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Factors Affecting Acceptance of Mobile Banking in Developing Countries

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Abstract
This study aimed to investigate factors influencing the acceptance of mobile banking in Libya. To assist in identifying these factors, a detailed research was carried out to identify the current problems faced by the Libyan banks customers, the acceptance of mobile banking in different countries around the world, the importance of adopting this technology to both parties: banks and customers in Libya. The sample elements consisted of 319 existing customers within the banking in Tripoli. They were selected at random depending on their willingness to participate in the research study. A survey was developed to obtain responses from various segments of the society. The findings showed that factors facilitating conditions, perceived self-Efficacy, Perceived ease of use, and perceived usefulness, and have significant impacts on consumer’s behavioral intentions for the acceptance and usage of mobile banking technology in Libya.

Keywords: Mobile Banking

Introduction
As developments of technologies, both financial institutions and consumers are occupying advantages of the efficiencies which they bring. On the one hand, the cost of financial transactions have become lower when using an electronic device than at a banks branches (Garcia-Alba et al., n.d.), and the modern technologies provide for consumers the convenience to obtain a financial service wherever they may find themselves where mobile communication exists (The World Bank, 2009). If consumers value this mobility, it is possible that consumers, who have presently used electronic transactions via PCs, may accept adaptation transactions via mobile devices. After all, consumers prefer (evidence suggest) to obtain their services from various channels rather than a single one (Howcroft et al., 2002).

Although the wide adaptation of mobile devices in numerous countries around the globe, (already 70 percent in Korea, 95 percent in Finland, more than 40 million subscribers in India, and
more than 300 million in China, Gillespie (2007) it is estimated that only half of the current internet banking users would begin to use the mobile service by 2010.

This research examines to analysis the factors which can influence adaptation of mobile banking among current users of internet banking in Libya. This paper is structured as follows: First, the introduction. Second, theoretical framework and proposed model. The third and fourth sections explain the methodology and data analysis. Finally, discussion, conclusion and future research.

**Theoretical Framework and Proposed Model**

**Perceived self-Efficacy (SE)**
Compeau and Higgins (1995) conducted a study stated that self-efficacy refers to belief of user on his/her ability in executing specific tasks. Thus, self-efficacy in accordance with the mobile internet banking concept, is considered as user’s critical analysis in the mobile internet banking usage. Additionally, the perceived self-efficacy and behavioural intentions were empirically verified by the underlying relationship between these two aspects (Amin et al., 2007; Yi & Hwang, 2003). These underlying relationships describe the direct link between the specific aspects involved in the consideration process where the performance of a particular aspect affects the performance of others.

Meanwhile, in the integration of Information technology with banking experiences, the perceived self-efficacy is regarding the improvement of quality, such improvements will increase the users’ behavioural intention to utilize the implemented system. On the other hand, if the perceived self-efficacy is not attained the demanded standard, particularly in the system’s features or by the providers that offered the services, the behavioural intention will eventually be massively decreased. Therefore, the deliberation of the underlying relationship between these aspects should be related to the implementation technology. Such relation was offered by the study of Luarn and Lin (2005) which shows the self-efficacy positive effects with the behavioural intention to use Information System. Moreover, Hernandez et al. (2009) also corroborated a research to identify the immediate positive impacts of self-efficacy on the PEOU and PU for services of the mobile banking. The study presumed that individuals will accept mobile internet banking services on the basis of their abilities to use it. In this regard, the following hypotheses are devised in this research in relations to mobile internet banking context:

Hypothesis 1: The Perceived self-efficacy has a significant impact on the Perceived Usefulness of mobile internet banking.

Hypothesis 2: The Perceived self-efficacy has a significant impact on the Perceived Ease of Use of mobile internet banking.

