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THE RELATIONSHIP BETWEEN TQM PRACTICES AND OPERATIONAL PERFORMANCE IN SEREMBAN'S MANUFACTURING COMPANIES

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ABSTRACT

Malaysia's manufacturing sector prioritizes advanced practices, including high-tech industries and foreign investment. Total Quality Management (TQM), which involves all employees' commitment in continuous improvement, is essential for enhancing operational performance. However, many Seremban manufacturers struggle to achieve significant improvements. This study examines TQM practices impact on operational performance among Seremban's manufacturing companies. A stratified sample of at least 269 firms was selected from 865, with 400 questionnaires distributed to managerial representatives. Data analysis using SPSS revealed a moderate to high adoption of TQM practices, with a strong positive correlation between TQM practices and operational performance. Leadership, training, and strategic quality planning emerged as key drivers of efficiency, improving productivity and streamlining operations. These findings highlight the importance of a structured TQM practices to enhance manufacturing performance. To remain competitive, companies should prioritize strong leadership, continuous employee development, and well-structured quality initiatives. Effective TQM practices can drive long-term operational improvements, reinforcing Malaysia's position as a leader in advanced manufacturing.

***JEL classification**: L60, M11*
***Keywords**: Manufacturing; operational performance; total quality management practices*

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1. INTRODUCTION

In the recent years, the world has witnessed a rising in the globalization where the economies of many countries are interlinked to promote foreign trade through technological advances and connectivity. This Malaysia's industrial landscape,

characterized by a diverse range of manufacturing sectors, including electronics, automotive, and machinery, significantly influences operational performance in manufacturing (Jibril, 2019; Jong et al., 2019). Operational performance refers to an organization's ability, particularly in manufacturing, to efficiently convert inputs like labor, raw materials, and capital into outputs that meet customer demands and business goals (Kebede Adem & Virdi, 2021). Key dimensions include product quality, reliability, and delivery time (Zaidi & Ahmad, 2020). Manufacturing firms increasingly recognize its importance for long-term sustainability. Strong operational performance enhances competitiveness by enabling high-quality production at lower costs while minimizing waste and maximizing resources (Inman et al., 2011). Benefits include cost reduction, improved service quality, better financial performance, and higher customer satisfaction. However, challenges such as quality failures, supply chain disruptions, inventory issues, inefficient production, and high costs can hinder efficiency (Zaidi & Ahmad, 2020). Overcoming these obstacles is essential to maintaining market position against competitors offering superior products at lower prices (Abdallah et al., 2019; Beneke et al., 2016). Manufacturing companies continuously seek strategies to enhance performance and gain a competitive edge (Iyer et al., 2019; Sibanda & Ramanathan, 2020). Firms that adopt a quality-focused strategy generally achieve better performance (Oh & Kuchinke, 2017; Sibanda & Ramanathan, 2020). However, many manufacturers face criticism for low product quality due to inadequate focus on quality during production.

A key challenge is improving operational efficiency, particularly through Total Quality Management (TQM) practices, which enhance quality, productivity, and overall performance (Zheng & Luo, 2023). Despite their proven benefits, many manufacturing firms struggle with TQM implementation (Asenge et al., 2019; Kaur et al., 2019; Owusu & Duah, 2018). While TQM practices are not new in Malaysia, most studies focus on small and medium enterprises (SMEs) or service providers (Khan et al., 2020; Putra et al., 2021; Sutrisno, 2019). Research on its impact in manufacturing, particularly in Negeri Sembilan, remains limited, with most studies covering Selangor, Johor, and Pahang (Kassab et al., 2023; Yusuf et al., 2021; Zaidi & Ahmad, 2020).

TQM practices involve continuously identifying, reducing, and eliminating manufacturing errors to enhance performance, profitability, and customer satisfaction (Romero et al., 2019). Prioritizing TQM practices is essential for improving operational performance globally (Alshourah, 2021). These practices offer a systematic approach to resolving quality issues, optimizing processes, and exceeding customer expectations (Zaidi & Ahmad, 2020).

