

Optimizing employee productivity: The mediating role of employee engagement in training programs for Malaysian SMEs



Anantha Raj A. Arokiasamy¹

Walton Wider^{1,2,3+}

Jem Cloyd M. Tanucan⁴

Syed Far Abid Hossain^{5,6}

Khine Zar Zar Thet¹

¹Faculty of Business and Communications, INTI International University, Nilai, Malaysia.

¹Email: anantharaj.asamy@newinti.edu.my

¹Email: i23023860@student.newinti.edu.my

²Department of Applied Economic Sciences, Wekerle Sándor Üzleti Főiskola, Budapest, Hungary.

³Faculty of Management, Shinawatra University, Pathum Thani, Thailand.

^{1,2,3}Email: walton.wider@newinti.edu.my

⁴School of Education, Norfolk State University, Norfolk, United States.

⁴Email: j.m.tanucan@spartans.nsu.edu

⁵BRAC Business School, BRAC University, Dhaka, Bangladesh.

⁶Faculty of Labor Relations and Trade Unions, Ton Duc Thang University, Ho Chi Minh City, Vietnam.

^{5,6}Email: syedfarabidhossain@tdtu.edu.vn



(+ Corresponding author)

ABSTRACT

Article History

Received: 10 February 2025

Revised: 20 August 2025

Accepted: 5 September 2025

Published: 19 September 2025

Keywords

Economic growth
Employee engagement
Employee training
Small- and medium-sized enterprises
Training programs.

Small and medium-sized enterprises (SMEs) are essential to Malaysia's economy, forming a substantial portion of corporate entities and fueling employment and economic growth. However, challenges such as limited resources and high turnover necessitate strategies to enhance employee productivity (EP). This study investigates the influence of training programs on EP in Malaysian SMEs, emphasizing employee engagement as a mediator. Grounded in Human Capital Theory (HCT), Social Exchange Theory (SET), and the Job Demands-Resources (JD-R) Model, it explores how training boosts skills and engagement, subsequently improving productivity. A quantitative approach was employed, collecting data via structured surveys from 300 SME employees across diverse sectors who participated in formal training within the past year. Structural Equation Modeling (SEM) confirmed that training significantly enhances EP ($\beta=0.274$, $p<0.001$, H1) and engagement ($\beta=0.288$, $p<0.001$, H2), with engagement mediating the training-productivity relationship ($\beta=0.239$, $p<0.001$, H3). These findings underscore training's dual role in skill development and fostering engagement, amplifying productivity in resource-constrained settings. Practically, SME managers should leverage cost-effective e-learning and align training with organizational goals, while policymakers could support subsidies to bolster SME competitiveness. Limitations include the cross-sectional design, self-reported data biases, and focus on Malaysian SMEs, limiting generalizability. Future research may adopt longitudinal methods, cross-cultural comparisons, and probabilistic sampling to deepen insights into training's long-term effects and broader applicability. This study enriches organizational development literature by contextualizing training and engagement dynamics in emerging economies.

Contribution/ Originality: This study contributes by uncovering the mediating role of employee engagement between training programs and productivity in Malaysian SMEs. It provides original empirical evidence showing how effective training fosters engagement, leading to improved performance. Addressing a key gap in SME human capital development, the research links engagement to measurable outcomes. Its originality lies in contextualizing this dynamic within the Malaysian SME landscape, enriching existing literature with relevant insights and offering practical implications for strategic HRM and policy development.

1. INTRODUCTION

A key determinant of an organization's success is employee productivity (EP), particularly in small and medium-sized enterprises (SMEs), which form the backbone of economies such as Malaysia's. Malaysian SMEs account for 98.5% of all corporate entities and are vital in driving employment rates and economic growth (Abraham, Kaliannan, Avvari, & Thomas, 2023). Despite their significance, these businesses face numerous challenges, including limited access to skilled human resources, constrained financial capabilities, high employee turnover rates, and intense competition. These obstacles underscore the need for innovative strategies to enhance organizational performance and boost employee productivity.

Employee training programs are widely recognized as critical strategies for improving performance in SMEs. These programs aim to enhance employees' competencies, knowledge, and skills, enabling them to perform tasks efficiently and effectively that contribute to the organization's ability to adapt to its environment (Kaprawi, Rasi, Spöttl, Ismail, & Razzaly, 2021). By implementing training initiatives, SMEs can bridge skill gaps, increase operational efficiency, and foster a culture of continuous learning. Although the relationship between training and productivity has been extensively researched, prior studies often overlook its effectiveness in resource-constrained settings, such as those typical of Malaysian SMEs. Existing literature tends to focus on well-resourced contexts, leaving a gap in understanding how training impacts productivity in environments with limited financial and infrastructural support. This gap highlights the need for further investigation.

Employee engagement, defined as workers' emotional and psychological commitment to their organization, is a fundamental driver of workplace performance (Abdulaziz et al., 2023). Engaged employees enhance productivity by demonstrating greater proactivity, motivation, and alignment with organizational objectives. Moreover, employee engagement has recently gained increased attention due to its ability to connect organizational initiatives with measurable outcomes, such as productivity and profitability (Dixit & Sinha, 2021). However, while research has extensively examined engagement in large corporations, its role in small and medium-sized enterprises (SMEs), particularly as a mediator between training and productivity, remains underexplored. This oversight is significant, as the distinct characteristics of SMEs, such as resource constraints and flatter organizational structures, may either amplify or modify the influence of engagement.

Focusing on the mediating role of employee engagement, this research aims to address these shortcomings by examining the impact of training programs on worker productivity in Malaysian SMEs. Previous studies have often treated training, engagement, and productivity as separate constructs, failing to integrate them into a cohesive framework tailored to SMEs in emerging economies. For example, while Kaprawi et al. (2021) emphasize the benefits of training, they do not investigate engagement as a moderating factor. They may also underestimate the significance of resource constraints in their analysis. Similarly, Dixit and Sinha (2021) likely highlight engagement as an outcome of training but may not fully explore its interaction with training in the context of smaller firms. This study contributes to the literature by synthesizing these variables into a unified model, drawing on the Job Demands-Resources (JD-R) Model, Human Capital Theory (HCT), and Social Exchange Theory (SET).

