

INFLUENCE OF TRAINING AND DEVELOPMENT ON SUSTAINABLE ORGANIZATIONAL PERFORMANCE IN CHINA'S FINANCIAL INDUSTRY: THE MEDIATING ROLES OF EMPLOYEE ENGAGEMENT AND INNOVATIVE WORK BEHAVIOR IN GUANGDONG PROVINCE, CHINA*

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Abstract

The objectives of this study are: (1) to examine the effect of training and development (T&D) on employee engagement (EE), (2) to investigate the effects of T&D and EE on innovative work behavior (IWB), (3) to analyze the effects of T&D, EE, and IWB on sustainable organizational performance (SOP), and (4) to examine the mediating and sequential mediating roles of EE and IWB in the relationship between T&D and SOP. This research adopts a quantitative research design. The population consists of employees working in financial and investment organizations in Guangdong Province, China, and the sample comprises 406 participants selected through stratified random sampling. Data were collected using a structured questionnaire and analyzed through Structural Equation Modeling (SEM) using AMOS.

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The research results show that: (1) T&D has a significant positive effect on EE ($\beta = 0.62, p < 0.001$), (2) T&D and EE have significant positive effects on IWB ($\beta = 0.48, p < 0.001$; $\beta = 0.55, p < 0.001$), (3) T&D, EE, and IWB have significant positive effects on SOP ($\beta = 0.30, p < 0.001$; $\beta = 0.36, p < 0.001$; $\beta = 0.41, p < 0.001$), and (4) EE and IWB serve as significant mediators, including a sequential mediation effect (T&D $\rightarrow$ EE $\rightarrow$ IWB $\rightarrow$ SOP). The study concludes that training and development plays a critical role in enhancing sustainable organizational performance through both psychological (employee engagement) and behavioral (innovative work behavior) mechanisms. The recommended strategies include implementing continuous and development-oriented training programs, strengthening employee engagement initiatives, and fostering an innovation-supportive organizational environment.

Keywords: Training and Development, Employee Engagement, Innovative Work Behavior, Sustainable Organizational Performance, Structural Equation Modeling

Introduction

In today's rapidly changing and highly competitive business environment, organizations are increasingly required to achieve not only short-term performance but also long-term sustainability. In the financial industry, particularly in China, the pressure to adapt to digital transformation, regulatory changes, and global competition has intensified the need for continuous organizational development. As a result, human resource development, especially training and development (T&D), has become a critical strategic tool for enhancing organizational capability and sustaining competitive advantage. Training and development have been widely recognized as a key mechanism for improving employees' knowledge, skills, and competencies, which in turn contribute to organizational performance. From the perspective of the Resource-Based View (RBV), human capital is considered a valuable, rare, and inimitable

resource that can generate sustained competitive advantage. Investment in employee development through systematic training programs can therefore enhance organizational capability and long-term performance outcomes. However, despite the recognized importance of T&D, its direct impact on sustainable organizational performance remains insufficiently explained, particularly in knowledge-intensive sectors such as the financial industry.

In addition, prior studies suggest that the effectiveness of T&D does not solely depend on the acquisition of skills, but also on employees' psychological and behavioral responses. Drawing upon Social Exchange Theory (SET), when organizations invest in employee development, employees are more likely to reciprocate through higher levels of engagement and positive work behaviors. Employee engagement (EE), which reflects employees' emotional and cognitive attachment to their work, plays a crucial role in translating organizational investment into meaningful outcomes. Similarly, innovative work behavior (IWB), defined as the generation, promotion, and implementation of new ideas, is essential for achieving sustainable organizational performance in dynamic environments. Although previous research has examined the relationships among T&D, employee engagement, innovative work behavior, and organizational performance, several research gaps remain. First, limited studies have simultaneously examined employee engagement and innovative work behavior as mediating variables within a unified model. Second, the potential sequential mediation mechanism—where employee engagement leads to innovative work behavior, which in turn influences sustainable organizational performance—has not been sufficiently explored. Third, empirical evidence in the context of China's financial industry, particularly in Guangdong Province, remains scarce. Therefore, this study aims to address these gaps by developing and testing a comprehensive structural model that examines the impact of training and development on sustainable organizational performance, with the mediating roles of employee engagement and innovative work behavior. By integrating RBV and SET, this study

provides a deeper understanding of how organizational investment in human capital translates into sustainable performance outcomes through both psychological and behavioral pathways. The findings are expected to contribute to both theoretical development and practical implications for human resource management in the financial sector.

