

The Mediating Role of Self-Efficacy and Gamification in Influencing the Customer's Loyalty toward Mobile Banking in Malaysia

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Mobile Banking has become a widespread technology in most developed countries. The usage of this technology is still limited in emerging economies with the majority tending to use traditional online banking. The purpose of this study is to examine customer loyalty to M-banking and to examine the mediating role of self-efficacy and gamification. The data of this study were collected using a random sampling technique from users in Malaysia. The findings were derived using Smart PLS 4. The findings showed that design aesthetics and navigability affected positively self-efficacy which in turn affected customer loyalty and mediated the effect of design aesthetics and navigability on customer loyalty. The effect of social influence and rewards on gamification is positive. Gamification affected customer loyalty and mediated the effect of social influence and rewards on customer loyalty. The design of m-banking and rewarding points is critical to improving customer loyalty to m-banking.

Keywords: Self-efficacy, Gamification, Customer Loyalty, Mobile Banking.

1. Introduction

Smart phones and mobile gadgets have grown in popularity in recent years. This fast growth in mobile technologies (m-technologies) has changed mobile banking (M-banking) usage in the banking and financial sectors [1]. Mobile devices enabled bank clients to easily and quickly obtain useful services. Mobile commerce (M-commerce) is making it easier for consumers to shop, buy passes, and enjoy online entertainment [2]. Electronic commerce (e-commerce) refers to transaction made using a smartphone or other internet-enabled mobile device to access online banking services, while mobile apps (m-applications) offered a great opportunity to enhance banking services, client satisfaction, and loyalty [3]. M-banking institutions will have more loyal and dedicated clients than those without clear plans to use M-banking [4]. M-banking involves using mobile-based payment (m-payment) or commerce apps on a smartphone to access financial services and perform financial transactions easily with a wide range of options [5].

M-banking saves consumers time and gives them real-time information and control by

allowing them to access their accounts anywhere, anytime. This new trend has enhanced market perceptions of banking services by lowering financial operations fees compared to standard and internet banking [6]. M-banking offers competitive advantages and advanced process, such as lower transaction costs if customers perform them outside of banking branches, which allows the bank to charge customers lower transaction fees if they use online and mobile services, encouraging customers to switch to M-banking. Thus, M-banking growth requires more consumers to use their mobile devices for financial operations [7].

In Asia pacific, the utilization of mobile phone increased massively with penetration rate close to 100%. Nevertheless, despite all the benefits provided by using mobile phone and m-banking, there is still limited number of users [8]. Many customers are still hesitant to use M-banking services that require sensitive information, as well as are still unwilling to use their phones for financial transactions [9]–[11]. The academic field addressed these issues by presenting a large number of studies in various settings to explore the factors that could impact consumer ongoing use behaviours to M-banking service. M-banking trust and client satisfaction have been studied in Malaysia. Researchers worldwide have studied M-banking consumer behavioural intention. However, customer loyalty (CL) to m-banking has been examined in limited number of studies [1], [12].

In emerging nations, M-banking customers are still unhappy and the number of users is below projections [13], [14]. A report shows that 45.5% of Malaysians use M-banking, compared to 91.7% of online banking users [15]. Several studies have found that consumer loyalty or willingness to continue using M-banking apps is plagued by satisfaction, trust, security, privacy, and lack of reward, which warrants further study [16]–[18]. This is a huge challenge for the bank as it moves to M-banking and branchless services. Without customer loyalty, the bank cannot maintain its primary business [19], [20].

