

THE INFLUENCE OF INTERNAL SYSTEM AND EXTERNAL ENVIRONMENT OF USER SATISFACTION AND ITS EFFECT ON ELECTRONIC WORD-OF- MOUTH IN ONLINE GROCERY IN MALAYSIA

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ABSTRACT

This study explored the antecedents of electronic word-of-mouth (e-WOM) in online grocery shopping in Malaysia. In addition to the DeLone & McLean Information Systems (IS) Success Model and Unified Theory of Acceptance and Use of Technology (UTAUT) theory, the research investigated the relationships between internal system and external environment and user satisfaction in the online grocery industry. The quantitative research method was used to verify the research model. The sample included 532 valid respondents from the Klang Valley, Malaysia. The analysis methods used include Descriptive Statistics, Cronbach's Alpha, Multiple Regression, and Bootstrap Analysis. The results suggest that internal system factors (information quality, system quality and service quality) and external factors (social influences and facilitating conditions) significantly and positively affect both user satisfaction and e-WOM. The findings contributed to theory advancement in e-commerce studies, and to the knowledge of online grocery business. This study also paved the way for researchers to determine future research topics that must be explored. Managerial implications from the findings also provide advice, from which managers can proactively take action to increase the odds of success in consumers' e-WOM behaviour. Limitations of the study include the small sample size and lack of other aspects of e-WOM. So, increasing the sample size and adding some other factors could be implications for future research directions.

Keywords:

E-WOM, User Satisfaction, System Quality, Service Quality, Social Influence, Facilitating

INTRODUCTION

The development of new media cannot be separated from the emergence of the Internet and the World Wide Web due to the globalization of information technology. Social media is a media where users can easily participate in, and share and create messages. It includes blogs, social networks, online wikis or encyclopaedias, and virtual forums, including virtual worlds (Zhuravskaya et al., 2020). According to Nuseir (2019), electronic word of mouth (e-WOM) is a form of marketing communication that contains positive or negative statements made by potential customers, customers or former customers about a product or company, which is made available to many people or institutions through the medium of the Internet. In the online world, there are various ways in which consumers can exchange information.

Internet users can conduct e-WOM through a variety of online channels, including blogs, microblogs, e-mails, consumer review sites, forums, virtual consumer communities and social networking sites (Dahka et al., 2020). In reflecting on the feeling of pleasure and satisfaction from consumers, it will be directly proportional to a positive image view of the product or brand. E-WOM and the Internet have enabled the emergence of new forms of communication platforms that can better empower providers and consumers, enabling them to share information and opinions from both Business-to-Consumer, and from Consumer-to-Consumer (Muritala, 2021).

Today's e-WOM is becoming more and more technically complex and challenging, which exposes e-commerce operations to even more complex constraints. System values can be regarded to be the basis that forms and influences human behaviour. Obviously, researchers are only focused on internal factors when studying e-WOM such as information quality, system quality and service quality

(Fraj & Martinez, 2017; Huma et al., 2020). Unfortunately, there is limited focus on the influence of external factors (Aakash & Aggarwal, 2019). As such, both internal and external environmental factors should be included in an e-WOM study as a whole instead of just as a sum of their parts. External factors are always playing a crucial role in propagating new technology (Xu et al., 2019). The social influence and facilitating conditions as the external problems are widely touted for constraint analysis, greatly limiting the researcher's capability in modelling and resolving constraints to achieve consumer satisfaction.

Existing research methods have long been blamed for their limitations in modelling and communicating constraints, including the inability to cope with other-related mediating and moderating precedence constraints and difficulty to evaluate and communicate inter-dependencies at the field of e-grocery level (Yan et al., 2018; Ismagilova et al., 2020). As the level of competition in the Malaysian e-grocery market continues to rise, it is critical for Malaysian e-grocery businesses to gain a better understanding of their customers in order to expand their market share (Martín et al., 2019).

Therefore, assessing e-WOM has been an increasing topic of interest to business owners in order to create new strategic marketing plans as the influence of many internal and external factors on consumer satisfaction in Malaysia have been found to be underwhelming nowadays (Choi et al., 2019). In the course of the investigation, the present study endeavoured to illuminate this irregularity by building up a single integrated conceptual framework to connect and simultaneously inspect the connections between internal factors, external factors, user satisfaction and e-WOM in an online grocery platform.

Therefore, this study aimed to utilize classifications of user satisfaction and e-WOM involvement proposed by past studies. This coordinated e-WOM model would provide the foundation for building a consensual model, which may better clarify these relationships. In this regard, the current writing focuses on investigating the relationships between the antecedents and consequences of e-WOM from both internal and external perspectives.

OBJECTIVES

The objectives of the study can be summarised as follows:

- RQ1: Do internal factors (system quality and service quality) affect user satisfaction?
- RQ2: Do internal factors (system quality and service quality) affect electronic word-of-mouth?
- RQ3: Do external factors (social influence and facilitating conditions) affect user satisfaction?
- RQ4: Do external factors (social influence and facilitating conditions) affect electronic word-of-mouth?
- RQ5: Does user satisfaction affect electronic word-of-mouth?

LITERATURE REVIEW

Electronic Word-of-Mouth

According to Hennig-Thurau et al. (2015), the Word of Mouth (WOM) theory has shifted from physical or face-to-face interaction to e-WOM allowed by the Internet as a result of advancements in Internet technology. E-WOM is defined as any favourable or negative comment made about a product or firm via the Internet by future, current, or previous customers. Customers utilise e-WOM to share their thoughts and expertise about products and services they have purchased on platforms including social media, blogs, online forums, online reviews, and chat rooms. WOM information can be generated by e-WOM elements such as ideas and recommendations, ratings and reviews, and forums and communities in the context of e-commerce.

Some studies characterise e-WOM behaviour as a broad category that includes a wide range of human activities including e-commerce, internet shopping, the hotel and tourism sectors, and so on (Levy & Gvili, 2020; Nguyen, 2021; Antony, 2017; Harris & Prideaux, 2017). The e-WOM behaviour scale has been used in several studies as a one-dimensional model to measure overall e-WOM engagement. For instance, previous research has explored the factors that encourage customer engagement with e-WOM from the perspective of information characteristics, consumer behaviour, consumer motives, and technological and social factors (Yusuf et al., 2019).

Bogdan and Nicoleta (2018) studied the influence of emotional commitment, high-sacrificial commitment, and contentment on consumers' word-of-mouth regarding an online store; and Verma and Yadav (2021) investigated the impact of e-WOM on the hotel sector. Similarly, Fred and Robert (2017) conducted research with the goal of determining the types of tourists who submit reviews, the motives for posting reviews, the types of sites on which they post reviews, and the message characteristics. This study, however, concentrated on online grocery because this segment has been one of the fastest growing economic sectors in recent years (Lin et al., 2021).

