International Review of Management and Marketing

ISSN: 2146-4405

available at http: www.econjournals.com

International Review of Management and Marketing, 2026, 16(2), 130-143.

The Effect of Work Engagement on Individual Work Performance in the Psychology in Happiness Perspective: Mediated by Happiness at Work

Jinzhan Wang*, Azra Ayue Binti Abdul Rahman

School of Human Resource Development and Psychology, Universiti Teknologi Malaysia, 81310 Johor Bahru, Malaysia.
*Email: wangjinzhan@graduate.utm.my

Received: 01 August 2025 **Accepted:** 03 Decemebr 2025 **DOI:** https://doi.org/10.32479/irmm.21675

ABSTRACT

Due to the widespread use of electronic devices and digital technology, modern enterprises are paying increasing attention to the dedication of contemporary employees. This research aims to study the mediating role of happiness at work from a psychology in happiness perspective through the logic of social cognitive theory (SCT), and to address this critical gap in existing literature. The study used quantitative methods to collect sample data from 372 full-time employees. Empirical data analysis shows that happiness at work plays a significant mediating role in the effect of work engagement on individual work performance. There is also a significant correlation between these factors. The innovation of this research lies in the fact that t is one of the few empirical research works that incorporates the concept of happiness at work as a mediator into the field of human resource management. Based on empirical evidence, the theoretical model has been improved through research.

Keywords: Happiness at Work, Work Engagement, Individual Work Performance
JEL Classifications: M31, Z32

1. INTRODUCTION

More and more business organizations are beginning to value their employees themselves, and the concept of focusing on happiness at work is becoming increasingly profound. Human resource management is often one of the most important parts for employers, and valuing work performance helps employers improve management efficiency. Its main function is to help organize the test and evaluate employees' work attitudes and abilities, and then identify problems through the evaluation results, which greatly helps employees understand their own abilities correctly. Therefore, employees can make targeted efforts to make up for and improve their shortcomings (Sanchez Gomez and Breso, 2020). Therefore, it is necessary to pay attention to the individual work performance of employees and provide accurate and objective reference data for enterprise management and human resource management.

With the expansion of many enterprise organizations, the cost of human resource management is also increasing, and there is an urgent need for objective and scientific management models. However, with the rapid changes in the overall environment, the resignation rate of most young employees in traditional enterprises continues to increase, leading to a decrease in dedication and damaging corporate performance (Hai et al., 2021). Organizations make employees feel needed and stable, and employees see their work as their will and participate in it (Ge, 2020). All of these indicate that there is a mutual correlation between work engagement and individual work performance

In the eyes of professional researchers, the topic of individual work performance as an important component in maintaining organizational harmony and progress has always been a concern. For example, Bakker et al. (2020) mentioned that due to the need

for organizations to respond to rapidly changing environments, most organizations rely on the output of individual work performance. His concept can be said to originate from a summary of the era of corporate strategy under the rapid changes in the overall environment in recent years. Therefore, Bakker et al. (2020) provides a more detailed explanation of individual work performance and demonstrates that employees may need active self-management to create wok performance. Therefore, the first research question is whether work engagement has a direct effect on individual work performance.

From the perspective of the work environment, according to Kustiawan et al.'s (2022) research, the aspect of work engagement is that employees are able to participate in various workflow and decision-making activities, which allows them to be recognized at work and promotes their sense of happiness at work. On the other hand, from the perspective of creating a work environment atmosphere, Hafeez et al.'s (2024) study on work engagement shows that work engagement reflects the diversity of the work environment, thereby creating a positive and happy work environment. Eespecially the work environment and mode have changed, so it is necessary to reconsider the happiness factor at work (Brynjolfsson et al., 2020). Therefore, it is necessary to conduct are examination of happiness at work, and the direct effect of work engagement on happiness at work as the second research question of this study.

For a long time, engagement has been considered a prerequisite for employee performance in order to become a successful enterprise. Employees who work in a relaxed environment are more likely to persist in pursuing high work performance (Setyawan and Wibowo, 2023). Similarly, those who are committed to their work believe that they can complete tasks, and happy employees believe that their work environment is pleasant and relaxing. In terms of its function, happiness at work not only makes employees more engaged in their work, but also enhances work performance (Lewa and Lewa, 2020). Amal and Meutia (2021) proposed that, driven by global globalization, organizations urgently need to undergo transformation or change to adapt to new environments. Therefore, the third research question of this study is What is the mediating role of happiness at work towards the effect of work engagement on individual work performance.

2. THEORETICAL SIGNIFICANCE AND LITERATURE REVIEW

Bandura (1977) first proposed the concept of observational learning in "Social Learning Theory," emphasizing the process of individual learning and breaking through reliance on traditionalist behaviorism. For example, Bandura's (2011) self-regulation system focuses on the cyclical process of goal setting and behavioral adaptation. In later related studies, SCT emphasized the role of environmental input in cognitive processing. For example, Eden's (1992) study proposed an efficient team communication environment that can enhance task performance through information sharing (the role of self-efficacy).

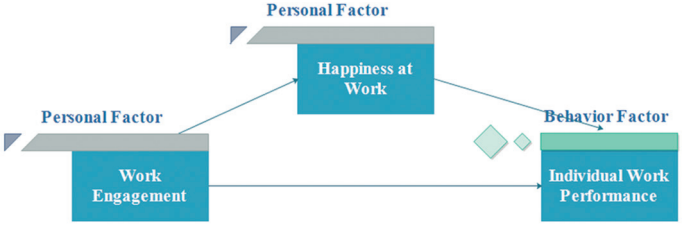
A recent study emphasizes that this theory can explain the role of happiness in individual social cognitive processes (Marshall et al., 2020). Follows the basic sequence of "environment cognition behavior" advocated by SCT (Schneider, 2021) and reasonably simplifies the complex dynamic relationship in its "three factors interaction theory," focusing on the testable core paths: work engagement (personal cognition) → happiness at work (Internal drive) → individual work performance (behavior). The theoretical framework of this study is shown in Figure 1.

In the context of this study, it is necessary to discuss the definition of these three important variable concepts: Firstly, the definition of work engagement, proposed by Kahn in 1990, which is "expressing a person's preferred self when performing tasks," thereby affecting relationships with others and personal role performance in the workplace (Schunk and DiBenedetto, 2020). The most cited research literature is Schaufeli and Bakker's (2003) refinement and definition of employee engagement, which mainly consists of three components: Vitality, dedication, and focus. It is a manifestation of an individual's positive attitude towards work. Consistent with self-determination theory (SDT), the degree to which basic needs are met can have an impact on work engagement (Van Den Broeck et al., 2008). Any enterprise needs such employees, and engaged employees are a continuous source of income for the enterprise, as work engagement can bring innovative performance and enhance competitiveness (Guest et al., 2020). The concept of work engagement should be further explored from the perspectives of absorption, dedication, and vigor.

Secondly, individual work performance (IWP) is a measurement standard that runs through the entire workflow (Koopmans et al., 2012). This is closely related to the work environment, and leaders may have different requirements or expectations for work performance when assigning tasks (Fuertes et al., 2020). At the management level, individual work performance is essentially the foundation of human resource management, playing an important role in improving organizational performance and individual potential. Therefore, it can be defined as a behavior that guides individual efforts through goals and promotes better development of employee potential (Campbell et al., 1990). For example, Jiang et al. (2020) argue that an employee's individual work performance refers to the emotional attitude and work ability exhibited by each employee in an organization at different stages of their work.

Finally, regarding the definition of happiness at work, it should be mentioned that the definition of happiness involves a wide range of fields, including organizational psychology, clinical psychology, psychiatry, and philosophy. However, research on

Figure 1: Theorical framework



organizational happiness and work happiness began in 2010. Scholars believe that the concept of organizational happiness is broader than that of happiness at work, mainly reflected in the most valuable things they pursue in their lives (Ramirez-Garcia and Junco, 2019). Happiness at work is an important concept in organizational management strategy. Therefore, unlike subjective well-being, happiness at work is based on organizational behavior rather than emotions.

3. RESEARCH MODEL AND HYPOTHESIS

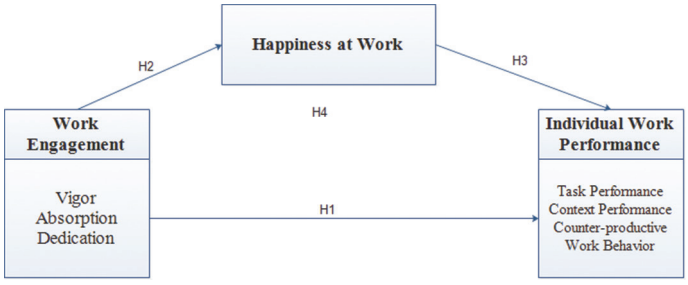
Social cognitive theory (Bandura, 1986) suggests that human behavior and consciousness are determined by situational outcomes, action outcomes, and perceived self-efficacy. From the basic meaning of this theory, it can be seen that individuals' behavior and outcomes are influenced by their own emotions and ideologies, and the formation of ideology is based on the overall environment in which a person is situated. This is also Bandura's specific explanation for this phenomenon. Therefore, based on this principle and combined with the variable meanings in this study, these three variables were combined to form a new research model and hypothesis path (Figure 2).