Quality deficiencies disrupt operations, causing delays and inefficiencies. When products fail to meet standards, production lines slow or halt, reducing throughput and affecting performance (Daraio et al., 2019). Understanding the relationship between TQM practices and operational performance is essential, as maintaining high-quality standards ensures efficiency. Therefore, this study examines the relationship and impact of TQM practices (leadership, process management, training, customer focus, and strategic quality planning) and operational performance in manufacturing companies in Seremban, Negeri Sembilan.

2. LITERATURE REVIEW

2.1 Operational performance

Operational performance is a critical determinant of the ability to meet customer demands and achieve strategic business goals. It encompasses the efficient transformation of inputs, such as labour, raw materials, and capital, into outputs (Kaynak, 2003). In an increasingly dynamic and competitive manufacturing environment, there is a growing need for production improvement drivers that can adapt to and optimize the full lifecycle of manufacturing operations while also identifying and leveraging underutilized capabilities within functional departments (Singh & Awoke, 2023).

Product quality is a key dimension of operational performance, defined by the integration of features that satisfy consumer needs and expectations by enhancing products and minimizing defects (Chavez et al., 2017). Quality encompasses the overall characteristics of a product that fulfil both explicit and implicit customer requirements. It is influenced by several factors, including design, materials, manufacturing processes, and service standards, all of which must align with specific quality benchmarks (Pandit et al., 2019). Consistently delivering high-quality products is essential for maintaining customer satisfaction and fostering long-term loyalty (Mukherjee & Mukherjee, 2019; Zaidi & Ahmad, 2020).

On top of that, reliability is another critical aspect of operational performance, refers to a product's ability to consistently perform its intended function over a defined period under specified operating conditions (Mukherjee & Mukherjee, 2019). It is a fundamental measure of product performance throughout its operational lifespan (Sunday et al., 2021). High reliability ensures that products maintain their functionality over time, thereby reinforcing customer trust and satisfaction (Zaidi & Ahmad, 2020).

Meanwhile, delivery time represents the duration between order placement and product receipt. Effective delivery performance is characterized by the timely shipment of orders in alignment with customer expectations (Chavez et al., 2017). Timely deliveries are essential for cost reduction and profit maximization, as they ensure production schedules adhere to specified timelines, thereby enhancing overall customer satisfaction (Zaidi & Ahmad, 2020).

Overall, operational performance in manufacturing companies plays a pivotal role in optimizing production efficiency, ensuring product quality, enhancing customer satisfaction, and driving profitability (Arshad Ali et al., 2020; Senarath et al., 2020). It involves minimizing management costs, reducing order fulfilment times, and improving input utilization, all of which contribute to a company's competitive advantage (Acquah et al., 2023; Putra et al., 2021). Therefore, key dimensions used to evaluate operational performance in this study include product quality, reliability, and delivery time.

2.2 Overview on TQM

TQM practices involve a continuous process to identify, reduce, and eliminate manufacturing errors, aiming to enhance performance and profitability by offering products and services that meet customer expectations and achieve company goals efficiently (Romero et al., 2019). TQM encompasses a management system involving all business units to organize, execute, enhance, and oversee company quality by

establishing company policies and goals (Bytyçi et al., 2023). TQM practices are integral for improving product, service, and process quality, increasing competitiveness, and delivering greater value to customers (Madanat & Khasawneh, 2017; Umar, 2023). TQM practices are a management strategy aimed at enhancing the quality and productivity of the company (Umar, 2023). Companies are adopting Total Quality Management practices, which are becoming more common in rapidly changing industries (Madanat & Khasawneh, 2017; Zaidi & Ahmad, 2020). Table 1 shows the frequency of TQM practices used in previous researches.

Table 1: TQM practices dimensions used in previous studies.