System Quality

System quality refers to a set of business operations focused on information system processing in order to simultaneously fulfil quality criteria and objectives (Fazlollahtabar and Kazemitash, 2021). Indeed, the existence of such aspects is very important to guarantee that customers can easily and successfully use the targeted website, and accordingly, share their experience of using the website and their intention to reuse it as well (Tarhini et al., 2019).

Customers' opinions of system quality are similar to other types of e-commerce products or services, especially when it comes to an online platform to pick vegetables, meats, or dairy products (Oncini et al., 2020). According to the study, consumers would be happy if they notice a rather user-friendly system features while browsing or engaging with e-grocery websites (e.g., system flexibility, the content of the database, site navigation, and visual attractiveness).

The quality of a system has been demonstrated to impact a user's endorsement and approval in general. This means that when the IS and product system quality are good, customers see it as being of more value, believing it will enhance their productivity or efficiency, and they will recommend it to others. Byrd et al. (2016) recently verified that system quality is one of the most important predictors of e-WOM, and that the system may also help an organization's product sales volume grow once a system user has recommended it to others. According to Negasha et al. (2017), enhancing user e-WOM requires a system design that incorporates all system aspects. When developing a web-based customer service system, he discovered that interactivity and accessibility are the most significant predictive characteristics of e-WOM. The following are hypothesised as a result of the preceding discussion:

H1: System quality has a positive relationship with user satisfaction.

H2: System quality has a positive relationship with e-WOM.

Service Quality

The service quality of any website could be related to the extent of the website's reliability, trustworthiness, empathetic elements, and security as well as its ability to provide customers with a high degree of customisation and interactivity (DeLone and McLean, 1992; Gao et al., 2015; Parasuraman et al., 1988). In fact, as discussed by Demir et al. (2021), having an adequate level of service quality on the website represents a prerequisite to establishing the customer's trust and any problem in providing customers with reliable service and speedy responses will lead to customer's distrust.

Consumers today are increasingly aware of the services that businesses provide, and a good service provides them with a positive experience. Clients will be satisfied and may become good recommenders if they have a positive experience with the service provided (Nobar & Rostamzadeh, 2018). With rising competition among businesses that use e-commerce and the online channel to interact with their customers, the idea of e-service quality has become a more important aspect because it can help with customer satisfaction and retention.

Prior research has demonstrated a strong and positive relationship between service quality and e-WOM. As an illustration, Roy et al. (2020) studied the impact of e-WOM stimuli and e-WOM reactions on perceived service quality and online recommendations. In line with this, Uslu (2020) quantified that the quality of a restaurant's service has a good and significant impact on e-WOM. In another study, Zhang et al. (2016) investigated the impact of restaurant service quality, atmosphere, and food on customers' online comments. The impact of positive e-WOM on restaurant popularity through online channels has been discovered. Therefore, this study evaluated the following hypotheses in the context of e-grocery in Malaysia based on the argument:

H3: Service quality is positively related to user satisfaction.

H4: Service quality has a positive relationship with e-WOM.

Social Influence

Social influence was defined by Venkatesh et al. (2003) as the extent to which an individual perceives how important others believe that he or she should apply the new system. Over the prior literature, the role of social factors has been largely argued as one of the key determinants of the individual's decision to adopt new systems (Fan et al., 2020). Indeed, a customer is more likely to be influenced by the thoughts and opinions of their reference group (i.e., friends, colleagues, family, and relatives) especially for the more novel technologies (i.e., online shopping) that the customer has less experience with and information (Shareef et al., 2019; White et al., 2019; He & Harris, 2020; Gavilan et al., 2018).

Social aspects have long been recognised as having an influence on consumer satisfaction. The majority of previous research has concentrated on subjective standards in an attempt to grasp the essence of social influence, but the results have been mixed, and the impact on technology has been unequal. Social influence has a large impact on user satisfaction only in necessary circumstances,

The study by Rita, Oliveira and Farisa (2019) indicated that there is a relationship between service quality and satisfaction of consumers in an online shopping environment. Service quality would improve consumers' confidence level. In addition, Hole, Pawar and Khedkar (2019) stated in their research that online retailers provided different ways of communication channels to their consumers in order to increase the communication between the consumers and themselves. The various communication and adaptable channels are provided for the convenience of their consumer to contact

the online retailer in order to increase consumer satisfaction. Therefore, it is important for an online retailer to put more emphasis on these criteria. Online retailers have to cover both pre-purchase and also post-purchase stages, especially focussing on service quality. Thus, by improving e-service quality, it could help increase consumer satisfaction (Zhou et al., 2019):

According to Hamilton et al. (2019), consumers' tendency to speak about their purchases with their friends has a beneficial influence on their views of products and services, prompting them to either buy the same brand or avoid certain brands in order to stand out from their peers. Power and Philips-Wren (2019) likewise concluded that social media friend pressure is faster and more extensive than face-to-face pressure.

As a result of the discussion above, the following hypotheses were proposed:

H5: Social influence is positively related to user satisfaction.

H6: Social influence has a positive relationship with e-WOM.

Facilitating Conditions

Facilitating conditions is the degree to which an individual believes that an organizational and technical infrastructure exists to support the use of the system including knowledge, capabilities, and consumer resources (Venkatesh et al., 2012). If all the online grocery platform infrastructure and knowledge that is needed in using available, and also if there is support for using the platform, the user satisfaction and intention of e-WOM on their online grocery will be increased.

E-commerce may be able to add to the vast list of enabling conditions, particularly in the area of food and beverage (Waitz, et al., 2018). E-grocery, for example, might advertise numerous discounts, keyless systems, incentives, and active promotions that customers can take advantage of by downloading the app (Fikar et al., 2019). Furthermore, the e-grocery's mobile payment capability would promote consumers and hotels to do direct booking transactions. As a result, these metrics are expected to have a favourable impact on consumer satisfaction and behaviour.

Results from a study in Pakistan by Khan, Yu, Hameed, Khan and Waheed (2018) found empirical evidence that facilitating conditions have a positive impact on physicians' online recommendations to adopt e-prescribing. In Saudi Arabia, Alwahaishi and Snášel (2017) observed a positive relationship between facilitating conditions and the online referral of e-commerce, and later the UTAUT2 study by Susanto, Abdullah, Rela and Wardi (2017) in Indonesia also confirmed this relationship.

Based on the points discussed above, the following were hypothesised:

H7: Facilitating conditions is positively related to user satisfaction.

H8: Facilitating conditions has a positive relationship with e-WOM.

User Satisfaction

Arora and Narula (2018) defined satisfaction as the summary psychological state resulting when the emotion surrounding disconfirmed expectations is coupled with a consumer's prior feelings about the consumer experience. Quan et al. (2020) similarly defined satisfaction as the contentment of the customer with respect to his or her prior online purchasing experience. Accordingly, we can conceptualize satisfaction as a holistic experience based on the overall evaluation of online grocery shopping experiences.