According to Human Capital Theory, investing in employee development enhances their value and involvement within the organization. Social Exchange Theory underscores the reciprocal nature of the employee-employer relationship, suggesting that employees are more likely to be engaged and productive when they perceive their organization as committed to their growth. The Job Demands-Resources (JD-R) Model highlights training as a resource that mitigates job demands, improves performance outcomes, and fosters employee engagement. In the context of Malaysian SMEs, limited financial resources significantly influence training initiatives, necessitating a balance between immediate operational needs and long-term developmental goals while addressing infrastructural deficiencies. Despite these constraints, training remains a key driver of competitiveness, particularly in industries characterized by rapid technological advancements and evolving market demands.

This study's contribution lies in its contextual specificity, which focuses on Malaysian SMEs and its empirical examination of engagement as a mediator. It provides a perspective that was absent in prior research. This research is significant for policymakers and SME managers, offering theoretical insights and practical implications (Au, Stephens, & Ahmed, 2024). Understanding the interplay among productivity, employee engagement, and training can inform the design of cost-effective training programs aligned with organizational objectives. The findings may also guide policymakers in formulating strategies to support SMEs through capacity-building programs, training subsidies, and incentives.

This research pursues these objectives by focusing on employees across various sectors of the Malaysian SME landscape. Data were collected using a quantitative approach, employing structured surveys to assess employees' perceptions of training effectiveness, productivity outcomes, and engagement levels. The analysis applies rigorous statistical techniques to evaluate the relationships among these variables, delivering evidence-based insights into employee productivity, engagement, and training dynamics.

This study further enriches the literature on organizational development by providing empirical support for the proposition that employee engagement mediates the relationship between training programs and employee productivity. Unlike previous research, which often generalizes findings across organizational sizes or overlooks mediating mechanisms, this study integrates previously disconnected variables into a framework tailored to SME realities. Centering on Malaysian SMEs adds a contextual layer to the global discourse on training and engagement, illuminating unique challenges and opportunities in emerging economies.

2. THEORETICAL UNDERPINNING

2.1. Human Capital Theory (HCT)

Becker, DeGroot, and Marschak (1964) contributed to human capital theory, which states that investing in personnel development, including training and education, improves skills, knowledge, and output. Businesses that invest in staff development may enhance individual performance when applied collectively, which can influence the organization's success (Jaish, Murdipi, Razak, & Alwi, 2023). Still present in Malaysian SMEs are great competitiveness and rapid technological advancements. Training programs imply the growth of workers' skills and encourage flexibility, creativity, and problem-solving abilities, through which they may become more competent. Strategic training investments in resource-limited SMEs significantly boost output and thereby support the vital function of the HCT in this context.

2.2. Social Exchange Theory (SET)

Blau (1964) proposed that Social Exchange Theory (SET) emphasizes the reciprocal dynamics of the relationship between workers and corporations. SET contends that when businesses provide funding for staff training and development projects, employees perceive this as evidence of employer support. This perception encourages staff to exert greater effort and participate more actively through increased responsibility (Kamal, Lou, Yusof, & Osmadi, 2022). Thus, the training programs serve as instruments for acquiring skills and markers of the organization's dedication to employee growth, thereby fostering involvement, confidence, and loyalty. SET is the theoretical framework that defines how employee engagement moderates the link between training activities and employee performance.

2.3. Job Demands-Resources Model (JD-R)

Introduced by Demerouti, Bakker, Nachreiner, and Schaufeli (2001), the Job Demands-Resources (JD-R) model presents a framework for investigating how workplace resources, such as training programs, might affect employee productivity and engagement. According to the JD-R model, resources decrease labor demands and boost motivation, thereby improving performance outcomes. Training courses are regarded as crucial tools since they provide staff

members with the necessary skills to handle job-related problems effectively (Adam, Hassan, & Abdullah, 2021). Reducing work requirements helps programs that enhance employees' psychological well-being, promoting greater involvement and output. The JD-R model emphasizes the potential of training programs to reduce stress and improve organizational performance in SMEs, where staff members may face demanding tasks with little assistance.

Employee engagement is conceptualized as a multifaceted construct encompassing cognitive, emotional, and behavioral aspects (Ahmad et al., 2022). Kahn (1990) describes employee engagement as the continuous investment of energy, participation, and commitment in work roles. Deci and Ryan (1985) argue that training satisfies employees' intrinsic needs for relatedness, competence, and autonomy, fostering a comprehensive engagement loop.

3. LITERATURE REVIEW

3.1. Training Programs and Employee Productivity

Previous research clearly shows the significant impact of training initiatives on staff output. Good training increases job-related skills, motivation, and adaptability, all of which help boost employee productivity. Structured training initiatives in SMEs reportedly improved work quality and efficiency by 20%, according to Khan, Khan, Zia-Ul-Islam, and Khan (2020). Likewise, Tharenou, Saks, and Moore (2007) did a meta-analysis revealing that the training expenditures clearly and directly affect organizational performance in many different sectors. Razak, Ahmad, and Mohamed (2018) discovered in the Malaysian setting that training initiatives are primary drivers of overall SME productivity. Their research also showed that more intensive training programs improve employee performance in environments with limited resources. By increasing work loyalty and happiness, training initiatives also significantly reduce staff turnover, which is a major problem for SMEs. Therefore, we hypothesize that:

H₁: Training programs have a significant impact on employee productivity in Malaysian SMEs.

