

Customer Satisfaction of Technopreneurs Based on TQM and Servqual During the Covid-19 Pandemic

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ABSTRACT

Manuscript type: Research paper

Research aims: This research examines the influence of total quality management (TQM) on service quality (Servqual), TQM on customer satisfaction, and Servqual on customer satisfaction.

Design/Methodology/Approach: A sample of 406 customers who made online purchase transactions from technopreneurs in the 33 districts of North Sumatra province was included. The participants were selected using multiple-stage cluster sampling. The sample size of 406 was determined through simple random sampling using the Krejcie and Morgan (1970) table at a 95% confidence level, resulting in a final sample of 198 customers. The collected data were analysed using Pearson correlation analysis.

Research findings: TQM significantly influenced Servqual and customer satisfaction, while Servqual directly affected customer satisfaction.

Theoretical contribution/Originality: This research provides valuable insights and contributions to technopreneurs by enhancing their managerial knowledge pertaining to customer satisfaction.

Practitioner/Policy implication: This research proposes quality management as a strategic approach to enhance technopreneur development.

Research limitation/Implications: For future research, there is potential to examine customer satisfaction among technopreneurs during the post-Covid-19 pandemic period.

Keywords: Technopreneur, Customer Satisfaction, TQM, Servqual, Covid-19, Pandemic

JEL Classification: M11, M12, M31

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1. Introduction

Unemployment rates in Indonesia are on the rise, accompanied by a scarcity of job opportunities and vacancies. To address this issue, the government has focused on promoting employment through labour-intensive industries. However, there is a prevailing trend among educated individuals to prioritise public service positions over entrepreneurial ventures. This inclination towards securing high-ranking officer positions is often associated with higher levels of education. The reluctance to engage in high-risk endeavours, such as starting a business, and the emphasis on salary expectations further contribute to this phenomenon. Based on 2019 data, Indonesia ranked 94th out of 137 countries in terms of entrepreneurial activity, accounting for only 3.5% of the population. This percentage remains lower compared to other nations, including Malaysia (5%), China (10%), Singapore (7%), Japan (11%), and the United States (12%) (Kemdikbud, 2021).

The global outbreak of Covid-19 affected nearly every country, including Indonesia. In order to curb the spread of the virus, social distancing measures were implemented as a preventive policy. While social distancing had positive and negative implications, it became necessary for individuals to stay at home and isolate themselves to mitigate the transmission of the virus. Consequently, these measures disrupted various activities, particularly those related to earning a livelihood. Many workers were laid off, leading to a loss of income.

In the face of the pandemic, individuals have been compelled to unleash their creativity and find innovative ways to adapt to daily life and ensure continuity. These circumstances created opportunities for innovative entrepreneurs to leverage online shopping as a potential avenue. Even individuals with limited prior experience in utilising technology embraced digital tools to enhance their business operations. Given the intense competition, maintaining high service quality (Servqual) became paramount, with many businesses adopting total quality management (TQM) principles to ensure customer satisfaction and stand out in the market.

The rising number of internet users prompted a shift in consumer behaviour, with many customers opting to utilise online platforms for their shopping needs (Bahari et al., 2021). The Covid-19 pandemic played a significant role in this shift, as restrictions on direct human contact compelled people to adopt digital systems for making purchases and payments. However, the success of businesses ultimately hinges on customer satisfaction as it fosters loyalty. According to Moon et al. (2021), customer satisfaction has positively

influenced interest in online shopping.

Based on the description above, this research aims to investigate the importance of TQM, Servqual, and customer satisfaction for technopreneurs operating in North Sumatra during the Covid-19 pandemic. The hypothesis is that a significant number of technopreneurs in this region lacked management skills specifically related to customer satisfaction, and engaged in online business out of necessity rather than choice. Additionally, it is assumed that certain internet retailers prioritised customer acquisition over customer happiness, and neglected the importance of customer satisfaction. Customer satisfaction is considered a critical asset in the realm of online shopping as it fosters trust and loyalty among customers. The proposed hypotheses were developed based on an extensive review of relevant literature and empirical findings, as follows:

