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E-B Environment - Behaviour Proceedings Journal

ICIS2022Penang
https://fim.uitm.edu.my/index.php/research/conference/342-icis-2022
5th International Conference on Information Science
Royale Chulan, Penang, Malaysia, 19-21 Sep 2022
Organised by Faculty of Information Management, UiTM, Malaysia

e-IPH e-International Publishing House Ltd., United Kingdom

User Satisfaction on the MySejahtera Application among Postgraduate Students in a University in Selangor

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Abstract
This study adapted the Expectation Confirmation Theory (ECT) and Technology Acceptance Model (TAM) framework of user satisfaction on the MySejahtera application among postgraduate students. This study uses a questionnaire based on a quantitative approach, and the questionnaire was distributed using purposive sampling consisting of 176 postgraduate students in a University in Selangor. The respondent's gender, age, education, information quality, system quality, service quality, perceived ease of use, perceived usefulness and user satisfaction were investigated. Results showed that system quality, service quality, perceived ease of use and perceived usefulness are influenced by user satisfaction, and the hypotheses are supported. In contrast, information quality is not influenced by user satisfaction and the hypothesis is not supported.

Keywords: User Satisfaction, MySejahtera Application, Case study, Information Management

DOI: https://doi.org/10.21834/ebpj.v7iSI10.4134

1.0 Introduction

MySejahtera is an application developed by the Malaysian government that was released in April 2020 to help in the tracking of the COVID-19 pandemic in the country by allowing users to evaluate their health risk against the virus. Aside from that, this application provides information to the Ministry of Health (MOH), which works in collaboration with the National Security Council (MKN), the Malaysian Administrative Modernization and Management Planning Unit (MAMPU), the Ministry of Science, Technology, and Innovation (MOSTI), and other government agencies to plan for early and effective countermeasures. The feature in the application is simple to use, user-friendly, and in compliance with current Malaysian regulations that require Malaysians to scan a QR code before entering any premises and to give personal information to aid in contact monitoring efforts when entering a building. The MySejahtera application is being developed to assist the government in managing and mitigating the COVID-19 outbreak. It assists users in monitoring their health throughout the COVID-19 outbreak, getting treatment if they are infected with COVID-19, and will also help users locate the nearest hospitals and clinics for COVID-19 screening and treatment.

There are many benefits for the users that install MySejahtera applications. Firstly, users can identify their health state using a QR code scanner. Secondly, using a hotspot tracker, users can trace the hotspot area for COVID-19 cases. Users also can locate the nearest

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health screening facility for COVID-19 screening purposes. Not only that, but users can seek virtual health advisory under the digital healthcare function. Finally, the government or MOH, to be precise, provides additional and latest information such as the COVID-19 hotline number, standard of procedures for operation of the economic sector, the current situation, and the number of COVID-19 cases. The most important thing is that all the information provided is latest and valid. There is no such thing as fake news and so on.

Since the pandemic started, much research and discussion on tools, frameworks and methods used in monitoring the spread of Covid-19 were conducted. Therefore, this study emphasizes user satisfaction with the MySejahtera application, as well as the underlying factors that influence satisfaction and the effect of application use. To be more specific, the research objectives for this paper are to examine how the information quality, system quality and service quality affect the user satisfaction with the MySejahtera application and to measure the interrelation between perceived usefulness, perceived ease of use and user satisfaction of MySejahtera application

Malaysia as a country which is also inevitable to the COVID-19, in fact, it is interesting for this study to be carried out based on the Technology Acceptance Model (TAM) and Expectation Confirmation Theory (ECT) framework by Bhattacherjee 2001; Davies, 1989; Luo, Tsou & Shu, 2008. Even though the Malaysian citizens might be an early adopters or early majority in using the MySejahtera application, the notion of information quality, system quality and service quality, ease of use and usefulness as well as user satisfaction of the application is still not much identified. Hence, the attribute must be studied in this context. The lack of research on user satisfaction with contact tracking applications is understandable, given that the pandemic only started in 2020. Most research focuses more on acceptance (Chan, Tak Jie et al.,2021) and generic Covids mobile apps (Kondylakis, H et al.,2020; Smith AC, 2020; Collado-Borrell R, 2020), and with that being said, this provides researchers with a phenomenon that could be investigated further. Thus, this study was proposed to fill the backdrop and gap utilizing the TAM and ECT theories, which have more attributes to be tested on the satisfaction use of the MySejahtera application.