3.2. The Impact of Training on Engagement

By addressing workers' extrinsic and intrinsic requirements, training programs help increase employee engagement. Employee training improves employees' perceptions of development opportunities, work relevance, and autonomy, all of which are main drivers of engagement (Saks & Gruman, 2014). Within SMEs, training serves as a form of gratitude and recognition, encouraging higher levels of employee involvement. Employees participating in training courses demonstrated higher levels of absorption, energy, and dedication to their work roles (Hakanen, Bakker, & Schaufeli, 2006). The results indicate that training enhances job-related competencies and promotes a positive connection with work qualities essential for maintaining employee engagement. Therefore, we hypothesize that:

H₂: Training programs positively impact employee engagement in Malaysian SMEs.

3.3. The Mediating Role of Employee Engagement

In recent years, there has been an increasing focus on the significance of employee engagement as a mediator. According to Saks (2006), training programs significantly raise employee engagement, thereby enhancing performance outcomes. Furthermore, increasing overall productivity motivates employees who are more likely to put in additional effort, fit well into their roles, and align their conduct with corporate aims. Employee involvement moderates the relationship between training and work performance (Ahmad, Donia, Khan, & Waris, 2018). Their results highlight the need to create training courses that improve technical skills in line with psychological and emotional participation. Engagement is a key component that increases the resilience and motivation of SMEs, where staff members often face significant workloads and little support. Consequently, we propose that:

H₃: Employee engagement mediates the relationship between training programs and employee productivity.

Figure 1 illustrates the conceptual framework used in this study.

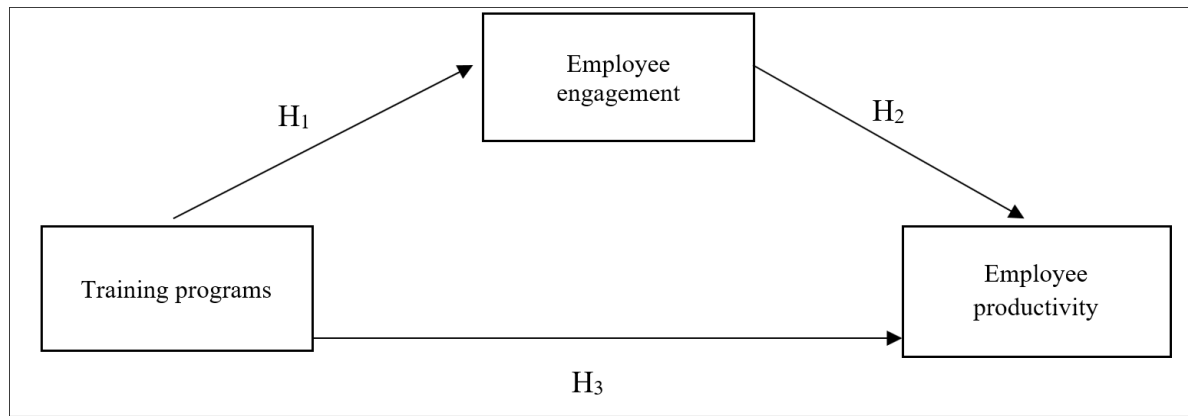


Figure 1. Conceptual framework.

4. METHODS

4.1. Research Design

This research examines the relationships among training programs, employee performance, and employee involvement using a quantitative method. A quantitative approach can collect statistically significant numerical data on the proposed associations and justify its use (Mohamad, Mustapa, & Razak, 2021). Using consistent data collected through organized surveys, statistical methods can be used to detect correlations and causal links among research variables.

The research approach is correlational and explanatory, emphasizing both direct and mediated effects among variables. Structural Equation Modeling (SEM) is employed to analyze the proposed relationships. SEM is suitable for this study because it enables the simultaneous evaluation of multiple relationships and provides insights into direct and indirect effects among variables. The SEM analysis of the collected data will include the following: assessment of multicollinearity using the Variance Inflation Factor (VIF); evaluation of discriminant validity using the Fornell-Larcker Criterion; assessment of internal consistency, reliability, and convergent validity; and evaluation of the structural model using a path diagram.

4.2. Population

The study's target population comprises Malaysian employees working in SMEs across various industries, including manufacturing, services, retail, and technology. SMEs were selected as the primary focus due to their substantial contribution to Malaysia's economy and their distinct challenges, such as limited financial and human resources, adaptability to market changes, and notably high employee turnover rates. In 2023, Malaysia had over 1,101,725 micro, small, and medium enterprises (MSMEs), representing 96.9% of all business establishments in the country, according to the latest data from the Department of Statistics Malaysia (DOSM) (2024).

The unit of analysis for this study is individual employees within these SMEs, with a specific emphasis on those who have participated in formal training programs within the past 12 months. This focus ensures that the data collected is recent and relevant to the research objectives, which aim to explore the impact of training on employee productivity and engagement. Formal training programs may include structured workshops, on-the-job training, or certified courses to enhance skills and performance. By targeting employees with recent training experience, the study seeks to capture actionable insights into how such initiatives influence workplace outcomes in the SME context. Additionally, including employees from various industries allows for a broader understanding of training effects across different operational environments.

4.3. Sampling Method

The study employs a purposive sampling method, a non-probabilistic technique, to select participants who meet specific criteria deemed essential for addressing the research questions. This approach is appropriate for this study as it targets employees with recent, direct experience in formal training programs. It ensures the collected data provides meaningful and relevant insights into productivity and engagement outcomes. The criteria for participant inclusion are threefold: (1) verified employment in a Malaysian SME, (2) participation in a formal training program within the last 12 months, and (3) a minimum tenure of one year with their current organization. These criteria ensure that participants have sufficient organizational context and training exposure to offer informed perspectives.

The sample size for this study is 300 respondents, a figure determined to balance statistical reliability with practical feasibility while allowing for generalizability to the broader population of SME employees in Malaysia. The sample size calculation was guided by Cochran's formula, a widely accepted statistical method for determining appropriate sample sizes in survey-based research. The formula is expressed as:

$$n_0 = \frac{Z^2 \cdot p \cdot q}{e^2}$$

In the Cochran's formula.

$Z = 1.96$ (Z-score for 95% confidence level).

Where $p = 0.5$ (Assumed population proportion for the maximum variability).

