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The mediating role of employee engagement in the relationship between high-performance human resource management and innovative work behavior in information technology companies in Vietnam

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Abstract

This research proposes hypotheses regarding the impact of high-performance human resource management (HPHRM) on innovative work behavior (IWB) through the mediating role of employee engagement (EE) based on the resource-based view, social exchange theory, the broaden-and-build theory of work based on positive emotions and the job demands-resources model. Data from 334 key employees at information technology (IT) enterprises in Vietnam were analyzed using partial least squares structural equation modeling (PLS-SEM) with SmartPLS 4.0 software to examine the relationships between variables in the model. The results reveal that components of the HPHRM system such as training (TR), employee participation (EP), job analysis (JA), performance evaluation (PE) and employee development (ED) directly impact both EE and IWB in Vietnamese IT enterprises. This research also highlights the partial mediating role of EE in the correlation between HPHRM and IWB. The findings concluded from this study contribute further insights into the correlation between HPHRM, EE and IWB. Several implications are proposed to enhance IWB through solutions related to HPHRM and EE in IT enterprises in Vietnam within the state of international economic integration and the impact of the Fourth Industrial Revolution based on these insights.

Keywords: Employee development, Employee engagement, Employee participation, High-performance human resource management, Information technology companies, Innovative work behavior, Job analysis, Performance evaluation, Training.

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1. Introduction

Management activities within organizations involve the allocation of human, material and financial resources to achieve predetermined goals. Among these, one of the core aspects is human resource management (HRM) to foster employee engagement (EE) shaping their attitudes and enthusiasm at work. Effective HRM strengthens employees' long-term commitment and encourages creativity enhancing performance and contributing to maintain a sustainable human resource for the enterprise. A dedicated and committed workforce enhances work performance, increases value for customers and enables enterprises to face the challenges of innovation in their respective industries. In the context of globalization and increasing competition, to facilitate international economic integration under the impact of the Fourth Industrial Revolution, enterprises particularly in Vietnam are required to effectively exploit and use resources to swiftly develop and apply scientific and technological advancements in innovation enhancing their competitiveness. The Information technology (IT) sector recognized as a key driver of Vietnam's economic growth is facing numerous opportunities and challenges especially related to human resources as IT companies are striving to adapt to a rapidly changing environment, create new products and services to satisfy the increasingly diverse demands of the market. In this context, HRM is considered a key solution to help IT enterprises in Vietnam use their workforce effectively, create competitive advantages and HRM is also a method to directly influence employees' attitudes and behaviors. This research aims to fill the research gap in understanding the relationship among high-performance human resource management (HPHRM), EE and innovative work behavior (IWB) within IT firms in Vietnam because the previous studies have not comprehensively examined the impacts of HPHRM system components comprising training (TR), Employee Participation (EP), Job Analysis (JA), Performance Evaluation (PE), and Employee Development (ED) on EE (including job engagement and organizational engagement) and lack fully researched investigating the relationship between the components of HPHRM system and IWB especially in IT enterprise. In addition, some studies have only focused on clarifying the influences of HPHRM systems on firm innovation (including product, process and service innovation) and some studies have mentioned employee innovation behavior but only at the stage of generating ideas without considering the stages of promoting and implementing these ideas. As a result, this study aims to answer the following questions: (1) Do the components of HPHRM (including TR, EP, JA, PE, and ED) influence EE and IWB in IT enterprises in Vietnam? (2) Does EE mediate the relationship among components of HPHRM (including TR, EP, JA, PE and ED) and IWB? This research holds both theoretical and practical significance. Theoretically, the study provides insights into the impact of HPHRM on EE and IWB. Practically, the findings offer positive implications for enterprises particularly IT firms in Vietnam to improve HRM practices, thereby fostering EE, enhancing IWB in the context of the strong development and innovation in science and technology. This paper is structured into the following seven sections: Section 1 provides the study's introduction followed by section 2 which presents the literature review. Section 3 comes up with the research hypotheses while section 4 outlines the research methodology. Section 5 evaluates the research results. Section 6 discusses the findings and their policy implications and finally, section 7 provides the conclusions and limitations of the study.