Research Objectives

1. To examine the effect of training and development on employee engagement.
2. To investigate the effects of training and development and employee engagement on innovative work behavior.
3. To analyze the effects of training and development, employee engagement, and innovative work behavior on sustainable organizational performance.
4. To examine the mediating and sequential mediating roles of employee engagement and innovative work behavior in the relationship between training and development and sustainable organizational performance.

Literature

Training and development (T&D) is a critical human resource practice that enhances employees' knowledge, skills, and competencies, thereby strengthening organizational capability and long-term performance. In knowledge-intensive industries such as the financial sector, continuous employee development is essential for maintaining competitiveness and responding to rapid technological and regulatory changes (Noe, 2017; Salas et al., 2012). From the perspective of the Resource-Based View (RBV), human capital is considered a valuable, rare, and inimitable resource that contributes to sustained competitive advantage (Barney, 1991), suggesting that investment in T&D enables

organizations to build strategic capabilities and improve performance outcomes. However, prior research presents inconsistent findings regarding the relationship between T&D and organizational performance. While some studies report a direct positive effect, others indicate that the relationship is indirect and dependent on underlying mechanisms (Aguinis & Kraiger, 2009). This inconsistency highlights the need to examine mediating variables that explain how T&D influences performance.

Social Exchange Theory (SET) provides a useful explanation, suggesting that when organizations invest in employees, individuals reciprocate through positive psychological states and behaviors (Blau, 1964). Employee engagement (EE), defined as a positive, fulfilling work-related state characterized by vigor, dedication, and absorption (Schaufeli et al., 2002), represents a key psychological mechanism linking T&D to performance. Engaged employees are more likely to invest cognitive, emotional, and physical energy in their work, leading to higher motivation, commitment, and performance (Kahn, 1990; Saks, 2006), and empirical evidence indicates that EE is positively associated with both innovative behavior and organizational outcomes (Rich et al., 2010; Christian et al., 2011). Innovative work behavior (IWB) represents a critical behavioral mechanism through which organizations achieve sustainable outcomes, referring to the generation, promotion, and implementation of new ideas in the workplace (Janssen, 2000). In dynamic environments such as the financial industry, innovation is essential for maintaining long-term competitiveness and adaptability, and prior studies demonstrate that both T&D and EE positively influence IWB (De Spiegelaere et al., 2014; Bednall et al., 2014). Furthermore, the relationship between EE and IWB can be explained by the Broaden-and-Build Theory, which posits that positive psychological states expand individuals' cognitive and behavioral repertoires, thereby facilitating creativity and innovation. Sustainable organizational performance (SOP) extends beyond short-term financial outcomes to encompass long-term economic, social, and

environmental dimensions (Delery & Roumpi, 2017). Despite its importance, existing literature often treats SOP as a general performance construct and rarely integrates the psychological and behavioral mechanisms through which human resource practices contribute to sustainability. Moreover, prior studies have typically examined EE and IWB separately, with limited attention given to their combined and sequential roles.

Accordingly, this study addresses these gaps by proposing an integrated framework in which T&D enhances SOP through both psychological (EE) and behavioral (IWB) mechanisms. Specifically, EE and IWB are expected to act as mediators, including a sequential mediation pathway in which T&D enhances EE, which subsequently promotes IWB and leads to improved SOP. This framework provides a more comprehensive explanation of how investment in human capital translates into sustainable organizational performance.

