

# Mobile Banking Application (App) Adoption Behaviour Amongst Malaysian Consumers

EVON CHIN YU WEN<sup>1</sup>, WONG CHEE HOO<sup>1</sup>, ALEX LEE<sup>2</sup>, AW YOKE CHENG<sup>3</sup>

<sup>1</sup>Faculty of Business and Communications, INTI International University,  
71800 Nilai,  
MALAYSIA

<sup>2</sup>Hertfordshire Business School, University of Hertfordshire,  
AL10 9AB, Hertfordshire,  
UNITED KINGDOM

<sup>3</sup>Office of the Registrar, BERJAYA University College,  
MALAYSIA

*Abstract:* Irrespective of the size of a corporation, consumer preference for a certain product is a crucial subject for many companies, if not all, globally as it is essential to the success of the enterprise. Various consumers have different opinions of a product, and consumer preference serves as a guide for identifying a product's features. The success of a product is influenced by consumer preferences. It will be detailed displaying common elements such as service quality, technology, internet marketing, company image, and convenience that impact consumer selection. The feature of consumer choice for a given product has not been fully addressed by the current study, in fact, there are studies that focused on consumer choice, and their influences vary. Therefore, the timeliness of this study is apparent. This research is essential for companies who wish to identify popular banking applications (apps). As service quality, technology, online advertising, corporate image, and convenience impact consumer preference for mobile banking apps in Malaysia, hypotheses have been developed for the research study. This research enables academics to comprehend the phenomena under investigation and will also be useful for studying mobile banking apps in Malaysia in particular. This study aims to shed light on this nexus through quantitative correlation analysis, utilizing survey on consumer preferences for specific items and affecting variables. This study employs a quantitative correlation research methodology and seeks to establish the existence of correlations between each independent variable and the dependent variable. Total of 416 samples were collected using convenience sampling targeting bank users aged above 21 years old. The data was subsequently cleaned and analyzed using SPSS. During the study, research outputs based on hypotheses and proposals emerged with service quality, technology and internet advertising positively affecting consumer preferences with service quality being the most significant predictor.

*Key-Words:* - Mobile Banking, Apps, Adoption Behaviour, Preference, Malaysia

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## 1 Introduction

The purpose of this research is to investigate the link between consumer choice and its influencing factor(s) in the Malaysian mobile banking app market with the objective to investigate the impact of service

quality, technology, online advertising, corporate image and convenience on the mobile banking app preferences amongst Malaysian consumers. According to Ananda and Sonal (2019), [2], in a competitive environment, banks can gain a competitive edge by delivering better customer

service to increase consumers' preferences towards their brands when customer service is deemed more superior to their competitors, particularly with globalization altering banks' usage of technology to improve consumer service (Kamau, et al, 2019), [10].

Technologically savvy consumers favours products and services that efficiently employ modern technology, such as online banking, QR code payment, amongst others, in their mobile banking app. Study shown by (Shpak et al., 2020), [25], banks' marketing efforts are one of the variables

that impact the effectiveness of banking structures where effective advertising may increase consumer preference while ineffective marketing efforts might result in the attrition of consumers. This was supported by Ozkan et al. (2020), [18], who posit that corporate image is far more essential in the banking business than in the manufacturing industry due to the absence of a tangible product whose qualities can be easily evaluated. Consumers will not accept financial products or services from an institution with a poor perceived reputation.

According to Anouze et al (2019), [3], the importance of establishing instructions and navigational simplicity for bank consumers has a greater beneficial impact on consumer choice as unfavourable circumstances faced by consumers will ultimately change consumers' preferences towards a brand or company. The purpose of this paper is therefore to determine whether these variables influence the adoption of Malaysian banking app amongst their consumers.

A study by Anouze et al (2019), [3] found that service convenience is one of the banking industry's challenges, as not all consumers who want service are able to visit a bank during regular business hours. In other words, businesses that are unable to deliver timely services would lose consumer preference and loyalty. According to Mahmoud (2019), [16], one of the primary motives for consumers to adopt electronic banking is convenience. However, Rawwash et al (2020), [21] found that other industries, such as e-banking services, were not influenced by convenience. Therefore, it is essential to assess the elements that would affect the present study subject.

