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Abstract

The rapid growth of digitalization has transformed the nature of business nowadays. The tremendous changes also include the business support system such as courier service and postal industry. In supporting the digitalization transformation, the Malaysian government has suggested various innovations, including in the courier service and postal industry, such as implementing PUDO at PEDI centre. It is crucial to identify the consumer's perception of the courier service quality to ensure success in implementation. The awareness of the potential customers of this new alternative will accelerate the adoption stage of the changes. Besides, the promptness, accuracy, safety, convenience and tangibles will identify the customers' satisfaction and acceptance of the new alternative. To demonstrate the importance of perceived service quality and its dimensions in the context of PUDO implementation in Sabah, this research will involve 150 respondents from courier service and postal users in Sabah. Quantitative methods will be adapted, and a survey form will be used to gather the data. The data will be analyzed by using PLS-SEM. The findings of this research will lead to the promoting and hindering factors of PUDO implementation at PEDI in Sabah. It also can be a successful framework for the service provider to succeed in Sabah.

Keywords: PEDI, PUDO, Perceived Service Quality

Introduction

Keluarga Malaysia Digital Economy Centre (PEDI) is a One Stop Centre organized by MCMC. The objectives are to provide internet access to the community and the areas with limited internet access. This centre also develops a location for ICT courses and training for the local community, encouraging their participation in e-commerce and programs to increase their digital knowledge and skills offered by the government. It promotes awareness and empowers the rural and poor urban community to uplift their socioeconomic status and guide and equip small business entrepreneurs with the skills to use ICT to foster digital transformation in their business (Keluarga Malaysia Digital Economy Centre) PEDI, 2022). MCMC has initiated a total of 600 PEDIs across the country as One Stop Centres (OSC) through

programmes jointly organised by various strategic partners from government agencies, the private sector and telecom companies to help local micro entrepreneurs adapt to digital technology to strengthen and expand their businesses through the Small Entrepreneur Digitisation Empowerment Programme (PUPUK) initiative. Under the National Courier Accelerator Package (PAKEJ), the focus is on introducing more independent pick-up and drop-off (PUDO) centre at PEDI. PUDO, or pick-up and drop-off, refers to any designated area for consumers to receive and leave parcels, typically picking up e-commerce orders and dropping off returns (Morgan, 2019).

Broadly, PUDO locations are either staffed counters opened in existing businesses or unstaffed lockers which can be located anywhere. A postal carrier or logistics firm delivers in bulk to a PUDO location and the parcels are stored. Each shopper is notified when their item is available to collect. When they arrive at the location, they may use a code to open a locker or ask a store employee for their parcel, depending on the nature of the PUDO location. If a customer needs to return something, they book the return using the retailer or carrier's digital interface, which generates a code for them to enter into the locker interface, opening a locker door for them to leave their parcel, which is then collected with others. For staffed PUDO locations, customers may not need to prebook their return, as a return label can be scanned by store employees at the counter (Morgan, 2019). The MCMC is currently in the process of creating a unified platform for local PUDO delivery points composed of various players in the industry, with implementation divided into two phases; the first phase will bring all local PUDO delivery points from various companies under one umbrella, while the second phase will connect the platforms and integrate them into the electronic market (Ministry of Communications and Multimedia Malaysia, 2022).

The tremendous improvement in online trading and e-commerce worldwide is undeniable, especially during the pandemic. It changes the nature of trading in urban and rural areas. The US International Trade Administration predicts Malaysia's e-Commerce to grow by 17.8 per cent between 2020 and 2024. Based on another insight from Google's e-Conomy Southeast Asia report 2020, over a third of 2020s online commerce in Southeast Asia was engendered by new shoppers (Suraya, 2021). Around 80 per cent of those shoppers anticipate to keep shopping online even on the endemic. According to a survey by Rakuten insights, the main reason for this is to remain safe from the pandemic. The pandemic transformed consumers' buying behaviour over the past two years. However, traffic congestion is still an issue for Malaysian logistics and is often the bottleneck to fulfil online trading and e-Commerce orders, especially in the last mile. The Malaysian Communications and Multimedia Commission (MCMC) recently proposed the National Courier Accelerator Plan (PAKEJ) initiative, which is to deliver seamless coverage to support the online trading and e-commerce industry's growth (Ministry of Communication and Multimedia Malaysia, 2022; Suraya, 2021). One of the success factors in this online trading and e-commerce is the smart and efficient courier service. Earlier, the quality of the courier services could have been better than the consumers' expectations.