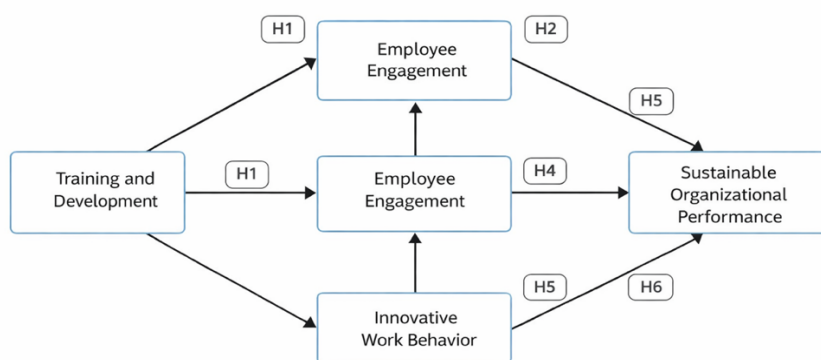


Figure 1 Illustrates the conceptual framework of the study

Methodology

This study employed a quantitative research design using a survey method to examine the relationships among Training and Development (T&D), Employee Engagement (EE), Innovative Work Behavior (IWB), and Sustainable Organizational Performance (SOP). The population comprised employees working in financial and investment organizations in Guangdong Province, China. The

sample consisted of 406 respondents selected through stratified random sampling. The stratification criteria were based on organizational sub-sectors (e.g., banking, investment, insurance, and fintech) and job levels (e.g., managerial and non-managerial positions) to ensure the representativeness of the sample.

Data were collected using a structured questionnaire adapted from established and validated measurement scales. Specifically, Training and Development was measured using items adapted from Aguinis and Kraiger (2009), Employee Engagement was measured using the Utrecht Work Engagement Scale (UWES) developed by Schaufeli et al. (2002), Innovative Work Behavior was measured using the scale developed by Janssen (2000), and Sustainable Organizational Performance was adapted from Delery and Roumpi (2017). All constructs were measured using a five-point Likert scale. Given that the data were collected from a single source, the potential issue of common method bias (CMB) was addressed using Harman's single-factor test. The results indicated that no single factor accounted for the majority of the total variance, suggesting that common method bias was not a serious concern in this study.

Data analysis was conducted using Structural Equation Modeling (SEM) with AMOS. The analysis followed a two-step approach, including measurement model assessment to evaluate reliability and validity, and structural model assessment to test the hypothesized relationships.

Results

The data were analyzed using Structural Equation Modeling (SEM) to examine the relationships among Training and Development (T&D), Employee Engagement (EE), Innovative Work Behavior (IWB), and Sustainable Organizational Performance (SOP). The measurement model demonstrated satisfactory reliability and validity. All factor loadings exceeded the recommended threshold of 0.70, while composite reliability (CR) values were above 0.70 and average

variance extracted (AVE) values exceeded 0.50, indicating adequate convergent validity. Discriminant validity was further assessed using the Fornell–Larcker criterion, whereby the square root of AVE for each construct exceeded the inter-construct correlations. In addition, the Heterotrait–Monotrait (HTMT) ratio was examined, and all values were below the recommended threshold of 0.90, confirming acceptable discriminant validity.

Table 1 Measurement Model Results

Construct	Factor Loadings	Cronbach's Alpha	CR	AVE
T&D	0.72–0.85	0.88	0.90	0.65
EE	0.70–0.87	0.91	0.92	0.68
IWB	0.73–0.86	0.89	0.91	0.67
SOP	0.71–0.88	0.92	0.93	0.69

Note. All values meet recommended thresholds.

The structural model demonstrated a good fit to the data, indicating that the proposed model was appropriate for hypothesis testing. As shown in Table 2, all model fit indices met the recommended thresholds, including CFI (0.94) and TLI (0.93), which exceeded the acceptable level of 0.90, and RMSEA (0.05), which was below the threshold of 0.08. In addition, the χ^2/df value of 2.10 was within the acceptable range, further confirming the adequacy of the model fit.

Table 2 Model Fit Indices

Index	Value	Threshold	Result
CFI	0.94	> 0.90	Good
TLI	0.93	> 0.90	Good
RMSEA	0.05	< 0.08	Good
χ^2/df	2.10	< 3.00	Acceptable

The hypothesis testing results revealed that all proposed relationships were statistically significant and in the expected direction. Specifically, Training and Development (T&D) had a significant positive effect on Employee Engagement (EE), Innovative Work Behavior (IWB), and Sustainable Organizational Performance (SOP). Employee Engagement also had a significant positive effect on both Innovative Work Behavior and Sustainable Organizational Performance. Furthermore, Innovative Work Behavior exerted a significant positive effect on Sustainable Organizational Performance. All standardized path coefficients (β) were positive and statistically significant ($p < 0.001$), and the corresponding t-statistics exceeded the critical value, indicating strong support for all hypotheses. In addition, the coefficient of determination (R^2) values for the endogenous constructs suggested that the model had satisfactory explanatory power, demonstrating that T&D, EE, and IWB jointly explain a substantial proportion of variance in sustainable organizational performance.