3.1. Direct Effect of Work Engagement on Individual Work Performance

According to the research model, the first step is to find reliable research evidence on the effect of work engagement on individual work performance. Overall, work engagement is causally related to cognitive, behavioral, and psychological expectations, forming a mechanism that effects individual work performance (Saleh et al., 2021). According to the research of this scholar, work engagement can become an intrinsic driving force for individual work performance. Therefore, the notion that this can only be intrinsic motivation is insufficient to reflect the relationship between these two variables.

From the research model of the past decade. For example, Bedarkar and Pandita's (2014) study proposed a concept in corporate strategy that analyzed the effect of communication, work life calmness, and leadership on work engagement. It specifically summarizes the three driving factors of work engagement and forms an innovative model that reflects how work engagement can lead to higher performance. Similarly, in Riyanto et al.'s (2021) study on work engagement, only the measures taken can effect work performance. Although no matching literature has been found in the past decade, the discussion of the literature in the above three paragraphs indicates that there must be a connection between the two in specific environments, which is also an issue that needs further consideration in this research. Based on the literature summary and analysis of it can propose the hypothesis of the research:

Figure 2: Research model



H_1: The work engagement can directly effect on individual work performance.

3.2. Direct Effect of Work Engagement on Individual Work Performance

Work engagement can be said to be an important component of organizational development. Because employees are more likely to show enthusiasm when they reach a higher level of participation. This means that active and engaged employees in an organization are more likely to create a positive work atmosphere, thereby gaining happiness from their work (Barreiro and Treglon, 2020). These viewpoints further illustrate the close relationship between the two.

From literature research, this study collected a total of 10 articles and summarized and analyzed them based on time periods, research methods, and screening methods discovered. Regarding the relationship between work engagement and hapiness at work in organizations, Monica et al. (2023) points out that there is a correlation between work engagement and work performance, and when employees are engaged, they are more likely to feel happy at work. It can be found that in recent years, although the research objectives are different, there is a positive result regarding the correlation between work engagement and happiness at work in the results, that is, under certain circumstances, they can effect each other.

From previous literature, empirical research in this field has mainly focused on the effect of the psychology and behavior of the public or employees, providing reliable evidence for this study (Yasin Ghadi, 2024). Therefore, based on the objectives of this research the second hypotheses of this research can be proposed:

H_2: Work engagement can directly effect on happiness at work.

3.3. Direct Effect of Happiness at Work on Individual Work Performance

Happiness at work plays a certain role in maintaining a normal personality, measuring corporate performance, and playing an indispensable role in competitiveness (Espasandín-Bustelo et al., 2020). As stated by Bashir et al. (2019) and Hosie et al. (2019), the happier you are at work, the better your performance. This study selected 10 relevant literature for analysis below.

Modern knowledge-based employees are becoming increasingly common, and they place greater emphasis on work health. From today's information technology work environment, communication tools, digital technology, and mini programs are becoming increasingly popular in the workplace, and organizations are paying more attention to factors outside of work, as this increases employees' work pressure and leads to a decline in creative performance (Du and Xu, 2025). From Khan and Abbas's

(2022) perspective, it can be seen that mindfulness and happiness at work have a positive and significant impact on employees' creative performance. From the perspective of Alshurideh et al. (2023), a multi factor model related to employee relations was proposed, and it was found that there is a positive correlation between happiness at work and individual work performance. Therefore, the hypothesis proposed in this research:

H_3: Happiness at work can directly affect on individual work performance.

3.4. Mediating Role of Happiness at Work in Towards Work Engagement on Individual Work Performance

In the post pandemic era, life and work rely more on digital devices and remote modes, which requires businesses to develop in a diversified and innovative way. However, with the proliferation of various advanced devices and communication tools, individual psychological needs are worth paying attention to. The role of work happiness can be found in Yasin Ghadi's (2024) study, where the impact of work engagement is partially mediated by happiness. Adjusting it has a significant effect on work performance. This model demonstrates that happiness at work can serve as a mediator for testing other variables. Therefore, according to the views of the aforementioned researchers, there is a precedent for using happiness at work as a mediating variable.

Similarly, Kustiawan et al.'s (2022) study proposed a model mediated by happiness, which showed that work happiness can serve as a mediating variable between happiness at work and individual work performance. Referring to the research models and results of the aforementioned researchers, there is a certain empirical basis for the relationship between happiness, work engagement, and individual work performance (Hendri, 2019). It needs to be explained here is that there are subjective and objective differences between happiness and happiness at work. Therefore, the hypothesis proposed in this research:

H_4: Happiness at work can mediate work engagement in individual work performance.

4. METHODOLOGY

The research is about an objective method of detecting the influence between variables through mathematical models. Measure the validity of the research model by assessing the degree of fit between variables and their significant impact. Lerche (2012) mentioned that quantitative research methods mainly manipulate the interaction between a target (independent variable) and another object (dependent variable). Therefore, based on the above discussion, this study applied quantitative methods to test four variables to predict their effects.

This search uses quantitative analysis methods to explain the research model. The numerical characteristics of quantitative methods simplify the information they generate, making it understandable to outsiders while achieving objectivity and accuracy (Ahmad et al., 2019). According to Garg (2016), when studying the effects between variables, the first step is to explain the causal effect between these variables and then attempt to discover the effects of the variables. In addition, the independent variable is the cause of the dependent variable, and the mediating variable is the study of how the independent variable affects the dependent variable (Field, 2013). Figure 2 explains the research model and effect pathway of this study.

This research adopts a stratified random sampling nonprobability sampling design as the strategy to determine the number of respondents, based on Ranjit et al.'s (2022) compilation. The research subjects of this study are employees of Shenggu Group. The total number of employees in the company is 705, consisting of two companies: Haiyao HY Co., Ltd. (38 managers, 104 administrative staff, and 226 technical staff) and HS Co., Ltd. (27 managers, 95 administrative staff, and 215 technical staff). However, according to Krejcie and Morgan's (1970) study, for a population of 705, the sample size can be represented by the number 372. According to Morgan's calculation method, a sample size of 35 management personnel, 105 administrative personnel, and 232 technical personnel is required for the calculation.

The independent variable work engagement, the questionnaire is adapted from Ariani (2013) and Schaufeli et al. (2006). The dependent variable individual work performance, the survey questionnaire is based on Koopmans et al. (2012). Originally, the counterproductive work behavior section of the questionnaire belonged to negative aspects. Lastly, is mediator variable happiness at work, the questionnaire is based on Del Junco et al. (2013). And mediating variable play a crucial mediating role in promoting the effect of employee engagement on individual work performance.

5. DATA ANALYSIS AND RESULTS

5.1. Data Analysis

This section mainly introduces the process of data analysis and the analytical tools used, including the following four subheadings: Data preparation, preliminary data analysis (normality test and multicollinearity analysis), confirmatory factor analysis (CFA), and structural equation modeling. Firstly, it is necessary to start with data preparation and clean the data to ensure its accuracy, which is an important step before analysis. After processing the data, preliminary analysis was conducted. In this study, Pearson correlation analysis (Hair et al., 2019) was used to determine the correlation between employee engagement, happiness at work, and individual work performance, where a value ≥ 0.7 indicates a correlation.

This study utilizes the principle of small multiplication, structural equation modeling (SEM), and path analysis. SEM AMOS can model and test causal relationships, test aggregated variables, predict variable relationships in research, and provide visual results. Currently widely used in fields such as psychology, management, and information systems.

In statistics, the most important distribution is the normal distribution, which is also a Gaussian distribution. The normal

distribution has two parameters, mainly analyzing the degree of dispersion of variables and using kurtosis and skewness to describe the distribution characteristics of data. Field (2013) and Tabachnik and Fidell (2013) pointed out in relevant studies that values within the range of ±1.96 can be considered as normal distribution. This numerical range provides the basis for data analysis in this study. Q-Q (quantile) plot is a tool that uses graphical representation to present results, mainly used to test whether data is normally distributed, and also allows for interactive analysis of test data (Guzik and Więckowska, 2023).