$q = 1 - p = 0.5$.

and $e = 0.05$ (Margin of error, 5%).

$$n_0 = \frac{(1.96)^2 \cdot (0.5) \cdot (0.5)}{(0.05)^2}$$

$$n_0 = \frac{3.8416 \cdot 0.25}{0.0025} = \frac{0.9604}{0.0025} = 384.16$$

However, considering the finite population of SME employees who meet the study's specific criteria and the logistical constraints of data collection, the study achieved a final sample of 300 respondents. This represents a response rate of 78.13% (300 out of an anticipated 384), which remains statistically robust for this research.

4.4. Instruments

Table 1 shows the questionnaire sections that the following study employed to collect data. Appendix 1 illustrates the full questionnaire used in this study.

Table 1. Instruments.

| Variable | Number of items | Authors & year |
|-------------------------|-----------------|------------------------------------|
| Demographic information | 4 | Mukhtar, Shad, and Lai (2025) |
| Training programs | 5 | Nor, Johar, and Mat Khairi (2021) |
| Employee engagement | 5 | Ismail, Ka, Fern, and Imran (2021) |
| Employee productivity | 5 | Demerouti et al. (2001) |

5. RESULTS

Table 2 presents essential demographic information regarding the study's participants. The gender distribution is balanced, comprising 48.3% male and 51.7% female, indicating a representative sample of perspectives. Most respondents are in the 35-44 age group, followed by the 45-54 age group, with the smallest proportion (X%) in the

55 and above age group. This distribution suggests that the study gathers insights from senior and mid-career professionals in significant organizational roles.

The respondents' educational attainment is significant. The predominant level of education is a bachelor's degree (45.7%), followed by master's degrees (28.3%) and doctoral degrees (26.0%). This indicates a highly educated workforce, which may influence their willingness to engage in organizational initiatives and their openness to training programs. The high prevalence of postgraduate degrees underscores the importance of advanced education in Malaysian SMEs, particularly for employees requiring specialized knowledge and judgment.

Table 2. Descriptive analysis of respondents.

| Details | Measurement | Frequency | Percent (%) |
|-------------------|-------------------|-----------|-------------|
| Gender | Female | 155 | 51.7 |
| | Male | 145 | 48.3 |
| Age | 35–44 | 68 | 22.7 |
| | 45–54 | 61 | 20.3 |
| | 55 and above | 59 | 19.7 |
| Educational level | Bachelor's degree | 137 | 45.7 |
| | Master's degree | 85 | 28.3 |
| | PhD | 78 | 26.0 |

5.1. Assessment of Measurement Model

The reliability and validity of the measurement model were assessed to confirm the adequacy of the study's constructs. This evaluation analyzes internal consistency reliability, convergent validity, discriminant validity, and multicollinearity.

5.2. Internal Consistency Reliability

Cronbach's Alpha and Composite Reliability (CR) were used to evaluate the internal consistency reliability. Employee Engagement (EE), Employee Productivity (EP), and Training Programs (TP) had Cronbach's Alpha values of 0.934, 0.929, and 0.945, respectively, as shown in Table 3. Similarly, these constructs had Composite Reliability values of 0.935, 0.930, and 0.945, respectively. These findings indicate high reliability among the constructs, as the internal consistency reliability for EE and TP is significantly above the acceptable threshold of 0.70. Additionally, a high level of reliability suggests that the hypotheses will be accepted in the final study.

Table 3. Composite reliability and Cronbach's alpha for the measurement model.

| Construct | Cronbach's α | Composite reliability |
|----------------------------|---------------------|-----------------------|
| Employee engagement (EE) | 0.934 | 0.935 |
| Employee productivity (EP) | 0.929 | 0.930 |
| Training program (TP) | 0.945 | 0.945 |

5.3. Convergent Validity

Convergent validity was assessed for each construct using the Average Variance Extracted (AVE), as shown in Table 4. The AVE values for TP, EE, and EP were 0.738, 0.725, and 0.773, respectively, exceeding the suggested threshold of 0.50. This indicates that the constructs' convergent validity is adequate.

Table 4. AVE's results.

| Construct | AVE |
|----------------------------|-------|
| Training program (TP) | 0.738 |
| Employee engagement (EE) | 0.725 |
| Employee productivity (EP) | 0.773 |

5.4. Assessment of Discriminant Validity

The Fornell-Larcker criterion and the Heterotrait-Monotrait Ratio (HTMT) were used to determine the instrument's discriminant validity.

5.5. Fornell-Larcker Criterion

Table 5 presents the Fornell-Larcker criterion, which states that the square root of the AVE for each construct must be greater than the highest correlation with any other construct. Off-diagonal values indicate the correlations between the constructs, whereas diagonal values indicate the square roots of the average variance extracted for each construct. It can be seen from the findings that the square root of the average variance extracted (AVE) for TP (0.859) and EE (0.852) is higher than the inter-construct correlations for each of these constructs. Along with the (EP), the construct shows a square root of AVE (0.859) greater than its correlations with EP (0.870) and EP (0.924), indicating no lack of discriminant validity for TP.

Table 5. Fornell-Larcker criterion.

| Construct | TP | EE | EP |
|-----------|-------|-------|-------|
| TP | 0.859 | | |
| EE | 0.846 | 0.852 | |
| EP | 0.870 | 0.859 | 0.879 |

5.6. Heterotrait-Monotrait Ratio (HTMT)

The discriminant validity was further evaluated using the HTMT ratios shown in Table 6. Values below the 0.90 cutoff are deemed unacceptable. While the TP and EE constructs maintain acceptable discriminant validity, the TP and EP constructs lower the acceptable threshold, indicating no problems with discriminant validity between these two constructs, according to the HTMT ratios between TP and EE (0.846) and between TP and EP (0.852). The HTMT ratio between EE and EP (0.859) indicates acceptable discriminant validity, which is just below the threshold.