Table 3 Hypothesis Testing Results

Hypothesis	Path	β	p-value	Result
H1	T&D $\rightarrow$ EE	0.62	<0.001	Supported
H2	T&D $\rightarrow$ IWB	0.48	<0.001	Supported
H3	T&D $\rightarrow$ SOP	0.30	<0.001	Supported
H4	EE $\rightarrow$ IWB	0.55	<0.001	Supported
H5	EE $\rightarrow$ SOP	0.36	<0.001	Supported
H6	IWB $\rightarrow$ SOP	0.41	<0.001	Supported

The hypothesis testing results indicate that all proposed relationships were statistically significant and in the expected direction. All standardized path coefficients (β) were positive and significant ($p < 0.001$), and the corresponding t-statistics exceeded the critical threshold, providing strong support for all

hypotheses. Regarding mediation analysis, the results confirmed that Employee Engagement (EE) and Innovative Work Behavior (IWB) functioned as significant mediators in the relationship between Training and Development (T&D) and Sustainable Organizational Performance (SOP). To ensure statistical rigor, a bootstrapping procedure was employed, and the indirect effects were found to be significant, as the confidence intervals did not include zero. Specifically, both the individual mediation paths (T&D $\rightarrow$ EE $\rightarrow$ SOP and T&D $\rightarrow$ IWB $\rightarrow$ SOP) and the sequential mediation path (T&D $\rightarrow$ EE $\rightarrow$ IWB $\rightarrow$ SOP) were supported. These findings indicate that T&D enhances SOP not only directly but also indirectly through a chain of psychological and behavioral mechanisms, whereby T&D increases employee engagement, which in turn stimulates innovative work behavior, ultimately leading to improved sustainable organizational performance.

Table 4 Mediation Effects

Path	Indirect Effect	Result
T&D $\rightarrow$ EE $\rightarrow$ SOP	Significant	Supported
T&D $\rightarrow$ IWB $\rightarrow$ SOP	Significant	Supported
T&D $\rightarrow$ EE $\rightarrow$ IWB $\rightarrow$ SOP	Significant	Supported

The mediation analysis was conducted using a bootstrapping procedure to examine the indirect effects among the variables. The results indicated that all indirect paths were statistically significant, as the bias-corrected confidence intervals did not include zero, confirming the presence of mediation effects. Specifically, Employee Engagement (EE) and Innovative Work Behavior (IWB) were found to function as significant mediators in the relationship between Training and Development (T&D) and Sustainable Organizational Performance (SOP). Both the individual mediation effects (T&D $\rightarrow$ EE $\rightarrow$ SOP and T&D $\rightarrow$ IWB $\rightarrow$ SOP) and the sequential mediation effect (T&D $\rightarrow$ EE $\rightarrow$ IWB $\rightarrow$ SOP) were

supported. These findings provide strong evidence that T&D influences SOP not only directly but also indirectly through a combination of psychological and behavioral mechanisms. In particular, T&D enhances employee engagement, which subsequently promotes innovative work behavior, ultimately leading to improved sustainable organizational performance.

Conclusions

This study examined the impact of training and development (T&D) on sustainable organizational performance (SOP) in China's financial industry, with particular emphasis on the mediating roles of employee engagement (EE) and innovative work behavior (IWB). The findings provide strong empirical support for the proposed framework, indicating that T&D influences SOP both directly and indirectly through psychological and behavioral mechanisms. Specifically, T&D enhances employee engagement, which subsequently promotes innovative work behavior, ultimately contributing to improved sustainable organizational performance.