	Author							
TQM practices dimension	Acquah et al. (2023)	Wassan et al. (2022)	Niyi Anifowose et al. (2022)	Kebede Adem & Virdi (2021)	Bytyçi et al. (2023)	Ahmad et al. (2022)	Jong et al. (2019)	Total
Leadership	✓	✓	✓	✓	✓	✓	✓	7
Knowledge management	✓				✓	✓		3
Process management	✓		✓		✓		✓	4
Training	✓		✓	✓				3
Supplier quality management	✓	✓	✓					3
Customer focus	✓	✓	✓	✓	✓	✓	✓	7
Strategic quality planning	✓	✓				✓	✓	4
Human resources focus		✓					✓	2
Employee empowerment and involvement			✓	✓				2
Continuous improvement			✓	✓				2
Inventory management					✓			1

Based on Table 1, this study selected five TQM practices dimensions with highest frequency. Thus, the dimensions used to measure TQM practices and their expected impact on operational performance are leadership, process management, training, customer focus, and strategic quality planning.

2.2.1 Leadership

Leadership in TQM involves the ability to instil confidence and support in individuals working towards achieving company goals. Effective leadership in TQM views the company as a platform for fostering connections among employees, managers, and clients, enhancing employee development, and optimizing the use of knowledge and skills (Zaidi & Ahmad, 2020). Managers play a crucial role in empowering employees to be involved in making the decisions and demonstrate strong leadership to promote awareness of TQM practices and techniques as well as fostering a work environment

that encourages participation in quality improvement processes (Abbas & Kumari, 2021; Acquah et al., 2023; Umar, 2023).

2.2.2 Process management

Process management involves the strategic management of policies, methods, and procedures to coordinate and control activities (Acquah et al., 2023; Rad, 2006). It is a fundamental element of TQM practices that helps companies understand and implement TQM differently from traditional quality control methods (Jibril, 2019). Effective process management enhances operational efficiency and agility, leading to superior product or service quality (Faeq et al., 2021; Nasution & Absah, 2022; Wassan et al., 2022). Companies that work effectively with external stakeholders can improve their business performance by increasing the quality of their production.

2.2.3 Training

Training involves equipping employees with skills and knowledge that required to improve product and process quality (Acquah et al., 2023; Niyi Anifowose et al., 2022). It focuses on new work procedures, technical skills, communication, supervision, and customer relationships (Faeq et al., 2021). Companies pay more attention to focusing on employee training due to the importance of product quality to their performance (Liu et al., 2023). Training enhances employees' problem-solving abilities and fosters a collaborative environment, leading to improved performance and competitive advantage (Jibril, 2019; Khalfan et al., 2020; Khan et al., 2020). It aims to provide employees with the necessary skills and knowledge to effectively tackle company challenges (Jibril, 2019).

2.2.4 Customer focus

Customer focus refers to how well an organisation meets customer needs and expectations, including gathering feedback to ensure these are being met (Faeq et al., 2021; Asenge et al., 2019). This involves understanding what customers need, getting feedback on how well those needs are being met, involving customers in designing products, and aiming for high customer satisfaction. It involves understanding customer requirements, managing customer relationships, and aiming for high customer satisfaction (Brah et al., 2002; Hadli, 2017). A strong customer focus is crucial for long-term success, as it helps companies exceed customer expectations and achieve operational excellence (Anyadighibe & Ekom, 2021; Kebede Adem & Virdi, 2021).

2.2.5 Strategi quality planning

Strategic quality planning is essential for quality departments and managers to identify optimal long-term quality programs (Abbas & Kumari, 2021).This process aligns an organisation's quality strategy with its business objectives, ensuring customer satisfaction, quality excellence, and operational performance (Jibril, 2019). Combined with TQM practices, it enhances overall operational performance (Niyi Anifowose et al., 2022; Pambreni et al., 2019). Employee involvement in planning and developing the organisation's vision, strategies, mission, and objectives fosters loyalty and commitment, motivating employees to perform their best (Zaidi & Ahmad, 2020). Therefore, strategic quality planning is crucial for companies aiming to improve their long-term quality management (Jong et al., 2019).

2.3 Conceptual framework and hypothesis

Figure 1 presents the conceptual framework of this study. The independent variable is TQM practices and the dependent variable is operational performance. The dimensions of independent variables in this study include leadership, process management, training, customer focus and strategic quality planning. Meanwhile, operational performance is variable depending on TQM practices.