User satisfaction, according to Rahi and Ghani (2019), leads to behavioural tendencies. When a client makes a repeat purchase, especially when the customer's perceived enjoyment is positive, it influences the chance of a repurchase. There is a relationship between consumers' emotional states and their desire to share their experiences with others, according to existing studies on interpersonal effects. For example, Jeong and Shawn (2017) find a connection between user satisfaction and e-WOM intentions. Both Casalo et al. (2018) and Neelamegham and Jain (2019) conducted studies that back up the premise that there is a connection between satisfaction and e-WOM intentions. Technological innovation has definitely accelerated the sharing concept by developing e-WOM as a platform for e-grocery stores (Barbiero, 2022). Based on these points, the following hypothesis is developed:

H9: User satisfaction has a positive relationship with e-WOM.

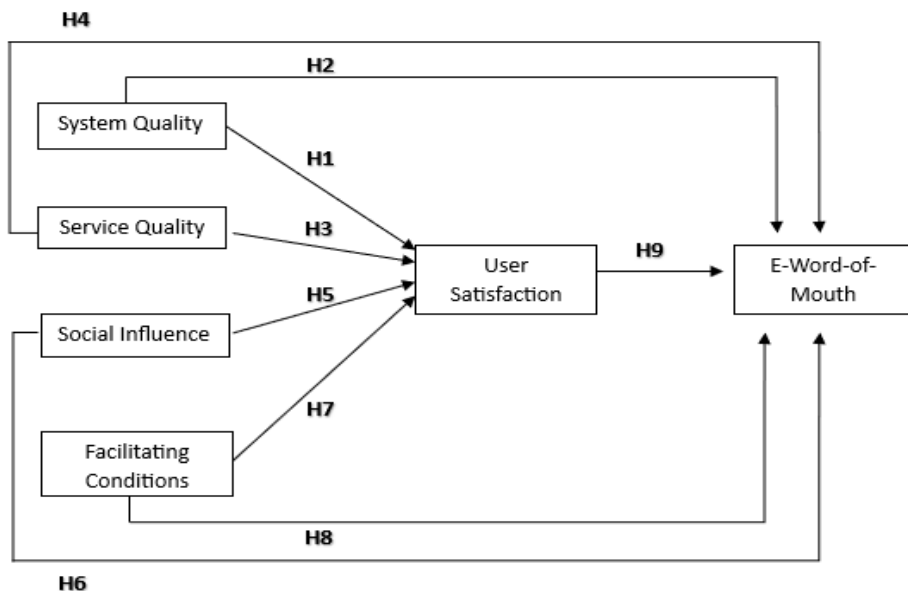


Figure 1: Research Framework

RESEARCH METHOD

Sample and data collection

This research study used the explanatory technique. The study is explanatory in that it investigated the causes and consequences of internal and external factors on user satisfaction, as well as their impact on electronic word-of-mouth (e-WOM) among Malaysian e-grocery customers. An explanatory study could provide answers to these types of questions. The population of interest in this research investigation was Malaysian consumers who had actual purchase experience of online groceries within the last six months of the point of contact. They are sampled from the geographic area with the highest population in Malaysia which is the Klang Valley.

There are four types of general techniques that should be taken into account when establishing the minimal sample size for this study: a) a minimum number for a specific situation or research type; b) sample size-to-item ratio; c) sample size utilised in similar previous studies; and d)

a sample size calculator (Jiang et al., 2016). As such, it was concluded that a minimum sample size of 525 was needed.

Questionnaires were used as the primary data collection method in this study. The questionnaires had been constructed beforehand and distributed online fully through email and social media platforms (incl. WhatsApp and Facebook) to the respondents in the Klang Valley. The sampling was done using a non-probability purposive sampling technique which involved 532 respondents in total. The demographic information was identified.

Measures

The consumers' satisfaction, e-WOM behaviour, internal system factors and external environmental factors were also identified using the Likert scale in providing a quantitative measure for the constructed questions. Five Likert-type items were used, which are Strongly Disagree (1), Disagree (2), Neutral (3), Agree (4), and Strongly Agree (5). There were 42 items tested which covered system quality, service quality, service quality, facilitating conditions, user satisfaction, brand image and electronic word-of-mouth.

The analyses of the study consisted of descriptive analysis, reliability analysis and factor analysis which were carried out using SPSS (Statistical Package for the Social Sciences) version 26 and followed by Partial Least Squares Structural Equation Modeling (PLS-SEM) method using SmartPLS version 3.0. A descriptive analysis was conducted to analyse the demographic information of this study which included residential area, age, gender, marital status, education, race, occupation and income.

A reliability analysis was done to estimate the consistency of the data and Cronbach's alpha was used as the index for the reliability of the data (George & Mallery, 2018). As suggested by Chan and Idris (2017), the Cronbach's alpha of the reliability test should have a minimum value of 0.6 for the data to be considered consistent in the early stage of research. These data were further analysed with factor analysis to analyse the satisfaction, e-WOM behaviour, internal system factors and external environmental factors of all respondents.

RESULTS AND DISCUSSIONS

Respondent Profile

Table 1 indicates the respondent's background. Based on the survey, the majority of the respondents were female (56.3 percent), aged between 21 to 30 years old (63.9 percent) and most were Chinese (66.9 percent). In terms of education and income levels, the majority of the respondents (82.7 percent) had a bachelor's degree. The majority (75.2 percent) of the respondents work as an associate or executive officer.

The demographic information also gave some insights into the profile of Malaysian consumers who bought groceries online using e-grocery apps or platforms (89.7 percent). They can be clustered into different groups based on the frequency of e-grocery purchases with the majority (38.2 percent) buying 7-9 times a week.