Afterwards, it is necessary to use multicollinearity testing to detect significant correlations between independent variables. As it can test linear research models with broad significance and ensure the accuracy of estimation results (Shrestha, 2020). This study uses the inflation coefficient (VIF) for comparison. If the VIF value is >5 or 10, it indicates severe multicollinearity and requires correction to ensure the accuracy of the results.

Secondly, after preliminary data analysis, it is necessary to conduct confirmatory factor analysis to ensure that the analysis results meet all validation criteria, in order to determine the applicability of the research model and variables (Iaquinta, 2022). This study used confirmatory factor analysis to calculate the data for these three variables and then used the structural equation model of AMOS 24 application to validate the organizational data.

Finally, further testing of the research model is conducted. We use structural equation modeling because it is suitable for analyzing the effects of multiple variables, which can be direct or indirect (Tarka, 2018). This research method mainly studies the overall effects of multivariate indicators and demonstrates the interactions between indicators in the variables. At the same time, this study also used bootstrap tests mainly to estimate parameter values and test whether they are consistent with the proposed hypothesis model.

5.2. Results of Normality Test

This section mainly consists of two parts. One part uses the Q-Q graph method to further test the normality of the collected data, which can intuitively indicate whether the data is usable. The second part adopts the necessary steps of normality testing, mainly observing the skewness and kurtosis of the data to ensure its normality.

5.2.1. Quantile-quantile plot

The aim of this research is to test the normality of the data using the detrended normal Q-Q plot method and observe the dimensions of the three variables in this study. According to the protocol strength, an average value of 3 or above indicates that the majority of participants are more inclined to agree. As shown in Figures 3-5:

From the results of the four Q-Q plots mentioned above, it can be seen that the average values of work engagement, individual work performance, and happiness at work are almost evenly distributed on a straight line. This indicates that the distribution of the three variables follows a normal distribution within the normal range.

Figure 3: Q-Q plot of the normal distribution for the independent variable (work engagement)

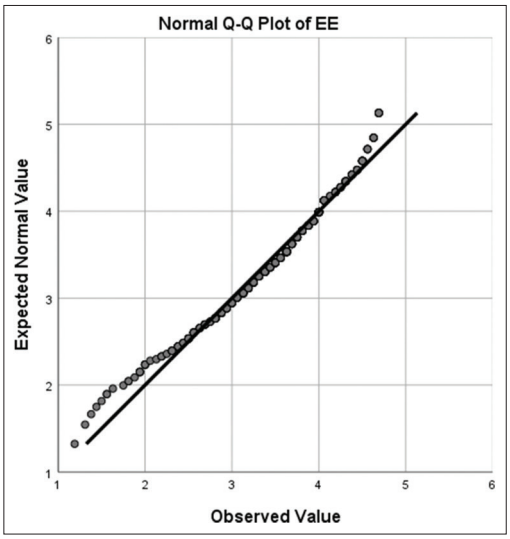
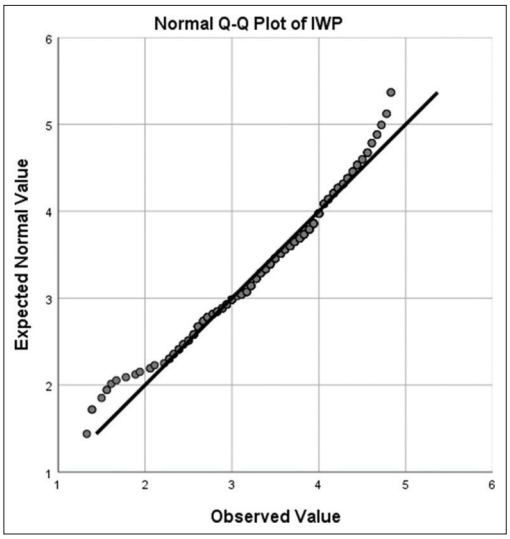


Figure 4: Q-Q plot of the normal distribution for the dependent variable (individual work performance)



Although there is a slight deviation, it can be said that the data is almost normally distributed.

5.2.2. Skewness and kurtosis

Normality test is one of the most commonly used methods in data analysis, which can objectively evaluate sample data analysis (Hernandez, 2021). In normality tests, kurtosis and skewness are commonly used to reflect and analyze the distribution of data (Garren and Osborne, 2021). In other words, if the skewness is between −1 and+1, and the kurtosis is between −2 and+2, the data is considered normal. Table 1 shows the kurtosis and skewness of the data collected in this research.

Table 1 shows the normality test scores for skewness and kurtosis, which are both lower than the cut-off score. Due to the normal distribution, it is normal for skewness to be <2 and kurtosis to be <7 (Hair et al., 2010; Kline, 2011). Therefore, the normality test results of the variables in this reserch are normal, and these variables can be used for further analysis.

Table 1: Skewness and kurtosis results for the variables

Variables	Minimum	Maximum	Mean	Standard deviation	Skewness	Kurtosis
VI	1	5	3.4076	0.82632	−0.241	−0.611
AB	1	4.8	3.2763	0.88618	−0.381	−0.346
DE	1.2	5	3.5774	0.85896	−0.35	−0.615
TP	1	5	3.4054	0.81863	−0.261	−0.678
CP	1.38	5	3.6267	0.80343	−0.34	−0.597
CPWB	1	5	3.2812	0.89224	−0.257	−0.638
HAW	1.27	5	3.7843	0.83871	−0.583	−0.423
EE	1.19	4.69	3.4209	0.71519	−0.58	0.134
IWP	1.33	4.83	3.4681	0.69179	−0.531	0.133

VI: Vigor, AB: Absorption, DE: Dedication, TP: Task performance, CP: Contextual performance, CPWB: Counter-productive work behavior, HAW: Happiness at work, EE: Employee engagement, IWP: Individual work performance

5.2.3. Test for multicollinearity

The research mainly applies statistical methods such as correlation between variables, variance inflation factor, and tolerance to detect multicollinearity of variables. VIF value <5 with a tolerance >0.1 is normal, while a VIF value >5 is considered suspicious for multicollinearity (Tsagris and Pandis, 2021). Table 2 shows the VIF value between 1.691 and 1.991 within the normal range. Therefore, the problem of multicollinearity does not exist between predictor variables.

Table 2: Multicollinearity of the variables

Variables	Tolerance	VIF
Dependent variable: Individual work performance (IWP)	0.502	1.991
Independent variable: Work engagement (WE)	0.525	1.905
Mediation variable: Happiness at work (HAW)	0.554	1.805

5.3. Results of Correlation Analysis

This section mainly conducts correlation analysis on the data collected from the questionnaire to ensure the uniqueness of each respondent's data and avoid statistical errors during data analysis.

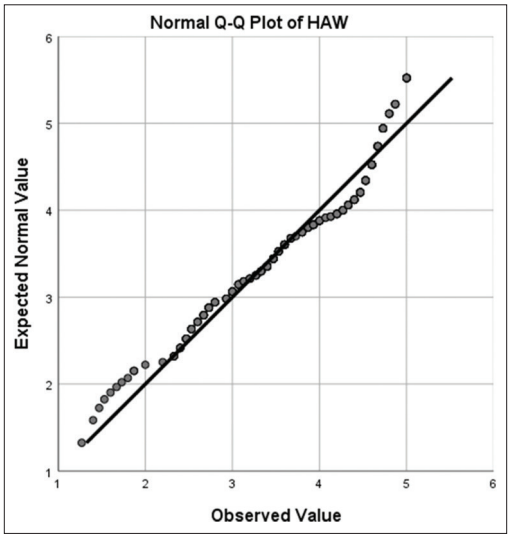
In the preliminary data stage, this study conducted correlation analysis on the questionnaire. This step mainly preprocesses the collected data to ensure that all respondents have a unique ID and are consistent. The correlation between the three variables in this study is shown in Table 3.

Table 3: Pearson correlation

Variables	IWP	EE	ADT	HAW
IWP	1			
WE	0.624**	1		
HAW	0.591**	0.568**	0.523**	1

From Table 3, correlation analysis were test to analyse IWP and WE, HAW. The correlation between IWP and WE, HAW are represented by the Pearson correlation coefficient to indicate the strength of the correlation. The correlation coefficient values are 0.624 and 0.591. Respectively, all correlation coefficient values are greater than 0, indicating a positive correlation between IWP and WE, HAW.

Figure 5: Q-Q plot of the normal distribution for the mediation variable (happiness at work)



5.4. Confirmatory Factor Analysis

This step mainly evaluates the effectiveness and reliability of discrimination. Measurement validity refers to the ability of test indicators that measure the same underlying features to fall on the same common factors (Hair, 2021). In the section mainly about test the reliability and validity of employee engagement and use CFA to measure the three dimension of the work engagement, includes six vigor subscales, five absorption subscales, five dedication subscales. The following Table 4 is test result.