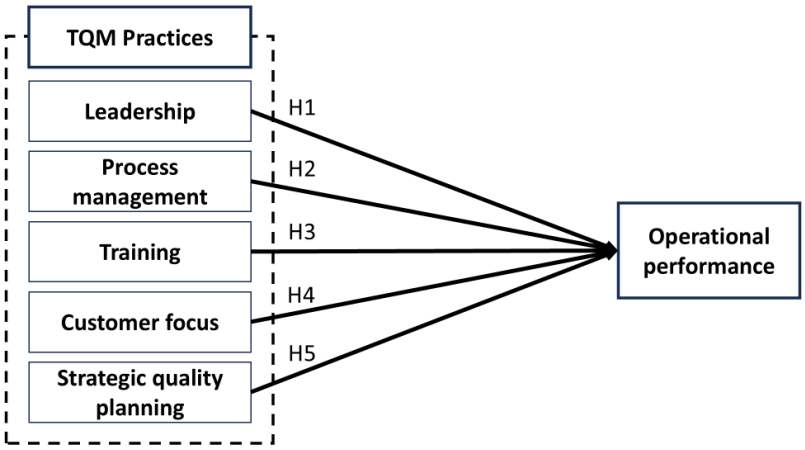

Figure 1: Conceptual framework.

Furthermore, this study wants to determine the relationship between TQM practices and operational performance among manufacturing companies located in Seremban, Negeri Sembilan, Malaysia. Thus, this study develops a hypothesis as below:

H1: Leadership is positively associated with operational performance.
H2: Process management is positively associated with operational performance.
H3: Training is positively associated with operational performance.
H4: Customer focus is positively associated with operational performance.
H5: Strategic quality planning is positively associated with operational performance.

3. METHODLOGY

The current study utilises a quantitative research method as it would be best to evaluate the impact of TQM practices on manufacturing companies; operational performance and also identify the variables and its association in the current study. The study makes use of primary data collection method namely survey as instrument by utilizing Likert scale as a data collection device. Managerial or executive level personnel of manufacturing companies in Seremban, Negeri Sembilan were selected as respondent with a total of 865 companies. Since this study seeks in generalising the findings to the entire population, thus, the appropriate design is employing the probability sampling. Survey data were collected using stratified sampling technique because it easy to use, meets with the time limitation and proximity to researchers. The sample size selected for this study is 269 respondents (Krejcie & Morgan, 1970), and distributed 400 questionnaires among the managerial level of the company via email to access the Google form link. This method is chosen mainly because it easy to use and distribute to targeted respondents. The TQM practices dimensions were

adopted from Zaidi & Ahmad, 2020, Wassan et al. (2022), Kebede Adem & Virdi (2021), and Jong et al. (2019). All TQM practices dimensions have 5 items each. Meanwhile, the operational performance was adapted from Sadikoglu & Olcay (2014) with 6 items. All items were measured using 5-points Likert scale, ranging from 1 (strongly disagree/unsatisfactory) to 5 (strongly agree/outstanding).

3.1 Data analysis

This study examines the impact of TQM practices (leadership, process management, training, customer focus, and strategic quality planning) on the operational performance of manufacturing companies in Seremban, Negeri Sembilan. The data was analysed using Statistical Package for Social Sciences (SPSS) software version 27, to identify the frequency and percentage, level, correlation and impact of variables in this study. This includes descriptive, reliability, normality, correlation, and simple linear regression analysis. In this study, a pilot test was conducted by collecting responses from 30 respondents. The Cronbach's alpha for the variables of this study is tabulated in Table 2. Since all variables have reliability > 0.6, this means that all items are appropriate to be used to measure both TQM practices and operational performance for the current study.

Table 2: Reliability analysis of pilot study (N=30).

Item	No. of item	Cronbach's alpha	Result
TQM practices			
Leadership	5	0.779	Good
Process management	5	0.650	Moderate
Training	5	0.831	Very Good
Customer focus	5	0.758	Good
Strategic quality planning	5	0.808	Very Good
Operational performance	6	0.870	Very Good

4. FINDING AND ANALYSIS

4.1 Reliability analysis

Table 3 shows the reliability test results for the actual study conducted with 300 employees from Seremban. The Cronbach's alpha value presented in Table 3 has reliability ranging from 0.729 to 0.791, indicating that the instruments used in this study were reliably valid and acceptable.