According to prior academic study, actual proof of consumer loyalty to M-banking is still scarce compared to behavioural intention literature [21]. Most of these studies used the TAM. Previous academic study found that self-efficacy (SE) directly affects consumer loyalty to m-shopping, m-learning, and m-commerce [22]. In M-banking, SE may impact ease of use and perceived utility [23]. However, recent research lacks studies on how "design aesthetics (DA)" and "navigability" affect consumer SE to use the m-banking application [24]. Gaming may affect consumer loyalty to applications and programs [25]. Gamification is the usage of game elements in non-game apps or services to encourage value-creating behaviours like purchase or loyalty [26], may increase M-banking CL by offering rewards or achievements [27]. Gamification also increases trust and desire to use in m-learning, m-marketing, and e-banking, according to several studies [28]. However, according to the literature review, there are few studies that examine the direct impact of gaming on consumer loyalty and its indirect effect on the connection between related factors such as "rewards" and "social influence" in M-banking [29]. The current study is distinct from previous ones because it expands the aspects that could affect consumer loyalty to M-banking services in Malaysia. The coming sections presents the literature, methodology, findings, discussion, implication and conclusion.

2. Literature Review

Theoretical framework

This study examines the CL of M-banking. Important variables that are related to CL are SE, gamification, DA, navigability, social influence, and reward. The social exchange theory suggested that individuals when enjoying and perceiving the technology to be useful and beneficial compared with the effort needed to use the technology, the users will tend to use the technology and be loyal to this technology [30]. Therefore, the social exchange theory is used in this study along with UTAUT theory. Variables such as social influence is part of UTAUT [31]. In addition, navigability and DA are parts of the performance expectancy in UTAUT or usefulness in TAM of the technology [32], [33]. Further, the SE is defined as the technical knowledge to use a technology and it is similar to perception of effort expectancy [31]. Additional variables that are included in this study is the gamification. Overall, this study deploys the social exchange theory as well as the UTAUT to explain the loyalty of customer to M-banking.

Customer Loyalty (CL)

CL is a customer's commitment to a brand and repeated use of the same service without switching to a rival [34]. Companies offer freebies, awards, and promos to boost consumer loyalty. Curiously, a company's trust increases as its services are used more [35]. M-banking has great promise for the banking sector because banks see a big chance for client loyalty and retention in the high mobile phone usage rate [36]. M-banking loyalty is essential because banks can retain current clients and entice new ones [37]. Many research studies examined M-banking consumer loyalty factors [25], [34], [35]. Malaysian studies have examined how consumer loyalty affects service use. For example, [38] found that ease of use, customer service, customer satisfaction, and trust affected the desire to use Islamic mobile banking services. The study of [39] found that perceived rules, comfort, and ease of use greatly affect Malaysian M-banking consumer loyalty. With more banks in Malaysia, client loyalty tactics are important for market benefit [36]. Banks with high CL would improve their lasting economic edge and income, which is the main goal of all new technologies. In this study, CL to m-banking is examined.

Conceptual Model and Hypotheses Development

Several studies have been conducted to examine variables such as behavioural intention, use behaviour or customer trust and customer satisfaction. However, studies that are related to the CL in the context of M-banking in emerging economies are still limited. Based on a review of the literature as well as the social exchange theory and UTAUT, this study proposed that DA and navigability affects positively SE which in turn is expected to affect CL and mediates the effect of DA and navigability on CL. Further, the model proposes that social influence and rewards have positive effects on gamification which is expected to affect CL. Gamification also proposed to mediate the effect of social influence and rewards on CL. Figure 1 shows the proposed conceptual framework.

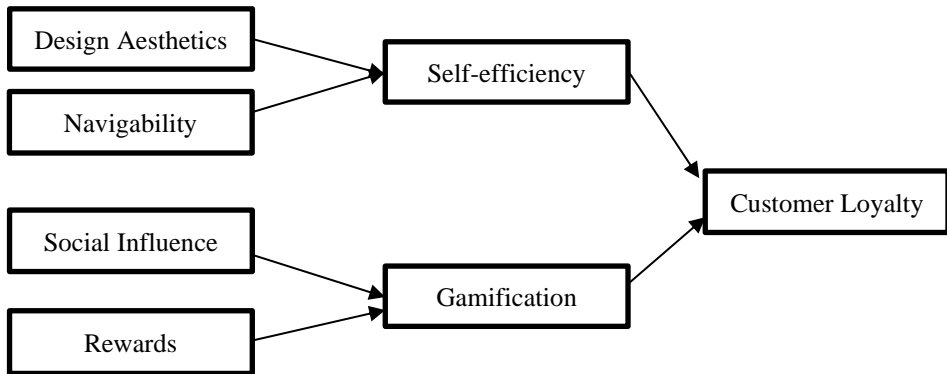


Figure 1: The proposed conceptual framework

Design Aesthetics (DA)