2.0. Literature Review

2.1 System Quality:

As defined by Kinney (2000), information quality is the degree to which the measurement methods used to prepare information can accurately represent what a decision-maker wants to know (information relevance). The stated methods have been competently applied. Results have been truthfully displayed (information reliability or credibility). Meanwhile, Paul Lillrank (2003) defines information quality as the successful receipt of information intended to be sent to the receiver, as defined by the sender. For the message to be successful, it must be comprehended by the recipient. Aside from that, it is not an excellent source of high-quality information.

2.2 Service Quality

There are many ways to define service based on the context in which it is used. Service is defined as "any intangible act or performance that one party does to another that does not result in the ownership of any property" (Kotler & Keller, 2009, p.789). Service may be described as an intangible offer made by one person to another in return for money or pleasure or as a combination of both. Customer satisfaction is one of the things that customers seek in an offer, and service happens to be one of those things (Solomon 2009)

2.3 Perceived Usefulness

According to Davis (1986), perceived usefulness is the most critical aspect in determining whether a group of people would accept a system. The productivity and efficacy of a system, as well as its overall advantages in improving user performance, are all important factors to consider.

2.4 Perceived Ease of Use

According to the research findings, a person's acceptance of the fact that adopting an exacting approach would be at no cost to them is defined as perceived ease of use (Davis et al., 1989; Mathieson, 1991; Gefen and Straub,2000; Gahtani, 2001). Initial research by Robert A. Rogers (1962) established the phrase perceived ease of use as a word that describes how easy the public sees a new product or service not to grasp, learn, or operate. He suggests that perceived ease of use is the degree to which customers view a new product or service as superior to its alternatives (Rogers, 1983). Similarly, Zeithaml et al. (2002) noted that perceived ease of use might be defined as the degree to which an invention is simple to comprehend or utilize.

2.5 User satisfaction

User satisfaction definitions are either process-oriented or outcome-oriented, depending on whether they view satisfaction because of a consuming activity. Tse and Wilton (1988, p. 204) define consumer satisfaction (CS) as the customers' reaction to the assessment of the apparent disparity between previous expectations (or some other standard of performance) and the actual performance of the product as perceived after consumption.

2.6 System Quality and User Satisfaction

Because of the widespread usage of the Technology Acceptance Model (TAM) in research, perceived ease of use has become the most often used indicator of system quality (Davies, 1989). The culture prior to people's expectations of an information system necessitates the need for systems to be adaptable and straightforward to use, especially for novices. Furthermore, highly rated information systems must be dependable, user-friendly, and responsive while providing every feature that elevates it above or at least puts it on the level with rival systems in other areas. Ease of use may sometimes be considered a relative phrase, mainly when one group is more technologically adept

than the other. Nonetheless, this research supports the universality of the system quality attribute in predicting information system performance, even though the impact of system quality of the web portal on user satisfaction is limited in this study. Like this, many studies have shown that system quality significantly impacts user satisfaction when it comes to various kinds of information systems. Gelderman (2002) discovered that the quality of a management information system was strongly linked to user satisfaction with the system. Similar findings were observed in a knowledge management system, where system quality was a significant predictor of user happiness (Kulkarni et al., 2006; Wu & Wang, 2006; Halawi et al.,2007). Palmer (2002) researched websites and discovered that system quality was substantially linked to user satisfaction, as assessed by dependability and download time.

2.7 Information Quality and User Satisfaction:
System quality, evaluated in terms of understandability, completeness, timeliness, currency, correctness, and relevance of the information, was shown to have a substantial impact on user satisfaction, according to the research findings. These characteristics underpin users' perceptions of the system and serve as criteria for assessing the system's overall efficiency. However, user satisfaction with a web portal is influenced positively by the quality of the information on the site, according to the findings of this research. Most of the users' information requirements were met satisfactorily. Furthermore, the connection between information quality and user happiness has been well documented in the literature (Iivari, 2005; Wu & Wang, 2006). At the level of the individual unit of analysis, studies have shown a consistent connection between information quality and user happiness (Rai et al., 2002; McGill et al., 2003; Wixom & Todd, 2005; Kulkarni et al., 2006; Chiu et al., 2007; Halawi et al., 2007). Studies that have looked mainly at the information quality elements of Web sites, such as content and layout, have shown substantial correlations between these structures and the happiness of Web site visitors (Palmer, 2002). Although the results of this study on the online portal system for postgraduate schools are similar to those of prior research, they also demonstrate that information quality is paramount, particularly in Nigeria's Information Technology (IT) environment.