With the underlying understanding, this research seeks to achieve five Research Objectives (RO)

RO1: To determine the impact of service quality on Malaysian consumers' preference for mobile banking apps.

RO2: To determine the effect of technology on the choices of mobile banking apps amongst Malaysian consumers.

RO3: To determine how internet advertising influences the selection of mobile banking apps by Malaysian consumers.

RO4: To determine the relationship between corporate image and consumer demand for mobile banking apps in Malaysia.

RO5: To determine the importance of 'convenience' and its influence on the selection of mobile banking apps by Malaysians.

The following hypotheses (H) were developed to answer the research objectives mentioned above:

H1: Service quality has an influence on Consumer Preference towards Mobile Banking App in Malaysia.

H2: Technology has an influence on Consumer Preference towards Mobile Banking App in Malaysia.

H3: Online Advertising has an influence on Consumer Preference towards Mobile Banking App in Malaysia.

H4: Corporate image has an influence on Consumer Preference towards Mobile Banking App in Malaysia.

H5: Convenience has an influence on Consumer Preference towards Mobile Banking App in Malaysia

## 2 Literature Review

This section reviews the empirical and theoretical perspectives of the study.

### 2.1 Empirical Review

According to Maeng et al (2020), [15], untrustworthy websites and an abundance of alternatives will impact consumers' selection. In classical philosophy, consumer preferences were contextualized by their orientation toward satisfying consumer needs, which accounted for resource constraints and the rational use of products and services (Babakaev et al., 2019), [4]. Although Maeng et al. (2020), [15] concurred with this statement, they added that consumers' preferences for goods and services might alter due to price and lack of demand. Therefore, service quality, technology, internet advertising, company image, and convenience may be the primary factors influencing consumer preference.

### **2.1.1 Service Excellence and Consumer Preference**

As found by Pakurár et al. (2019), [19], service quality is a crucial success element for companies pursuing market competitiveness, growth, and expansion. A study by Ananda and Sonal (2019), [2], stated that the ultimate weapon has been defined as maximizing consumer happiness through exceptional consumer service. High service quality distinguishes service providers from their rivals by boosting profitability, recruiting new consumers, lowering expenses, maintaining existing consumers and thus, strengthening the business image (Islam et al., 2021), [9]. Consequently, service quality is one of the most influential elements that may determine the preference of Malaysian consumers for mobile banking apps.

### **2.1.2 Technology and Consumer Preference**

According to Kong and Ibrahim (2019), [11], technical advances have been the most influential element in the evolution of banking distribution. This was echoed by Sankaranarayanan and Rajagopalan (2020), [22], who argued that technological progress compels businesses to evolve. One example is the global banking industry, which is experiencing significant change. The relationships between consumers and banks, as well as how consumers manage their finances, have been changed by technological advances, notably in banks (Hatem et al., 2021), [8]. This may be explained by the growing importance of modern technology in the majority of businesses, particularly the banking industry. This is further supported by a study by Hatem et al. (2021), [8], which mentioned that consumer expectations in the banking industry are evolving fast as a result of ongoing innovation and the use of technology.

### **2.1.3 Online Advertising and Consumer Preference**

According to Mulchandani et al (2019), [17], the problem of differentiation and developing a unique selling proposition is exacerbated in the banking industry due to the rapid imitation of newly introduced services and products by rivals. According to Aghaei (2021), [1], a marketing strategic tool such as internet advertising supports banks in finding targeted consumers and determining consumer preferences. There are a variety of marketing tactics, such as internet advertising, that will greatly affect consumer choice when picking banks of their choice. Typically, banks allocate a sizeable portion of their budget to

promotional expenditure on social media, visual media, and print media in order to attract new consumers and retain existing ones (Mulchandani et al., 2019), [17]. This is due to the banking industry's recognition that internet advertising may readily attract consumers.

### **2.1.4 Corporate Image and Consumer Preference**

A finding shared by Anouze et al. (2019), [3], states that "corporate image" refers to the consumer's remembrance of the company's impression. Another research finding by Purwanto et al. (2020), [20], concurred, stating that a corporate image is defined as a consumer's or the generally favourable view of a corporation. When a company has a poor image or reputation, the first and most evident negative effect is a decline in business (Loveland et al., 2019), [14]. Ozkan et al. (2020), [18], asserted that corporate image is more significant in banking than in manufacturing due to the absence of a tangible product whose attributes can be immediately appraised.