Companies, institutions, and m-shopping vie to quickly increase consumer loyalty with appealing interface design [32]. When a client enjoys an encounter, they are more likely to become so engrossed in the online activity [40]. The app's visual experience can also influence a user's loyalty. The study of [33] found that design elements affect perceived utility, ease of use, and pleasure, which in turn affects users' loyalty to m-commerce services. Design style greatly impacts perceived legitimacy and utility, which can enhance mobile website experience [41]. In the study of [42], it is found that DA affect M-service scape, banking's which is the firm's real setting, including plan, design, décor, and aesthetics. The study of [22] found that consumer SE is highly influenced by design. However, few studies have studied the impact of design aesthetic on customer SE in M-banking. Thus, DA is proposed to affect SE.

H1: Design aesthetic positively influences customer's SE.

Navigability (NA)

Watts [43] defined navigability as offering the shortest route through network nodes. The study of [44] explained that website or application ease of browsing affects how customers assess service quality, which impacts CL by affecting their choice to peruse and use the online service. Online service webpages intended for personal PCs may be tough to use on mobile devices due to their smaller screens and lower working power. However, mobile apps simplify service use for consumers [45]. Mobile consumers may have distinct SE levels than PC users. Touch-screens, accelerometers, and gravity sensors on mobile devices demand distinct navigation skills than mouse and keypad on desktops [46]. Numerous studies have explored how navigability affects consumer behaviour when using web and mobile services [44]. In m-shopping, [47] found that navigability affects consumer satisfaction but not trust. Consumer SE is greatly affected by navigability [22]. This study seeks to comprehend how navigability affects SE.

H2: Navigability positively influences customer's SE.

Self-efficacy (SE)

SE is the idea that one can perform specific jobs [48]. M-banking customers are more likely to use the service if they think they have the skills, expertise, and education to handle their

accounts and transactions [13]. This study examines whether a client is confident enough to use M-banking. Quality enhancements boost customer SE and system usage. However, if customer SE is not met, especially in system features or service suppliers, customer desire to use the service will drastically decline [48]. According to [49], SE influences consumer emotions and behaviour to use the service.

Many studies have found substantial correlations between client SE and M-banking service desire and use. [13] found that SE affected consumers' M-banking loyalty. Several research studies have shown that SE and consumer desire to use are linked [48]. In several studies, consumer SE has been shown to affect CL and the desire to use mobile apps or services. For instance, [22] offered a model to rigorously explore the connection between client SE and loyalty in the use of m-shopping apps. The results showed that SE positively affects retention intention. Although consumer SE has been actually studied on attitudinal purpose in various contexts. The literature still lacks studies on how SE affects M-banking CL. This paper examines this connection. Mediation clarifies the connection between independent and dependent factors [50]. SE mediates the link between "aesthetics" and "loyalty" and "navigability" and "loyalty" [22]. Therefore, this study proposed the following.

H3: SE significantly affects M-banking CL.

H4: SE mediates the effect of the Design Aesthetics on M-banking CL.

H5: SE mediates the effect of navigability on M-banking CL.

Social Influence (SI)

The SI is the degree to which important others can influence the decision of users to use or not to use a new system. The impact of community preferences and values which include family, friends, relatives and experts can have an essential impact on the decision of users [51][52]. Several studies have explored how social influence affect M-banking customers. [53] found that social influence factor analysis predicted behavioural desire to use M-banking. Social influence may affect M-banking customers' loyalty [53]. In addition, [54] found that social influence positively affects how much people exercise and their views and desire to use gaming services. Therefore, the following is hypothesized:

H5: Social impact affects positively gamification.