Table 6. HTMT results.

| Construct | TP | EE | EP |
|-----------|-------|-------|----|
| TP | | | |
| EE | 0.845 | | |
| EP | 0.869 | 0.882 | |

Note: HTMT values below 0.90 indicate acceptable discriminant validity.

5.7. Multicollinearity Assessment

A method known as the Variance Inflation Factor (VIF) was used to assess multicollinearity among the indicators. According to Table 7, the VIF values for all indicators ranged from 2.293 to 4.267, which is well below the commonly accepted threshold of 5. This suggests that there are no significant multicollinearity issues in the measurement model.

Table 7. Multicollinearity Results

| Items | VIF |
|-----------------|-------|
| Engagement_Q1 | 3.459 |
| Engagement_Q2 | 2.731 |
| Engagement_Q3 | 3.293 |
| Engagement_Q4 | 3.679 |
| Engagement_Q5 | 2.926 |
| Productivity_Q1 | 3.047 |
| Productivity_Q2 | 3.127 |
| Productivity_Q3 | 3.118 |

| Items | VIF |
|-----------------|-------|
| Productivity_Q4 | 4.274 |
| Productivity_Q5 | 2.293 |
| Training_Q1 | 3.671 |
| Training_Q2 | 4.267 |
| Training_Q3 | 3.871 |
| Training_Q4 | 4.465 |
| Training_Q5 | 3.412 |

5.8. Structural Model Analysis

There is a consensus among the three hypotheses (H1, H2, and H3), as demonstrated by the results of the hypothesis testing presented in Table 8. A highly significant p-value of 0.000 and a beta coefficient of 0.274 are used to verify the positive link between Training Programs (TP) and Employee Productivity (EP) for Hypothesis 1. This demonstrates that training programs have a direct impact on productivity. The p-value of 0.000, the t-statistic of 1.654, and the beta coefficient of 0.288 all provide evidence supporting the second hypothesis (H2), which states that training programs significantly impact employee engagement (EE). This fact demonstrates the significance of training in fostering higher levels of employee engagement. The third hypothesis (H3) asserts that the relationship between employee productivity and training programs is successfully communicated through employee engagement. The findings emphasize the importance of employee engagement as a key mechanism that enhances employee productivity through training programs.

Table 8. Hypothesis testing results.

| Construct | Beta coefficient | Standard error | T statistics | P values |
|------------------|------------------|----------------|--------------|----------|
| H1: TP → EP | 0.274 | 0.029 | 1.146 | 0.000 |
| H2: TP → EE | 0.288 | 0.019 | 1.654 | 0.000 |
| H3: EE → TP → EP | 0.239 | 0.589 | 2.984 | 0.000 |

Figure 2 illustrates a structural equation model (SEM) that examines the connections between employee productivity, engagement, and training programs. With a substantial path coefficient of 1.481, training programs have a positive impact on employee engagement, suggesting that effective training increases engagement. However, employee productivity and engagement have a positive association (0.870), which does not indicate complex issues or mediating factors. Additionally, training programs directly impact employee productivity negatively (0.774), suggesting that although training may increase engagement, its direct impact on productivity may be limited. The model emphasizes the importance of the relationships between engagement, training, and productivity.

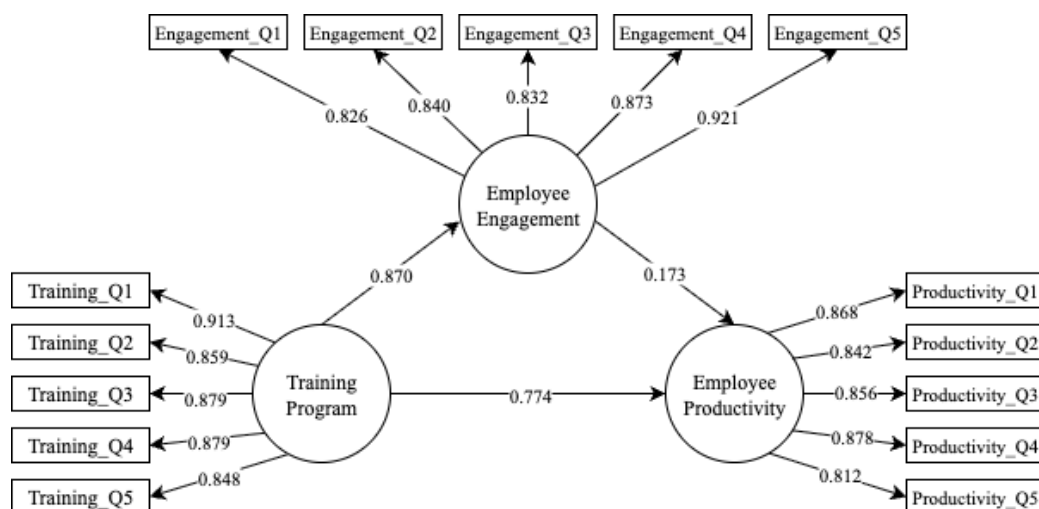


Figure 2. Results of the structure assessment model with path coefficients.

6. DISCUSSION

The results demonstrate that training programs substantially improve employee productivity and engagement, with employee engagement serving as a vital mediator in this correlation. Initially, the beneficial effect of training programs on employee productivity corresponds with prior studies, indicating that organized training initiatives provide employees with essential skills and knowledge to execute their tasks more effectively (Jalil, Ullah, & Ahmed, 2021; Saleh, Sarwar, Khan, Tabash, & Hossain, 2023). The high level of education among the respondents further supports this outcome, as a highly educated workforce is more likely to utilize training resources to enhance their performance effectively (Ahmad et al., 2022).

Moreover, the studies confirm that staff development programs improve involvement. Increased motivation, dedication, and alignment with organizational goals demonstrate that engaged personnel enhance productivity (Ismail et al., 2021). This finding is consistent with the Human Capital Theory (HCT) and the Social Exchange Theory (SET), which hold that investments in employee development foster a reciprocal relationship between workers and employers, increasing engagement and output (Becker et al., 1964; Blau, 1964).