The declining service quality is recorded from the year 2019 to the year 2020 (Ishak, 2021). About 86 per cent of consumer complaints received involve bad service, additional delivery delays and lost items. Pick-Up and Drop-Off (PUDO) are the main relevant ideas to overcome the bad service quality of courier and postal services. Goods will be stored in a specific locker at PUDO centre, with a similar concept to an ATM, where a PIN must be entered to open it for the customer to collect the goods (Ministry of Communication and Multimedia Malaysia, 2022). This fresh concept has the potential to succeed; however, information on consumer

perceptions is needed prior to the full implementation. The level of consumer perception is different due to various factors. Among the factors influencing service quality perception are promptness, accuracy, safety, convenience, and tangibles (Valaei, Rezaei, & Shahijan, 2016). As stated by Valaei, Rezaei, and Shahijan (2016), examining the dimensions of service quality has become a principal point of interest among academicians and practitioners for decades. Besides the service industry's well-established success and sustainability factors, accurate service quality dimension is also vital to enhance profitability and reduce the cost of doing business (Ghobadian et al., 1994; Madu & Madu, 2002; Alonso-Almeida et al., 2015).

Awareness also influences the consumer's decision to accept this fresh idea. The level of adaptation to this new way of courier is influenced by familiarity (Panchal, Khan, & Ramesh, 2012). However, the influences might be moderated by demographic factors such as age, gender and ethnicity. Therefore, to formulate the success factor for implementing PUDO at PEDis in Sabah, it is crucial to conduct this research. Examining the service quality factors, namely promptness, accuracy, safety, convenience, tangibles and awareness, will identify the customer's perception and lead to the promoting and hindering factors on the implementation of PUDO services related to courier services deployed at PEDi centres in Sabah.

Aims and Objectives of the Research

RO 1 – To identify the factors contributing to the effective deployment of PUDO services at PEDi centres located in Sabah by courier service providers;

RO 2 – To provide recommendations for the courier service providers to deploy PUDO services at PEDi centres located in Sabah effectively; and

RO 3 – To identify and recommend suitable PEDi centres in Sabah for courier service providers to deploy PUDO services.

This research will engage the Service Quality Dimension, namely Promptness, Accuracy, Safety, Convenience, Tangibles and Awareness as contributing factors to the effective deployment of PUDO services at PEDi in Sabah. Also, the research will identify the effect of age, ethnicity and gender as the moderating factors in the effective deployment of PUDO services at PEDi in Sabah.

Literature Review

Perceived Service Quality

Perceived quality can significantly influence consumer choice (Zeithaml, 1988). Perceived quality is a general perception and a subjective judgment of consumers about the quality of products or services compared to those offered by competitors (Aaker, 1991; Dodds et al., 1991). Bhuain (1997) also states that deliberate perceived quality is a verdict on the consistency of the product or service specification or an evaluation of the product's added value. It is different to the quality of the product because the perceived quality is the buyer's subjective appraisal of the product or service (Erenkol & Duygun, 2010; Severi & Kwek, 2013). Perceived quality is a comparative concept which possesses situational, comparative and individual attributes (Chi et al., 2009). It will be impacted by elements including previous experience, education level, perceived risk and situational variables such as purchase purpose, purchase intention, time pressure and social background of the consumers (Chi et al., 2009). Therefore, perceived quality cannot be reasonably determined because perceived quality is a summary construct (Aaker, 1991). Correspondingly, perceived quality can only sometimes be measured objectively because it is a perception and also a judgment about

what is essential for customers to be involved. It is defined relative to an intended purpose and a set of alternatives (Panchal et al., 2012). In sum, perceived quality is a consumer's judgment based on the quality of the product or service influenced by their previous experiences, knowledge and feeling, which will form their expectation and determine their purchase decision.