### **2.1.5 Convenience and Consumer Preference**

Although convenience is frequently examined in the banking business, the majority of past research has focused on the convenience of e-banking services (Wibowo, 2020), [26]. This is also posited by Anouze et al. (2019), [3], - consumers who utilize banking products place a premium on convenience, which has a favourable influence on consumer choice. Mahmoud (2019), [16], concurred, emphasizing that ease of usage is one of the most significant elements to consider when a consumer wants to embrace a banking application.

### **2.1.6 Underlying Theories**

If preferences can be represented as utility functions, then consumer choice may be decided by maximizing utility, according to the underlying theory presented by Liederet al. (2018), [13]. Consumer choice research is one of the most frequent applications of the underlying theory. This study examines one model and two theories pertinent to consumer preference, including the SERQUAL Model, the rational choice theory and the revealed preference theory.

## 2.2 Theoretical Review

### 2.2.1 SERVQUAL Model

In Zainuddin et al. (2019), [28], SERVQUAL's service quality model is a multidimensional model that is adaptable to diverse research situations. The SERVQUAL methodology measures consumer preference as the difference between consumer expectation and perception of the bank's service (Anouze et al., 2019), [3]. According to the study by Zainuddin et al. (2019), [28], earlier research in the banking industry has utilized the SERVQUAL model to evaluate service quality. Savic and Veselinovi (2019), [24] concurred, stating that using the SERVQUAL methodology improves banking service quality and boosts consumer loyalty amongst Malaysian consumers. Therefore, the SERVQUAL model will serve as the major theoretical foundation for this investigation.

### 2.2.2 The Theory of Rational Decision

The rational choice theory enables marketers to more accurately forecast consumer preferences. The advantage of utilizing rational choice theory for consumer preference in this study is that it is applicable for measuring and assessing consumer preference for a particular product. This idea enables researchers to determine if elements such as technology, internet advertising, business image, and convenience influence consumer preference. This study will thus employ the theory of rational choice to determine consumer preferences that are most impacted by-products and influencing factors.

### 2.2.3 Revealed Preference Theory

As shared by Cattaneo et al. (2020), [6], empirical examination of the traditional revealed preference theory indicates that it is not always consistent with the observed consumer choice behaviour.

Consequently, revealed preference theory is essential and must be restudied to reveal the essence of consumer desire for a particular product. The revealed preference theory of consumer choice will, therefore, be used to assist in this study to identify the consumer preference component influencing this mobile banking application adoption. Thus, Figure 1 represented the conceptual framework for this study.

This research (Figure 1) is critical for businesses looking to identify popular banking applications (apps). Hypotheses for the research study have been developed as factors such as service quality, technology, online advertising, corporate image, and convenience influence consumer preference for mobile banking apps in Malaysia. This study helps academics understand the phenomena under investigation and will be useful for researching mobile banking apps in Malaysia in particular.

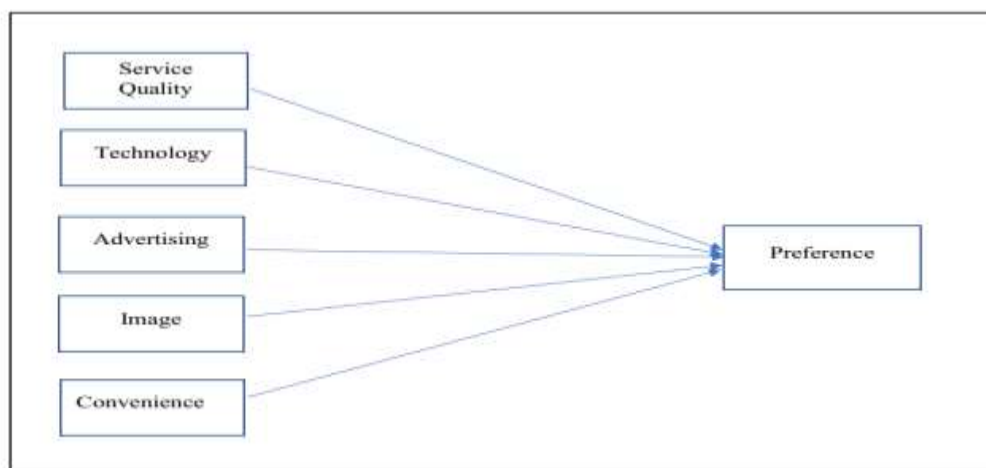


Fig. 1: Conceptual Framework

### 3 Methodology

This section explains the methods and tools utilized in the research.