**Facilitating Conditions (FC)**
Facilitating conditions can be defined as the amount of support needed to access some information and gain some benefits from the offered services, hence, users are expected to possess the expertise, information, knowledge, and the capital to accept the implications of the technology. In this regard, compared to internet banking, mobile internet banking is still a
relatively novel concept; therefore, users need to possess some fundamental knowledge about mobile applications and mobile services in order to use offered services, particularly concerning how to access information by using the functions of the mobile across its platforms. Furthermore, mobile internet banking elucidate that the users should handle the cost pertaining the use of technology and this boosts the cost of information and communication technology (ICT). This feature distinguishes the adaption of mobile internet banking from other modes of technology adaptation. Consequently, this may hinder the successful implementation of the mobile internet banking technology; this is because, if mobile internet banking services incur a high cost on users, users will ultimately favour the traditional ways for doing their banking transactions regardless of mobile internet baking advantages. In the meantime, the study by Triandis’s (1980) mentioned that facilitating conditions involve the inclusion of service types.

Furthermore, this aspect is also concerned with the extents of it influences on individuals and how it affects the use of the prospective technology, besides that, the workplace context in the implementation of technology requires the access to support and provision training based on the facilitating conditions. In relation with this, numerous studies in this research area have adopted the technology acceptance model that empirically outcome on the prospective effects on the users due to the Perceived Usefulness or Perceived Ease of Use (Amoako-Gyampah & Salam, 2004; Jiang et al., 2000; Thompson et al., 1994). Call to mind, the scope of past researches, the aspect of facilitating conditions is considered as functional combination of the degree of acceptance of the considerable innovations in information system (Jones et al., 2002; Lu et al., 2004). This aspect is warranted by researchers conducted by Hung et al. (2003) as well as Lu et al. (2004) which studied the level of acceptance of the integration of the services of Wireless Application Protocol (WAP) in Taiwan. WAP refers to the technical standards used to access information over mobile network. Consequently, the integration of WAP services has improved mobile networking environment particularly the interactions between data services. In this study, the facilitating conditions are reflected as important aspects in identifying the acceptance behaviour of individuals towards the services of wireless application protocol. Based on these findings, these hypotheses have been proposed as follows,

Hypothesis 3: Facilitating Conditions have a significant impact on the Perceived Usefulness of mobile internet banking.

Hypothesis 4: Facilitating Conditions have a significant impact on the Perceived Ease of Use of mobile internet banking.

**Perceived Usefulness and Perceived Ease of Use**

The Perceived Usefulness refers to the degree of user’s dependence or an individual’s dependence to the system offered, particularly on the improvement of the performance in the specific part. The Perceived Ease of Use is related to the belief of the user or individual in the system presented with regard to the anticipated abolition of physical stresses and mental stresses in the specific aspect. Consequently, technology acceptance model requires user’s belief to decide which way or approach to take in relation to the system implemented. In return, this belief can assist the development of the purpose for the consumer to use the service or product.
Besides that, in general, Ajzen (1991) turned out that technology acceptance model is a process of adapting the Theory of Reasoned Action (TRA). This theory (TRA) was developed as an overall model in comparing to the certain nature of TAM. Thus, this study was conducted based on two main reasons pertaining to the implications of TAM: first, the predictive power of TAM which easy the application of the model in the broad nature of information system devices (Luarn & Lin, 2005; Nysveen et al., 2005; Pikkarainen et al., 2004). Moreover, TAM can facilitate the understanding of main constructs of this present study, which are the Perceived Usefulness, the Perceived Ease of Use, the attitudes towards the use and the behavioural intentions of use (BI).

In the meantime, many researchers have acknowledged that PU and PEOU constructs need to be valid in order to comprehend the user's objectives in regard the acceptance of the use of Information System in banking sector (El-Gohary, 2012; Abbas & Hamdy, 2015).

Conversely, the validity of the constructs is made up by user’s dependence on the specificity of technological implication; for instance, there are certain constructs in Mobile technology that can help better reflection on the adaptation of emerging technologies (Amin, 2007). In relation to this, Examining TAM implication concerning mobile internet banking needs has required to formulate the hypotheses as follow;

Hypothesis 5: The Perceived Usefulness of mobile internet banking has a significant impact on the behavioural intentions for utilizing mobile internet banking.

