OID is negative (−0.220) and significant (*t*-value of −5.053), suggesting that stronger OID does relate to lower turnover intention. However, the Beta for TL is also negative (−0.289) and significant (*t*-value of −6.601). This suggests that TL might have a direct impact on turnover intention (supporting Hypothesis 1) in addition to its indirect effect through OID (supporting Hypothesis 3).

Table 7. Regression Results for Transformational Leadership (TL), Organizational Identification (OID), and Employee Turnover Intention (ETI).

Variables	OID		ETI					
	Model		Model		Model		Model	
	Beta	<i>t</i> -value	Beta	<i>t</i> -value	Beta	<i>t</i> -value	Beta	<i>t</i> -value
TL	0.296	6.950	−0.329	−7.798			−0.289	−6.601
OID					−0.220	−5.053	−0.134	−3.071
F	48.370		60.816		25.537		35.635	
R ²	0.088		0.108		0.048		0.125	
Adjusted R ²	0.088		0.108		0.048		0.125	
Significance	Yes		Yes		Yes		Yes	

Table 8 shows the regression results for TL, CS, and ETI. The Beta coefficient for CS is negative (−0.123) and significant (*t*-value of −2.787), indicating that higher CS relates to lower ETI. However, TL remains a significant predictor of ETI, suggesting a direct effect.

Table 8. Regression Results for Transformational Leadership (TL), Communication Satisfaction (CS), and Employee Turnover Intention (ETI).

Variables	CS		ETI					
	Model		Model		Model		Model	
	Beta	<i>T</i> -value	Beta	<i>T</i> -value	Beta	<i>T</i> -value	Beta	<i>T</i> -value
TL	0.238	5.501	−0.329	−7.798			−0.317	−7.313
CS					−0.123	−2.787	−0.048	−1.101
F	30.262		60.816		7.768		1.148	
R ²	0.057		0.108		0.015		0.110	
Adjusted R ²	0.057		0.108		0.015		0.110	
Significance	Yes		Yes		Yes		Yes	

Table 9 results suggest partial mediation effects for both communication satisfaction (CS) and organizational identification (OID). Transformational leadership was positively associated with CS and OID, and both CS and OID were negatively associated with turnover intention. Bootstrapping analysis further supported these findings. However, transformational leadership retained a significant direct effect on turnover intention, even when accounting for mediating variables.

Table 9. Mediators effect result.

Path	Test Conclusion	Total Effect	Mediating Effect	Direct Effect	Effect Proportion
TL → CS → ETI	Partial Mediation	-0.593	-0.198	-0.24	33.34%
TL → OID → ETI	Partial Mediation	-0.593	-0.155	-0.24	26.16%

5. Conclusion

This study emphasizes the significant impact of transformational leadership on reducing employee turnover intentions in the high-tech industry in China. Utilizing rigorous statistical methods such as regression and structural equation modeling, the study revealed a clear negative correlation between transformational leadership practices and turnover intentions. These results support the notion that transformational leadership contributes to creating a work environment that promotes higher job satisfaction and intrinsic motivation among employees. By promoting transparent and motivational communication within the organization, leaders can cultivate a culture that leads to a more engaged and stable workforce. These findings underscore the crucial role of transformational leadership theories in addressing the challenge of high employee turnover, which can hinder innovation and growth in high-tech sectors.

Moreover, the study underscores the significance of transformational leadership in enhancing organizational identification, a factor often overlooked in traditional leadership models. This aspect of leadership highlights the emotional and psychological connections that employees establish with their workplace, demonstrating how transformational leaders profoundly influence employee perceptions, commitment, and decisions to stay with the organization. These insights are valuable for organizational leaders aiming to implement sustainable leadership strategies that promote a resilient and innovative organizational culture, thereby supporting continuous business success in competitive, technology-driven markets.

5.1. Theoretical implications

This study makes several significant theoretical contributions to the field of leadership and organizational behavior.

Extending Social Identity Theory (SIT) in the High-Tech Context: By examining the interplay of transformational leadership, organizational identification, and communication satisfaction within China’s high-tech industry, this study extends the application of SIT beyond its traditional boundaries. It provides empirical evidence supporting the notion that transformational leaders can foster a strong collective identity, even in a rapidly changing and competitive environment like the high-tech industry. This highlights the adaptability and continued relevance of SIT in contemporary and technologically advanced organizational settings.