#### 3.1 Research Design

The primary purpose of this study is to identify the elements that impact consumer preferences when utilizing mobile banking applications. To be eligible to answer the survey, respondents must be above the age of 21 and have a personal bank account or have used services from a bank. There are two sorts of sampling procedures according to Saunders et al. (2019), [23]: probability sampling and non-probability sampling.

Bougie and Sekaran (2019), [5] also pointed out that probability sampling involves random sorting, which makes sure that each unit of a sample has an equal chance of being sampled, while non-probability sampling may or may not accurately represent the population and so adds to bias. This study uses non-probability sampling to get a high response rate. It provides a simple sampling strategy based on the distribution of online questionnaires to get cost-effective results (Saunders et al., 2019), [23].

#### 3.2 Sample Size

According to the sample size chart created by Krejcie and Morgan (1970),[12], the sample size for this study is 385 because the population of Malaysia is greater than one million. Therefore to improve efficiency, the study questionnaire is sent through a number of internet platforms. A total of 422 questionnaires were sent which accounted for an additional 10% of the recommended sample size with the intention to yield a higher response rate.

#### 3.3 Sample Technique

The surveys were given to family, friends, coworkers, and connections in the extended network. The research objective is to focus on Malaysian consumers who have utilized the products or services of multiple commercial banks. Malaysia's total population was predicted to be 33 million by 2021 (Worldpopulationreview, 2021), [27].

#### 3.4 Data Collection

The target group for the research of mobile banking app users is individuals over the age of 21. Google Forms was utilized by researchers to construct questionnaires and distribute them to respondents in order to gather data since it improves the researcher's efficiency in verifying the summary and extracting the data for analysis.

#### 3.5 Data Analysis

Multiple linear regression analysis is used to figure out how consumers' preferences for commercial banks relate to the independent variables. Multiple linear regression, multicollinearity (ANOVA), and beta-coefficient testing will be done to look at the link between variables.

### 4 Results

In this section, the results of the data analysis are shown. These results helped meet the different goals of the study.

Table 1. Reliability Test result for dependent and independent variables

Variables	Cronbach's Alpha	No. of Items
Consumer Preference (Dependent Variables)	.808	5
Service Quality (Independent Variables)	.820	4
Technology (Independent Variables)	.764	4
Online Advertising (Independent Variables)	.856	4
Corporate Image (Independent Variables)	.731	4
Convenience (Independent Variables)	.706	4

#### 4.1 Reliability Analysis

As per table 1, the Cronbach Alpha score of an internal consistency test for extensive data gathering must be larger than 0.70. Any item with a score below 0.70 is untrustworthy and must be excluded from future analysis(Saunders et al., 2019) [23]. Using the preliminary test, which was based on the analysis of 416 respondents, the results' precision and significance were evaluated. The overall number of responders exceed the anticipated aim of 385 samples.

#### 4.2 Demographic Profile

The surveys were distributed online via various social media channels in order to reach Malaysian consumers from various states. Due to the time restrictions of the study, a non-random sampling approach was used. 416 replies were received from a total of 422 being sent – a 98.6% response rate.