Service Quality Dimensions

Promptness

The study measured the service quality of travel agents in Northern Cyprus and found that service-scape aesthetics, efficiency, empathy, and promptness were the most important determinants of customer satisfaction (Johns et al., 2004). Promptness or punctuality is an essential element of service reliability, which is a vital attribute of the overall evaluation of service quality for customers (Lee & Lambert, 2006). Park et al (2009) deliberate promptness as a customer needs immediate delivery speed in a shorter time. It also refers to on-time and speedy pick-up from the booking point, immediate delivery from the pick-up point, immediate transportation, and rapid response to customers' demands over the internet or telephone. Nowadays, customers prefer fast service delivery and precision in transactions (Hossain & Leo, 2009), especially in online trading and e-commerce. Then, the importance of promptness must be emphasized, especially as it relates to service (Knutson et al., 1990), because promptness is an essential part of perceived service quality (Bhardwaj & Chawla, 2013).

Similarly, promptness is often viewed as an essential service dimension contributing to customer satisfaction and retention (Lin & Wei, 1999; Muyeed, 2012). Additionally, promptness in services also contributes to enhancing the service delivery experience (Pandey & Sharma, 2011). Therefore, it can be hypothesized that:

H1: Promptness positively contributes to perceived service quality.

Accuracy

Bailey and Pearson (1983) specified that accuracy influences satisfaction. Bahia and Nantel (2000) proposed a measurement tool for service quality named bank service quality, including six dimensions: accuracy and reliability, access, tangibles, assurance, effectiveness, price, and the range of services provided. They demonstrated that the characteristics of bank service quality are more valid than the SERVQUAL factors for banking industries (Siddiqi, 2011). However, Park et al (2009) emphasized that accuracy refers to whether the transit time is the same as promised or is shorter or longer than expected. They consider accuracy as "on-time pick-up as per customer's request, wide pick-up service area, on-time delivery as per customer's request, and accurate delivery to address of shipment" (Park et al., 2009, p.325). Supporting by Park et al (2009), the study's results on the significance of website design and service quality in locating consumers' online repurchase behaviour exemplified that the promptness and accuracy of the reply is insightful of the company's service quality (Zhou et al., 2009). Principally, Minh et al (2015) stressed that accuracy is a vital service dimension affecting hotel customer satisfaction. Therefore, it is hypothesized that

H2: Accuracy positively contributes to perceived service quality.

Safety

Kuo (2003) evaluated the service quality of virtual community websites and found that online quality and information safety is positively associated with perceived service quality. Contrarily, Hofmann and Mark (2006) stated that a focus on safety is significantly associated with employees' job satisfaction and their level of organizational commitment. Likewise, Hellings et al (2010) claimed that safety is a significant service quality aspect. The study evaluated the airline service quality and found that safety-related service quality issues became increasingly important for passengers (Chou et al., 2011). In the context of courier service or mail, security refers to cargo protection, cargo handling information management, compensation policy, handling by cargo characteristics, new facilities and delivery without damage/loss (Park et al., 2009). Another study by Awasthi et al (2011) regarding transportation service quality claimed that safety is one of the related parameters of service quality. It also addresses whether the goods are delivered to the destination in the way they were packed and shipped in good condition and available immediately for use. Safety is one of the most crucial service attributes (Chao et al., 2013). Therefore, it can be hypothesized that

H3: Safety positively contributes to perceived service quality.