2. Literature Review

2.1. Research Concept

2.1.1. High Performance Human Resource Management

Wright and McMahan [1] defined HPHRM as a system of human resource practices and strategic activities designed to enhance organizational performance by fostering a workforce that is highly skilled, motivated, committed and helps organizations achieve their goals Datta et al. [2]. Lado and Wilson [3] suggested that HPHRM comprises a set of distinct yet interconnected functions, operations and processes aimed at attracting, developing and retaining talent within organization. HPHRM also encompasses a range of HRM activities that enhance employee skills, provide opportunities for their engagement in decision-making processes and promote their discretionary efforts, thereby creating a significant competitive advantage reflected in improved financial outcomes for the organization [4-7]. Establishing HPHRM systems aims to increase employee commitment, satisfaction and skills [8] as well as enhance organizational performance [2, 4, 9]. Therefore, *HPHRM represents a systematic combination of best HRM practices that fosters employee commitment, skills and motivation leading to improved organizational performance*.

According to Delery and Doty [10] and Zhang and Li [11] HPHRM system includes seven components: internal occupation opportunity, staff training, result-oriented performance appraisal, job security, profit sharing, EP and job definition. Meanwhile, Huselid [4] and Chen and Huang [12] suggested that the system consists of recruitment, incentive-based pay, PE, EP and enhanced training. In general, HPHRM is a critical activity for organizations. HPHRM is a system that effectively manages all human resource-related tasks and enables employees to perform actions that achieve the organization's objectives. Based upon previous studies, this research investigates HPHRM as comprising the following five specific activities: *TR, EP, JA, PE and ED.*

2.1.2. Innovative Work Behavior

Individual innovative behavior relates to apply new ideas or processes into an employee's work practices [13]. It is a complex behavior that involves activities related to identifying or introducing new ideas (either by oneself or others) and executing those ideas [14-17]. IWB begins with recognizing a problem, generating new ideas or solutions, seeking sponsorship and building an alliance to support these ideas or solutions from these perspectives. Ultimately, these individual ideas are accepted, modeled and widely applied within the organization. Thus, IWB is understood as *a series of activities that begin with problem recognition followed by the creation of new ideas and then gaining support from*

stakeholders to ensure that these new ideas or solutions can be implemented and widely adopted within the organization. Therefore, innovation is a process comprising different activities and behaviors of each individual also differ at each stage. Individuals may participate at any stage of the IWB process.

2.1.3. Employee Engagement

According to Kahn [18] EE involves leveraging organizational members to perform their roles at work. Engagement encompasses aspects such as cognition, emotion and behavior related to the execution of personal roles [19]. It is a positive, satisfied, work-related mental condition identified by vigor, dedication and absorption [20]. EE reflects employees' commitment and their readiness to make effort to help the enterprise succeed. Engagement is created when individuals are emotionally linked with others and have a high level of awareness [21]. EE is the result of deep dedication to the organization expressed through the degree of effort that employees perform at work. Engagement can be measured by the degree of employee loyalty to the enterprise, enthusiasm and alignment of their personal values with the mission statement and objectives of the organization. Engaged employees tend to perform better and have higher motivation. They are more likely to remain committed to the organization, becoming a person who advocates for organization and contributing to its success [22]. This research approaches the concept of EE from the perspective of Saks [19] wherein EE *is described as a positive psychological state reflecting the level of energy employees have in their physique, cognition and emotion when passionately performing both their roles related to work and their membership within the organization.*

2.2. Foundational Theories

2.2.1. Resource-Based Theory

The resource-based theory encourages enterprises to identify critical resources and focus on developing them to sustain and enhance competitive advantage [23]. HPHRM is a set of HRM activities aimed at increasing employees' contributions to the organization. At the same time, implementing these management practices also enhances EE by satisfying their needs [4-6]. Furthermore, organizations can foster greater innovation by encouraging key employees to enthusiastically propose new ideas by building a HPHRM system [24]. Additionally, organizations can create a competitive advantage by developing new products and improving work processes. Organizations must motivate employees to help them generate creative ideas to increase innovation activities [25]. Therefore, resource-based theory explains the relationship between HPHRM, EE and IWB highlighting the role of HPHRM in enhancing job engagement and promoting employees' innovative behavior.

2.2.2. Social Exchange Theory

Social exchange theory relates to social interaction among individuals who believe that they will benefit from exchange behaviors [26]. Social exchange theory explains that people interact with relationships within society based on the exchange of benefits. When employees receive support from the organization, feel the attention of organization to their benefits and appreciate their contributions, they are more likely to voluntarily comply with organizational norms, work harder and be willing to ensure they are committed to the organization long-term. This theory highlights that organizational concern and support for employees, motivate them and foster a sense of appreciation. Thereby, employees tend to be more confident in participating in innovative and creative activities which promotes innovation within organization. In a nutshell, HPHRM not only focuses on work performance but also emphasizes building a dynamic work environment that encourages innovation.