According to Table 4, the internal reliability Cronbach's alpha values for the three dimensions of work engagement are 0.893, 0.89, and 0.889, all >0.8 and close to 0.9, indicating good internal stability. Overall, the CFA related indicators of work engagement can demonstrate that the convergence and discriminative effectiveness of this structure are good.

In the section mainly about test the reliability and validity of individual work performance and use CFA to measure the three dimension of the individual work performance, includes five task performance subscales, eight contextual performance subscales, five counterproductive work behavior subscales. The following Table 5 is test result.

According to Table 5, the internal reliability Cronbach's Alpha values for the three dimensions of individual work performance are 0.867, 0.928 and 0.896, indicating excellent internal stability. Therefore, the CFA related indicators of individual work performance can demonstrate that the

Table 4: Results of construct validity for work engagement measure structure

Dimension	Internal reliability Cronbach's alpha	Validity		
		Factor loading	AVE	Composite reliability
Vigor	0.893	0.7755	0.58	0.894
Absorption	0.89	0.787	0.62	0.89
Dedication	0.889	0.785	0.62	0.889

Table 5: Results of construct validity for individual work performance measure structure

Dimension	Internal reliability Cronbach's alpha	Validity		
		Factor loading	AVE	Composite reliability
Task performance	0.867	0.753	0.57	0.867
Contextual performance	0.928	0.687	0.62	0.928
Counterproductive work behavior	0.896	0.796	0.64	0.897

convergence and discriminative effectiveness of this structure are excellent.

In the section mainly about test the reliability and validity of happiness at work and use CFA to measure the happiness at work, includes 15 subscales. The following Table 6 is test result.

From Table 6, it can be seen that happiness at work has no dimensions and consists of 15 items. Its internal reliability Cronbach's alpha is 0.947, which is >0.9, indicating excellent internal stability. Next is the load factor (AVE), with an AVE value of 0.54, which is greater than the standard value of 0.5, indicating that the average variance of this structure is acceptable. The last indicator is structural stability, and the standard value of 0.7, indicate that the stability is very high. Therefore, the CFA related indicators of happiness at work can demonstrate that the convergence and discriminative effectiveness of this structure are excellent.

5.5. Hypothesis Testing Results for Key Fundings

This section mainly conducts hypothesis testing on the seven objectives of this study, including two parts. Firstly, evaluate the fitting degree of the hypothetical model and conduct comprehensive analysis using SEM AMOS, mainly using CFA to obtain the convergence effectiveness of the extracted components. The second part is path analysis, which can effectively test the validity of the proposed hypothesis and determine whether the influence relationship between variables meets expectations.

Findings on Hypothesis 1: The direct effect of work engagement on individual work performance

Regarding the testing of the H_1 hypothesis, based on the retention indicators proposed in the previous section, the model fit of work engagement on individual work performance was verified, and a fully standardized analysis was conducted on the nine paths of the six dimensions in the two variables of this hypothesis. Figure 6

Table 6: Results of construct validity for happiness at work measure structure

Dimension	Internal reliability Cronbach's alpha	Validity		
		Factor loading	AVE	Composite reliability
Happiness at work	0.947	0.737	0.54	0.947

displays the validation graph of the model path, while Table 7 shows the results of the model fit index.

Table 7 shows the fitting degree of the H_1 model, and the absolute fitting value meets the standard, such as $X^2 = 1.787$; GFI = 0.871; RMSEA = 0.046, these results indicate that GFI did not meet the standard. Overall, the fit between the H_1 model and the data is good. And the final result can be shown in the following Figure 7.

Findings on Hypothesis 2: The direct effect of work engagement on happiness at work

Regarding the testing of the H_2, this section validates the model fit of work engagement on happiness at work, and a fully standardized analysis was conducted on the nine paths of the four dimensions in the two variables of this hypothesis. Figure 8 shows the validation diagram of the model path, while Table 8 verifies the various indicators fitted by the model.

Table 8 shows the fitting degree of the H_2 model, and the absolute fitting values meet the standard, such as $X^2 = 2.029$; GFI = 0.872; RMSEA = 0.053. At the same time, the NFI of 0.888, which increases the fit, also did not meet the standard, but all other indicators meet the criteria. Therefore, the fit between the H_2 model and the data is good. And the final result is shown in Figure 9.

Findings on Hypothesis3: The direct effect of happiness at work on individual work performance

Regarding the testing of the H_3, this section validates the model fit of happiness at work on individual work performance, and a fully standardized analysis was conducted on the three paths of the four dimensions in the two variables of this hypothesis. Figure10 shows the validation diagram of the model path, while Table 9 verifies the various indicators fitted by the model.

Table 9 shows the fitting degree of the H_5 model, and the absolute fitting values meet the standard, such as $X^2 = 2.347$; GFI = 0.844; RMSEA = 0.060, can be proven that the model's fitting degree is at a good level. At the same time, NFI = 0.864 among the three indicators that increase the fitting degree does not meet the standard. Overall, the fit between the H_3 model and the data is good. The final result is shown in Figure 11.

Findings on Hypothesis 4: The mediating role of happiness at work towards the work engagement and individual work performanc

The three hypotheses proposed in this study have been validated in the above section, and the path analysis results of the SEM AMOS model are positive. According to Shin et al.'s (2022) suggestion,

Figure 6: Hypothesised model for the direct effect of work engagement on individual work performance (WE-IWP)

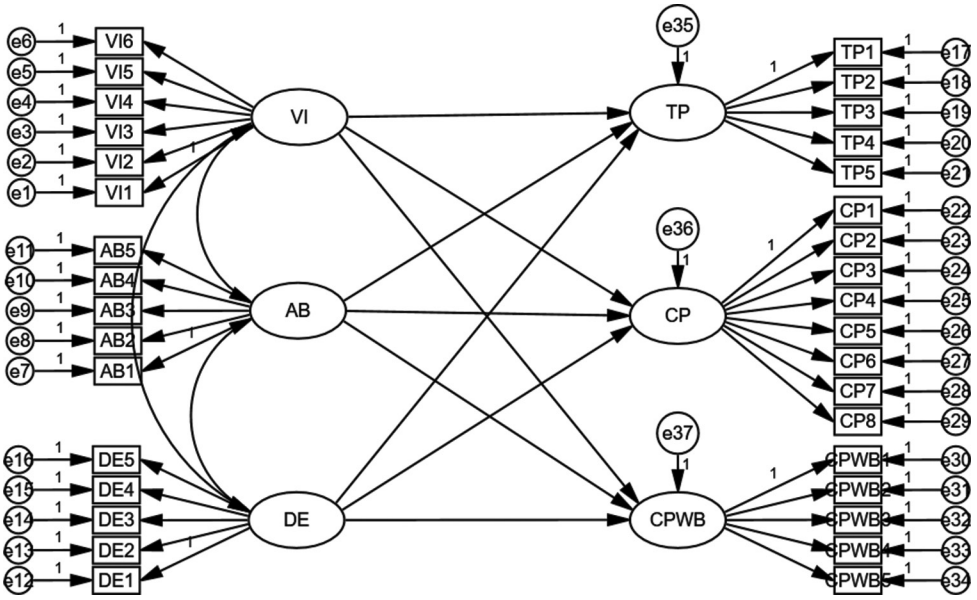


Figure 7: Final structural model for the direct effect of work engagement on individual work performance

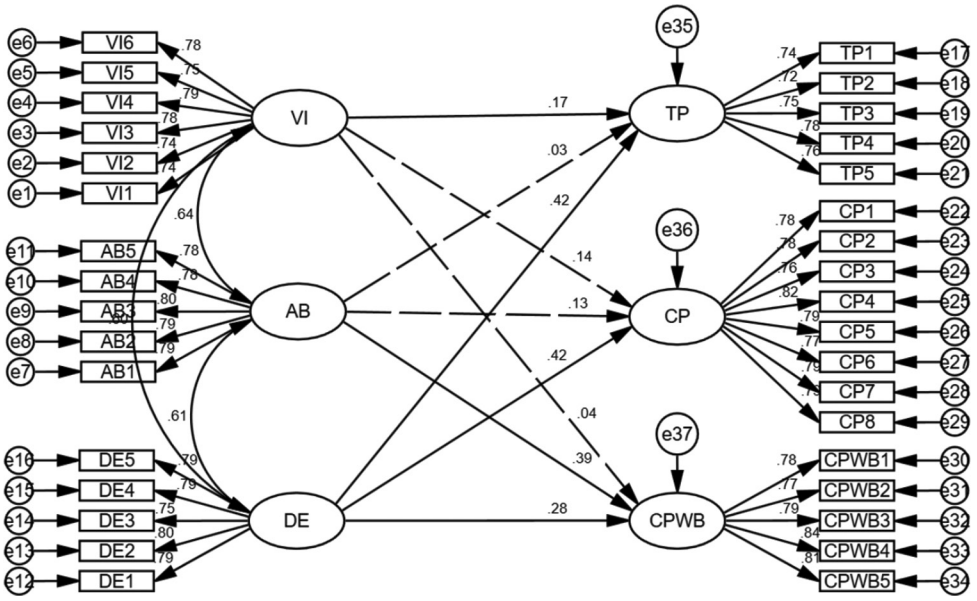


Table 7: Model fit of the direct effect of work engagement on individual work performance (WE-IWP)