Rewards (RE)

Rewards can be virtual or monetary for completing a job. According to the literature, rewards fuel motivation, so incentives like cash rewards, points, medals, and successes are often used to motivate customers [55]. When assessing and improving consumer connection with a service, consider how much a customer perceives a certain affordance [55]. When a gamified service offers precise and prompt rewards, customers sense a higher rewards affordance [56]. In a gamified service, short-term prizes encourage user interaction, while aims help consumers focus on the basics of an activity. Rewards positively affect marketing gaming and brand loyalty [57]. The study also found that gamified service users who want rewards have a better buying experience and higher brand loyalty. [58] shows the importance of rewards in e-learning and game-based learning design. Thus, the following is hypothesized:

H6: Rewards affects positively on gamification.

Gamification (GA)

M-banking may benefit from game tactics since they are used elsewhere [1]. M-banking gaming can bring joy, happiness, social ties, success, and a common cause [59][60]. It makes banking more fun, lucrative, and fascinating. Recent studies show that gaming impacts customers' loyalty to e-banking, e-learning, and m-marketing platforms. Gaming increased trust, interest, and drive. Many banking researchers analysed how gaming affected online banking. Example, gamified e-banking suggests that rich elements/features associated with the games could influence other variables and increase client loyalty. [61] found that gamification has a positive effect on e-banking consumers. [62] found that gamification makes banking more fun and can be a mediating variable. Therefore, the following is hypothesized:

H7: Gamification affects positively on M-banking CL.

H8: Gamification mediates the effect of social influence on M-banking CL.

H9: Gamification mediates the effect of rewards on M-banking CL.

3. Research Methodology

Research design help researchers to have a planned approach toward achieving the research's goals and objectives. This study is quantitative in nature. The population of this study is Malaysian citizens that are above the age of 18 and using M-banking. Random sampling was deployed to collect the data for this study. The data collection was conducted using a questionnaire. The questionnaire was adopted from prior literature. For instance, the measurement of loyalty consists of four items and it was adopted from [21] and [63]. SE was measured using five items that were adopted from [64] and [22]. Gamification consists of three items and was adopted from [62] and [65]. Measurement of design aesthetic consists of four items and it was adopted from [66].

Navigability has three items that were adopted from [22]. Social influence has three items and was adopted from [31]. For rewards, four items were adopted from [65] and [67] were used to measure rewards. The questionnaire was validated by three experts and a pilot study was conducted prior to data collection. All the measurements have Cronbach's Alpha greater than 0.70. for the field data collection, the data was collected from 384 respondents. Missing values as well as outliers were removed and this has resulted in 366 valid responses. The data is normally distributed and no multicollinearity issues were observed among the variables.

4. Findings

The data was collected from 366 respondents. The highest percentage of the sample are males (77.3%) and they are undergraduate students (53.6%). The respondents are in the age between 18-30 years (35.8%) and they have been using M-banking for less than five years (71.6%).

Measurement Model

The measurement model was assessed by following the instruction as stated by [50]. The factor
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loading was examined and items DA1 from design aesthetics (DA), and SE3 from self-efficacy (SE) were removed. This has resulted in adequate Cronbach’s Alpha (CA) and composite reliability (CR) with values as shown in Table 1 above 0.70. In addition, the convergent validity was assessed by examining the average variance extracted (AVE). All values of AVE are larger than 0.50. For the discriminant validity, the HTMT’s correlation is less than 0.85. Thus, the condition of discriminant validity is achieved as shown in Table 1.

Table 1: Results of Measurement Model

	CA	CR	AVE	1	2	3	4	5	6	7
CL	0.847	0.856	0.687							
DA	0.769	0.925	0.671	0.396						
GA	0.932	0.933	0.831	0.570	0.551					
NA	0.754	0.751	0.672	0.484	0.654	0.557				
RE	0.929	0.931	0.825	0.301	0.300	0.421	0.345			
SE	0.929	0.932	0.784	0.817	0.427	0.479	0.473	0.390		
SI	0.858	0.885	0.777	0.564	0.484	0.578	0.519	0.251	0.535	

The structural model was assessed by examining the effect size, R-square, and path coefficient. Figure 2 shows the structural model. Values in the circles are the R-square. As shown in Figure 2, the R-square of SE is 0.395 indicating that DA and navigability can explain 39.5% of SE while 22.3% of gamification can be explained by social influence and rewards. Both SE and gamification can explain 52.0% of the variation in CL.