2.2.3. Broaden-and-Build Theory of Work Based on Positive Emotions

Broaden-and-build theory of work based on positive emotions of Fredrickson [27] suggested that positive emotions such as interest, enthusiasm and pride can help broaden the range of thought and promote exploratory actions. Positive emotions can influence human thinking and behavior [28, 29]. These emotions are also linked to the ability to exceed expectations in tasks or work without being explicitly asked. Individuals with a positive mental state tend to display a greater eagerness to learn and a desire for challenges. The benefits of positive emotions lead to healthy life choices building an individual's sociality [30] intelligence [31] and material resources [32]. Therefore, the broaden-and-build theory of work based on positive emotions explains the relationship between IWB, EE and HPHRM.

2.2.4. Job Demands-Resources Theory

Bakker and Demerouti [33] argue that high job demands combined with insufficient resources often lead to stress and burnout. Conversely, sufficient resources can offset the influences of high job demands, promoting participation and increasing work motivation. Factors influencing EE are explained through job demands and job resources. Job demands typically require individuals to dedicate themselves to completing tasks that can significantly impact employee health [34]. Meanwhile, job resources including support, motivation, recognition, opportunities to develop, rewards, job variety and autonomic empowerment can foster motivation leading to employee engagement, happiness and high performance [35]. Therefore, the job demands-resources theory is a foundation for hypothesizing the impact of resources on EE and the effects of EE on employee behavior in the context of building a connected and committed work environment within the organization.

3. Research Hypothesis

3.1. High-Performance Human Resource Management and Employee Engagement

HPHRM systems are comprised of the best HRM practices that enable organizations to improve their performance outcomes [24, 36]. When organizations invest in HPHRM systems, it helps employees enhance productivity, reduce turnover [4] increase commitment [37, 38] and foster greater loyalty to the organization Edwards and Wright [39]. Singh [40] said that the components of a HPHRM system are closely interrelated to serve the goal of building and maintaining a competent and engaged employees who contribute positively to the organization. Engagement behaviors of employees play a central role in HRM activities and are "key characteristic distinguishing HPHRM from traditional HRM". Engagement is based on the belief in a mutually trusting work environment which contrasts with the submissive behavior that characterizes traditional HRM [41]. A comfortable and safe working environment can positively affect employees' job performance. It is essential for leaders to understand employees' needs and motivate them to enhance their performance. In a HPHRM system, activities such as recruitment, TR, PE, compensation and promotion opportunities positively influence job satisfaction which helps retain employees and increase their engagement with the organization. Research also indicates a positive relationship between compensation policies [42] career planning, promotion opportunities, TR, PE [43] and EE. The study proposes the following hypotheses based on these analyses:

Hypothesis H_1: HPHRM positively affects EE.
Hypothesis H_{1a}: TR positively affects EE.
Hypothesis H_{1b}: EP positively affects EE.
Hypothesis H_{1c}: JA positively affects EE.
Hypothesis H_{1d}: PE positively affects EE.
Hypothesis H_{1e}: ED positively affects EE.

3.2. High-Performance Human Resource Management and Innovative Work Behavior

Innovation is related to intentionally creating, introducing and applying new initiatives at work to benefit the organization [16]. When organizations pay attention to develop HPHRM systems, it helps employees foster greater innovation and creativity among employees in their work [24, 44] as HPHRM encourages the process of sharing and applying enthusiastically new knowledge among employees in the workplace [45]. HPHRM systems can foster innovative behavior by supporting, motivating and providing opportunities for employees by shaping their perceptions through an innovative environment. Thus, HPHRM practices can increase employees' innovative behavior by creating a sense of organization's commitment and enhancing employees' sense of obligation to reciprocate to the organization for its support and commitment. Furthermore, employees' innovative behavior increases when their competencies, motivation and opportunities to participate are supported by the organization. Employees are not only encouraged to engage but also view this as an opportunity to get back from organization through personal creative behavior. An individual's perception of high-commitment HRM practices influences their IWB Bos-Nehles and Veenendaal [46]. Ma Prieto and Pilar Perez-Santana [47] indicated that HPHRM systems positively impact employees' innovative behavior in production and service enterprises in Spain. Fu et al. [48] concluded that HPHRM systems positively affect customer innovation and service innovation in organizations through the mediator role of employees' innovative behavior. However, these studies have mainly focused on generating new ideas and have not addressed activities related to promoting and applying new ideas within organizations. The hypotheses are as follows based on these analyses:

Hypothesis H_2: HPHRM positively affects IWB.
Hypothesis H_{2a}: TR positively affects IWB.
Hypothesis H_{2b}: EP positively affects IWB.
Hypothesis H_{2c}: JA positively affects IWB.
Hypothesis H_{2d}: PE positively affects IWB.
Hypothesis H_{2e}: ED positively affects IWB.