Hypothesis 6: The Perceived Ease of Use of mobile internet banking has a significant impact on the behavioural intentions for utilizing mobile internet banking.

**Behavioural Intention**

Behavioural intention may be explained as the intended use of a system before its real use and its predictions for the future (Jiang, 2000). Many models have been developed for analysing and predicting the users’ intentions mobile applications. For examples (Abbas & Hamdy, 2015) they have determinants of continuance intention factor in Kuwait communication market. Amin (2007) also studied the analysis of mobile credit card usage intentions. Luarn & Lin (2005) studied the understanding of the behavioural intention to use mobile banking. Based on TAM theory, perceived use of ease and perceived usefulness effect positively on the behavioural intention of the users (Abbas & Hamdy, 2015).
Methodology
Quantitative approach will be used in this study to achieve the study objectives. The researcher will collect the data using questionnaire from the customers of Libyan banking in Tripoli. The aim of this study is to investigate the factors that effecting the adaptation of mobile banking in Libya by customers. In order to achieve the aim, the researcher will use the multiple linear regression analysis to identify the relationship between the external and internal factors. Statistical Package for Social Scientists (SPSS) 21 will be used to conduct the analysis.

The population represents the total number of Libyan bank’s customers in Tripoli, which is estimated at 100,000 customers. A sample size of 382 existing customers was selected out of a population of 100,000. The sample elements consisted of 382 existing customers within the banking in Tripoli. They were selected at random depending on their willingness to participate in the research study. Only 319 questionnaires were received and entered to the analysis.

Scales Reliability and Validity
It is shown in Table 1 that the Cronbach’s alpha values ranged between 0.71 to 0.76, where 0.76 was the top of the field of “Perceived ease of use”, while 0.71 was lowest for the field of “Self-efficiency, Behavioral intention", and the value of Cronbach’s alpha (0.86) is the highest value and acceptable for the application. Table 1: Result of the Internal Consistent of Tested is tested by Using Cronbach’s Alpha

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Cronbach's Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavioral intention</td>
<td>0.71</td>
</tr>
<tr>
<td>Perceived ease of use</td>
<td>0.76</td>
</tr>
<tr>
<td>Perceived usefulness</td>
<td>0.73</td>
</tr>
<tr>
<td>Self-efficiency</td>
<td>0.71</td>
</tr>
<tr>
<td>Facilitating conditions</td>
<td>0.72</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>0.86</strong></td>
</tr>
</tbody>
</table>
The Sample of the Study
A collection of 319 users was consisted for the study, and they were randomly selected from the population of the study.

Gender
As shown in Table 2, the male gender percentage has reached to 41.4%, unlike the female gender that has reached to 58.6%.

<table>
<thead>
<tr>
<th>Gender</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>132</td>
<td>41.4 %</td>
</tr>
<tr>
<td>Female</td>
<td>187</td>
<td>58.6 %</td>
</tr>
<tr>
<td>Total</td>
<td>319</td>
<td>100.0 %</td>
</tr>
</tbody>
</table>

Table 3 shows that the “Age” of category 31-40 years has reached to (43.3%), while the 15-20 years’ category has reached to lowest percentage (6.6%), as shown in table 3.

<table>
<thead>
<tr>
<th>Age</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-20</td>
<td>21</td>
<td>6.6 %</td>
</tr>
<tr>
<td>21-30</td>
<td>125</td>
<td>39.2 %</td>
</tr>
<tr>
<td>31-40</td>
<td>138</td>
<td>43.3 %</td>
</tr>
<tr>
<td>Above 40</td>
<td>35</td>
<td>11.0 %</td>
</tr>
<tr>
<td>Total</td>
<td>319</td>
<td>100.0 %</td>
</tr>
</tbody>
</table>

Table 4 shows the percentage for “use the mobile banking” highest reached (84.6%) for Already using mobile banking, but the lowest percentage reached (15.4%) for Not yet using it. table 4 shows that.