Fit index	X^2/df	CFI	GFI	IFI	NFI	RMSEA
Model	1.787	0.948	0.871	0.949	0.89	0.046
Recommended criteria	≤5	≥0.90	≥0.90	≥0.90	≥0.90	≤0.10

Recommended criteria by Hair et al. (2010)

Table 8: Model fit of the direct effect of work engagement on happiness at work (WE-HAW)

Fit index	X^2/df	CFI	GFI	IFI	NFI	RMSEA
Model	2.008	0.940	0.872	0.940	0.888	0.052
Recommended criteria	≤5	≥0.90	≥0.90	≥0.90	≥0.90	≤0.10

Recommended criteria by Hair *et al*. (2010)

if the sample size exceeds 250, guidance testing is required for indirect defects in path analysis. Therefore, it is necessary to conduct a guiding test on the indirect effects in path analysis to answer the fourth hypothesis of this study.

Regarding the testing of the H_4 hypothesis, this section conducted bootstrap tests on nine paths among the three variables of the hypothesis. Figure 12 shows the validation plot of the model path, while Table 10 displays various indicators of the model fit.

Figure 8: Hypothesised model for the direct effect of work engagement on happiness at work (WE–HAW)

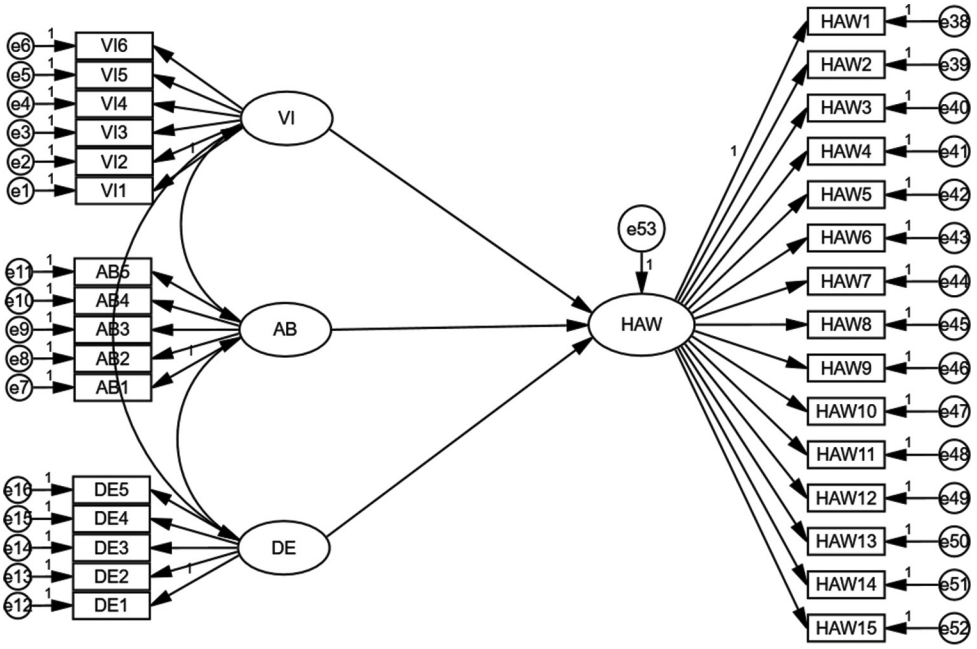


Figure 9: Final structural model for the direct effect of work engagement on happiness at work

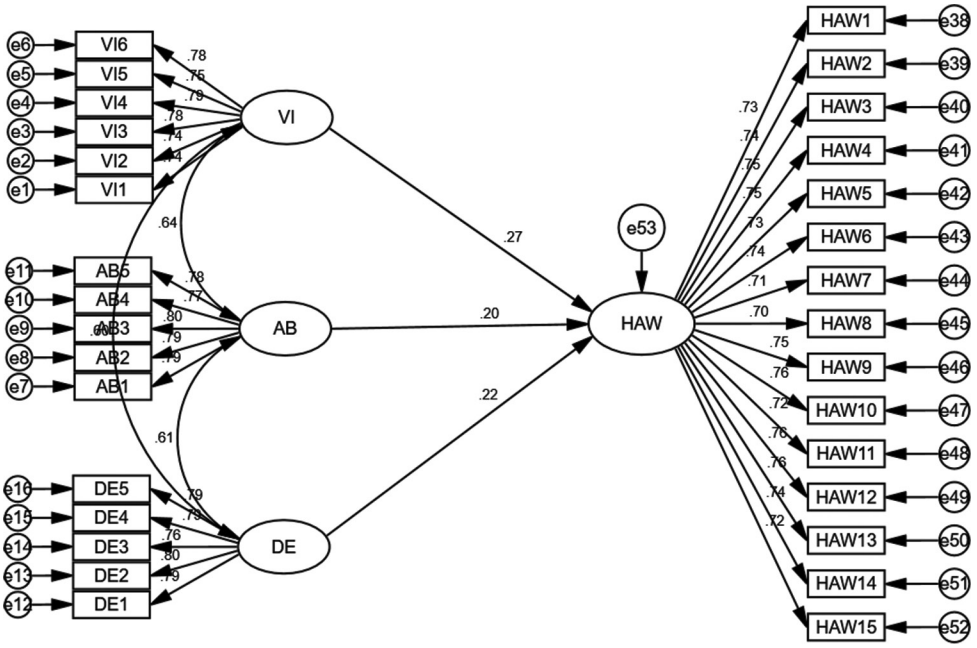


Table 9: Model fit of the direct effect of happiness at work on individual work performance (HAW-IWP)

Fit index	X^2/df	CFI	GFI	IFI	NFI	RMSEA
Model	2.347	0.917	0.844	0.917	0.864	0.060
Recommended Criteria	≤5	≥0.90	≥0.90	≥0.90	≥0.90	≤0.10

Recommended criteria by Hair et al. (2010)

Table 10: Model fit of the mediating role of happiness at work towards the effect of work engagement on individual work performance (WE-HAW-IWP)

Fit index	X^2/df	CFI	GFI	IFI	NFI	RMSEA
Model	1.907	0.916	0.814	0.916	0.839	0.049
Recommended criteria	≤5	≥0.90	≥0.90	≥0.90	≥0.90	≤0.10

Recommended criteria by Hair et al. (2010)

Figure 10: Hypothesised model for the direct effect of happiness at work on individual work performance (HAW-IWP)