Convenience

The primary determinant of consumer satisfaction is convenience (Ranjbarian et al., 2012; Dabholkar and Bagozzi, 2002). In courier service or postal, convenience will boost consumers' satisfaction level and enhance the possibility of positive behaviour in the future. Cho and Sung (2007) found that all the dimensions of service quality, namely responsiveness, convenience, empathy, usefulness, diversity, and assurance, significantly impacted customer satisfaction. It was supported by Lai et al (2007), stating that convenience is a substantial attribute of service quality, and it needs to be added to the SERVQUAL model. Previously, a similar study was conducted in the Turkish hotel industry and found that business travellers prefer the convenience factor over tangibles, sufficiency in service catering, assurance, and understanding and caring (Akbaba, 2006). However, another study measured SERVQUAL to evaluate the passenger rail service quality in Wellington, New Zealand and found that empathy, responsiveness, and assurance impact service quality, but convenience and reliability were found to be less critical factors (Cavana et al., 2007). According to Park et al. (2009), convenience alludes to the extent to which the service is conveniently delivered. It also indicates the area coverage, booking and tracing functions, number of branches, etc. Moreover, convenience refers to smooth booking by internet or telephone, smooth tracking/tracing by internet or telephone, delivery to all areas, and a convenient schedule for pick-up and delivery in a comfortable way. Improving service quality is essential to consider the convenience of current users and attract new users (Cirillo et al., 2011). Therefore, it is hypothesized that

H4: Convenience positively contributes to perceived service quality.

Tangibles

One of the service quality dimensions adopted by Parasuraman et al (1985) is tangible, and its assessment is essential in the courier service and postal industry. Tangibles refer to physical facilities, the appearance of personnel, tools or equipment used to provide the

service, other customers in the service facility, and physical representation of the service such as plastic bags, boxes, and cover letters (Parasuraman et al., 1988b). The tangible dimension is an essential element of service quality (Mei et al., 1999). According to Jamal and Naser (2002), the service's tangible can have a visible effect on a customer's affective response and behavioural intention. The physical surroundings are the first element customers will evaluate in the service quality (Pantouvakis & Lymperopoulos, 2008). Likewise, Markovic et al (2011) specified that tangibles are crucial for the services industry with more tangible aspects, for example, restaurants or courier services. Rad et al (2010) indicated that service quality dimensions such as empathy, reliability, responsiveness, and assurance have a positive relationship with customer satisfaction, but tangible and satisfaction are not correlated. Finally, Lee et al (2012) studied the perception of restaurant service held by senior citizens and how it differs from those of younger customers. The results implied that while senior customers viewed reliability as the most significant factor, younger customers considered the tangible dimension the most critical factor (Lee et al., 2012). Therefore, it is hypothesized that

H5: Tangibles positively contribute to perceived service quality.

Awareness

The level of awareness identifies the degree to which people are aware of the service's existence and accessibility. Also, it accurately reflects the degree to which the service selection is present in customers' choice sets (Clark et al., 2009). Customers will opt to use the service they are familiar with because they are comfortable with the familiarity. The awareness and familiarity will lead to the customers' optimistic assumption of the reliability and reasonable quality of the service provider. A recognized service provider will often be selected over an unknown service provider. The awareness factor is a crucial success factor for the service provider. The service provider must first enter the consumers' consideration before evaluating the quality of the services (Panchal et al., 2012). In the context of PUDO at PEDi in Sabah, awareness is crucial to guarantee that customers would select the alternative service available in courier and postal service. The level of awareness is a learning advantage for the service provider and will increase the service provider's market performance (Chitcharoen et al., 2013). Therefore, it is hypothesized that:

H6: Awareness positively contributes to perceived service quality.

Demographic variables (gender, ethnicity and age)

Demographic variables provide information about the physical attributes of consumers that can be used to identify homogeneous groups (Workman & Cho, 2012). Demographic factors have frequently been utilized as moderating variables, according to Sharma (2015). Consumer demographics like gender, race, and age may influence the overall level of service quality. Among demographic attributes, gender has been identified as the most crucial element in shaping consumers' shopping behaviour (Workman & Cho, 2012). Gender is found to be directly related to service quality (Sharma et al., 2012). Accordingly, it is hypothesized that:

H7: Gender moderates perceived service quality.