These findings are consistent with prior studies in both Western and Asian contexts, which highlight the positive role of training in enhancing employee capability and performance. However, this study extends the literature by demonstrating that, in the context of Guangdong's financial sector, employee engagement plays a crucial role as a psychological foundation for innovation. In highly regulated and high-pressure environments, employees are less likely to engage in innovative behavior without sufficient levels of engagement and perceived organizational support. The identification of a sequential mediation pathway (T&D → EE → IWB → SOP) represents a key contribution of this study. This result suggests that training investments operate through a staged process, in which psychological readiness enables employees to translate their capabilities into innovative behaviors. In the financial industry, where risk and

compliance requirements are significant, engagement provides the necessary motivation and confidence for employees to participate in innovation-related activities. From a theoretical perspective, this study contributes by integrating the Resource-Based View (RBV) and Social Exchange Theory (SET). T&D functions as a strategic investment in human capital (RBV), while SET explains how such investments are activated through reciprocity mechanisms. In this process, employee engagement reflects the psychological response to organizational support, and innovative work behavior represents the behavioral outcome that transforms human capital into sustainable performance. From a practical perspective, the findings suggest that organizations should adopt development-oriented training strategies that enhance both engagement and innovation. For example, organizations may implement interactive or gamified training approaches to increase participation, and establish cross-functional collaboration platforms to support innovation. In addition, creating a supportive work environment that encourages knowledge sharing and responsible risk-taking is essential for achieving long-term sustainability.

In conclusion, training and development should be regarded as a strategic mechanism for achieving sustainable organizational performance. By strengthening employee engagement and fostering innovative work behavior, organizations can enhance their adaptability, resilience, and long-term competitiveness in dynamic and regulated environments.

Discussion

The findings of this study provide strong support for the proposed conceptual framework and offer important insights into how training and development (T&D) influences sustainable organizational performance (SOP) in the financial industry. Consistent with prior research, T&D was found to have significant positive effects on employee engagement (EE), innovative work

behavior (IWB), and sustainable organizational performance, indicating that training serves not only as a tool for enhancing employee competencies but also as a strategic mechanism shaping employees' attitudes and behaviors (Aguinis & Kraiger, 2009; Noe, 2017). The positive relationship between T&D and EE supports Social Exchange Theory (SET), suggesting that employees reciprocate organizational investment through higher levels of engagement (Blau, 1964; Saks, 2006). This is particularly relevant in the financial industry, where continuous adaptation and high performance are required. Furthermore, EE was found to significantly influence IWB, indicating that engagement functions as a key motivational driver for innovation. Engaged employees are more likely to go beyond routine tasks and actively contribute to idea generation and implementation (Rich et al., 2010; Christian et al., 2011). In addition, IWB significantly enhances sustainable organizational performance, highlighting the role of innovation in achieving long-term competitiveness. This finding aligns with the Resource-Based View (RBV), which emphasizes that innovation derived from human capital is a critical source of sustainable competitive advantage (Barney, 1991). Importantly, this study confirms the mediating roles of EE and IWB, including a sequential mediation effect. The pathway from T&D to SOP through EE and IWB suggests that training investments operate through a staged process in which psychological engagement enables innovative behavior, ultimately leading to improved long-term organizational outcomes. This integrated mechanism provides a more comprehensive understanding of how human resource practices contribute to sustainable performance.

Recommendations

Based on the findings, several practical recommendations are proposed. First, organizations should adopt development-oriented training systems that extend beyond technical skill enhancement to include motivation, involvement,

and career alignment. Continuous and adaptive training programs, particularly those incorporating interactive or gamified elements, can enhance employee engagement and learning effectiveness. Second, organizations should strengthen employee engagement through supportive human resource practices, such as recognition systems, participative decision-making, and clear career development pathways. These practices can increase employees' psychological attachment and willingness to contribute beyond formal job requirements. Third, organizations should actively promote innovative work behavior by establishing structures that support idea generation and implementation. For example, cross-functional innovation teams or internal innovation platforms can facilitate collaboration and experimentation, enabling employees to translate their skills and motivation into creative outcomes. Finally, managers in the financial industry should integrate training, engagement, and innovation into a unified human resource strategy. In highly dynamic and regulated environments, such integration is essential for enhancing organizational adaptability, resilience, and long-term sustainability, rather than focusing solely on short-term performance outcomes.

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