Table 2. Demographic Profile

Age				
		Frequency	Percentage	Cumulative Percentage
Valid	21 – 30	185	44.5	44.5
	31 – 40	103	24.8	69.2
	41 – 50	72	17.3	86.5
	51 – 60	27	6.5	93.0
	61 and above	29	7.0	100.0
Total		416	100.0	
Gender				
		Frequency	Percentage	Cumulative Percentage
Valid	Female	174	41.8	41.8
	Male	242	58.2	100.0
	Total	416	100.0	
Monthly Income				
		Frequency	Percentage	Cumulative Percentage
Valid	RM12,001 and above	40	9.6	9.6
	RM3,000 and below	145	34.9	44.5
	RM3,001 to RM6,000	155	37.3	81.7
	RM6,001 to RM9,000	48	11.5	93.3
	RM9,001 to RM12,000	28	6.7	100.0
Total		416	100.0	

Table 2 provides the demographic characteristics of the research participants. Age groups 21–30 (44.5 percent; n = 185) and 31–40 (24.8 percent; n = 103) comprised more than 70 percent of all respondents. The percentage of female respondents is 41.5% (n=174), while the percentage of male respondents is 58.2% (n=242). RM 3,000 and lower (34.9%; n =

145) and RM 3,001 to RM 6,000 (37.3%; n = 155) had the greatest response rates. According to table 4.9, the majority of respondents with monthly incomes between RM3,000 and RM6,000 are aged between 21 and 40. The majority of young individuals favour mobile banking applications over senior citizens.

### 4.3 Multiple Linear Regression and ANOVA

The focus of hypotheses testing is the direction of R<sup>2</sup> and P-value, which are statistical measures of multiple regression fitting regression line. The range of R<sup>2</sup> is between 0 and 1. When R<sup>2</sup> equal to 0, there would be no variation in independent variable can attributed dependent variables.

According to Bougie and Sekaran (2019),[5], ANOVA is a framework that offers information about the degrees of variability inside a regression model and serves as the foundation for significance tests. Service quality, technology, online advertising, company image, and convenience may predict 67% of consumer decisions, according to the model summary and ANOVA test (Tables 3 and 4). Total regression model was significant at  $p < 0.05$  with service quality, technology, online advertising, company image, and convenience as the significant predictors.

Table 3. Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.825a	.681	.677	.33406
a. Predictors:(Constant), Convenience, Corporate Image, Technology, Online Advertising, Service Quality				
b. Dependent Variable: Consumer Preference				

Table 4. ANOVA

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	97.539	5	19.508	174.813	.000b
	Residual	45.753	410	.112		
	Total	143.292	415			
a. Dependent Variable: Consumer Preference						
b. Predictors:(Constant), Convenience, Corporate Image, Technology, Online Advertising, Service Quality						

The current state of the research hypotheses is presented in Table 5. All hypotheses are accepted given that each independent variable has a high F value and a p-value of 0.05. The Beta value of 0.762 indicates that service quality is the primary factor impacting consumer preference for mobile

banking applications in Malaysia, followed by technology (0.745), online advertising (0.640), corporate image (0.559), and convenience (0.507). The test's results are statistically significant and consistent with the rule of thumb.

Table 5. Multiple Linear Regression Outcomes ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1. Service Quality	Regression	83.242	1	83.242	573.889	.000b
	Residual	60.050	414	.145		
	Total	143.292	415			
2. Technology	Regression	79.609	1	79.609	517.527	.000b
	Residual	63.684	414	.154		
	Total	143.292	415			
3. Online Advertising	Regression	58.772	1	58.772	287.880	.000b
	Residual	84.520	414	.204		
	Total	143.292	415			
4. Corporate Image	Regression	44.770	1	44.770	188.128	.000b
	Residual	98.522	414	.238		
	Total	143.292	415			
5. Convenience	Regression	36.851	1	36.851	143.330	.000b
	Residual	106.441	414	.257		
	Total	143.292	415			
a. Dependent Variable: Consumer Preference						
b. Predictors: (Constant), Service Quality, Technology, Online Advertising, Corporate Image, Convenience						

Cooper and Schindler (2018), [7], stated that the variance inflation factor was looked at to make sure there were no problems with multicollinearity. If the VIF value is more than 10, the data are thought to overlap a lot.

This is called a Type 1 error, and it leads to a biased result which is not an issue in this study.