3.3. Employee Engagement and Innovative Work Behavior

EE is characterized by employees' tendency to use strength and energy to serve goals and values of organizations, which plays an important role in executing IWB to create new initiatives. Job engagement leads to frequent innovative behaviors [49]. Employees with high engagement tend to exhibit flexible and persistent cognition [17] pursue challenges, and immerse themselves in their work [18, 50, 51]. They perform their tasks with high efficiency, have clear career orientations and invest their mental energy into their work. As a result, they have the ability to explore alternative solutions and respond innovatively [52] discover different ways to solve problems, enthusiastically seek new ideas, promote creative ideas and implement them. Job engagement enhances organizational competitive advantage through job satisfaction which is particularly associated with encouraging and implementing employees' innovative behavior in the workplace. Engaged employees will enhance their personal initiative which increases the innovation within the organization [33] and creates opportunities for employees to explore, acquire and apply information [27]. Research approaches to EE include job engagement and organizational engagement. However, previous studies have mainly paid attention to clarify the relationship between job engagement and IWB while EE helps employees recognize their role in relation to individual attitudes, intentions and behaviors [19]. Hypotheses are as follows based on these analyses:

Hypothesis H_3: EE positively affects IWB.
Hypothesis H_4: EE mediates the relationship between HPHRM and IWB.
Hypothesis H_{4a}: EE mediates the relationship between TR and IWB.

Hypothesis H_{4b}: EE mediates the relationship between EP and IWB.
Hypothesis H_{4c}: EE mediates the relationship between JA and IWB.
Hypothesis H_{4d}: EE mediates the relationship between PE and IWB.
Hypothesis H_{4e}: EE mediates the relationship between ED and IWB.
The proposed research model is as follows:

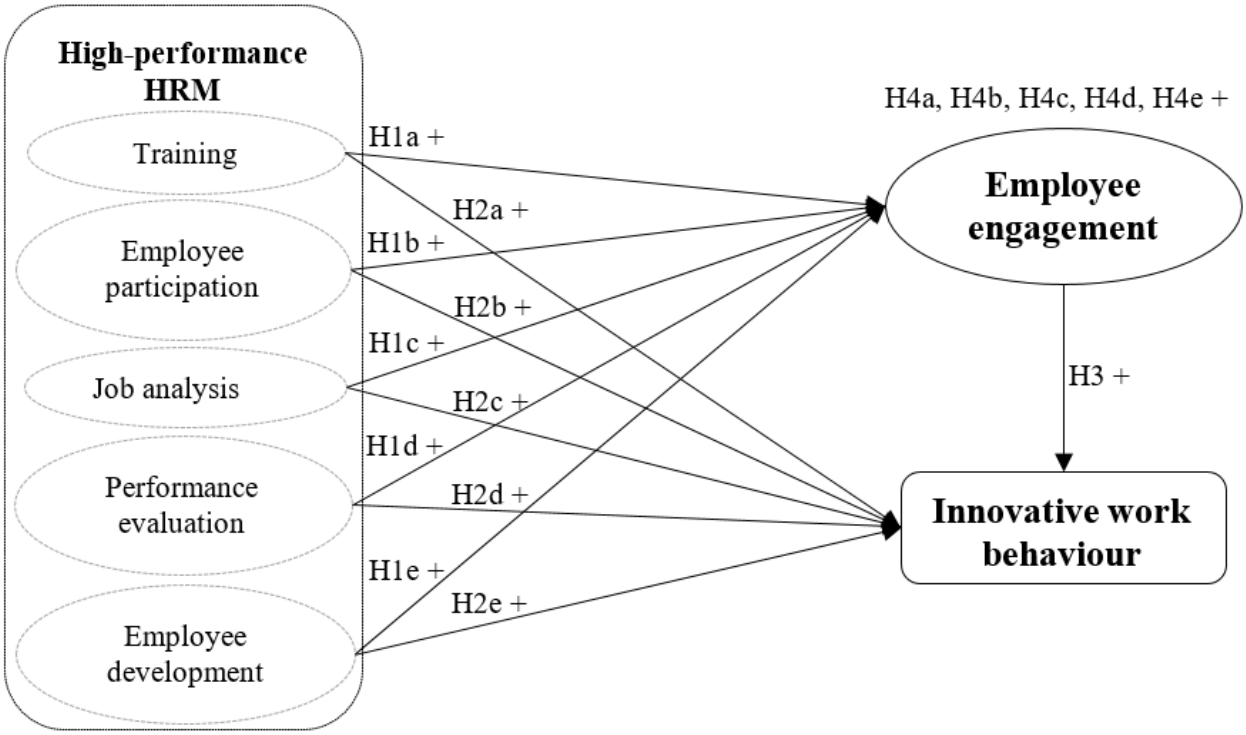

Figure 1.
Research model.

Figure 1 illustrates the research model examining the impact of HPHRM on EE and IWB which includes seven variables. The independent variables consist of five aspects of HPHRM: TR, EP, JA, PE, and ED. The dependent variables are EE and IWB. The novelty of this research model is to evaluate the influence of HPHRM on EE and IWB through the specific aspects of HPHRM: TR, EP, JA, PE, and ED.

4. Research Methodology

4.1. Measurement Scale

The authors used 30 observations to measure the variables in the research model. These observations were derived from previous studies. The research team interviewed five HRM experts to review and refine the observations in the research model ensuring their appropriateness to the research context of Vietnam before conducting a large-scale survey. After review and adjustments, the observed variables were quantified using a 5-point Likert scale:

HPHRM is a second-order variable measured through five first-order latent variables that represented HRM activities including TR, EP, JA, PE and ED. These were inherited from Delery and Doty [10]; Lu et al. [24] and Zhang and Li [11] corresponding to 18 observations.

IWB was measured by 6 observations as proposed by Dhar [53].

EE consisted of 6 observations, inherited and modified from Saks [19].

4.2. Research Sample

A sample of 90 IT enterprises was conducted in 3 developed cities considered economic centers in Vietnam: Hanoi, Da Nang and Ho Chi Minh City. The sample was selected using a convenience sampling method. Respondents had to be key employees of the organizations to meet the research objectives. They are typically management level in important organization's sections such as HRM, research and development, accounting, marketing, engineering or sales. The author team distributed 385 survey questionnaires, 351 responses were collected of which 334 responses met the standard for analysis. This research has 30 observations, according to the standard, the minimum sample size must be at least five times the number of observed variables [54] equivalent to 30*5=150 responses. Thus, the study meets the standard sample size with 334 valid responses.

4.3. Data Analysis Method

According to Hair et al. [54] Partial Least Squares Structural Equation Modeling (PLS-SEM) is used on Smart PLS to conduct data analysis. The process involved

(i) Assessing the measurement model including the evaluation of observation quality through outer loadings; Composite reliability (CR) and Cronbach's alpha are used to assess scale reliability. Average Variance Extracted (AVE) is used to evaluate a scale's convergent validity. Heterotrait-Monotrait (HTMT) is used to evaluate a scale's discriminant validity.

(ii) Assessing the structural model and testing research hypotheses through bootstrapping results. Evaluating multicollinearity indices through the Variance Inflation Factor (VIF), analyzing beta coefficients and R^2 values.

5. Research Results

5.1. Measurement Model Assessment

Table 1 presents the outcome of the measurement model analysis indicating that the observed variables meet the required quality with outer loading coefficients > 0.7.

Table 1.
Evaluation results of some indicators in the measurement model.