Table 1: Respondents' Demographic

Field	Categories	Frequency	Percentage (%)
Gender	Male	232	43.6
	Female	300	56.4
	Total	532	100.0
Age	20 years and below	13	2.4
	21 to 30 years	340	63.9
	31 to 40 years	92	17.3
	41 to 50 years	83	15.6
	51 years and above	3	0.6
	6.0	1	0.2
Total	532	100.0	
Ethnicity	Malay/Bumiputera	104	19.5
	Chinese	356	66.9
	Indian	63	11.8
	Others	9	1.7
Total	532	100.0	
Location	Kuala Lumpur	178	33.5
	Petaling	267	50.2
	Klang	41	7.7
	Gombak	18	3.4
	Hulu Langat	6	1.1
	Sepang	6	1.1
	Kuala Langat	6	1.1
	Putrajaya	10	1.9
	Total	532	100.0
Level of Education	Less than High School	7	1.3
	High School Graduate	31	5.8
	Undergraduate Degree	440	82.7
	Postgraduate Degree	40	7.5
	Others	14	2.6
Total	532	100.0	
Employment Status	Student	67	12.6
	Associate/Executive	400	75.2
	Managerial/Professional	50	9.4
	Self-Employed	6	1.1
	Retired	2	0.4
	Homemaker	2	0.4
	Others	5	0.9
Total	532	100.0	

Frequency of using e-grocery (in a week)	1 - 3	107	20.1
	4 - 6 times	142	26.7
	7 - 9 times	203	38.2
	10 times and more	80	15.0
Total		532	100.0

Respondents’ Usage Pattern via Frequency Analysis

Table 2 showed the summary of the types of e-grocery platforms used by respondents. *HappyFresh* was recorded with the highest number of purchases among the applications. A total of 347 or 65.2 percent of the respondents bought groceries online via the *HappyFresh*’s online platform within the past six months of the survey. *Lotus Groceries* was in the second position with 310 (58.3%) respondents using this platform. This is followed by *Mydin Online* (274 respondents or 51.5%), *Jaya Grocer* (257 respondents or 48.3%) and also other e-grocery platforms (25 respondents or 4.7%).

Table 2: Preferred E-grocery Apps among Consumers

Ranking	Types of E-Grocery Platform Used	Frequency	Percentage (%)
1	HappyFresh	347	65.2
2	Lotus Groceries	310	58.3
3	Mydin Online	274	51.5
4	Jaya Grocer	257	48.3
5	Others	25	4.7

Measurement model reliability

This process was to ensure that the questionnaire used was reliable (consistent) and valid (measure the right things). The preliminary evaluation used 36 items adapted from various literature. The cut-off or threshold points where factor loading must be greater than 0.5, composite reliability must be greater than 0.7 and average variance extracted (AVE) must be greater than 0.5 (Shrestha, 2021; Nasution et al., 2020). Table 3 shows the results of the measurement model evaluation.

Factor loading and composite reliability were generated as a check on the reliability of the measurement items. The reliability test is used to basically test the overall consistency of the measurement items. High reliability of a measure will produce similar results under consistent conditions (Chan & Idris, 2017). According to Nasution, Fahmi and Prayogi (2020) and Shrestha (2021), a measure or a measurement item can be claimed as reliable if its factor loading value is greater than 0.5 and also its composite reliability value is greater than 0.7.

Cronbach’s alpha reliability was used to obtain the α values (coefficient alpha) for all the study variables. This is to measure how well the items measuring a concept work together as a set (Chan & Idris, 2017). Cronbach’s alpha is used to compute the average intercorrelations among the items measuring the concept. The closer the coefficient to 1.0 the better (Chan & Idris, 2017). Table

3 shows that all the values of factor loading and composite reliability exceeded the recommended values of 0.5 and 0.7, which satisfy the reliability at item and construct levels.

Table 3: Evaluation of Measurement Model

Construct	Item	Loadings (>0.50)	Composite Reliability (>0.7)	AVE (>0.5)	Cronbach's Alpha (>0.6)
Electronic Word-of-Mouth	EWOM1	0.638	0.794	0.527	0.657
	EWOM2	0.770			
	EWOM3	0.729			
	EWOM4	0.663			
	EWOM5	0.672			
	EWOM6	0.620			
User Satisfaction	US1	0.729	0.842	0.517	0.765
	US2	0.733			
	US3	0.759			
	US4	0.746			
	US5	0.619			
	US6	0.695			
System Quality	SQ1	0.851	0.906	0.762	0.844
	SQ2	0.880			
	SQ3	0.888			
	SQ4	0.565			
	SQ5	0.727			
	SQ6	0.675			
Service Quality	SERQ1	0.704	0.850	0.586	0.764
	SERQ2	0.802			
	SERQ3	0.791			
	SERQ4	0.760			
	SERQ5	0.507			
	SERQ6	0.695			
Social Influence	SI1	0.744	0.868	0.625	0.797
	SI2	0.866			
	SI3	0.871			
	SI4	0.662			
	SI5	0.657			
	SI6	0.643			
Facilitating Conditions	FC1	0.698	0.829	0.548	0.727
	FC2	0.754			
	FC3	0.736			
	FC4	0.772			
	FC5	0.792			
	FC6	0.613			

Assessment of Structural Model

A structural model evaluation was undertaken to test the research hypotheses. To assess the structural model, the path coefficient and t-value of the model were generated by applying PLS algorithm and bootstrapping procedure with 5,000 resamples as recommended by Mei et al. (2018). Figure 4 is the path model extracted from the SmartPLS 3.0 programme. The R² for the endogenous variables in this study are 0.333, which indicates that the internal factors and external factors explained the 33.3

percent of the variance in user satisfaction, and 0.179, which indicates that user satisfaction explained the 17.9 percent of the variance in electronic word-of-mouth (see Table 4).

Table 4: The R² Values of Endogenous Constructs

Predictor Construct	Target Construct	R ²
SQ, SERQ, SI, FC, US	EWOM	0.179
SQ, SERQ, SI, FC	US	0.333

Note: EWOM-Electronic Word of Mouth, US-User Satisfaction, SQ-System Quality, SERQ-Service Quality, SI-Social Influence, FC-Facilitating Conditions

Basically, the Stone-Geisser's Q² value was obtained to evaluate the predictive relevance of the PLS path model (Janadari et al., 2016). The blindfolding procedure was executed in order to obtain both the Q² values for user satisfaction and electronic word-of-mouth. According to Davadas and Lay (2017) and Ogiemwonyi et al. (2020), a Q² value which is larger than zero would indicate the predictive relevance of the path model.

For the present study, the Q² value of 0.158 for user satisfaction and the Q² value of 0.073 for electronic word-of-mouth were obtained after the blindfolding procedure (see Table 5). Both values were greater than zero which mean that the PLS path model for the present study could be accepted and supported in term of its relevancy in studying this phenomenon. Thus, the exogenous variables showed the capability to predict the endogenous variable.

Table 5: The Q² Values of the Path Model

Endogenous Construct	Q ²	Predictive Relevance
EWOM	0.073	Yes
US	0.158	Yes

Note: EWOM-Electronic Word of Mouth, US-User Satisfaction

Direct Effect

In order to examine the relationship between the study variables, bootstrapping the direct effect with 5,000 resamples was implemented (Preacher and Hayes, 2019). In order to conclude that a relationship is significant, the t-value of that direct path must be greater than 1.645 (Hair et al., 2018). The detailed bootstrapping analysis report is depicted in Table 6 below.

The bootstrapping analysis shows that the direct effects of H1, H2, H3, H4, H5, H6, H7, H8 and H9 are significant. The values for system quality ($\beta = 0.256$, $t = 3.519$, $p < 0.00$), service quality ($\beta = 0.254$, $t = 2.694$, $p < 0.00$), social influence ($\beta = 0.152$, $t = 5.543$, $p < 0.00$) and facilitating conditions ($\beta = 0.116$, $t = 5.543$, $p < 0.00$), were found significantly and positively related to user satisfaction.