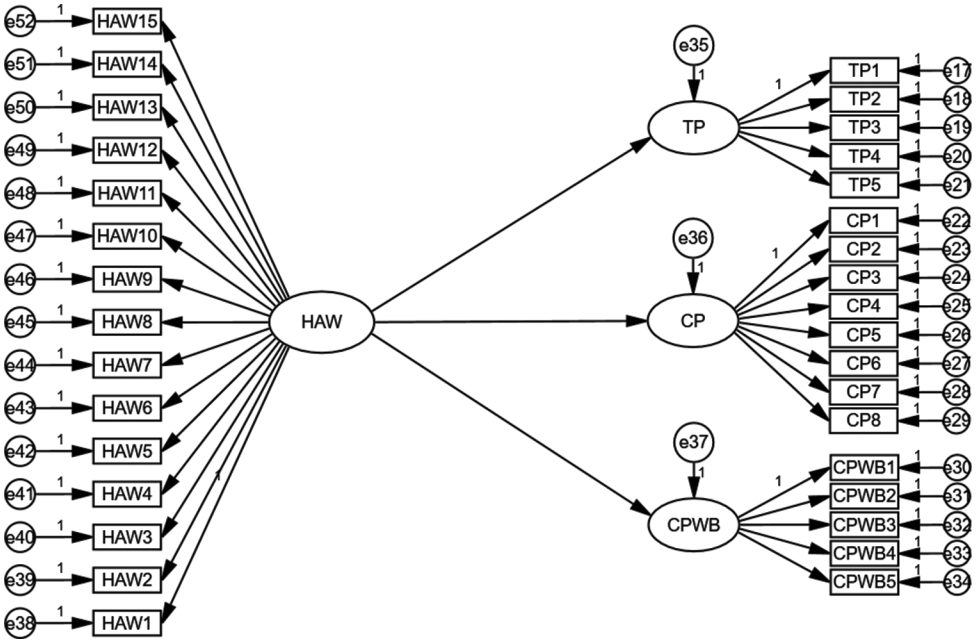
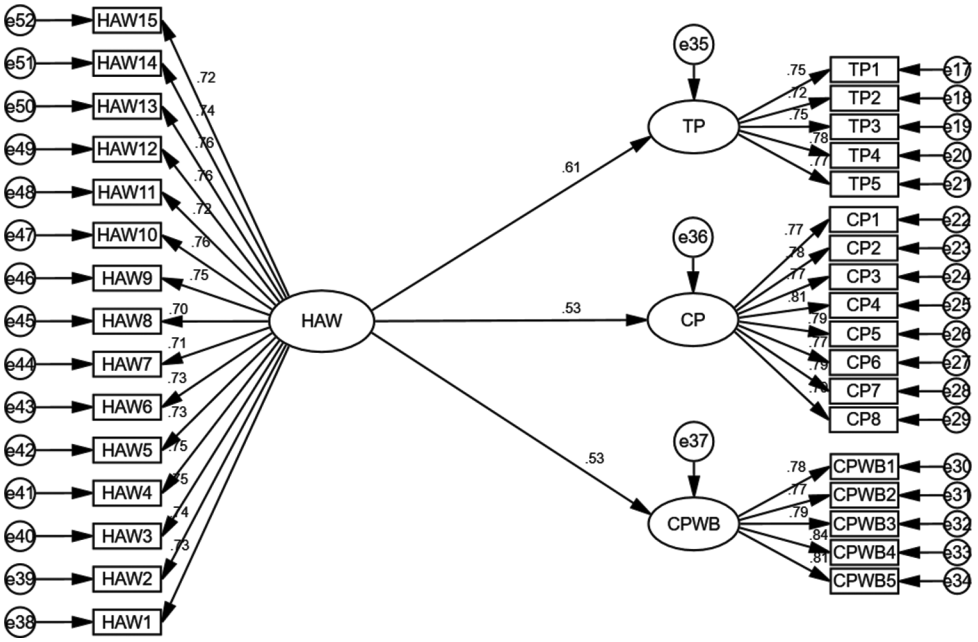


Figure 11: Final structural model for the direct effect of happiness at work on individual work performance



The above table shows the fitting degree of the H_6 model, and the absolute fitting values meet the standard, such as $X^2 = 2.029$; GFI = 0.814; RMSEA = 0.053, can be proven that the fit of the model is at a good level. Therefore, overall, the fit between the H_6 model and the data is good. The three variables in this section contain 13 variables, totaling nine paths. The results of fully standardized bootstrap testing are shown in the following Table 11:

From Table 11, based on the results of the nine paths mentioned above, the dimension of employee engagement (vigor) has no direct effect, but its indirect effect is significant. At the same time, there are two paths in the dimension of dedication that have no direct effect, but indirect effect is significant. The other four paths have significant direct and indirect effect.

Therefore, based on the above test results, the direct and mediating effects of the model are effective, and their values are within the standard range. Therefore, the mediating effect of happiness at work on work engagement and individual work performance is acceptable and belongs to a partial mediating effect. The final result is shown in Figure 13.

The funding of H_1: The independent variable of work engagement has a positive direct effect on the dependent variable of individual work performance. According to the theoretical framework

Figure 12: Hypothesised model for the mediating role of happiness at work towards the effect of work engagement on individual work performance

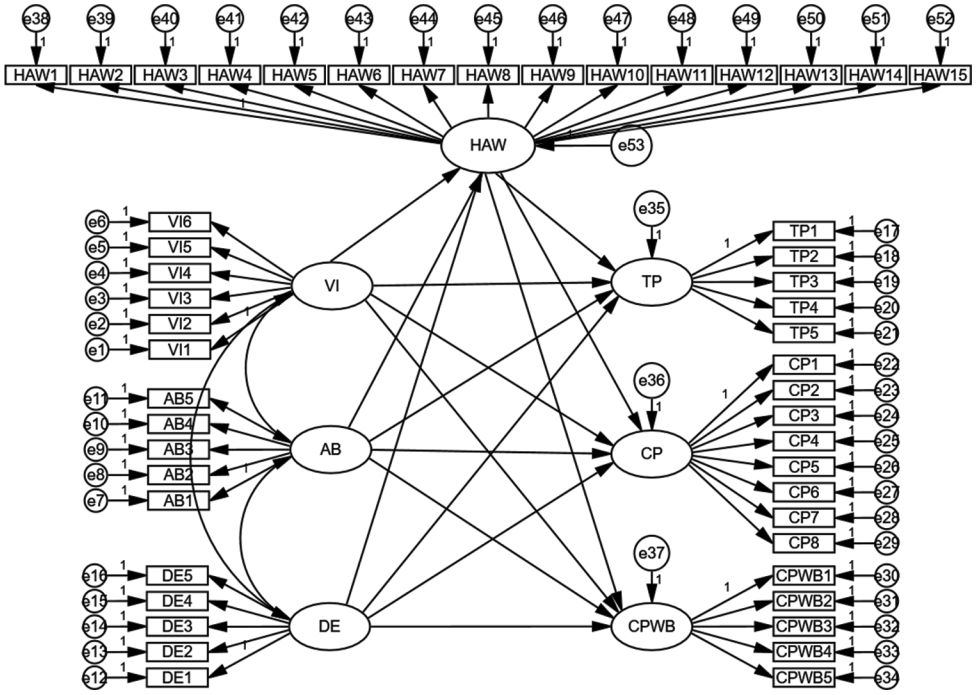
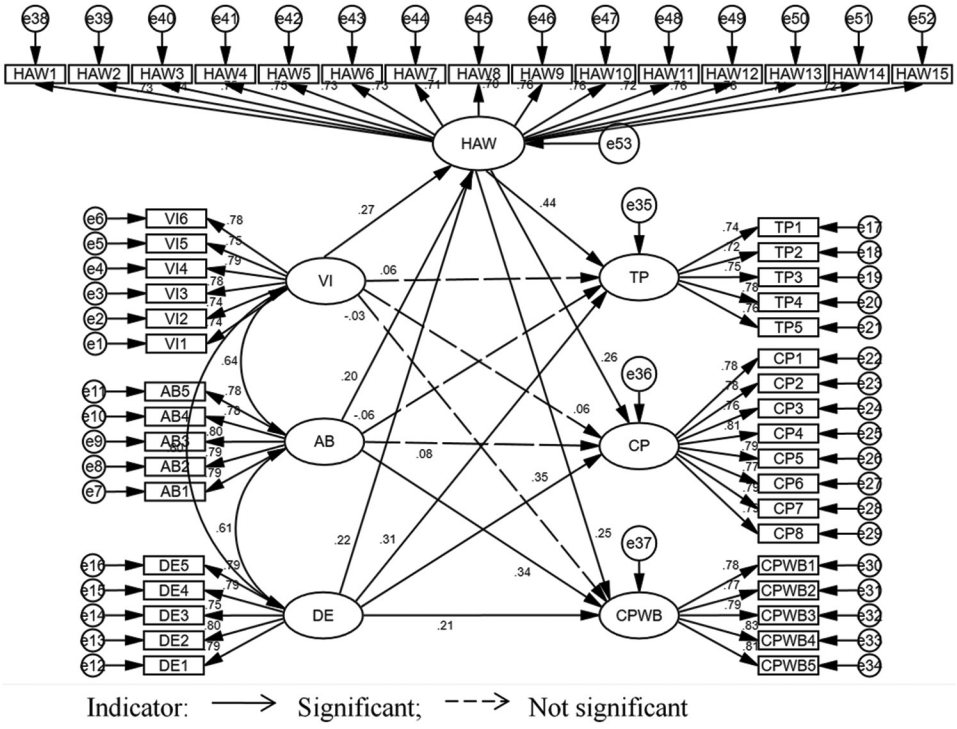


Figure 13: Final structural model for the mediating role of happiness at work towards the effect of work engagement on individual work performance



of Social Cognitive Theory (SCT) (Bandura, 1977), work engagement can serve as a personal factor in improving individual work performance. And this finding is similar to Quansah et al.'s (2023) research, which suggests that increasing work engagement can improve indiviudual work performance. Although Riyanto et al.'s (2021) study found that improving work engagement through certain measures can affect their work performance. This effect is consistent with the results of this study. Although these studies have certain geographical limitations, their results provide strong support for this research.