Scales	Outer loading coefficients	C.alpha	CR	AVE
TR				
TR1. The company's employees are trained every period.	0.905	0.899	0.930	0.768
TR2. The company provides our employees with a formal training program for them for promotion.	0.844			
TR3. The company provides comprehensive training for employees.	0.835			
TR4. The company has formal training programs to teach new employees work skills.	0.919			
EP				
EP1. Managers and employees constantly make open and honest communication.	0.887	0.872	0.913	0.724
EP2. Company employees have the opportunity to put forward the recommendation on improving the working methods.	0.870			
EP3. The managers of the company often make decisions referring to the views of staff.	0.781			
EP4. The employees can decide their way of working in many cases.	0.862			
JA				
JA1. There is a clear definition of employees work responsibilities.	0.869	0.881	0.918	0.737
JA2. The responsibilities manual of employees includes all the responsibilities of employees.	0.843			
JA3. The employees can be in strict compliance with the specification of the responsibilities manual in practical work.	0.849			
JA4. The company will promptly revise the responsibilities manual when necessary.	0.874			
PE				
PE1. The employees' performance is conducted periodically.	0.893	0.737	0.884	0.792
PE2. The performance is usually measured as the objective and quantifiable results in the company.	0.886			
ED				
ED1. The employees have a clear career path within the company.	0.887	0.898	0.929	0.765
ED2. Direct superiors learn the occupational development intention of the employees.	0.875			
ED3. Employees have more than one suitable position to achieve promotion.	0.889			
ED4. There is career development for employees working in this company.	0.846			
EE				
I really "throw" myself into my job.	0.791	0.896	0.921	0.659
Sometimes, I am so into my job that I lose track of time.	0.804			
This job is all consuming. I am totally into it.	0.839			
One of the most exciting things for me is getting involved with things happening in this organization.	0.824			
Being a member of this organization is exhilarating for me.	0.793			
I am highly engaged in this organization.	0.818			
IWB				
IWB1. At work, I come up with innovative and creative notions.	0.840	0.895	0.923	0.706
IWB2. At work, I try to propose my own creative ideas and convince others.	0.779			
IWB3. At work, I seek new service techniques, methods or techniques.	0.870			
IWB4. At work, I provide a suitable plan for developing new ideas.	0.846			
IWB5. At work, I try to secure the funding and resources needed to implement innovations.	0.863			

Note: The observed variable IWB6: "Overall, I consider myself a creative member of my team" was eliminated due to failed outer loading.

The reliability indices (Cronbach's alpha, composite reliability (CR) all exceeded 0.7 indicating that the measurement model achieves reliability [55]. The Average Variance Extracted (AVE) of the latent constructs was all greater than 0.5 meeting the requirement for convergent validity [56]. The HTMT of the related variable pairs was all below 0.85 (see Table 2) ensuring that the scales in the research model met discriminant validity [57, 58].

Table 2.
HTMT coefficient test results.

	ED	EE	EP	IWB	JA	PE
EE	0.707					
EP	0.648	0.760				
IWB	0.821	0.833	0.799			
JA	0.607	0.706	0.702	0.766		
PE	0.526	0.625	0.551	0.686	0.591	
TR	0.568	0.688	0.633	0.738	0.592	0.525

Note: Discriminant validity was set at $HTMT_{0.85}$.

5.2. Evaluation of the Structural Model

The analysis results indicate that the Variance Inflation Factor (VIF) indicators were all in Table 3 suggesting that the model does not have multicollinearity issues [58].

Table 3.
Multicollinearity test results (VIF).

	EE	IWB
ED	1.746	1.888
EP	2.033	2.217
JA	1.931	2.010
PE	1.426	1.463
TR	1.715	1.839
EE		2.674

Bootstrap analysis with a resampling size of N = 5000 was conducted to evaluate the relationships among variables within the research model. The path coefficient (beta) for the endogenous latent variables was used to analyze the model at a 5% significance level. P-values were presented in Table 4. All values were below 0.05 which means all effects were statistically significant.

Beta coefficients are positive which was shown in Table 4. As a result, Table 4 listed the accepted hypotheses concerning direct effects and the accepted hypotheses regarding the mediating role of EE.

Table 4.
Results of structural model evaluation.

Hypothesis	Path	Standardize beta	Standard error	P values	Hypothesis conclusion
Hypotheses of direct influence					
H1a	TR -> EE	0.215	0.044	0.000	Accepted
H1b	EP -> EE	0.262	0.047	0.000	Accepted
H1c	JA -> EE	0.171	0.043	0.000	Accepted
H1d	PE -> EE	0.119	0.040	0.003	Accepted
H1e	ED -> EE	0.230	0.046	0.000	Accepted
H2a	TR -> IWB	0.167	0.043	0.000	Accepted
H2b	EP -> IWB	0.171	0.042	0.000	Accepted
H2c	JA -> IWB	0.156	0.040	0.000	Accepted
H2d	PE -> IWB	0.116	0.033	0.000	Accepted
H2e	ED -> IWB	0.310	0.040	0.000	Accepted
H3	EE -> IWB	0.174	0.053	0.001	Accepted
Hypotheses of indirect effects					
H4a	TR -> EE -> IWB	0.038	0.014	0.008	Accepted
H4b	EP -> EE -> IWB	0.046	0.016	0.004	Accepted
H4c	JA -> EE -> IWB	0.030	0.011	0.009	Accepted
H4d	PE -> EE -> IWB	0.021	0.010	0.045	Accepted
H4e	ED -> EE -> IWB	0.040	0.016	0.011	Accepted