Besides that, the values for system quality ($\beta = 0.042$, $t = 3.306$, $p < 0.00$), service quality ($\beta = 0.154$, $t = 2.452$, $p < 0.00$), social influence ($\beta = 0.150$, $t = 2.828$, $p < 0.00$), facilitating conditions ($\beta = 0.124$, $t = 2.628$, $p < 0.00$) and user satisfaction ($\beta = 0.131$, $t = 2.633$, $p < 0.00$) were also found to have significant and positive relationship with e-WOM.

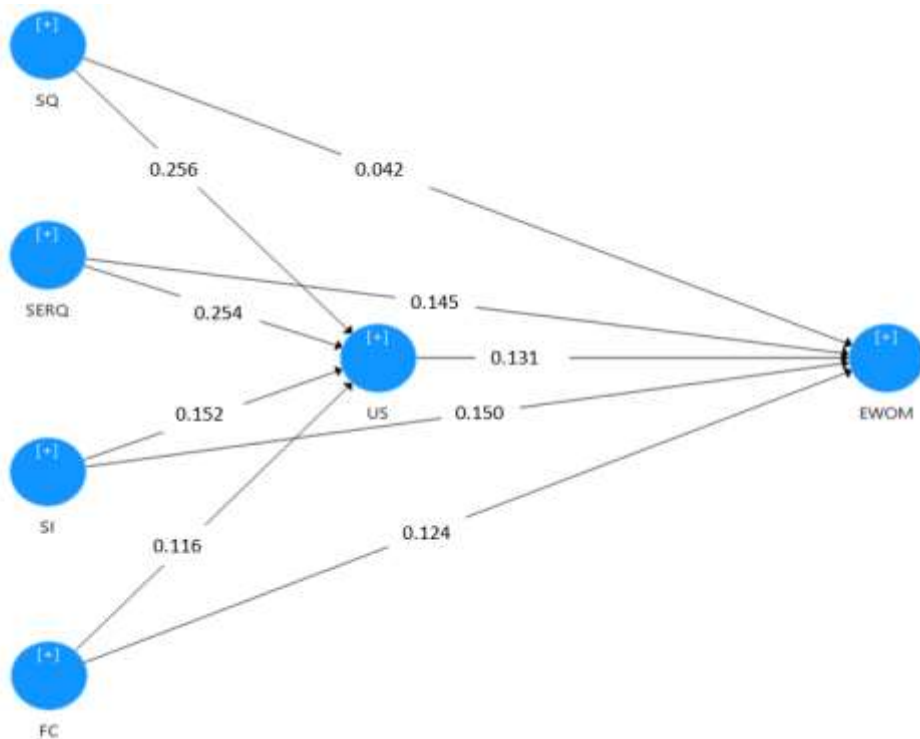


Figure 2: SmartPLS Direct Path Model

Table 6: Results of Direct Effect Testing

Hypothesis	Path	Coefficient	SD	t-value	F ²	Supported
H1	SQ -> US	0.256	0.043	3.519	0.027	Yes
H2	SQ -> EWOM	0.042	0.045	3.306	0.020	Yes
H3	SERQ -> US	0.254	0.043	2.694	0.014	Yes
H4	SERQ -> EWOM	0.154	0.051	2.452	0.013	Yes
H5	SI -> US	0.152	0.038	6.724	0.078	Yes
H6	SI -> EWOM	0.150	0.051	2.828	0.002	Yes
H7	FC -> US	0.116	0.046	5.543	0.062	Yes
H8	FC -> EWOM	0.124	0.055	2.628	0.015	Yes
H9	US -> EWOM	0.131	0.050	2.633	0.014	Yes

Note: EWOM-Electronic Word of Mouth, US-User Satisfaction, SQ-System Quality, SERQ-Service Quality, SI-Social Influence, FC-Facilitating Conditions

Discussion of the Findings

System Quality (SQ) Affect User Satisfaction (US) [H1: Supported]

This study confirmed that system quality significantly and positively affects user satisfaction. The results of the bootstrap analysis confirmed the strong effect of system quality on user satisfaction in the online grocery industry. This finding supports a previous study by Nazief and Mardiana (2019) that assessed end-user satisfaction as an impact of the system quality, information quality and top management support, upon the perceived usefulness of technology utilization. Thus, e-grocery platforms should focus on the quality of the system used by consumers including upgrading the utility, availability, reliability, adjustment and response time. Furthermore, it is important to focus on the time taken to process sales transactions and purchase transactions.

Similarly, a study by Anjarwati and Apollo (2018) showed that system quality, information quality and perceived usefulness have a significant influence to user satisfaction. According to the result of the coefficient value of the overall model, the highest influence was shown by the influence of system quality on user satisfaction. This finding also is consistent with the data analysis technique using SEM that explained that system quality affects use and user satisfaction (Santa et al. 2019). System quality in this context refers to the measure of desired characteristics of a system consisting of usability, availability, reliability, adaptability and response time.

A technical system that meets the customer needs such as simplicity, security and flexibility is positively associated with user satisfaction (Correia et al., 2020). Such system quality values are likely to influence user satisfaction among those who use online shopping stores. As such, an online platform which has high system quality may lead users to have more positive user satisfaction towards using and purchasing groceries online. This high system quality could determine and drive a satisfied user towards purchasing groceries online which ultimately helps in protecting the environment.

Within the specific context of online grocery purchases, Phuong and Trang (2018) analysed 256 responses collected from Vietnamese consumers and concluded that value orientations (including system quality) are significantly related to consumer satisfaction with online grocery delivery for protecting the environment. Similar results were generated in Steg et al., (2017) study that analysed responses of 112 Dutch respondents and found that system quality is significantly related to feelings of convenience and personal comfort to reduce household energy, money and time consumption. If this is applied to this study, those e-retailers that provide services for grocery shopping via the internet are those with high system quality that provides an overall customer experience which meets customers' expectations. However, this result contradicts the studies of Meinie (2018), and Sebetcı and Çetin (2020) which found that system quality does not significantly affect users' satisfaction with the software.

System Quality (SQ) Affect E-Word of Mouth (EWOM) [H2: Supported]

The quality of a system provided by technology apps is perceived as credible and influential by customers (Dastjerdi et al., 2019). The interactivity of technology systems ensures that relevant and undistorted customer reviews and opinions are on the website. Hence, the customers' perception of the overall quality of the website can be increased when e-WOM systems are reciprocal and responsive. As such, the degree of the highest and lowest system for a technological device will be evaluated and will be a push factor for e-WOM. For instance, if a person thinks that a technology app is good and benefits future generations, they tend to spread word of mouth online.