H₁: TQM has a positive influence on Servqual

H₂: TQM has a positive influence on customer satisfaction

H₃: Servqual has a positive influence on customer satisfaction

2. Methodology and Theoretical Framework

2.1. Literature Review

2.1.1 Customer Satisfaction

Customer satisfaction is contingent upon the attainment of expected quality. It can be defined as the discrepancy between the received and the expected quality, wherein assuming the actual quality falls below expectations, the customer would not be satisfied (Alfalah, 2017). Furthermore, Deng et al. (2010) underline the importance of customer satisfaction, as it influences customer loyalty and the likelihood of repeated purchases. Various factors contribute to customer happiness, including web design, security, information, payment method, virtual service, product qualities, product range, and service provision (Vasić et al., 2019). Customer satisfaction is often measured based on three indicators, namely cost, quality, and speed of delivery. Another perspective posited by Nunkoo et al. (2020) state that customer satisfaction is the perception-expectation gap experienced by consumers.

Singh et al. (2020) state that customer satisfaction is a distinguishing factor and a competitive advantage strategy. In online shopping, customer satisfaction is associated with trust, safety, and product quality (Moon et al., 2021). Wan et al. (2016) reveal a

correlation between satisfaction and Servqual. Trade companies place great importance on customer satisfaction due to its impact on repeated purchases and positive word-of-mouth recommendations (Pizam et al., 2016). Information quality is also a critical factor affecting satisfaction in the context of public transit (Van Lierop & El-Geneidy, 2016). Lastly, information quality and payment methods are key to customer satisfaction (Tandon et al., 2017).

2.1.2 Technopreneurs

As defined by the Oxford Dictionary, technopreneurs establish and run a business using computers or similar technologies, specifically in South and Southeast Asia (Koe et al., 2021). They are characterised by the ability to combine entrepreneurial skills and technical expertise while utilising technology in the business operations (Byers, 1983). Technopreneurs are crucial in driving cutting-edge technology development, bridging gaps between nations and cultures, and reshaping the world as it transitions into a virtual reality (Farah et al. 2018). Bomani, et al. (2021) state that technopreneurs possess technical proficiency and entrepreneurial abilities, which enable them to establish versatile and multipurpose businesses. Additionally, Fowosire et al. (2017) stated that technopreneurs utilised technology to create innovative products and services for commercial purposes. Companies led by technopreneurs are characterized by high growth potential and a significant focus on scientific advancements and intellectual property.

2.1.3 TQM

TQM emerged in the industrial sector of the United States from 1920 to 1940. Subsequently, it gained prominence in Japan around 1950, with pioneers such as W. Edwards Deming, Joseph M. Juran and Philip B. Crosby: emphasising the principle of understanding and meeting customer requirements, leading to the remarkable success of the country. This success marked a revolutionary advancement in the field of management. TQM encompasses integrating all functions and processes, spanning stages such as design, planning, production, distribution, and service. The effectiveness of TQM is measured by customer satisfaction, achieved through system design and continuous improvement. Evidence from the electronics industry and institutions in Saudi Arabia and the United Kingdom showed that TQM enhanced customer satisfaction. The TQM approach places utmost importance on meeting customer needs and expectations,

making quality synonymous with fulfilling their requirements (Alfalah, 2017).

TQM is a comprehensive system that integrates organisational functions and processes, aiming to continuously improve quality and service to achieve customer satisfaction. It is associated with how to obtain efficiency and effectiveness, reduce operating costs, and marketplace. It also serves as a strategic business approach, prioritising quality and involving all employees to enhance the organization's competitiveness in terms of products, services, processes, and the overall environment (Toke & Kalpande, 2020). While TQM was initially implemented in the manufacturing industry, it had also been adopted by research in the service sector. Its key dimensions include top management commitment, strategic planning processes, access to high-quality information, and a strong customer focus (Mehralian et al. 2017). Chiarini and Vagnoni (2017) report that customer satisfaction, continuous improvement, process management, and management commitment are fundamental characteristics of TQM.