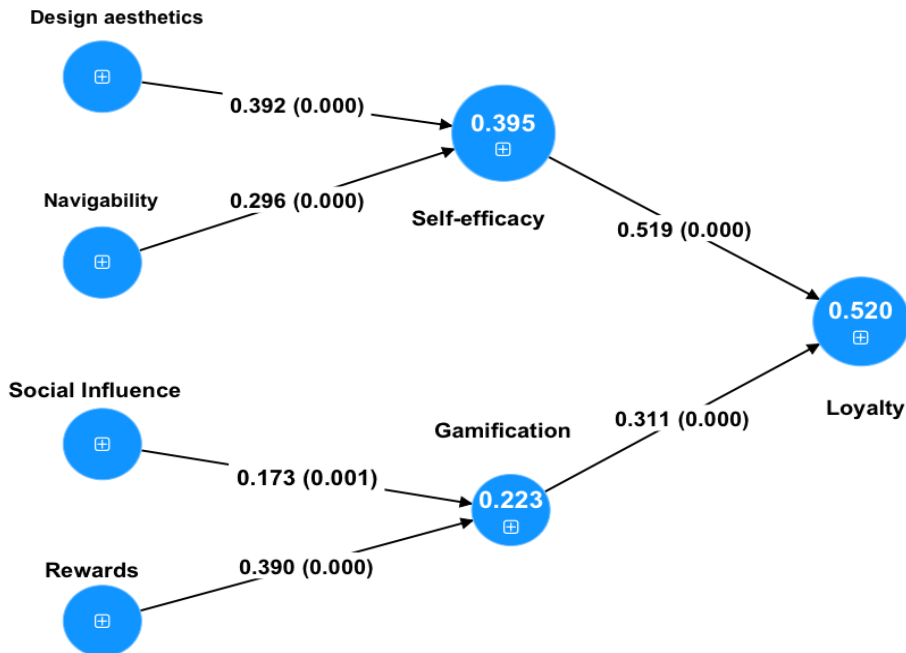


Figure 2: Structural Model

The results of testing the hypotheses of this study are shown in Table 2. It shows also the F-square of the paths. As shown all the paths have acceptable effect sizes. This is because [50] noted that an F-square above 0.02 is considered weak yet acceptable.

Table 2: Results of Testing Hypotheses

Hypothesis	Path	B	Std	T	P	F-square	Conclusion
H1	DA -> SE	0.392	0.057	6.907	0.000	0.241	Supported
H2	NA -> SE	0.296	0.056	5.323	0.000	0.181	Supported
H3	SE -> CL	0.519	0.049	10.596	0.000	0.355	Supported
H4	DA -> SE -> CL	0.203	0.036	5.581	0.000	-	Supported
H5	NA -> SE -> CL	0.154	0.033	4.602	0.000	-	Supported
H6	SI -> GA	0.173	0.053	3.284	0.001	0.162	Supported
H7	RE -> GA	0.390	0.05	7.789	0.000	0.239	Supported
H8	GA -> CL	0.311	0.051	6.047	0.000	0.221	Supported
H9	SI -> GA -> CL	0.054	0.019	2.759	0.006	-	Supported
H10	RE -> GA -> CL	0.122	0.027	4.516	0.000	-	Supported