Table 3: Reliability analysis of actual study (N=300).

Item	No. of item	Cronbach's alpha	Result
TQM practices			
Leadership	5	0.781	Good
Process management	5	0.729	Good
Training	5	0.753	Good
Customer focus	5	0.749	Good
Strategic quality planning	5	0.735	Good
Operational performance	6	0.791	Good

4.2 Descriptive analysis

From 300 valid responses, 46% reported a high level of TQM practices implementation, indicating strong adoption within the company. Additionally, 37.3% indicated a medium level of implementation, while 8% reported low implementation,

and 5.7% noted an advanced level. Only 3% of respondents reported no TQM practices implementation, suggesting that most perceive the company as having a strong to moderate focus on TQM practices. 42.3% of respondents reported that operational performance meets expectations, while 28.3% stated it exceeds expectations. Additionally, 22% indicated that performance needs improvement, and 6.7% rated it as outstanding. Only 0.7% found the performance unsatisfactory, suggesting a generally positive perception of operational performance within the company, with most feeling it meets or exceeds expectations. Table 4 shows the central tendency of TQM practices and operational performance. Based on the results, the TQM practices recorded a mean value of 4.34, positioned at a high level with a standard deviation of 0.689. The operational performance had a mean value of 4.30, also positioned at a high level with a standard deviation of 0.699.

Table 4: Descriptive analysis of TQM practices and operational performance.

Item	Mean	Std. Deviation	Level
TQM practices	4.34	0.689	High
Leadership	4.33	0.701	High
Process management	4.34	0.698	High
Training	4.34	0.684	High
Customer focus	4.36	0.671	High
Strategic quality planning	4.32	0.685	High
Operational performance	4.30	0.699	High

4.3 Normality

The Kolmogorov-Smirnov test was selected in this study because this test is commonly applied whenever the sample size is greater than 50, and the actual response of this study is 300. where the significance value represents by more than 0.05 ($p \geq 0.05$) means the data is normally distributed but if the significance level is less than 0.05 ($p < 0.05$), thus the data is not normally distributed. The value of p or Sig. in this test is 0.000 and therefore, it is less than 0.05 which is the general level of significance. The p-value of leadership, process management, training, customer focus strategic quality planning and operational performance are less than 0.05 as tabulated in Table 5. Thus, the data in this study is not normal.

Table 5: Normality test.

Item	Kolmogorov-Smirnov			Result
	Statistic	df	Sig.	
TQM practices				
Leadership	0.266	300	0.000	Not normal
Process management	0.269	300	0.000	Not normal
Training	0.236	300	0.000	Not normal
Customer focus	0.241	300	0.000	Not normal
Strategic quality planning	0.244	300	0.000	Not normal
Operational performance	0.234	300	0.000	Not normal

4.4 Correlation analysis

Spearman correlation analysis is used to examine the correlations between dependent and independent variables since the data is not normally distributed. Table 6 offers the statistics pertaining to the correlation analysis results. The study supports all of the hypotheses by demonstrating that all variables have a substantial positive relationship with operational performance, as indicated by the correlation coefficient,

which ranges from 0.452 to 0.489. With a correlation value of 0.489, the correlation coefficient analysis reveals that leadership is the primary factor influencing operational effectiveness (H1).

Table 6: Correlation coefficient analysis.

Item	L	P	T	C	S	OP
TQM practices						
Leadership (L)	1.000					
Process management (P)	.562**	1.000				
Training (T)	.525**	.509**	1.000			
Customer focus (C)	.432**	.497**	.521**	1.000		
Strategic quality planning (S)	.468**	.552**	.503**	.408**	1.000	
Operational performance (OP)	.489**	.480**	.480**	.452**	.478**	1.000

Note: **. Correlation is significant at the 0.01 level (2-tailed).