2.1.4 Servqual

Servqual is determined by the extent to which a delivered service meets customer expectations. The Servqual model is widely used to assess the variance between actual and expected Servqual (Pattanayak et al., 2017). Customer satisfaction plays a pivotal role in the success of profit-oriented businesses. Satisfied customers are more likely to remain loyal and less inclined to switch to competitors. Companies can attract, satisfy, and retain customers in the long term by offering excellent Servqual. Amponsah and Adams (2016) state that Servqual also correlates with customer satisfaction in the context of public transport. The Servqual instrument comprises five parameters, namely assurance, reliability, empathy, responsiveness, and tangibles (Pattanayak et al., 2017). Assurance represents the ability of a company to instil trust and confidence in customers by providing relevant information and demonstrating expertise; reliability refers to the ability of a company to deliver services as promised, ensuring accuracy and consistency; empathy pertains to the caring and individualised attention of the company towards customers; and responsiveness entails the willingness of the firm to promptly assist customers and provide efficient service (Pizam et al., 2016). Tangibles encompass physical facilities, equipment, and the appearance of personnel. Servqual is crucial to business operations (Singh et al., 2020). The Servqual model also applies in various contexts, such

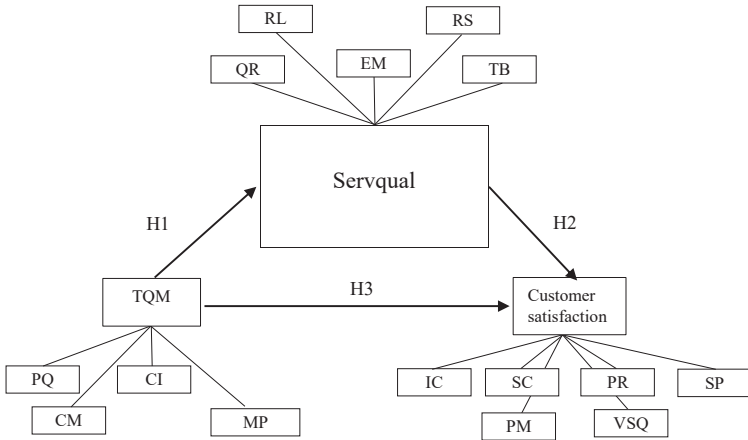
as assessing the quality of service provided by career guidance practitioners (Kononiuk & Gudanowska, 2022). Furthermore, Van Lierop and El-Geneidy (2016) emphasise the importance of reliability in enhancing Servqual.

3. Methodology

3.1 Research Approach

In this research, quantitative analysis was utilised to assess the effects of TQM on Servqual, customer satisfaction and the influence of Servqual on customer happiness. The selection of this approach aligns with the research objectives, as it enables the data to be quantified and analysed. The conceptual framework of the research is shown in Figure 1.

Figure 1: The conceptual framework



TQM

PQ	Product quality	IQ	Information quality
CM	Commitment	SC	Security
CI	Continuous improvement	PM	Payment method
MP	Management process	PR	Product range
VSQ	Virtual service quality	SP	Service provision

Servqual

QR	guarantee	RS	responsiveness
RL	reliability	TB	tangibility
EM	empathy		

3.2 Population and Sample Size

This research examined customers who engaged in online purchase transactions with technopreneurs in North Sumatra Province, which encompasses 33 districts. In order to address geographical limitations, a multiple-stage cluster sampling approach was employed, utilising municipal or capital and city clusters, totalling 33, since online transactions primarily occur in these urban areas. The total sample consisted of 406 participants, with 12 respondents from each of the 25 capital regencies, 13 from each of the seven municipalities, and 15 from the capital province. The final sample of 406 respondents was selected through simple random sampling using the Krejcie and Morgan (1970) table, resulting in a sample size of 198 customers with a 95% confidence level.

3.3 Research Instrument

The data collection in this research was conducted through the use of a questionnaire. In order to ensure the respondents could understand the questionnaire clearly, they were provided with the surveys along with a brief explanation. The questionnaire utilised a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) to gauge the level of agreement or disagreement with the proposed statements. It consisted of 54 close-ended questions, encompassing all the relevant factors related to customer satisfaction in the technopreneur context.