H_2 The direct effect of work engagement on happiness at work is valid, which is consistent with some previous related research findings. For example, Monica et al. (2023) pointed out that

Table 11: Mediation results through bootstrapping test

Structural path	Standardised indirect effect		Standardised direct effect		Remarks
	β	P	β	P	
VI→HAW→TP	0.117	***	0.057	0.431	No direct effect but there was a mediation effect.
VI→HAW→CP	0.071	***	0.064	0.364	No direct effect but there was a mediation effect.
VI→HAW→CPWB	0.067	0.001	−0.030	0.668	No direct effect but there was a mediation effect.
AB→HAW→TP	0.089	0.004	−0.059	0.419	No direct effect but there was a mediation effect.
AB→HAW→CP	0.053	0.003	0.081	0.246	No direct effect but there was a mediation effect (fully mediated).
AB→HAW→CPWB	0.051	0.004	0.340	***	There was a direct effect and mediation effect.
DE→HAW→TP	0.098	0.001	0.314	***	There was a direct effect and mediation effect.
DE→HAW→CP	0.059	0.001	0.353	***	There was a direct effect and mediation effect.
DE→HAW→CPWB	0.056	0.002	0.214	0.002	There was a direct effect and mediation effect (partially mediated).

when taking measures to improve employee work performance, companies pay more attention to work engagement, and research results show that work engagement can affect workt happiness. Although both of these research findings stimulate happiness at work by regulating work engagement, they are both based on predicting happiness at work by paying attention to work engagement, providing conceptual support for this hypothesis in this research.

The third finding of this study is the direct effect of happiness at work on individual work performance. Compared to Adnan Bataineh's (2019) research, a questionnaire survey was conducted on 289 employees in Jordan, and a significant correlation between work happiness and individual work performance was proposed through analysis. Also the studies of de Waal (2018) and Alshurideh et al. (2023) established a multifactorial model, but both reached similar conclusions that happiness at work is a factor that stimulates individual work performance through model testing.

Finally, H_4 the mediating role of happiness at work towards the effect of work engagement on individual work performance, the results of this research are similar to a study by Yasin Ghadi (2024), in which work engagement had a positive effect on the work system through the mediating of work happiness. Kustiawan et al.'s (2022) study also proposed a model mediated by work happiness, exploring the impact of work engagement on work performance. The results showed that work happiness played a mediating role in different models. Given the above findings, the results of this study can be linked to relevant research on different research models. Therefore, the commonality of these studies is the use of a research model composed of happiness at work as a mediator. These results inspired further validation in this study.

5.6. Theoretical Implication

From a theoretical perspective, research over the past decade has confirmed the relationship between these three variables and has also been applied in the fields of enterprise management and digital transformation. However, these studies were conducted in isolation. Firstly, most studies have focused on the effect between work engagement and personal well-being, while this study has increased attention to happiness at work and optimized the theoretical effect between work engagement and individual work performance. Therefore, the results of this study contribute to a more comprehensive theoretical understanding of the interaction between employee psychological factors and social environment, forming an academic dynamic system.

Moreover, through the mediating of happiness at work, the influence between variables was studied, and a theory was established to prove the existence of the mediating effect. The innovation of this model structure makes the mediating role more important, especially in the study of work engagement and work performance. Therefore, in terms of the theoretical framework of this research, this relationship has not been cited by other researchers, which can be said to enrich the research background of related fields.

6. CONCLUSION, LIMITATIONS AND IMPLICATIONS

Although this study can provide effective guidance for Chinese manufacturing enterprises, there are still some limitations from the perspective of research and the complex environment faced by the Chinese manufacturing industry. The following are some proposed contents after consideration in this study:

Firstly, in terms of research design, the researchers used quantitative research methods for the study, but in terms of instrument development, they utilized existing literature. This study adopts a completely quantitative research method and has certain limitations in strictly measuring the mediating role of factors that effect individual work performance and happiness at work. Secondly, this study also has geographical limitations as the sample size used only includes the Henan province region, while other regions are not included. Finally, overall, this study explains the effect of work engagement on individual work performance, which is mediated by happiness at work. However, this study did not conduct longitudinal or experimental research to determine the effect between these three variables. For example, there are many factors that can effect an individual's work performance, such as leadership style and family circumstances, which can be further improved in future research.

Also this study comprehensively considers and summarizes the following suggestions: The geographical or regional location of the sample should be considered: As this study mainly selected manufacturing employees from some areas of Nanyang City, Henan Province, China, future research should expand to samples

from the entire Henan Province or the northern and southern regions of China to obtain more representative research results. In addition, from the perspective of research methods, this study adopted quantitative analysis methods for data analysis. In the future, mixed methods can be used to obtain more reliable data, avoiding some of the shortcomings of quantitative analysis and ensuring the accuracy of research results.

This study can provide some directions and measures for the practical management of the manufacturing industry. From the results of this study, it can be seen that this has many practical implications for enterprise management. This discovery can help employees and strengthen leaders' control over talent team building. HY and HS companies can improve the working environment, focus on employee psychological development, accelerate digital transformation, enhance employee performance, and strengthen the overall strength of the company. In addition, from the perspective of the main effect factors of individual work performance, as well as the important role of work engagement and happiness at work in actual company management.

REFERENCES

Adnan Bataineh, K. (2019), Impact of work-life balance, happiness at work, on employee performance. International Business Research, 12(2), 99-112.

Ahmad, S., Wasim, S., Irfan, S., Gogoi, S., Srivastava, A., Farheen, Z. (2019), Qualitative v/s. Quantitative research-a summarized review. Population, 1(2), 2828-2832.

Alshurideh, M.T., Al Kurdi, B., Alzoubi, H. M., Akour, I., Obeidat, Z. M., Hamadneh, S. (2023), Factors affecting employee social relations and happiness: SM-PLUS approach. Journal of Open Innovation Technology Market and Complexity, 9(2), 100033.

Alshurideh, M.T., Kurdic, B.A., Alzoubid, H.M., Obeidat, IA.ZM., Hamadneh, S. (2023), Factors affecting employee social relations and happiness: SM-PLUS approach. Journal of Open Innovation Technology Market and Complexity, 9, 100033.

Amal, K., Meutia, D. (2021), Pengaruh komitmen organisasi dan keterlibatan kerja terhadap kinerja pegawai dengan motivasi sebagai variabel intervening. Jurnal Distribusi, 9(1), 1-14.

Ariani, D. (2013), The relationship between employee engagement, organizational citizenship behavior, and counterproductive work behavior. International Journal of Business Administration, 4(2), 46-56.

Bakker, A.B., Petrou, P., Op Den Kamp, E.M., Tims, M. (2020), Proactive vitality management, work engagement, and creativity: The role of goal orientation. Applied Psychology, 69(2), 351-378.

Bandura, A. (1977), Social Leaning Theory. Englewood Cliffs, N.J: Prentice-Hall.

Bandura, A. (1986), Social Foundations of Thought and Action: A Cognitive Social Theory. Englewood Cliffs, NJ: Prentice-Hall.

Bandura, A. (2011), A social cognitive perspective on positive psychology. International Journal of Social Psychology, 26(1), 7-20.

Barreiro, C.A., Treglown, L. (2020), What makes an engaged employee? A facet-level approach to trait emotional intelligence as a predictor of employee engagement. Personality and Individual Differences, 159, 109892.

Bashir, M., Saleem, A., Ahmed, F. (2019), Akhuwat: Measuring success for a non-profit organization. Asian Journal of Management Cases, 16(1), 100-112.

Bedarkar, M., Pandita, D. (2014), A study on the drivers of employee engagement impacting employee performance. Procedia Social and Behavioral Sciences, 133, 106-115.

Brynjolfsson, E., Horton, J., Ozimek, A., Rock, D., Sharma, G., TuYe, H.Y. (2020), COVID-19 and Remote Work: An Early Look at US Data. National Bureau of Economic Research [Working Paper].

Campbell, J.P. (1990), Modeling the performance prediction problem in industrial and organizational psychology. In: Dunnette, M.D., Hough, L.M., editors. Handbook of Industrial and Organizational Psychology. Palo Alto, CA: Consulting Psychologists Press, p687-732.

De Waal, A. (2018), Increasing organisational attractiveness: The role of the HPO and happiness at work frameworks. Journal of Organizational Effectiveness People and Performance, 5(2), 124-141.

Del Junco, J.G., Espasandín, F., Dutschke, G.M.J., Palacios, B. (2013), An Approach to the Design of a Scale for Measuring Happiness at Work of Iberian Companies Athens. In: ATINER'S Conference Paper Series, No: SME2013-0855.

Du, H., Xu, D. (2025), The impact of AI perception on the workplace well-being of production technicians. Journal of Sichuan University of Science & Engineering (Social Sciences Edition), 40(2), 27-39.