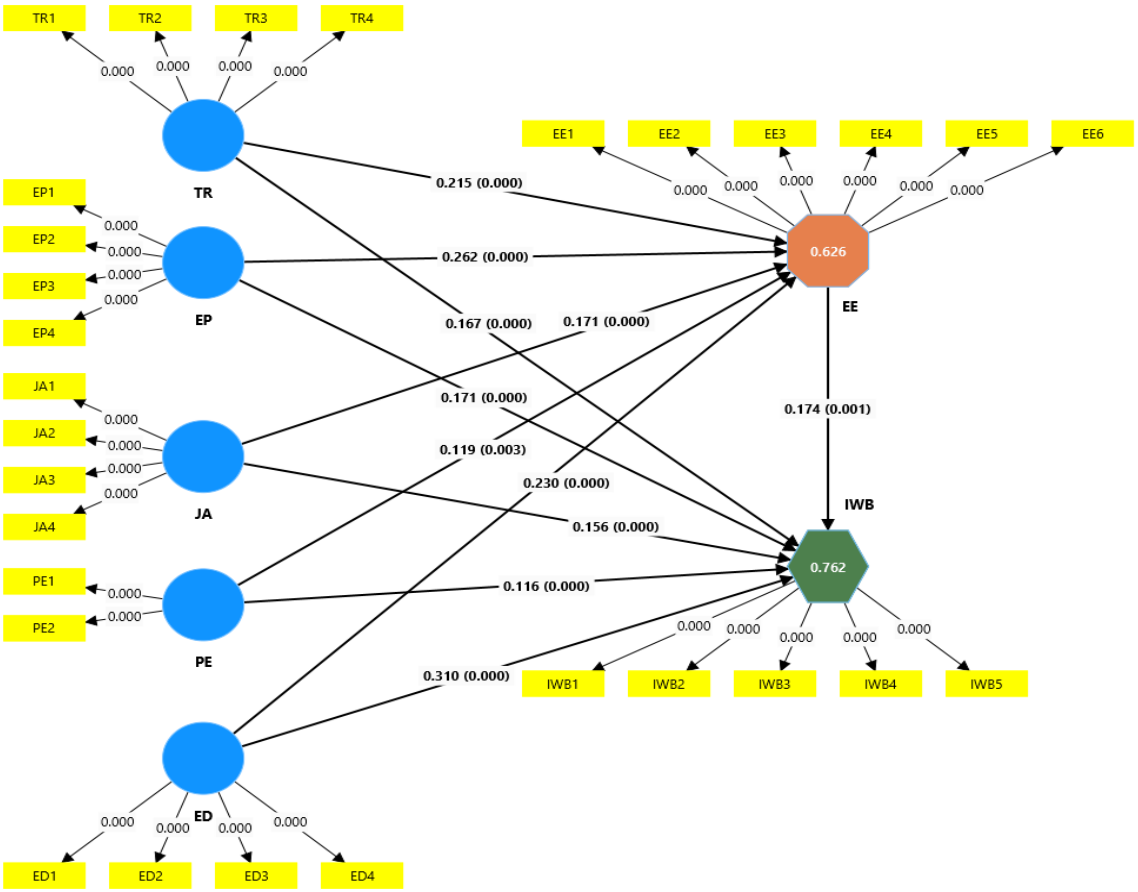

Figure 2.
Results of structural equation modeling (SEM) analysis.
Note: The value outside the parentheses is the path coefficient, the value in parentheses is the p-value and the values in the orange and green boxes are R^2_{adj}.

Figure 2 illustrates that all direct relationships in the research model are statistically significant (p-value < 0.05) demonstrating varying levels of impact between the independent variables and a dependent variable as indicated by the path coefficient. Additionally, the adjusted R^2 (R^2adj) is presented in Figure 2 to evaluate the explanatory power of the independent variables on the dependent variables. In this research model, the two dependent variables are EE and IWB. The R^2adj results show that the HPHRM variables account for 62.6% of the variance in EE and 76.2% of the variance in IWB.