Based on research by Webster (1989), ethnicity in consumer segments is one factor that influences perceived service quality. Ethnicity is more of a demographic than a psychological variable (Sue, 1998). Min and Khoon (2013) also indicate that nationality is significant in service quality evaluation. Therefore, it is hypothesized that:

H8: Ethnicity moderates perceived service quality.

Ganesan-Lim et al (2008) found that age significantly moderates the effect of the consumer's perception in the context of the Australian service industry. However, Sharma et al. (2012) verified the negative moderating impacts of age and gender on the service industry in Hong Kong. They found no difference in the relationship between service quality on behavioural intentions based on age or gender (Sharma et al., 2012). Continuing to investigate the role of demographic variables on service quality in Oman, Sharma (2015) found that age has a significant relationship with the willingness to use e-government services. Accordingly, it is hypothesized that

H9: Age moderates perceived service quality.

Methodology

Research Design

This research will adopt the quantitative research method and will employ a survey method. Survey design is a suitable method to apply in this study as it allows the researchers to effectively measure the attitudes and opinions of respondents in a large population. The survey method was selected because it was more cost-effective and time-efficient to gather significant responses from the identified population (de Leeuw, 2008).

Population and Sampling Procedures

For this study, the purposive sampling method was implemented. Purposive sampling concentrates on a particular population characteristic the researchers are interested in (Ping, 2012). Specific criteria have been accomplished, wherein the targeted respondents are courier service customers that have used the service at least once in the past twelve months in Sabah. By having these experiences, the customers would better understand the quality of the services portrayed by the courier service provider. Regarding the sample size, Beavers et al (2013) stated that a sample of about 150 to 300 respondents as a total sample size is considered suitable. In addition, Sekaran and Bougie (2016) stated that a sample size ranging from 30 to 500 is sufficient and acceptable for social science studies. Based on the scholars' views stated above, a total of 150 samples were deemed appropriate for statistical analysis with the involvement of ten respondents for each main town in Sabah.

Measurement

The questionnaire consisted of close-ended questions and was divided into three (3) sections. Section A covers the demographic profile of the respondents, such as gender, age, race, education level, and frequency of using courier services. Section B comprised the six dimensions of service quality: promptness, accuracy, safety, convenience, tangible and awareness which were adapted and modified from (Parasuraman et al., 1988; Sriyam, 2010). The items will be measured using a Likert-type scale, ranging from (1) Strongly Disagree (2) Disagree; (3) Slightly Agree; (4) Agree, and (5) Strongly Agree. Both the service quality dimensions (exogenous variables) and perceived service quality (endogenous variable) will be measured using interval data. Meanwhile, the demographic variables, which are gender, age, race, and educational level, will be measured by using nominal and ordinal data.

Statistical Analysis and Significance

The study's primary purpose is to examine the relationship between service quality dimensions and customer perceptions. Hence, structural equation modelling (SEM) is deemed a suitable statistical tool for this study as PLS-SEM can handle complex models with many latent variables and constructs (Henseler et al., 2009).

Conclusion

The main objective of PUDO implementation is to enhance the efficiency of Malaysia's courier service and postal industry to support the rapid growth of e-commerce. However, there are ongoing challenges faced by courier service providers, such as difficulties with customs clearance due to a lack of standard procedures and extended delays by customs. The regulatory framework on logistic industries, such as the CA 1967 and the CVLBA 1987 is comprehensive; however, the government needs to improvise the act with some innovation to support the rapid growth of e-commerce. The results of this study will help identify the elements that will help and impede the implementation of PUDO at PEDi in Sabah. It may also serve as a strong foundation for the service provider to prosper in Sabah.

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