Oppong et al. (2019) applied this to their study and found that those who use apps with a high level of system quality with a strong emphasis on the benefits of using online grocery apps for themselves personally and also for the environment will likely purchase through these apps without hesitation. This is because they can feel the positive outcomes from such e-WOM (recommendations)

in buying these products. Previous studies have found significant relationships between system quality and e-WOM (Susilowati & Sugandini, 2018; Chao et al., 2020; Yildiz, 2017).

There are previous studies that found system quality directly influences e-WOM on purchasing grocery products online. This is evident in household grocery consumption, in the studies of Martin et al. (2019) and Singh (2021) pertaining to grocery e-commerce. On the other hand, the tendency for users to discontinue usage, complain and pass negative comments on mobile services is high, especially when the quality of the system is rather poor (Oppong et al., 2021).

Service Quality (SERQ) Affect User Satisfaction (US) [H3: Supported]

This finding is consistent with the DeLone & McLean IS success model where good service quality leads to customer satisfaction. This study confirmed that service quality significantly and positively affects user satisfaction. This means that a person who leans towards online quality services or responsiveness is likely to have a positive attitude towards using e-grocery platforms that help protect and preserve the environment. This is because they are accepting of new lifestyles or trends in society with regard to taking care of the environment.

The research outcome aligns with Alzoubi and Inairat (2020) customer satisfaction framework that reveals that a strong service quality orientation could influence user satisfaction on commercial transactions conducted electronically on the internet. Service quality directs the satisfaction and behaviour of people and can be related to specific focuses of functioning, as well as forming interrelated structures. In brief, service quality can be thought of as a cognitive process or a way of thinking related to human satisfaction in socially advantageous ways (Whitley et al., 2018).

Some researchers have similar findings such as Obeidat et al. (2012) and Alshurideh et al. (2017) who developed a linkage between service quality and both customer satisfaction and customer loyalty but not that much link between perceived service quality effect on both customer satisfaction and customer delight. Arora and Narula (2018), for example, confirmed the impact of service quality on customer satisfaction and customer loyalty. In addition, Lai and Nguyen (2017) examined the factors affecting customer satisfaction and customer loyalty in the telecommunications industry. Both scholars found that service quality, assurance, responsiveness, reliability, empathy and tangibility have some effects on and have positive relationships with both customer satisfaction and customer loyalty.

Service Quality (SERQ) Affect E-Word of Mouth (EWOM) [H4: Supported]

Service quality has a positive and significant influence on customer satisfaction which makes the firms more competitive in the market. Quality service or customer service in the online grocery business is an important antecedent to e-WOM. Basically, those who receive a high level of service quality are those accepting of the social trend of spreading the word in an online environment. The process of transmitting messages is fast where everyone can share their opinion and experience related to products with complete strangers who are socially and geographically dispersed.

This finding aligns with other studies which also confirmed service quality affects electronic word-of-mouth. Specifically, service quality is linked with the spread of word behaviour (Geiger et al., 2017). Zhang found that service quality has a direct impact on citizens' online word of mouth, particularly complaint intention. Their results were based on the analysis and comparison between 29 cities in China. This result aligns with many studies related to technology acceptance as well where customer support especially service quality will influence a person's intention to share positive or negative opinions about a technology (Vahdat et al., 2021).

Technological advancements are benefiting businesses and consumers alike, but they are also causing challenges for the public sector. Today's consumers are surrounded by the very best service quality. A wealth of new tools and technologies are available to companies to help them

deliver seamless customer service and support. As these technologies become more readily accessible and available, consumers are becoming increasingly accustomed to these experiences. This results in exceptional service quality expectations, and heaping judgement of public consumers to voice and share via the internet.

Social Influences (SI) Affect User Satisfaction (US) [H5: Supported]

It is true that social influence can affect customer satisfaction in the context of e-commerce. The results obtained fully supported the theoretical model which analyses individual social interactions from a behavioural and technological point of view according to a study by Hassan and Ahmad (2018). In other words, a satisfaction held by a person (self-concept) is subject to external influences. The external influences here refer to the influences from those people that are important, including opinion leaders.

Within the specific context of online grocery purchases, Urevna (2021) investigated the social influences towards the satisfaction of consumers after using e-grocery apps among 182 homeowners. Social influences are having a significant influence on the homeowners' satisfaction with the importance of using technology-driven apps to benefit themselves (utility costs) and also society as a whole.

Basically, satisfaction towards the environment is influenced by many aspects. But for sure one of the factors could be social influences. A normal human being is not isolated from others. As they are living in a group and society, social influences are expected. Social influences can affect different aspects of our daily lives. The culture, ways of thinking, beliefs, etc. are the aspects that can be changed through external forces instead of just via self-learning. Social agents play major and important roles in shaping satisfaction in society. Family members are very crucial in shaping and changing a family member's satisfaction. Schools and workplaces can be venues that influence our thoughts. Some religious organizations can have considerable influence on user satisfaction.

Social Influences (SI) Affect E-Word of Mouth (EWOM) [H6: Supported]

The result of this study found that social influence affects e-WOM. It is true that the surrounding environment shapes our satisfaction and subsequently our behaviour to generate online remarks. In other words, word of mouth through the internet spread by a person is subject to external influences. The external influences here refer to the influences from those people that are important, including opinion leaders.

Social influences impact both general and e-word of mouth as found in many previous studies. The results of this study are in accordance with research conducted by Litvin et al. (2018) who studied the retrospective view of electronic word-of-mouth in hospitality and tourism management; and Huete-Alcocer (2017) who conducted a literature review of word of mouth and e-WOM and its implications on consumer behavior. Other studies include those by Zhang et al. (2021) who studied the impact of interpersonal closeness and social status on electronic word-of-mouth effectiveness and Utarsih (2018) who looked at the influence of social factors and word of mouth against buying interest. Social influences are found as an important driver of e-WOM. The result is consistent with a study by Loureiro et al. (2018) that revealed that social influences are influencing e-WOM on fashion brands on retail websites. A similar study by Ismagilova et al. (2019) found that the relationship between social influences and e-WOM is significant.

Furthermore, this study confirmed that social influences significantly and positively affect e-WOM. This means that the individual consumer's decision on the purchase of groceries via online applications is not solely based on themselves. It is partly influenced by others surrounding them. Peer pressure or peer influence is the direct influence on individuals who are influenced to follow their peer's e-WOM. The result aligns with UTAUT which explains users' intention and usage

behaviour of a particular new technology. This theory included the environmental factors in explaining new technology usage behaviour (Taherdoost, 2018). The UTAUT has been tested in many technology acceptance studies and has high predictive powers in various studies.