Eden, D. (1992), Pygmalion in Management: Productivity as a Self-Fulfilling Prophecy. United States: Lexington Books.

Espasandín-Bustelo, F., Ganaza-Vargas, J., Diaz-Carrion, R. (2020), Employee happiness and corporate social responsibility: The role of organizational culture. Employee Relations the International Journal, 43(3), 609-629.

Field, A.P. (2013), Discovering Statistics using IBM SPSS Statistics. 4th ed. London: Sage.

Fuertes, G., Alfaro, M., Vargas, M., Gutierrez, S., Ternero, R., Sabattin, J. (2020), Conceptual framework for the strategic management: A literature review-descriptive. Journal of Engineering, 2020, 625013.

Garg, R. (2016), Methodology for research I. Indian Journal of Anaesthesia, 60(9), 640-645.

Garren, S.T., Osborne, K.M. (2021), Robustness of T-test based on skewness and kurtosis. Journal of Advances in Mathematics and Computer Science, 36, 102-110.

Ge, Y. (2020), Psychological safety, employee voice, and work engagement. Social Behavior and Personality an International Journal, 48(3), 1-7.

Guest, D.E., Sanders, K., Rodrigues, R., Oliveira, T. (2020), Signalling theory as a framework for analyzing human resource management processes and integrating human resource attribution theories: A conceptual analysis and empirical exploration. Human Resource Management Journal, 31, 796-818.

Guzik, P., Więckowska, B. (2023), Data distribution analysis – a preliminary approach to quantitative data in biomedical research. Journal of Medical Science. doi: 10.20883/medical.e869

Hafeez, S., Memon, M.A., Mirza, M.Z., Raziq, M.M., Sarwar, N., Ting, H. (2024), The dual impact of job variety on employee happiness and stress: The mediating role of employee engagement and burnout. Journal of Management Development, 43(2), 170-186.

Hai, T.N., Van, Q.N., Tuyet, M.N.T. (2021), Digital transformation: Opportunities and challenges for leaders in the emerging countries in response to Covid-19 pandemic. Emerging Science Journal, 5, 21-36.

Hair, J.F, Black, B., Babin, B.J., Anderson, R.E. (2010), Multivariate Data Analysis. 7th ed. London: Pearson.

Hair, J.F. Jr., Hult, G.T.M., Ringle, C.M., Sarstedt, M., Danks, N.P., Ray, S. (2021), An introduction to structural equation modeling. In: Partial Least Squares Structural Equation Modeling (PLS-SEM) using R: A Workbook. Berlin: Springer, p1-29.

Hair, J.F., Risher, J.J., Sarstedt, M., Ringle, C.M. (2019), When to use and how to report the results of PLS-SEM. European Business Review, 31(1), 2-24.

Hendri, M.I. (2019), The mediation effect of job satisfaction and organizational commitment on the organizational learning effect of the employee performance. International Journal of Productivity and Performance Management, 68(7), 1208-1234.

Hernandez, H. (2021), Testing for normality: What is the best method. ForsChem Research Reports, 6(5), 1-38.

Hosie, P., Sharma, P., Kingshott, R.P.J. (2019), Happy-performing managers thesis testing the mediating role of job-related affective outcomes on the impact of role stressors on contextual performance. International Journal of Manpower, 40(2), 356-372.

Iaquinta, F.S., Grosso, R., Di Napoli, S., Cassano, V., Naty, S., Armentaro, G., Grembiale, R.D. (2022), Decreased pulse wave velocity in a systemic sclerosis population: Preliminary results from a cross-sectional study. Journal of Personalized Medicine, 12(12), 1952.

Jiang, X., Du, J., Zhou, J., Cui, Y. (2020), The impact of negative informal information before a change on performance: A within person approach. International Journal of Environmental Research and Public Health, 17(2), 670.

Khan, S.M., Abbas, J. (2022), Mindfulness and happiness and their impact on employee creative performance: Mediating role of creative process engagement. Thinking Skills and Creativity, 44, 101027.

Kline, R.B. (2011), Principles and Practice of Structural Equation Modeling. New York: The Guilford Press.

Koopmans, L., Bernaards, C., Hildebrandt, V., Van Buuren, S., Van Der Beek, A.J., De Vet, H.C. (2012), Development of an individual work performance questionnaire. International Journal of Productivity and Performance Management, 62(1), 6-28.

Krejcie, R.V., Morgan, D.W. (1970), Determining sample size for research activities. Educational and Psychological Measurement, 30(3), 607-610. doi. 10.1177/001316447003000308

Kustiawan, U., Marpaung, P.A.R.D.A.M.E.A.N., Lestari, U.D., Andiyana, E. (2022), The effect of affective organizational commitment, job satisfaction, and employee engagement on job happiness and job performance on manufacturing company in Indonesia. WSEAS Transactions on Business and Economics, 19(52), 573-591.

Lerche, L. (2012), Quantitative Methods. Netherlands: Elsevier.

Lewa, P., Lewa, S. (2020), Happiness at Work. Berlin: ResearchGate; p153-163.

Marshall, D.R., Meek, W.R., Swab, R.G., Markin, E. (2020), Access to resources and entrepreneurial well-being: A self-efficacy approach. Journal of Business Research, 120, 203-212.

Monica, N., Ananthan, C. (2023), Correlation level of happiness and employee engagement. International Journal of Multidisciplinary Research and Growth Evaluation, 4, 461.

Quansah, P.E., Zhu, Y., Guo, M. (2023), Assessing the effects of safety leadership, employee engagement, and psychological safety on safety performance. Journal of Safety Research, 86, 226-244.

Ramirez-Garcia, C., Perea, J.G.Á.D., Junco, J.G.D. (2019), Happiness at work: Measurement scale validation. Revista de Administração de Empresas, 59, 327-340.

Ranjit, S., Singh, A.K., Shrestha, I., Twayana, A.R., Bhandari, P., Siwakoti, S., Singh, S. (2022), Negative pleural fluid cultures among patients with pleural effusion in a tertiary care hospital: A descriptive cross-sectional study. JNMA Journal of the Nepal Medical Association, 60(249), 461.

Riyanto, S., Endri, E., Herlisha, N. (2021), Effect of work motivation and job satisfaction on employee performance: Mediating role of employee engagement. Problems and Perspectives in Management, 19(3), 162.

Saleh, P.F., Ali, B.J., Akoi, S., Najmalddin, B., Ali, R.S., Anwar, G. (2021), Factors affecting the success of female entrepreneurs in Kurdistan. International Journal of Engineering, Business and Management (IJEBM), 5, 44.

Sanchez-Gomez, M., Breso, E. (2020), In pursuit of work performance: Testing the contribution of emotional intelligence and burnout. International Journal of Environmental Research and Public Health, 17(15), 5373.

Schaufeli, W., Bakker, A.B. (2003), Utrecht Work Engagement Scale: Preliminary Manual. Ver. 1. Occupational Health Psychology Unit, Netherlands: Utrecht University.

Schaufeli, W., Schaufeli, A., Salanova, M. (2006), The measurement of work engagement with a short questionnaire. Educational and Psychological Measurement, 66(4), 701-716.

Schneider, B. (2021), Digital dexterity in organizations: A meta-analysis. Journal of Applied Psychology, 106(8), 1123-1143.

Schunk, D.H., DiBenedetto, M.K. (2020), Motivation and social cognitive theory. Contemporary Educational Psychology, 60, 101832.

Setyawan, N.A., Wibowo, B.Y. (2023), Improving business productivity performance through entrepreneurship training and entrepreneurial self-efficacy. Jurnal Ekuilnomi, 5(1), 44-51.

Shin, H., Jeon, S., Cho, I. (2022), Factors influencing health-related quality of life in adolescent girls: A path analysis using a multi-mediation model. Health and Quality of Life Outcomes, 20(1), 50.

Shrestha, N. (2020), Detecting multicollinearity in regression analysis. American Journal of Applied Mathematics and Statistics, 8(2), 39-42.

Tabachnik, B.G., Fidell, L.S. (2013), Using Multivariate Statistics. 7th ed. New York: Harper and Row.

Tarka, P. (2018), An overview of structural equation modeling: Its beginnings, historical development, usefulness and controversies in the social sciences. Quality Quantity, 52, 313-354.

Tsagris, M., Pandis, N. (2021), Multicollinearity. American Journal of Orthodontics and Dentofacial Orthopedics, 159(5), 695-696.

Van Den Broeck, A., Vansteenkiste, M., De Witte, H., Lens, W. (2008), Explaining the relationships between job characteristics, burnout and engagement: The role of basic psychological need satisfaction. Work Stress, 22, 277-294.

Yasin Ghadi, M. (2024), Linking job crafting to work engagement: The mediating role of organizational happiness. Management Research =