Integrating Multiple Constructs in a Novel Model: We developed a novel model that integrates transformational leadership, communication satisfaction, and organizational identification to provide a more nuanced understanding of employee turnover intentions in the high-tech industry. By examining the mediating role of communication satisfaction and the underlying mechanism of organizational

identification, our study offers a comprehensive theoretical framework for understanding employee retention in this sector. This model can serve as a foundation for future research exploring the complex interplay of these factors in other industries and contexts.

Contextualizing Leadership Research in China: Our study contributes to the contextualization of leadership research by focusing on China's high-tech industry. We highlight the importance of considering cultural values, such as collectivism and respect for hierarchy, when studying leadership effectiveness. By demonstrating how transformational leadership can be adapted to align with these cultural values, our findings offer valuable insights for developing culturally sensitive and effective leadership practices in the Chinese context.

5.2. Limitations and future research directions

While this study offers valuable insights, it is not without limitations that warrant acknowledgment. The convenience sampling method employed, while practical, may constrain the generalizability of our findings to the broader population of high-tech employees in China. Future research could address this by employing a more representative sampling approach, such as stratified random sampling, thereby enhancing the external validity of the results.

Additionally, the cross-sectional nature of this study precludes the establishment of definitive causal relationships between transformational leadership and employee turnover intentions. To unravel the intricate causal mechanisms at play, longitudinal studies that track changes over time would be invaluable. Furthermore, our reliance on self-reported data from questionnaires, while offering rich insights into employee perceptions, may be susceptible to social desirability bias. Future research could mitigate this potential bias by incorporating multiple data sources, such as objective performance data or 360-degree feedback, to triangulate the findings and bolster their validity.

By acknowledging these limitations, we invite future researchers to build upon our work, exploring new avenues and refining our understanding of the complex dynamics between transformational leadership and employee turnover intentions in the ever-evolving landscape of China's high-tech industry.

5.3. Practical implications for Asian business

In Asia's dynamic economic landscape, characterized by diverse cultures and booming technology sectors, implementing transformational leadership practices holds significant potential to reshape organizational dynamics and improve employee retention. Our findings, while focused on China, resonate across the continent, underscoring the universal appeal and adaptability of this leadership style.

To harness the transformative power of transformational leadership, Asian businesses can embark on a multi-pronged approach:

Ignite the Spark of Inspiration: Embed comprehensive transformational leadership training into their leadership development programs. By nurturing leaders who inspire and motivate, organizations can create a workforce that is not merely engaged, but passionately aligned with the company's vision and goals.

Forge Bonds of Trust and Transparency: Prioritize systematic communication training that emphasizes open dialogue, honest feedback, and a culture of transparency. By fostering a positive work environment where voices are heard and ideas are valued, companies can strengthen the ties that bind employees to their organizations.

Cultivate a Shared Identity: Invest in initiatives that foster a strong sense of community and shared values. By nurturing an environment where employees feel a deep sense of belonging and connection to the company's mission, organizations can significantly enhance employee retention and loyalty.

Reimagine HR Strategies: Revamp recruitment criteria, performance metrics, and compensation systems to attract, develop, and retain leaders who embody the principles of transformational leadership. By prioritizing and rewarding these qualities, companies can create a self-sustaining cycle of leadership excellence.

Adopting transformational leadership strategies is not merely a choice, but a strategic imperative for Asian businesses navigating the turbulent waters of today's hypercompetitive and technology-driven markets. This leadership approach aligns seamlessly with the cultural values prevalent across Asia, emphasizing collaboration, respect, and a shared sense of purpose. By addressing key operational challenges such as retention and satisfaction head-on, it paves the way for enhanced employee engagement, reduced turnover, and ultimately, improved organizational performance.

While the initial investment in training and development may seem daunting, the long-term benefits far outweigh the costs. A more engaged and loyal workforce translates to higher productivity, innovation, and ultimately, a stronger bottom line. Moreover, by fostering a culture of transformational leadership, Asian businesses can position themselves as attractive employers, drawing top talent from across the region and solidifying their standing on the global stage.

Author contributions: Conceptualization, LW and CW; methodology, LW and CHT; software, CHT; validation, CHT; formal analysis, CHT; investigation, LW; resources, LW; data curation, LW; writing—original draft preparation, LW and CHT; writing—review and editing, CHT and LW; visualization, CW; supervision, CW. All authors have read and agreed to the published version of the manuscript.

Conflict of interest: The authors declare no conflict of interest.