4.5 Impact analysis

Table 7 presents the R and R^2 values. An R value of 0.752 and an R^2 value of 0.566 indicate a moderate positive correlation. Furthermore, a Durbin-Watson statistic of 2.162 suggests the data exhibits independence of observations. Figure 2 shows the Normal P-P Plot of the regression standardized residuals. There is no significant evidence of non-linearity in the regression model. The assumption of linearity is supported.

Table 7: Model summary.

Model Summary[b]					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.752[a]	0.566	0.559	0.32513	2.162

a. Predictors: (Constant), Mean_S, Mean_L, Mean_C, Mean_T, Mean_P
b. Dependent Variable: Mean_OP

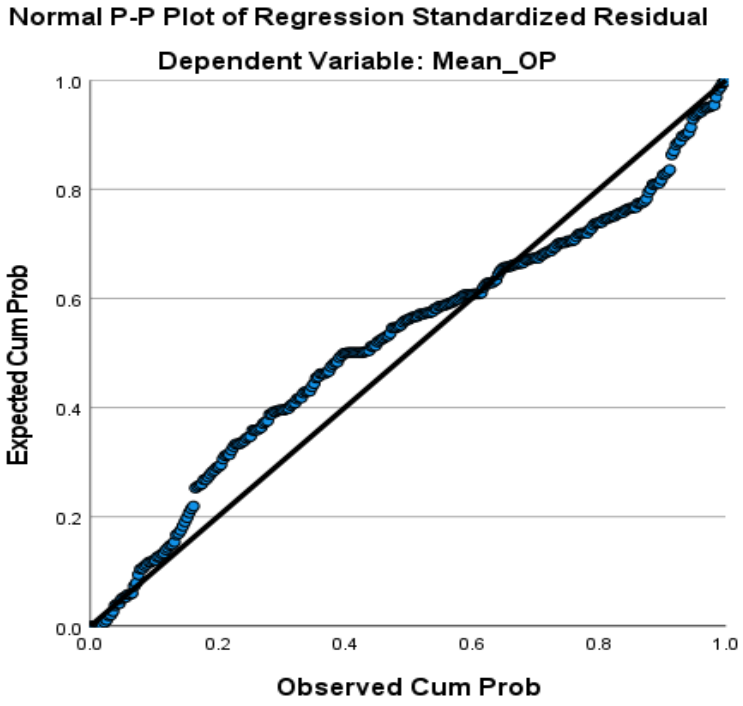

Figure 2: Normal P-P plot.

Linear regression expands the concept of correlation by analysing the relationship between two variables and making predictions about one depending on the value of the other. This analysis is critical for determining the influence of five TQM practices as independent variables and operational performance as the dependent variable. Table 8 displays that leadership, training and strategic quality planning have a considerable impact on operational performance. However, process management and customer focus did not strongly predict operational performance. Furthermore, multicollinearity among the variables is not an issue because all Variance Inflation Factor (VIF) values are less than ten.

Table 8: Multiple regression analysis.

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	0.350	0.207		1.693	0.092		
Leadership	0.248	0.048	0.259	5.172	0.000	0.587	1.703
Process management	0.134	0.061	0.132	2.180	0.030	0.402	2.485
Training	0.288	0.060	0.286	4.805	0.000	0.418	2.393
Customer focus	0.097	0.058	0.094	1.689	0.092	0.473	2.115
Strategic quality planning	0.145	0.057	0.141	2.544	0.010	0.479	2.089

a. Dependent Variable: Operational performance

4.6 Discussion

4.6.1 H1: Leadership is positively associated with operational performance

The hypothesis proposing a positive association between leadership and operational performance was strongly supported by the findings. Leadership was identified as the most critical factor influencing operational performance (H1), with the highest correlation coefficient of 0.489. This finding aligns with established theoretical perspectives which posit that management commitment forms the foundational pillar for any successful quality initiative. Effective leadership is instrumental in cultivating an organizational culture that prioritizes quality, provides clear strategic direction, and motivates collective effort towards continuous improvement. The results underscore that leadership is not merely a supportive element but a primary driver that significantly enhances efficiency, productivity, and overall operational outcomes. Consequently, the cultivation of strong, quality-focused leadership is unequivocally critical for manufacturing firms aiming to achieve superior operational performance.