Moreover, the mediating role of employee involvement emphasizes how important it is to turn the training programs into substantial increases in production. Engaged employees are more likely to use their new skills fully, absorb the benefits of the training, and actively help their company flourish (Saks, 2006). This mediation effect emphasizes the importance of creating an atmosphere that encourages participation because running training courses alone is not sufficient to maximize the benefits of such initiatives.

However, the research also highlights the difficulties experienced by Malaysian SMEs, including limited resources and high staff turnover rates, which could compromise the efficacy of the training programs (Zakaria, Wei, Abdullah, & Yusoff, 2021). These difficulties require strategic planning and financial allocation to ensure that SMEs' limitations and training initiatives are both effective and sustainable.

6.1. Managerial Implications

For the managers of Malaysian SMEs, the findings of this research are quite important. Training initiatives are recommended for managers as strategic investments in human capital rather than merely expenses. By aligning training programs with organizational goals and employee career ambitions, managers can increase their relevance and effectiveness (Adam et al., 2021; Ali & Johl, 2022). Managers should adopt an all-encompassing approach that combines efforts to improve employee involvement and skill development. Implementing supportive management techniques that recognize and reward employee achievements, provide regular feedback, and help create a positive work atmosphere can facilitate this (Ismail et al., 2021). Furthermore, establishing tailored training courses that fit work requirements and target specific skill shortages would help employees see the value and relevance of the training, boosting their involvement and output.

6.2. Practical Implications

The research emphasizes the need to use affordable training options, especially considering SMEs' financial constraints. Using e-learning platforms, mentoring programs, and government-funded training projects, one can provide readily available and adaptable training possibilities without significant budgetary limitations (Nor et al., 2021; Zakaria et al., 2021). These techniques help SMEs maintain financial discipline while also allowing them to invest in staff development. Moreover, keeping the benefits of the training programs depends on including engagement activities in regular operations. Open lines of contact, team-building exercises, and peer recognition programs help increase employee engagement, enhancing the value of the training projects (Siew, Wong, & Lim, 2023). Giving staff members decision-making power and including them in cross-functional initiatives can help managers create a more enjoyable and stimulating workplace.

Furthermore, the function of government and legislators is crucial in supporting SMEs' training initiatives. Grants, subsidies, and tax incentive schemes for training initiatives help SMEs overcome financial restrictions and encourage them to invest in staff development (Zakaria et al., 2021). To increase the influence of training programs, policymakers should help SMEs and outside partners such as trade groups and training providers to cooperate. Finally, SMEs should be aware of staff development in the long term. Developing a strong and flexible staff requires a continuous dedication to creating a learning environment within the company. SMEs may ensure that their staff remains competitive and can adapt to the changing corporate environment by prioritizing continuous learning and professional development (Kirkpatrick & Kirkpatrick, 2006).

7. CONCLUSION, LIMITATIONS, AND FUTURE RECOMMENDATIONS

Emphasizing the mediating effect of employee engagement, this paper defines the crucial role of training programs in increasing staff productivity in Malaysian SMEs. The results show that thorough training courses not only provide workers with the necessary skills but also inspire excitement and dedication, ultimately leading to better performance outcomes. SET and HCT are combined in the study to clarify the relationships between employee engagement, training initiatives, and performance. Particularly in resource-limited SMEs, the report emphasizes how investment in training programs, combined with policies to increase employee engagement, can boost productivity.

Although this research has several limitations, they should be acknowledged, even if they provide an insightful analysis.

The study is limited to SMEs in Malaysia, so the results have limited applicability to larger companies or SMEs in other regions with different legal, cultural, and financial environments. Additionally, relying on self-reported data obtained through structured surveys introduces several biases, such as social desirability bias and technique bias, which could affect the accuracy of responses. The cross-sectional approach restricts the research's ability to identify causal relationships among employee engagement, training programs, and productivity. Investigating the development and interaction of these factors over time requires longitudinal research. Furthermore, external factors, including industry-specific challenges or overall economic conditions, are not considered in the study, although they could influence employee performance and engagement. Lastly, the use of purposive sampling may reduce the sample's representativeness and, consequently, limit the generalizability of the results to the broader population of Malaysian SMEs.

Later studies should address these limitations to enhance understanding of the relationship among employee engagement, training programs, and productivity. Expanding the focus to include small and medium-sized enterprises (SMEs) from other countries or regions would provide cross-cultural insights and improve the generalizability of the findings. A longitudinal study approach would facilitate analysis of the long-term effects of training initiatives and the dynamic interaction between production and participation. Furthermore, future research should evaluate the impact of various training courses, such as soft skills development, technical training, and leadership development, to determine which most significantly influence employee productivity and engagement. Incorporating external factors like economic conditions and industry-specific challenges would deepen the understanding of relevant dynamics. Lastly, employing probabilistic sampling techniques could enhance the representativeness of the sample, thereby supporting the validity and applicability of the study results.

This research emphasizes the crucial role of training initiatives in enhancing staff productivity within Malaysian SMEs, particularly highlighting the mediating effect of employee engagement. The findings demonstrate that comprehensive training courses improve workers' competencies and foster motivation and dedication, leading to better performance. Combining Social Exchange Theory (SET) and Human Capital Theory (HCT) provides a theoretical framework for understanding the complex interactions among training programs, employee involvement, and output. Especially in resource-limited SMEs, it underscores how strategic investment in training and efforts to increase employee engagement can significantly boost productivity. Although this study offers valuable insights, it

has certain limitations. The research is confined to Malaysian SMEs, which restricts the applicability of the findings to larger businesses or SMEs in different regions with varying legislative, cultural, and financial contexts. Reliance on self-reported data collected through structured questionnaires introduces potential biases such as social desirability and technique bias, which may affect response accuracy. The cross-sectional design limits the ability to establish causality among employee involvement, training programs, and output. Examining changes over time would require longitudinal studies. Additionally, the study overlooks external factors influencing employee performance and engagement, such as industry-specific challenges and the overall economic environment. The use of purposive sampling further limits the generalizability of the findings to the broader population of Malaysian SMEs.