6. Discussion of Research Results and Policy Implications

The following conclusions can be drawn from the results of the study on the impact of HPHRM on EE and IWB:

First, HPHRM activities such as TR, EP, JA, PE and ED all have a positive and direct effect on EE in IT enterprises in Vietnam. The research supports the view that HPHRM systems imply that companies treat employees better leading to foster their greater loyalty. This finding aligns with the research of Edwards and Wright [39] and Zacharatos et al. [8]. Additionally, the study shows that the beta coefficients related to the influence of latent variables on EE are different among IT companies in Vietnam. In detail, the beta coefficient of PE is highest (0.262) followed by ED (0.230) and TR (0.215). Other activities get beta coefficients exceeding 0.1. This suggests that organizations and IT enterprises in Vietnam should consider establishing a clear, transparent and fair PE system. This would help employees perceive that the organization recognizes their dedication and rewards them appropriately, thereby increasing engagement. Moreover, adequate investment in training programs is needed to provide essential skills and knowledge to employees to maximize their capabilities and contributions to the company. In addition, organizations should create a positive work environment based on appropriately monitoring and evaluating employees and developing reasonable compensation policies aligned with employee performance and contributions. Organizations also should increase recognition and rewards for employee achievements and contributions as well as implement transparent promotion policies to stimulate employee productivity and foster their commitment to their work.

Second, HPHRM activities impact positively and directly on IWB among employees in IT companies in Vietnam. In the context of integration, innovation is an advantage for organizations and especially IT companies to develop and enhance their competitiveness. When companies demonstrate concern for their employees by concrete actions through human resource policies such as learning and development programs and employee evaluation, it will help employees feel supported and recognized which increases their IWB. This finding is similar to the research of Arias-Aranda et al. [44]; Lu et al. [24] and Damanpour [45]. The research also clarifies that EP positively affect employee commitment in IT enterprises. When companies provide opportunities for employees to exercise autonomy and creativity in their work, it

enhances their sense of responsibility and dedication because when employees feel respected, they tend to work more effectively and engage more actively in organizational activities. This drives organizational growth and development through employee contributions.

Third, EE has a positive and direct impact on IWB in IT companies in Vietnam. This result reinforces the findings of Reuvers et al. [59] who suggest that to improve IWB, it is necessary to pay special attention to job engagement since employees' passion and dedication will be enhanced if they possess high job satisfaction. Employees possessing high job satisfaction will express greater contribution especially in their ability to generate creative ideas during work processes, helping the company thrive. Innovative behavior increases as employees become more engaged with their work. The study also helps to fulfill gaps of previous research through clarifying the effect of different aspects of EE including job engagement and organizational engagement on IWB.

Fourth, a highlighted contribution of this research is to indicate that EE plays a partial mediator role in the correlation between IWB and HPHRM in IT enterprises in Vietnam. HPHRM activities such as TR and PE are indicated as important activities to create the motivation and encouragement in employees in the IT industry. These activities are viewed as effective tools for enhancing EE and commitment to the organization. Additionally, JA, EP and ED activities improve employees' skills and knowledge which fosters greater effort and active participation in their work. This also brings opportunities for innovation when employees perceive the value of personal development and their contributions to the organization. Engagement reflected through employees' effort, dedication and loyalty also significantly impacts IWB and creates a creative working environment within IT companies. IT companies can identify appropriate strategies to improve EE while also enhancing IWB based on these findings.

7. Conclusion and Research Limitations

In the increasingly knowledge-driven economy, businesses face numerous challenges in training and retaining employees. Moreover, the knowledge-driven economy has witnessed the development and growing intensity of competition among enterprises [60]. Strengthening the HPHRM system has become more crucial than ever for businesses today. HPHRM aims to optimize employee talent and performance by establishing policies, processes and strategies that promote individual development and fairly assess and recognize results. Employees' IWB fosters creativity and continuous improvement in daily tasks and enables them to proactively keep up with the variations and developments in the work environment. This relationship strongly interacts to create an environment that encourages innovative behavior and also adds value to the organization. Furthermore, creating a positive work environment that ensures fairness in compensation and provides opportunities for personal development can enhance EE. HRM holds a particularly important position compared to the management of other resources as human resources provide a company's core competitive advantage. Therefore, organizations must understand the expectations of employees to foster innovation and build strong organizational engagement.

HPHRM, EE and IWB are complex issues. This study investigated only a limited number of IT companies in Vietnam despite the efforts of the authors. Future research should expand the scope of investigation to cover more businesses across various industries nationwide and develop a research model to explore additional moderating factors in the relationship between HPHRM, EE and IWB because attitudes and behaviors of employees towards HRM activities depend on how they perceive these activities in the context of their work environment [61].

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