For the effect of DA on SE, it was found positive ($B=0.392$, $P<0.05$) as shown in Table 2. Similarly, the effect of NA on SE is positive at $B=0.296$ and a P-value less than 0.05. Thus, H1 and H2 are supported. For H3, SE affected positively ($B=0.519$, $P<0.05$) the CL as shown in Table 2. For H4 and H5, SE mediated partially the effect of DA ($DA \rightarrow SE \rightarrow CL$, $B=0.203$, $P<0.05$) and NA ($NA \rightarrow SE \rightarrow CL$, $B=0.154$, $P<0.05$) on CL. This indicates that DA and NA have a positive effect on CL and the SE mediated this effect. H6 and H7 indicated that the effect of SI ($B=0.173$, $P<0.05$) and RE ($B=0.390$, $P<0.05$) on GA is positive at a p-value less than 0.05 as shown in Table 2. Thus, H6 and H7 are supported. For H8, the effect of GA on CL is positive and significant ($B=0.311$, $P<0.05$). Further, GA mediated the effect of SI ($SI \rightarrow GA \rightarrow CL$, $B=0.054$, $P<0.05$) and RE on CL indicating that the direct effect of SI and RE on CL is positive and significant and it is also significant via the GA as a mediator. Thus, H9 and H10 are supported.

5. Discussion

This study was conducted to examine the factors that lead to CL to M-banking in Malaysia. The findings showed that M-banking CL is affected by navigability, design aesthetic, SE, gamification, rewards, and social influence. The findings also showed that gamification and SE are important mediators. These findings assured that DA and navigability are critical for SE to use the M-banking. Further, social influence and rewards are critical for gamification. This finding indicates that when the level of ease in navigating through the application as well as the comfort of the design is high, the SE of customers to use M-banking will increase which in turn will lead to more CL. The findings in terms of the effect of DA and navigability on SE are in line with the findings of prior literature [22], [41], [42]. Similarly, the positive effect of SE on CL is in line with previous studies [48].

The findings also showed that the level of social influence which includes friends, family members, and experts as well as the level of rewards of the M-banking application can lead to more enjoyment while using the M-banking application. This feel of the gamified system is critical for CL to use the M-banking. Finding in term of social influence and rewards are in line with the findings of prior literature [51] [52] [57]. SE and gamification as mediators were confirmed in this study and this indicated that an important part of the relationship between DA and navigability with CL can be explained by SE. The findings of this study agreed with the findings of previous studies. Previous studies found that SE is a mediating variable as well

as gamification [62].

6. Implication

This study has contributed to the literature by examining the determinants of CL in the context of M-banking. The study contributed to the literature by examining this topic in emerging economies. A contribution of the study has been achieved by examining the predictor of SE as well as its mediating role between DA and navigability, and CL. In addition, the study contributed to the literature by examining the role of social influence and reward in predicting gamification and the mediating role of gamification between social influence and reward. Further, the study contributed to the literature by explaining CL and analysing the model using Smart PLS 4.

Navigability is critical for enhancing SE. The easiness of navigating through the app is important for enhancing the SE of customers. In addition, the design of the application is important. Having an attractive design can enhance the perception of SE of the users. The perception of others regarding the m-banking application and its playfulness is important for enhancing gamification. Decision-makers can increase gamification. Rewarding the users while using the application by providing incentives, points, and badges can enhance gamification. Both gamification and SE are critical for CL. Having gamified applications and ease to be use can enhance the loyalty to m-banking applications by customers.

7. Conclusion

This study was conducted to examine the determinants of CL to M-banking in Malaysia. The study collected questionnaires from respondents in Malaysia. The findings showed that DA and navigability affected SE which in turn affected CL to m-banking. Social influence and rewards affected gamification which also affected CL. Both SE and gamification act as mediators. The study is limited to respondents in Malaysia. The respondents are users of m-banking. The study is limited to banking applications. It is also limited to the characteristics of m-banking such as DA and navigability. It is also limited to social influence and rewards. As a direction for future work, future studies are recommended to examine the additional variables such as the variables of UTAUT and TAM in the context of CL. Service quality of the m-banking and customer satisfaction. In addition, IT knowledge is an important variable to be examined as a moderator. SE was examined as a mediator, future studies can examine this variable as a moderator. The study was conducted in Malaysia, future studies are suggested to examine CL in other emerging countries. More studies are needed to examine CL and the gamified system in m-banking applications.

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