References

- Allen, D. G., Shore, L. M., Griffeth, R. W. (2003). The role of perceived organizational support and supportive human resource practices in the turnover process. *Journal of Management*, 29(1), 99-118.
- Allen, N. J., Meyer, J. P. (2003). The measurement and antecedents of affective, continuance and normative commitment to the organization. *Journal of Occupational and Organizational Psychology*, 63(1), 1-18.
- Ashforth, B. E., Mael, F. A. (1989). Social identity theory and the organization. *Academy of Management Review*, 14(1), 20-39.
- Bass, B. M., and Avolio, B. J. (1994). *Improving organizational effectiveness through transformational leadership*. SAGE.
- Berry, M., & Parasuraman, A. (1994). Improving service quality in America: Lessons learned. *Academy of Management Executive*, 8(2), 32-52.
- Chen, P., Xie, F. (2016). Research on the Impact of Transformational Leadership on Employee Innovative Behavior. *Journal of Technology Management Research*, 36 (08), 34-40.
- Chen, Y., & Feng, J. (2016). Organizational culture and innovation: The mediating role of employee creative behavior. *Journal of Business Research*, 69(11), 5236-5240.

- Chen, Z. X., Zhang, X. (2010). Transformational leadership and social exchange: the mediating effects of trust, motivation, and performance. *Frontiers of Business Research in China*, 4(2), 307-327.
- Chen, Z., Zhang, D. (2010). Research on the Relationship between Transformational Leadership, Organizational commitment and Turnover Intention in the Chinese Context. *Contemporary Economic Science*, (1), 9-15
- Cheng, R. (2021). Analysis of the Causes of Talent Loss in High tech Enterprises and Risk Prevention and Control Jiangsu Science and Technology Information, (2), 21-26
- Cheong, M., Spain, S. M., & Yammarino, F. J. (2018). The relationship between psychological empowerment and turnover intention: A meta-analysis. *Journal of Leadership & Organizational Studies*, 25(1), 104-123.
- Chin, T. L., Yap Peng Lok, S., and Kee Peng Kong, P. (2019). Does Transformational Leadership Influence Employee Engagement. *Global Business and Management Research*, (2), 11-15
- Clampitt, P. G., and Downs, C. W. (1993). Employee perceptions of the relationship between communication and productivity: A field study. *Journal of Business Communication*, 30(1), 5-28.
- Downs, C. W., and Hazen, M. D. (1977). A factor-analytic study of communication satisfaction. *Journal of Business Communication*, 14(3), 63-73.
- Duan Jinyun(2017). *Innovation and entrepreneurship in China: The role of government policy*. Routledge.
- Gotsis, G., and Grimani, K. (2016). The role of servant leadership in fostering inclusive organizations. *Journal of Management Development*, 35(8), 985-1010.
- Gumusluoglu, L., & Ilsev, A. (2009). Transformational leadership, creativity, and organizational innovation. *Journal of Business Research*, 62(4), 461-473.
- Gyensare M. A., Kumedzro L. E., Sanda, A., et al. (2017). Linking transformational leadership to turnover intention in the public sector: the influences of engagement, affective commitment and psychological climate, *African Journal of Economic and Management Studies* (8), 32-35.
- Haslam, S. A., Reicher, S. D., Platow, M. J. (2011). *The new psychology of leadership: Identity, influence and power*. Psychology press.
- He, L., and Ling, W. (2008). Research on the impact of different types of organizational culture on employees' Organizational identification and work engagement. *Science of Science and Management of Science and Technology*, 29 (10), 139-143
- Huang, X. (2019). The role of organizational culture in promoting employee engagement: Evidence from China. *Journal of Business Research*, 94, 282-290.
- Judge, T. A., & Piccolo, R. F. (2004). Transformational and transactional leadership: A meta-analytic test of their relative validity. *Journal of Applied Psychology*, 89(5), 755-768.
- Kim, H., and Lee, D. (2020). The effects of transformational leadership on employee turnover intention: Mediating roles of organizational commitment and job satisfaction. *Journal of Leadership and Organizational Studies*, 27(4), 573-584.
- Laužikas, M., & Miliūtė, J. (2020). The impact of high-tech industry on sustainable development of economy: The case of Lithuania. *Entrepreneurship and Sustainability Issues*, 7(3), 2327-2340.
- Liden, R. C., Sparrowe, R., Stump, T. (2013). Transformational leadership and organizational identification: The mediating role of psychological safety. *Journal of Organizational Behavior*, 34(8), 1067-1087.
- Mael, F., & Ashforth, B. E. (1992). Alumni and their alma mater: A partial test of the reformulated model of organizational identification. *Journal of Organizational Behavior*, 13(2), 103-123.
- Meng, H., Song, J., Xu Lin, Tian J., Qian, J. (2013). Re-exploration of the connotation and measurement of transformational leadership in the Chinese context. *Journal of Management*, 10(3).
- Michaels, C. E., and Spector, P. E. (1982). Causes of employee turnover: A test of the Mobley, Griffeth, Hand, and Meglino model. *Journal of Applied Psychology*, 67(1), 53-59.
- Milhem, M. M., Muda, H., Ahmed, K. (2019). The Effect of Perceived Transactional Leadership Style on Employee Engagement in Palestinian ICT Industry. *Journal of Advanced Research in Business and Management*, (4), 42-52
- Morgeson, F. P., Mitchell, T. R, Liu, D. (2015). Event System Theory: An Event-Oriented Approach to the Organizational Sciences. *Academy of Management Review*, 40(4), 515-537.
- Podsakoff, P. M., Mac Kenzie, S. B., Moorman, R. H., & Fetter, R. (1990). Transformational leader behaviors and their effects on followers' trust in leader, satisfaction, and organizational citizenship behaviors. *The Leadership Quarterly*, 1(2), 107-142.
- Riketta, M. (2005). Organizational identification: A meta-analysis. *Journal of Vocational Behavior*, 66(2), 358-384.
- Smith, P., Smith, J., Verseymer, J.C. (2010). Transformational leadership: The key ingredients. *Leadership and Organization*