2.8 Service Quality and User Satisfaction:
Service quality is a significant characteristic in determining customer satisfaction, and its impact on user satisfaction is on the average side. It is possible to evaluate service quality by looking at how well service employees respond to complaints and deal with problems arising from system failure. Regarding resolving issues that users face, the timeliness of support personnel is critical. The technical expertise of support staff is another factor to consider since it is equally important in dealing with the complexity connected with system characteristics. The importance of empathy and the quickness with which a response is provided are critical components of the service that consumers demand. The latter stresses the need to respond to complaints promptly, while empathy promotes the importance of respect and humility in the attitude of those aiding. Several investigations on the link between service quality and customer satisfaction have been conducted. Nevertheless, the results of these investigations indicate that there is mixed support for this relationship. The conflicting results are due to the various techniques used by researchers to measure this construct.

2.9 Perceived Usefulness and User Satisfaction:
As stated by Davis (1986), perceived usefulness is the subjective view of users in situations when they feel that the usage of specific technologies may enhance the performance of their task. The degree to which a person believes using a particular system will be free of effort (Davis F. D., 1989). The theory of reasoned action (TRA) asserts that actions are governed by cognitive elements that may be quantified by anticipating future behavior intentions (or intents to do something). The Technology Acceptance Model (TAM) further asserts that an individual's desire to use technology is governed by perceived ease of use and perceived usefulness (Davis, 1989), both of which are believed to be fundamental determinants of user acceptance and user satisfaction (Davis, 1989). (Adams, Nelson, and Todd, 1992; P. C. Sun et al., 2008; Arbaugh J. B., 2002). Davis, Bagozzi, and Warshaw (1989) found that perceived usefulness was the most important contributor to behavioral intentions among the factors studied. Marketing and information technology departments have constantly used perceived utility and simplicity to examine new goods and systems for years.

3.0 Perceived Ease of Use and User Satisfaction:
Consumers' perceived ease of use led to greater performance since it would have a good influence on perceived usefulness, which in turn would lead to increased performance (Venkatesh & Davis, 2000). Bigné-Alcaniz et al. (2008) found a statistically significant positive association between perceived usefulness and ease of use in an online setting (Bigné-Alcaniz et al., 2008; Wu H.-C., 2013). Arbaugh (2000) and Chiu, Chang, Cheng, and Fang (2009) found that perceived usefulness significantly influenced overall satisfaction.

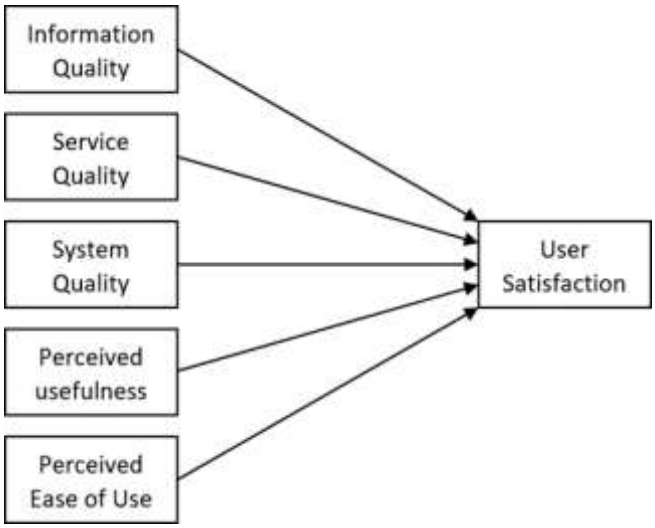
3.0 Research Methodology
This study uses a quantitative method using a questionnaire as a research instrument. The questionnaire form was adapted from the various previous study such as Mielczarek et al. (2016), Saravanan, D. (2019), Xiao, Li & Dasgupta, Laumer et al. (2017), Ramseook-Munhurrun et al. (2010), Yeo et al. (2016), Davis, (1989), Kosteroglou et al. (2016), Sheng et al. (2018) and Armstrong, Douglas et al. (2005). It consists of 30 questionnaires covering three parts: demographics information, independent variables; (system quality, service quality, information quality, perceived ease of use, perceived usefulness) and dependent variables (user satisfaction). The research instrument uses the 5 Likert scale measurement method and in the form of closed-ended questions (Hair, Money, Samouel, & Page, 2007). This study used purposive sampling technique to select a sample size of 176 postgraduate students from Faculty of Information Management in UiTM Puncak Perdana who are using MySejahtera application. This number of respondents will represent the total of the