#### 4.4 Summary of Hypothesis Testing

Table 6. Summary of Hypothesis Testing

Hypotheses	Results	Status
H1: Service quality has an influence on Consumer Preference towards Mobile Banking App in Malaysia.	p-value: 0.000 $\beta$ : .419	Accepted
H2: Technology has an influence on Consumer Preference towards Mobile Banking App in Malaysia.	p-value: 0.000 $\beta$ : .276	Accepted
H3: Online Advertising has an influence on Consumer Preference towards Mobile Banking App in Malaysia.	p-value: 0.000 $\beta$ : .247	Accepted
H4: Corporate image has an influence on Consumer Preference towards Mobile Banking App in Malaysia.	p-value: 0.886 $\beta$ : .006	Rejected
H5: Convenience has an influence on Consumer Preference towards Mobile Banking App in Malaysia.	p-value: 0.745 $\beta$ : -.012	Rejected



## 5 Discussion

Only three factors, namely service quality, technology, and online advertising, exhibited a substantial positive link with consumer preferences in picking an online banking app, according to the findings of the preceding chapters. To dominate the market and generate consumer loyalty, banks could utilize their strengths and capitalize on new chances by managing these independent factors, such as by adding more services to their mobile banking applications. For example, the bank can add a Chatbot feature in the banking app. Consumers can direct click on the Chatbot when facing any problem. Instant service is very important nowadays as people wish to receive fast and quality services when they face issues. Therefore, instant service can enhance consumer preference for a specific product or service.

In addition, banks should focus on technology, which has the second-highest coefficient of 0.276%. This illustrates that technology is a significant cause of worry for folks in the modern day. The bank manager must remain abreast of technological advancements and assure the security of every transaction and service. Technology generates consumer-valued goods and services, notably in terms of obstacles and convenience. Using economies of scale as an example, banks that work with fintech startups may offer a simple but functional product at a reduced price. Currently, available mobile banking app features include banking transactions, an E-wallet for obtaining and transferring cash, and 'Duit-now', which only requires an individual's identity. Banks may innovate or add new features to existing mobile banking apps, such as deploying an online robot to handle inquiries and resolve issues in only seconds. The bank must prioritize innovative technologies that can assist financial institutions in retaining current consumers and reaching out to prospective new consumers.

## 6 Conclusion and Recommendation

According to the research findings, there are three aspects that may impact consumer choice when selecting banking applications. Referring to current journals and publications, there are few studies and surveys that include the dependent variable (consumer preference) and all independent factors (service quality, technology, online advertising, corporate image, and convenience). The data was

collected and input into SPSS for analysis. Regression analysis revealed several shortcomings.

This survey has a limitation in that it only examined Malaysians' preferences for banking applications; as the information collected is not based on a countrywide sample, the relative relevance of the factors may vary by country. Since Malaysia is a developing nation, the findings may have only a modest impact on other developing nations, which often employ other banking app types and acquire asymmetrical technology. In reality, a consumer from a different nation will have different preferences that may modify the value of each explanatory variable, such as financial services legislation and standards for banking sectors, culture, demographics, and geography.

Considering the preceding constraints, a number of solutions have been proposed as the present research subject focuses solely on banking applications in Malaysia; its findings may vary compared to other nations, particularly those that are developed or impoverished. A more robust model for future research enables the questionnaire or other research tools to place a greater emphasis on consumer sentiment. Therefore, it is recommended that future research aims for a larger sample size.

This study aims to gain a better understanding of the variables that influence consumer preference for banking applications. The survey questionnaire comprised a series of questions based on these variables. The most significant aspect is service quality (0.419), followed by technology (0.276), internet advertising (0.247), corporate image (0.002), and convenience (-0.012). Future researchers can use this study to learn more about how Malaysian consumers utilize banking applications.

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### **Contribution of Individual Authors to the Creation of a Scientific Article (Ghostwriting Policy)**

-Evon Chin Yu Wen, Principal Researcher responsible for the review of the literature and performed data collection and initial data analysis.

-Wong Chee Hoo, Principal Supervisor responsible for guidance in the criticality of the literature review and the robust process of data analysis, discussion and meeting research outcomes.

-Alex Lee, Foreign External Reviewer and Supervisor with similar responsibilities as Wong Chee Hoo.

-Aw Yoke Cheng, Local External Reviewer and Supervisor with similar responsibilities as Alex Lee.

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### **Conflict of Interest**

The authors have no conflict of interest to declare that is relevant to the content of this article.

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