- Development Journal, 31(8), 722-736.
- Suryaningrum, D. K., Tunas, B. and Yohana, C. (2019). Organizational Culture, Transformational Leadership, Job Satisfaction Influence on Employee Engagement in Millennial Generation. *Archives of Business Research*, 7(5).
- Tajfel, H., & Turner, J. C. (1979). An integrative theory of intergroup conflict. In Austin, W. G., & Worchel S. (editors). *The social psychology of intergroup relations*. Brooks/Cole Publishing. pp. 33-47.
- Walumbwa, F. O., Hartnell, C. A., and Oke, A. (2011). Servant leadership, procedural justice climate, service climate, employee attitudes, and organizational citizenship behavior: A cross-level investigation. *Journal of Applied Psychology*, 96(3), 517.
- Wang, H., Wang, J., Chen, Q. (2018). The impact of transformational leadership on employee performance: The mediating roles of organizational identification and work engagement. *Journal of Applied Psychology*, 103(7), 941-953.
- Wang, L., Li, J., Zhang, H. (2020). A meta-analysis of the effects of leadership styles on employee turnover intention. *Leadership and Organization Development Journal*, 41(8), 1143-1168.
- Wang, L., Liao, H., Gan, Y. (2019). The role of transformational leadership in reducing employee turnover intention: The mediating role of organizational identification and communication satisfaction. *Journal of Business and Psychology*, 34(4), 445-458.
- Wang, Y., and Jiang, K. (2021). The impacts of human resource management practices on employee turnover intention in the high-tech industry in China: A moderated mediation model. *Sustainability*, 13(19), 10936.
- Wang, Z., & Wang, N. (2019). The impact of organizational culture on employee creativity: The mediating role of knowledge sharing. *Journal of Business Research*, 94, 435-443.
- Zhang, L., Li, Y., and Chen, X. (2020). A Multi-level Model of Employee Turnover Intention: The Joint Effects of Transformational Leadership, Organizational Identification, and Communication Satisfaction. *Journal of Management Studies*, 57(4), 837-858
- Zhang, X., & Chen, G. (2021). Innovation in China's high-tech industries: A review and research agenda. *Journal of Business Research*, 122, 743-754.
- Zhang, X., & Wang, Y. (2017). The impact of transformational leadership on employee creativity: The mediating role of psychological empowerment. *Journal of Business Research*, 70, 159-165.
- Zhang, Y., Chen, Q. (2020). The impact of transformational leadership on employee turnover intention: The mediating role of organizational identification. *Journal of Organizational Behavior*, 41(4), 449-464.
- Zhang, Y., Yang, C., & Wang, X. (2023). The rise of China's high-tech industry: A review and research agenda. *Journal of Business Research*, 154, 113337.