population which is 313.The sampling then calculated using Roasoft with minimum number of sampling will be 173 out of 313.The analyses conducted to answer the study's objectives were the measurement model and structural model using Smart PLS 3.0..

4.0 Conceptual Model & Hypothesis

This paper combined Expectation-Confirmation Theory (ECT) and Technology Acceptance Model (TAM) and therefore developed a theoretical framework of user satisfaction toward MySejahtera application, as shown in the figure below. The framework involved five independent variables: information quality, service quality, system quality, perceived usefulness, and perceived ease of use.

Figure 1.0: Expectation-Confirmation Theory (ECT) and Technology Acceptance Model (TAM)



Previous studies revealed a constant association between the quality of information and user satisfaction with the specific item (Seddon & Yip, 1992; Seddon and Kiew, 1996; Bharati, 2002; Rai et al., 2002; McGill et al., 2003; Almutairi and Subramanian, 2005; Wixom and Todd, 2005; Kulkarni et al., 2006; Chiu et al., 2007; Halawi et al., 2007). The following hypothesis is put forward to this effect: H1 There is a positive correlation between information quality and user satisfaction on the MySejahtera application. In terms of system quality and user satisfaction. Based on previous studies a significant relationship has been discovered between the quality of the system and the user satisfaction (Livari, 2005, Kulkarni et al., 2006; Wu and Wang, 2006; Halawi et al., 2007). It led to the formulation of H2; The system quality affects the user satisfaction with the MySejahtera application. Similar relationship (positive relationship) between service quality and user satisfaction as mentioned by Khan & Fasih, 2014 after Sureschchandar et al., 2002; Boulding et al., 1993; Tambi, Ghazali, & Rahim, 2008; Marković, & Raspor Janković, 2013 which associated with H3. There is a relationship between service quality and user satisfaction on the MySejahtera application. The same goes with H4 and H5, where perceived usefulness and perceived ease of use are statistically significant relationships with user satisfaction. Previous studies support it (Khan & Fasih, 2014, Sureschchandar et al., 2002; Boulding et al., 1993; Tambi, Ghazali, & Rahim, 2008; Marković & Raspor Janković, 2013, Ayunda et al.,2018).

5.0 Finding

The study results include a descriptive analysis of respondents' background, independent variables such as system quality, service quality, information quality, perceived ease of use, perceived usefulness, and dependent variables (user satisfaction) and the relationship between the two factors.

5.1 Respondent profile

The analysis shows that 21.6% of the respondents were 20 to 24 years old, 37.5% were 25 to 29 years old, 25.6% were aged between 30 to 34 years old, and 15.3% were between 35-40 years old. Most of the respondents (79.5%) have a master's degree (34.3%) meanwhile (20.5%) have a PhD degree. Table 4.10 shows the demographic information of the respondents who participated in this study.

Table 1.0: Respondent profile

Category		%
Gender	Male	43.2
	Female	56.8
Age	20 -29	59.1
	30-39	40.9

Education	Master	79.5
	PhD	20.5

Table 2.0 illustrates the results of the convergent validity assessment of the instrument. The factor loading for all items is well above 0.5, while the composite reliability and average variance extracted are above 0.7 and 0.5, respectively. These values suggest that the instrument has fulfilled the convergent validity requirements.