Facilitating Conditions (FC) Affect User Satisfaction (US) [H7: Supported]

This study confirmed that facilitating conditions significantly and positively affects user satisfaction. This means that external push factors lead to positive user satisfaction towards the importance of recommendations and subsequently on e-WOM on online grocery. A number of previous studies have confirmed that facilitating conditions is a significant factor leading to consumers' approval of a technology user (Tandon et al., 2018; Shahid, 2018; Alalwan, 2020).

The external influences here refer to the resources/facilities to use online grocery platform (OGP) technology, the knowledge of OGP technology usage, OGP technology compatibility with other techniques used, and the availability to get help from others when having difficulties using OGP technology. Customer satisfaction is viewed as a result of a comparison between consumption, expectation and experience, and customer satisfaction is achieved when the final deliverable (i.e., experience) is up to expectations. Customer satisfaction plays a pertinent role in online shopping, as it influences consumer decisions on whether to continue with online shopping. Therefore, customer satisfaction is taken as a dependent variable in this study.

The original facilitating conditions variable is from the UTAUT. However, this variable only links usage behaviour and not any other user satisfaction variables. This means that with given facilitating factors, the satisfaction from the purchase of groceries online can be changed among consumers. This study is consistent with Moser (2019) which investigated German households pertaining to their online grocery purchase. Facilitating conditions such as special discounts and educational programmes play an important role in stimulating satisfaction after purchasing green products for the purpose of the betterment of the environment.

Facilitating Conditions (FC) Affect E-Word of Mouth (EWOM) [H8: Supported]

This study confirmed that facilitating conditions significantly and positively affect e-WOM. It is very common that external factors or motivations will serve as a push factor for the new trend in disseminating information. The result aligns with UTAUT which explains users' intention and usage behaviour of a new technology. This theory includes the environmental factors in explaining user behaviour (Taherdoost, 2018).

This research is supported by research conducted by Yogesh et al. (2017) which found that contextual factors (facilitating conditions) had direct effects on attitude and behavioural intention (to spread the words online). This suggests that individuals may associate importance to the facilitating conditions such as help desks and training programs as well as to the experiences of other individuals in using the technology. Hence, organizations should consider providing adequate infrastructural facilities and proper training to users so that they can be positively inclined to use new technologies.

For instance, managers can organize users' in-house and vendor-based IS/IT training (Behrendt et al. 2021) and help desks on premises or at vendor sites to offer technical assistance to aspiring users (Ostrowski, 2021; Mitropoulos et al., 2021; Iancu, 2020). Managers may proactively manage its organizational and technical infrastructure that may be used by individuals by organizing forums for sharing best-use practices, instituting front-runners who are enthused about new technologies and eventually are able to generate positive word-of-mouth, or planning counter-measures for any negative feedback.

User Satisfaction (US) Affects E-Word of Mouth (EWOM) [H9: Supported]

This study confirmed that user satisfaction significantly and positively affects electronic word-of-mouth. The satisfaction systems towards e-commerce have a considerable effect on forming consumers' negative or positive opinions. A person who has positive satisfaction with using an online grocery marketplace will likely tell people about the particular product or service they use on social media. This result aligns with the technology acceptance model (TAM) that influence behaviour (Vahdat, 2021). In other words, satisfaction held by a person (positive or negative) will be reflected in his or her behaviour. For instance, if consumers are satisfied with the product or service, they will share their thoughts that it is good online, and want to encourage others to try it. This theory helps to link satisfaction and online word of mouth.

Within the specific context of online grocery purchase behaviour, Miswanto and Angelia (2018) found that consumer satisfaction can encourage consumers to tell others about their satisfaction, and it creates word of mouth. Pleasant experience when shopping creates customer satisfaction, so customer satisfaction encourages word of mouth. Larry (2017) also found in his study that customer satisfaction encourage consumers to express their satisfaction to others. Moreover, this can encourage consumers to come or go shopping again at the same online marketplace.

This reveals that positive user satisfaction in using online platforms is the antecedent to electronic spread of words. When consumers feel that it is beneficial and useful to use web applications, it will lead to the purchase of groceries products via the digital service. Otherwise, they will not bother to purchase such items, especially at a higher price. In inculcating the appropriate customer satisfaction strategy among students, it can be introduced as a new subject in university for business studies and be made a compulsory subject to pass before students can proceed to the next higher level of education. If this satisfaction can be achieved by consumers from the start of the e-retail businesses, then more consumers will express e-WOM online to spread to others. Once it is successful, this will not be easy to change. To shape this user satisfaction, it is advisable for business owners to improve any direct impact factors such as employee competence, reliability, product innovation, price and convenience, to name a few.

CONCLUSION

Through a survey of 532 respondents in the Klang Valley, the proposed research model was tested. The results confirm nine hypotheses. Two internal factors (system quality and service quality) and two external factors (social influence and facilitating conditions) were found to influence both user satisfaction and electronic word-of-mouth. User satisfaction was also found to have a positive impact on e-WOM behaviour.

This research study emphasises factors that are appropriate in the e-WOM online grocery shopping context and proposes a productive research direction for future researchers, especially, that when consumers assume that online purchasing on the e-grocery platform has high system quality, reliable service quality, social influence, and perceive facilitating conditions, they are likely to be satisfied with the online stores which makes it likely for e-WOM to occur. In summary, sellers and system providers of online grocery businesses play a crucial role in ensuring positive experiences of consumers, resulting in customers' satisfaction and the sharing of their experiences with the product or service directly with friends, family members or co-workers.

One of the major limitations of this study was that it used a cross sectional survey design and not a longitudinal survey design. This is due to limited time and resources. Another limitation is that this study covered only an urban area instead of both urban and rural areas. The survey or data collection covered the Klang Valley only, an area consisting of Kuala Lumpur and parts of Selangor. Even though it can be claimed that the respondents are representative because they originate from

different states but these current urban dwellers possess different characteristics from those living in rural areas. Basically, those who are staying and working in the Klang Valley have higher socioeconomic status and purchasing power compared to those in the rural areas. Third, user satisfaction as a concept is still considered a relatively new construct in this field of study. Hence, limited literature is available to generate quality questionnaire items for measuring this construct. User satisfaction is measured by four general items adapted for the present study. This general user satisfaction might not be enough to measure overall satisfaction towards the online grocery industry.

Future research studies can use a longitudinal survey design as it would be more appropriate for studies where the perceptions of the respondents are collected more than once. Further, a qualitative examination of e-grocery consumers from urban versus rural behaviours can be explored in the emerging Malaysian market. Since this study covers purely the specific aspects of e-services, it will be an effective practice if further research could be conducted in the future on non-services and e-services as well in terms of examining new factors which may impact customer satisfaction including a discussion of the latest technological changes.