Future studies should address these limitations to enhance knowledge in this field. Including SMEs from other countries or regions would provide cross-cultural insights and improve the generalizability of the findings. A longitudinal research approach would enable the examination of the long-term effects of training initiatives and the evolving relationship between engagement and productivity. Additionally, further research should evaluate the effectiveness of specific training programs, such as soft skills development, technical training, or leadership development, to determine which most effectively increase employee engagement and productivity. Incorporating external variables, including economic conditions and industry-specific challenges, would offer a more comprehensive understanding of the factors influencing SME output. Employing probabilistic sampling techniques will ultimately improve sample representativeness, thereby enhancing the validity and applicability of the study results.

Funding: This study received no specific financial support.

Institutional Review Board Statement: The Ethical Committee of the INTI International University, Malaysia has granted approval for this study on 23 January 2025 (Ref. No. IIU-32-289-03).

Transparency: The authors state that the manuscript is honest, truthful, and transparent, that no key aspects of the investigation have been omitted, and that any differences from the study as planned have been clarified. This study followed all writing ethics.

Data Availability Statement: Upon a reasonable request, the supporting data of this study can be provided by the corresponding author.

Competing Interests: The authors declare that they have no competing interests.

Authors' Contributions: All authors contributed equally to the conception and design of the study. All authors have read and agreed to the published version of the manuscript.

REFERENCES

- Abdulaziz, Q. A., Mad Kaidi, H., Masrom, M., Hamzah, H. S., Sarip, S., Dziyauddin, R. A., & Muhammad-Sukki, F. (2023). Developing an IoT framework for industry 4.0 in Malaysian SMEs: An analysis of current status, practices, and challenges. *Applied Sciences*, 13(6), 3658. <https://doi.org/10.3390/app13063658>
- Abraham, M., Kaliannan, M., Avvari, M. V., & Thomas, S. (2023). Reframing talent acquisition, retention practices for organisational commitment in Malaysian SMEs: A managerial perspective. *Journal of General Management*, 03063070231184336. <https://doi.org/10.1177/03063070231184336>
- Adam, A., Hassan, R., & Abdullah, H. (2021). Maintaining the survival of Malaysian SMEs during Covid-19 outbreak: Challenges and suggestion for management. *ASEAN Entrepreneurship Journal*, 7(1), 27-33.
- Ahmad, F., Hamid, N. A., Ahmad, A. N. A., Naw, M. N. M., Rahman, N. A. A. A., & Hamid, N. A. A. (2022). The impact of TQM on business performance based on balanced scorecard approach in Malaysian SMEs. *International Journal for Quality Research*, 16(1), 75-90.
- Ahmad, I., Donia, M. B. L., Khan, A., & Waris, M. (2018). Do as I say and do as I do? The mediating role of psychological contract fulfillment on the relationship between ethical leadership and employee extra-role performance. *Personnel Review*, 48(1), 118-138. <https://doi.org/10.1108/PR-12-2016-0325>
- Ali, K., & Juhl, S. K. (2022). *Impact of total quality management on SMEs' sustainable performance in the context of industry 4.0*. Paper presented at the Proceedings of International Conference on Emerging Technologies and Intelligent Systems: ICETIS 2021. Cham, Switzerland: Springer International.

- Au, W. C., Stephens, S., & Ahmed, P. K. (2024). Relational HR practices in Malaysian SMEs: An ethics of care perspective. *Journal of Business Ethics*, 191(2), 323-336. <https://doi.org/10.1007/s10551-023-05458-1>
- Becker, G. M., DeGroot, M. H., & Marschak, J. (1964). Measuring utility by a single-response sequential method. *Behavioral Science*, 9(3), 226-232. <https://doi.org/10.1002/bs.3830090304>
- Blau, P. M. (1964). Justice in social exchange. *Sociological Inquiry*, 34(2), 193-206. <https://doi.org/10.1111/j.1475-682X.1964.tb00583.x>
- Deci, E. L., & Ryan, R. M. (1985). The general causality orientations scale: Self-determination in personality. *Journal of Research in Personality*, 19(2), 109-134. [https://doi.org/10.1016/0092-6566\(85\)90023-6](https://doi.org/10.1016/0092-6566(85)90023-6)
- Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology*, 86(3), 499-512. <https://doi.org/10.1037/0021-9010.86.3.499>
- Department of Statistics Malaysia (DOSM). (2024). *Current statistics of micro, small and medium enterprises (MSMEs) in Malaysia*. Putrajaya, Malaysia: Department of Statistics Malaysia.
- Dixit, R., & Sinha, V. (2021). Training as a strategic HRM tool to foster employee development in SMEs. In *Handbook of Research on Strategies and Interventions to Mitigate COVID-19 Impact on SMEs*. In (pp. 609-628). Hershey, PA: IGI Global
- Hakanen, J. J., Bakker, A. B., & Schaufeli, W. B. (2006). Burnout and work engagement among teachers. *Journal of School Psychology*, 43(6), 495-513. <https://doi.org/10.1016/j.jsp.2005.11.001>
- Ismail, A., Majid, A. H. A., Rahman, M. A., Jamaluddin, N. A., Susantiy, A. I., & Setiawati, C. I. (2021). Aligning Malaysian SMEs with the megatrends: The roles of HPWPs and employee creativity in enhancing Malaysian SME performance. *Global Business Review*, 22(2), 364-380. <https://doi.org/10.1177/0972150918811236>
- Ismail, F., Ka, H. K., Fern, N. W., & Imran, M. (2021). Talent management practices, employee engagement, employee retention; empirical evidence from Malaysian SMEs. *Studies of Applied Economics*, 39(10), 1-13. <https://doi.org/10.25115/eea.v39i10.5572>
- Jaish, A. A., Murdipi, R., Razak, D. A., & Alwi, N. M. (2023). The impact of digitalization towards the sustainability of Malaysian SMEs: The dynamic capabilities perspective. In *From Industry 4.0 to Industry 5.0: Mapping the Transitions*. In (pp. 3-12). Cham, Switzerland: Springer Nature Switzerland AG
- Jalil, M. F., Ullah, W., & Ahmed, Z. (2021). Training perception and innovative behavior of SME employees: Examining the mediating effects of firm commitment. *SAGE Open*, 11(4). <https://doi.org/10.1177/21582440211067250>
- Kahn, W. A. (1990). Psychological conditions of personal engagement and disengagement at work. *Academy of Management Journal*, 33(4), 692-724. <https://doi.org/10.5465/256287>
- Kamal, E. M., Lou, E. C., Yusof, N. A., & Osmadi, A. (2022). Absorptive capacity of Malaysian SME construction organisations. *Architectural Engineering and Design Management*, 18(3), 313-324. <https://doi.org/10.1080/17452007.2021.1883518>
- Kaprawi, N., Rasi, R. Z., Spöttl, G., Ismail, A., & Razzaly, W. (2021). Malaysian apprenticeship implementation: Issues and challenges towards effective employers' engagement. *Journal of Technical Education and Training*, 13(3), 213-224.
- Khan, M. A., Khan, S. S., Zia-Ul-Islam, S., & Khan, M. (2020). The impact of training and development on employee performance: A case study of SME sector. *Journal of Business and Management*, 22(1), 20-27.
- Kirkpatrick, D., & Kirkpatrick, J. (2006). *Evaluating training programs: The four levels* (3rd ed.). San Francisco, CA: Berrett-Koehler Publishers.
- Mohamad, A., Mustapa, A. N., & Razak, H. A. (2021). *An overview of Malaysian small and medium enterprises: Contributions, issues, and challenges*. In *Modeling Economic Growth in Contemporary Malaysia*. Bingley, UK: Emerald Publishing Limited.
- Mukhtar, B., Shad, M. K., & Lai, F. W. (2025). Fostering sustainability performance in the Malaysian manufacturing companies: The role of green technology innovation and innovation capabilities. *Benchmarking: An International Journal*, 32(3), 992-1016.
- Nor, N. M., Johar, E. R., & Mat Khairi, S. M. (2021). The study on human resource practices and AMO model and its impact on employee commitment among Gen Y SMEs employees in Selangor, Malaysia. *International Journal of Business & Society*, 22(3), 1354-1372.