3.4 Procedure for Data Collection and Analysis

The collected data, consisting of 198 completed responses, were analysed using the Statistical Package for Social Sciences (SPSS) version 25. The analysis aimed to assess the strength of the relationships between variables, specifically the connection between TQM and Servqual, TQM and customer satisfaction, as well as Servqual and customer satisfaction.

4. Results

4.1 Reliability Analysis

The consistency of the measurement, referred to as reliability, was evaluated by calculating the Cronbach alpha coefficient for the items. Any value greater than 0.6 is commonly accepted as indicative of good internal reliability, as shown in Table 1.

Table 1: Reliability of variables

Variable	Number of items	α	Remarks
TQM	14	0.788	Reliable
Servqual	17	0.806	Reliable
Customer satisfaction	16	0.796	Reliable

4.2 Correlation Analysis

In order to determine the bivariate relationship between TQM and Servqual, a Pearson correlation analysis was conducted. The results revealed a moderate positive correlation coefficient ($R = 0.519$), indicating a significant association between the two variables. This finding, shown in Table 2, suggested a moderate and positive relationship between TQM and Servqual. R-value (0.519) was greater than the critical value of 0.139, implying a strong and meaningful correlation between TQM and Servqual.

Table 2: Correlation between TQM and Servqual

Model summary				
Model	R	R ²	Adjusted R ²	Std. Error
1	0.519 ^a	0.269	0.265	8.713

^a Predictors: (Constant) TQM

The analysis conducted in Table 3 revealed a significant correlation between TQM and customer satisfaction, with a correlation coefficient of 0.537. This value surpassed the critical value of 0.139, indicating a strong positive relationship between TQM and customer satisfaction, which was in the high category.

Table 3: Correlation between TQM and customer satisfaction

Model summary				
Model	R	R ²	Adjusted R ²	Std. Error
1	0.537 ^a	0.289	0.285	8.429

^a Predictors: (Constant) customer satisfaction

The analysis in Table 4 revealed a noteworthy correlation between Servqual and customer satisfaction, as evidenced by a correlation coefficient of 0.553. The observed correlation exceeds the critical value of 0.139, indicating a significant and strong association

between Servqual and customer satisfaction, which was in the high category.

Table 4: Correlation between Servqual and customer satisfaction

Model summary				
Model	R	R ²	Adjusted R ²	Std. Error
1	0.553 ^a	0.306	0.302	8.489

^a Predictors: (Constant) customer satisfaction

In correlation analysis, it was desirable to have a higher value of R. According to Cohen (1988), R-values between 0.02 and 0.12, 0.13 to 0.25 and above 0.26 were considered low, moderate, and s high or substantial correlations.

4.2.1 Regression Analysis

A regression analysis was performed on each dependant variable against independent variable to assess the strength of the relationship and try to predict future outcomes based on past observations. The value of correlation can be seen in Table 5. The correlations between TQM and Servqual, TQM and customer satisfaction, Servqual and customer satisfaction are 0.516, 0.538, and 0.555 respectively. All correlation coefficients are not much different and in positive correlations.

Table 5: Regression analysis

Correlations			
	Customer satisfaction	Servqual	TQM
Customer satisfaction	1.000	0.555	0.538
Servqual	0.555	1.000	0.516
TQM	0.538	0.516	1.000

4.2.2 Path Coefficient

The path coefficient can be utilised to identify if the path or relationship between latent variables and other latent variables has an impact on the model. A measurement of the effect of a causing factor (independent variable) on a dependant variable is denoted by path coefficient. Path between latent variables should be seen significant level (p-value) of the influence of the path. The path coefficient must be > 0.100 with a significance value of 0.05

for the path to be considered to have an impact on the model. The value of the path coefficient can be seen in Figure 2 and Table 6. The coefficient between TQM and Servqual, TQM and customer satisfaction, Servqual and customer satisfaction are 0.516, 0.343, and 0.379 respectively. The prominent coefficient is between TQM and Servqual among the other two relationships.