4.6.2 H2: Process management is positively associated with operational performance

The second hypothesis anticipated a positive relationship between process management and operational performance. While a correlational link was identified, the regression analysis revealed that process management did not exert a significant standalone impact. This outcome presents a nuanced perspective. Existing literature frequently highlights process management as a core mechanistic element of TQM, essential for reducing variability and improving efficiency. However, the current findings suggest that in the specific context of this study, its direct effect on operational performance might be mediated by other factors. It is plausible that the benefits of process management are realized indirectly through its interaction with

other practices like leadership or training, or that its impact is more long-term and less immediately quantifiable in cross-sectional operational metrics. This indicates that while process management remains a necessary component, its efficacy may be contingent upon a mature quality culture and integration with other strategic elements.

4.6.3 H3: Training is positively associated with operational performance

The third hypothesis, which posited a positive effect of training on operational performance, was strongly supported by the empirical results. This finding is consistent with the widely held view that human capital is a vital asset and that continuous investment in employee development is paramount. Training equips the workforce with the necessary technical skills, problem-solving capabilities, and understanding of quality standards required to perform their duties effectively. A well-trained employee is better positioned to identify inefficiencies, prevent errors, and contribute to process optimization, thereby directly enhancing operational outcomes such as product quality and productivity. This result firmly establishes that systematic and ongoing training programs are not an ancillary cost but a strategic investment that yields significant returns in operational excellence.

4.6.4 H4: Customer focus is positively associated with operational performance

The fourth hypothesis expected a significant positive influence from customer focus on operational performance. Contrary to this expectation, the analysis did not find a strong predictive relationship, despite a positive correlation. This result is intriguing, as a central tenet of TQM philosophy is the paramount importance of meeting and exceeding customer expectations. A potential explanation could be that the effect of customer focus is more distal and mediated through other variables. For instance, customer feedback may first lead to improvements in product design or service delivery, which then subsequently enhance operational metrics over a longer period. Alternatively, in highly competitive or standardized manufacturing environments, a strong customer focus might be a baseline requirement for market survival rather than a key differentiator for operational superiority. This suggests that the direct operational benefits of customer-centric activities may be more complex and context-dependent than traditionally assumed.

4.6.5 H5: Strategic quality planning is positively associated with operational performance

The fifth hypothesis, concerning the positive role of strategic quality planning, was confirmed. This dimension demonstrated a significant impact, highlighting the importance of a forward-looking and integrative approach to quality. Strategic quality planning involves aligning quality objectives with the overarching business strategy, setting long-term goals, and systematically allocating resources to achieve them. This practice ensures that quality is not treated as a standalone tactical issue but is embedded into the strategic fabric of the organization. It provides a clear roadmap for continuous improvement and helps anticipate future challenges. The significant impact found in this study reinforces the concept that operational excellence is not achieved through isolated efforts but requires a coherent, planned, and strategically aligned quality management system.

5. CONCLUSION

This study examined the relationship between Total Quality Management practices and operational performance within manufacturing firms in Seremban, Malaysia. The analysis revealed that while all five TQM practices studied were positively correlated with performance, leadership, training, and strategic quality planning emerged as the most significant drivers of operational improvement. In contrast, process management and customer focus did not demonstrate a strong direct impact, suggesting their influence may be dependent on other organizational factors or longer time horizons.

The findings offer practical guidance for managers, indicating that resources should be prioritized toward developing strong quality focused leadership, implementing continuous employee training programs, and embedding quality objectives into long term strategic planning. These elements form a critical foundation for operational excellence. The study contributes to the TQM literature by providing evidence from a previously under researched region and proposing that a hierarchical view of TQM practices may be more accurate than considering all dimensions as equally impactful.

While limited by its geographical focus and cross sectional design, this research highlights the need for a targeted approach to TQM implementation. It concludes that sustainable operational performance is best achieved through a synergistic combination of committed leadership, strategic quality alignment, and investment in human capital, providing a valuable framework for both practitioners and future academic study.

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