MANAGERIAL IMPLICATIONS

The instrument for this study was designed to capture useful information in explaining consumer profiles and behavioural patterns related to online grocery shopping. This information provided insights into the frequency of grocery purchases online. Their characteristics had been demographically compiled and the overall consumer profile for Malaysia was defined. Additionally, the purchase reasons or motivations of these internet businesses were also recorded. The main reason was cost saving in utility expenses instead of protecting the environment. It is obvious that people are still not fully aware of the environmental benefits of using these online platforms. When consumers do not believe in the importance of protecting the environment, the purchase of groceries online (which requires paying more) will be minimal.

With this information, both government agencies and non-governmental organizations (NGOs) can utilize it for their subsequent planning to deal with this issue. It helps in identifying and segmenting household purchaser groups for more targeted education and promotional programmes to be formulated. This study hopes to contribute to a wider understanding pertaining to the acceptance and purchase via e-commerce platforms. Information such as the usage duration and reasons for purchase of online groceries provide insights into the impact of these programmes on society. Such information can be used as new input into similar or different programmes that are being planned by the government and industry. It is in the government's and industry's interests to have more information on the behavioural pattern that helps reduce utility costs and promote community sustainability by reducing the negative impact of electricity production.

For environmental agencies, they can make use of the findings to encourage consumers to be responsible towards the environment, especially in their daily purchases. Various educational or training programmes can be used to educate and to encourage more environmentally friendly consumption patterns. Such training can also teach consumers how to differentiate between green and non-green products, which will help in protecting the environment. Since the facilitating conditions influence the online purchase of groceries, environmental agencies can suggest to the government to introduce incentives or conveniences that can be provided to consumers. All these facilitating conditions might not influence or change the environment but it helps with online grocery purchases as there are push factors.

For industry and marketing practitioners, this study provides information necessary in explaining what promotes and hinders e-WOM. For instance, information on individual differences and purchase reasons will help marketers segment their market and formulate various strategies to cater to various consumer groups. Their purchase motivations need to be identified to promote

acceptance of effective purchase. With good segmentation, different marketing strategies can be implemented for various groups in line with the objectives.

Furthermore, the different types of apps used by the respondents give an indication of which online grocery stores are popular among consumers. For instance, *HappyFresh* is the top app downloaded by the majority of the respondents. With such information, the industry and marketers can actually strategize their sales and marketing plans. For instance, they may look into the reasons why other similar apps store are less in demand by consumers so that promotions can be arranged.

The industry can plan in terms of their allocation of funds for upgrading their online platforms to be more user-friendly. For online grocery apps, more allocation for system enhancements and improvements may be needed to optimize profit. For other aspects, appropriate strategies can be planned either to improve the products to generate more sales or to remove certain functions that are not necessary. This information serves as an important input for strategic decision making by top management on the operation aspect.

For marketers, appropriate promotions can be planned as well using sales data recorded. With good promotion strategies, the industry can minimize its losses due to unsold stocks. Different incentives or bundle promotions can help boost the sales of the not-so-popular items so that cash can be generated. Since environmental factors are found to influence the purchase decision, marketers can include some of these factors such as incentives for recommendations from other consumers, and training and education programmes in promoting e-grocery software apps.

The outcome of this study enables companies to formulate appropriate strategies to tap into the market. Companies will be aware of the facilitating factors from the environment that may help to promote the purchase and usage of e-grocery software programs that can be downloaded onto a mobile device. For instance, the industry can provide more educational and after-sales service programmes to reduce some of the risks that consumers may face when using such software apps. It is hoped that the insights from this study can help provide detailed information on e-WOM in Malaysia. The research results generated from this study might be useful in planning strategically the promotion, adoption and acceptance of online grocery purchase in the community.

THEORETICAL IMPLICATIONS

One of the most popular information systems success assessment models that resulted in highly significant contributions in the research literature is the DeLone and McLean IS success model conceptual model (IS Success model). As Gable, Sedera and Chan (2019) note, the development of IS success models, such as the DeLone and McLean model, has been an important contribution toward the improved understanding of IS management. However, one of the strongest criticisms about the IS Success model is the lack of external factors quality among variables. According to Pitt, Watson and Kavan (2018), there is a danger that researchers will mismeasure IS effectiveness if they do not include in their assessment criteria a measure of IS service quality. The external environment, such as social influence, brand image, time consumption and facilitating conditions, is an important part of information systems departments; thus, the external environment is a critical measure of information system effectiveness (Van Dyke et al., 2017). As a result, in order to measure information system effectiveness properly, many researchers believed that external factors should be included in the IS success model as a success measure (Kettinger & Lee, 2017; Myers et al., 2017; Pitt et al., 2020).

Having realised the importance of external factors, this study outlined that not only is the internal system quality important to the users, but the external factors of the system should be considered as well. In response to the calls of other researchers that criticized the original model, and due to the advent and growth of Internet-based e-services, this study decided to add social influence and facilitating conditions to their new model as an important dimension of IS success noting the significance of user satisfaction in the online grocery industry. Therefore, a proposal for an integrated

model of e-WOM and its antecedents in online grocery was developed, based on the Unified Theory of Acceptance and Use of Technology 2 (Venkatesh et al., 2012) and the Information Systems success model (DeLone & McLean, 1992).

This research provides significant theoretical contributions. First, this research confirms the relationship between the variables studied in this research, namely motivation, entrepreneurial leadership, organisational agility, competitive advantage, and firm performance of SE. The study examines all the constructs as described in the research model. With the lack of similar research that has been done on e-grocery applications, this research fills the gaps that exist in e-grocery research. In addition, the role of other variables on the firm performance of SE was also covered, taking into account the global pandemic situation. One of the main differentiators of this research is the chosen unit of analysis, that is, the SE. Results in this study show several hypotheses turned out to have different results compared to the similar hypotheses that use commercial firms as the unit of analysis, which contributes to drawing a clearer line between SE and for-profit organisations. This research is responding to the research agendas that have been described by previous researchers, which called for more research regarding SE in the face of unstable external conditions, especially SE from developing countries, that involve motivation, and distinguish between social and economic factors of firm performance.

The results of this study only represent conditions of e-WOM at the specific time of this research, unlike a longitudinal study. Moreover, this study only focused on e-WOM in the Klang Valley as the unit of analysis and took samples from respondents based in several Klang Valley cities. Consequently, the results only represent e-WOM in those specific areas. The results might differ when a larger sample is taken from e-WOM in different states of Malaysia or when the study includes urban and rural areas as well. It might be interesting for future research to adopt the research model and study e-WOM from different developing and developed regional states and then compare and examine whether geographical aspects create different results. Because the existence of e-WOM can potentially be the solution to internal and environmental influences, and while this study only focuses on the relationship between system quality, service quality, social influence and facilitating conditions, it might be helpful if future researchers conduct studies on several other constructs that might influence e-WOM to improve its social and economic performance, especially in a competitive and unstable environment. Also, future studies can focus more on other specific industry-related to e-WOM.

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