Table 2.0: Composite Reliability and Average Variance Extracted Assessment

			Composite Reliability	Average Variance Extracted
Information Quality	IQ1	0.856	0.928	0.720
	IQ2	0.863		
	IQ3	0.868		
	IQ4	0.817		
	IQ5	0.837		
	IQ1	0.856		
	IQ2	0.863		
	IQ3	0.868		
Service Quality	ServQ1	0.861	0.955	0.811
	ServQ2	0.916		
	ServQ3	0.923		
	ServQ4	0.882		
	ServQ5	0.919		
System Quality	ServQ1	0.861	0.931	0.723
	SysQ2	0.877		
	SysQ3	0.852		
	SysQ4	0.774		
Perceived Ease of Use	SysQ5	0.883	0.943	0.770
	SysQ2	0.886		
	PEoU1	0.852		
	PEoU2	0.832		
	PEoU3	0.901		
Perceived Usefulness	PEoU4	0.900	0.936	0.785
	PEoU5	0.898		
	PEoU1	0.852		
	PEoU2	0.832		
	PU2	0.819		
	PU3	0.924		
	PU4	0.916		
	PU5	0.881		
	PU2	0.819		
	PU3	0.924		
User Satisfaction	US1	0.826	0.945	0.776
	US2	0.924		
	US3	0.876		
	US4	0.902		
	US5	0.873		

The discriminant validity was ascertained using the Fornell & Larker (1981) criteria to assess the measurement model further. According to Hair et al. (2019), discriminant validity can be assumed when the square root of the AVE of the construct surpasses the correlation value between constructs. As shown in Table 3.0, this requirement is also fulfilled, suggesting there is no issue regarding the instrument's discriminant validity.

Table 3.0: Discriminant Validity Assessment Based on Fornell & Larker (1981)

	Information Quality	Perceived Ease of Use	Perceived Usefulness	Service Quality	System Quality	User Satisfaction
Information Quality	0.848					
Perceived Ease of Use	0.772	0.877				
Perceived Usefulness	0.757	0.799	0.886			
Service Quality	0.658	0.651	0.692	0.900		
System Quality	0.779	0.798	0.728	0.696	0.855	
User Satisfaction	0.740	0.814	0.798	0.737	0.807	0.881

As presented in the previous section, this study has established 5 hypotheses related to the research objectives. The hypothesis was tested, the structural model was assessed, and the results are summarized in Table 4. The results revealed that the path is significant as the β value is well above 0.3 (Cohen, 1988) with the corresponding t-value of 3.081 (p-value < 0.001). The predictive relevance of R2 is relatively high and significant. Given these results, the hypothesis of the study is fully supported.

Table 4.0: Measurement Model t and R Value Assessment

	T Statistics (|O/STDEV|)	P Values	R^2
Information Quality -> User Satisfaction	**0.073**	**0.942**	**0.784**
Perceived Ease of Use -> User Satisfaction	**3.666**	**0.000**	
Perceived Usefulness -> User Satisfaction	**3.801**	**0.000**	
Service Quality -> User Satisfaction	**2.802**	**0.005**	
System Quality -> User Satisfaction	**3.663**	**0.000**	

6.0 Conclusion and recommendation

The study has aimed to examine the relationship between system information quality, quality, service quality, perceived ease of use, perceived usefulness, and user satisfaction. Based on the research findings on system quality, service quality, perceived ease of use, and perceived usefulness are influenced positively by user satisfaction. However, information quality is not significantly positive by user satisfaction, and this finding is not aligned with previous studies. Therefore it is recommended that any health and tracking application developed focuses more on its system quality, service quality, perceived ease of use, and perceived usefulness in order to satisfy the users . This study is limited to the postgraduate student in Selangor Malaysia. The total number of students involved is 176 students. For future research, researchers recommend that involve more students of other universities and various student modes to get more valid and reliable findings. Next are the limited variables in this research as it only involved six variables (combination of Tam and ECT: information

quality, quality, service quality, perceived ease of use, perceived usefulness, and user satisfaction. It's suggested for future research is to include more variables to enhance the validity and reliability of the research.

Acknowledgements

The researchers would like to extend their gratitude to all respondents who participated in this study and Faculty of Information Management, Universiti Teknologi MARA (UiTM), for providing the necessary funding for the publication.

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