- Razak, R. C., Ahmad, S., & Mohamed, Z. (2018). Training and development and employee performance: The moderating role of knowledge management process in the Malaysian SMEs. *International Journal of Academic Research in Business and Social Sciences*, 8(5), 652–662.
- Saks, A. M. (2006). Antecedents and consequences of employee engagement. *Journal of Managerial Psychology*, 21(7), 600–619. <https://doi.org/10.1108/02683940610690169>
- Saks, A. M., & Gruman, J. A. (2014). What do we really know about employee engagement? *Human Resource Development Quarterly*, 25(2), 155–182. <https://doi.org/10.1002/hrdq.21187>
- Saleh, T. A., Sarwar, A., Khan, N., Tabash, M. I., & Hossain, M. I. (2023). Does emotional exhaustion influence turnover intention among early-career employees? A moderated-mediation study on Malaysian SMEs. *Cogent Business & Management*, 10(3), 2242158. <https://doi.org/10.1080/23311975.2023.2242158>
- Siew, J. F., Wong, S. C., & Lim, C. S. (2023). Should I go or should I stay: Job hopping in Malaysia small medium enterprise (SME) service sectors. *European Journal of Training and Development*, 47(1/2), 105–122. <https://doi.org/10.1108/EJTD-05-2021-0054>
- Tharenou, P., Saks, A. M., & Moore, C. (2007). A review and critique of research on training and organizational-level outcomes. *Human resource management review*, 17(3), 251–273. <https://doi.org/10.1016/j.hrmr.2007.07.004>
- Zakaria, N., Wei, F., Abdullah, N., & Yusoff, R. (2021). Unravelling the HRM practices and performance link in Malaysian SMEs: The role of organizational innovation. *Management Science Letters*, 11(4), 1111–1120.

Appendix 1. Survey Questionnaire of the study.

Section A: Demographic Information

Please answer the following questions:

1. Gender:
 - ☐ Male
 - ☐ Female
2. Age:
 - ☐ Below 25
 - ☐ 25–34
 - ☐ 35–44
 - ☐ 45–54
 - ☐ 55 and above
3. Educational Level:
 - ☐ High School Diploma
 - ☐ Bachelor's Degree
 - ☐ Master's Degree
 - ☐ PhD
 - ☐ Other
4. Tenure in Current Organization:
 - ☐ Less than 1 year
 - ☐ 1–3 years
 - ☐ 4–6 years
 - ☐ 7–10 years
 - ☐ More than 10 years

Section B: Training Programs

Please indicate the extent to which you agree or disagree with the following statements regarding the training programs provided by your organization.

Scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree

1. The training programs provided are relevant to my job.
2. The training content was easy to understand and apply.
3. The organization regularly updates its training programs to meet current needs.
4. The training programs have improved my skills and knowledge for better job performance.
5. I feel motivated to perform better after attending training programs.

Section C: Employee Engagement

Please indicate the extent to which you agree or disagree with the following statements about your engagement at work.

Scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree

1. I feel enthusiastic about my job.
2. I am fully immersed in my work.
3. I feel a strong sense of belonging to my organization.
4. My work inspires me to do my best.
5. I am willing to put in extra effort for my organization.

Section D: Employee Productivity

Please indicate the extent to which you agree or disagree with the following statements about your productivity at work.

Scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree

1. I consistently meet or exceed performance expectations.
2. I complete tasks efficiently and effectively.
3. I contribute significantly to achieving organizational goals.
4. I frequently come up with innovative solutions to work-related problems.

My productivity has improved as a result of participating in training programs.