Figure 2: The result of path coefficient

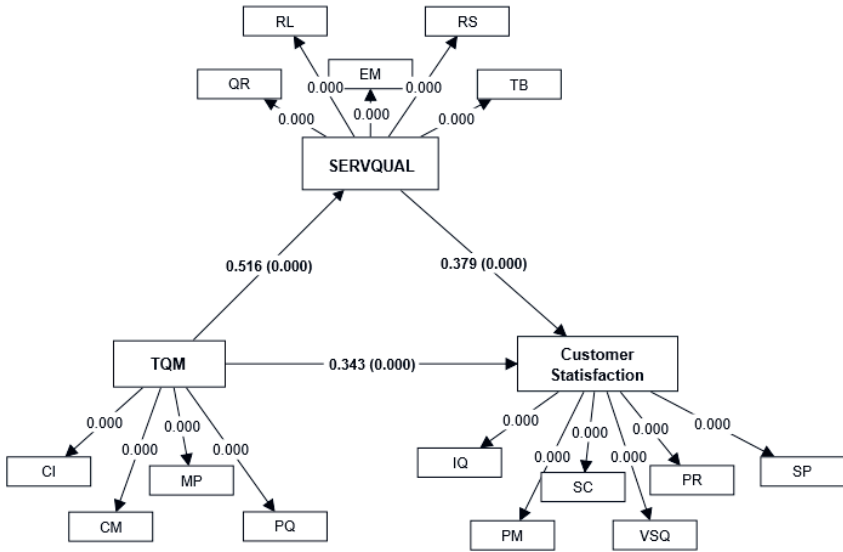


Table 6: Path coefficient

	Path coefficients
Servqual -> Customer satisfaction	0.379
TQM -> Customer satisfaction	0.343
TQM -> Servqual	0.516

5. Discussion

This research investigates the response of technopreneurs in Sumatera Utara province to the effects of TQM on Servqual, and customer satisfaction, alongside Servqual on customer satisfaction during the Covid-19 pandemic using SPSS. However, due to the urgent circumstances brought about by the pandemic, many online traders lack proper managerial skills. The research findings show that Servqual significantly predicts customer happiness, while TQM

strongly predicts both Servqual and customer happiness. According to Mofokeng (2021), factors such as product, information quality, and product delivery significantly influence customer satisfaction. The importance of maintaining customer satisfaction should not be underestimated, as it plays a crucial role in the success or failure of a company. In order to enhance customer loyalty and transform them into brand ambassadors, it is vital to monitor and improve this aspect. Vasic et al. (2019) stated that factors such as security, payment method, information, virtual service, product quality, product range, and service delivery impacted on customer satisfaction. Online sellers must understand how to satisfy customers, as they seek quality products and expect excellent services. Furthermore, San et al. (2020) state that customer satisfaction in online shopping is influenced by Servqual. Another finding highlighted that customer satisfaction was not solely influenced by convenience and product quality, but also by time value (Ali & Naushad, 2021).

6. Conclusions

Over the past few years, the significance of technology, particularly information communication technology (ICT), has increased. Technopreneurs have embraced its use, specifically in the context of the pandemic and have leveraged online shopping to generate business profits. This research investigates the impact of TQM on Servqual and customer satisfaction and the relationship between Servqual and customer satisfaction. As technopreneurs, ensuring customer happiness with the goods and services provided is crucial. Customer satisfaction fosters loyalty, specifically in challenging times such as a pandemic. With the rise of e-commerce due to Covid-19, online platforms have become the preferred mode of purchase and payment. Offering high-quality customer service can not only attract customers but also establish the reputation of a company in the target market. In the present-day social media-driven world, monitoring and maintaining a high level of customer service is essential. Online vendors cannot expect customers to value their products or services, assuming they neglect customer satisfaction. According to preliminary research, the acquisition of a new customer is six to seven times more expensive than retaining an existing one, and loyal customers worth up to ten times more than one-time purchasers. Customer satisfaction is influenced by the perceived value derived from the promised goods or services (Alam et al., 2021). However, concerns about the security of financial information deter some customers from shopping online. It is crucial to conduct

comprehensive research on Servqual, focusing on customer satisfaction, to address the evolving landscape of online shopping. Developing ICT literacy is also imperative for technopreneurs to remain competitive. Given the dynamic nature of online buying trends, a long-term investigation into Servqual in this sector should also be considered.

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