<table>
<thead>
<tr>
<th>Do you use the mobile banking</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Already Using Mobile Banking</td>
<td>270</td>
<td>84.6 %</td>
</tr>
<tr>
<td>Not Yet Using It</td>
<td>49</td>
<td>15.4 %</td>
</tr>
<tr>
<td>Total</td>
<td>319</td>
<td>100.0 %</td>
</tr>
</tbody>
</table>
Hypotheses Testing

Hypothesis 1: Perceived self-efficacy has a significant impact on the Perceived Usefulness of mobile internet banking. To test the validity of the hypothesis was applied simple regression analysis, Table 5 shows that.

Table : The results of simple regression analysis for the Hypothesis 1

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.461 a</td>
<td>.213</td>
<td>85.731</td>
<td>.000</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Perceived usefulness

The table 5 shows the values of (R) and (R square) are statistically significant, which indicates Perceived self-efficacy has a significant impact on the Perceived Usefulness of mobile internet banking, which indicates acceptance of the hypothesis.

Hypothesis 2: Perceived self-efficacy has a significant impact on the Perceived Ease of Use of mobile internet banking. To test the validity of the hypothesis was applied simple regression analysis, Table 6 shows that.

Table : The results of simple regression analysis for the Hypothesis 2

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.386 a</td>
<td>.149</td>
<td>55.557</td>
<td>.000</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Perceived ease of use

The table 6 shows the values of (R) and (R square) are statistically significant, which indicates Perceived self-efficacy has a significant impact on the Perceived Ease of Use of mobile internet banking, which indicates acceptance of the hypothesis.

Hypothesis 3: Facilitating Conditions have a significant impact on the Perceived Usefulness of mobile internet banking. To test the validity of the hypothesis was applied simple regression analysis, Table 7 shows that.

Table 7: The results of simple regression analysis for the Hypothesis 3

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.412 a</td>
<td>.170</td>
<td>64.848</td>
<td>.000</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Perceived usefulness
The table 7 shows the values of (R) and (R square) are statistically significant, which indicates Facilitating Conditions have a significant impact on the Perceived Usefulness of mobile internet banking, which indicates acceptance of the hypothesis.

Hypothesis 4: Facilitating Conditions have a significant impact on the Perceived Ease of Use of mobile internet banking. To test the validity of the hypothesis was applied simple regression analysis, Table 8 shows that.

Table 4.2: The results of simple regression analysis for the Hypothesis 4

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.365</td>
<td>.133</td>
<td>48.669</td>
<td>.000</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Perceived ease of use

The table 8 shows the values of (R) and (R square) are statistically significant, which indicates Facilitating Conditions have a significant impact on the Perceived Ease of Use of mobile internet banking, which indicates acceptance of the hypothesis.

Hypothesis 5: The Perceived Usefulness of mobile internet banking has a significant impact on the behavioural intentions for utilizing mobile internet banking. To test the validity of the hypothesis was applied simple regression analysis, Table 9 shows that.

Table 9: The results of simple regression analysis for the Hypothesis 5

<table>
<thead>
<tr>
<th>R</th>
<th>R Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>.256</td>
<td>.066</td>
<td>22.295</td>
<td>.000</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Perceived usefulness

The table 9 shows the values of (R) and (R square) are statistically significant, which indicates the Perceived Usefulness of mobile internet banking has significant impacts on the behavioural intentions for utilizing mobile internet banking, which indicates acceptance of the hypothesis.

Hypothesis 6: The Perceived Ease of Use of mobile internet banking has a significant impact on the behavioural intentions for utilizing mobile internet banking. To test the validity of the hypothesis was applied simple regression analysis, Table 10 shows that.

Table 10: The results of simple regression analysis for the Hypothesis 6

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.756</td>
<td>.571</td>
<td>422.068</td>
<td>.000</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Perceived Ease of Use
The table 10 shows the values of (R) and (R square) are statistically significant, which indicates The Perceived Ease of Use of mobile internet banking has significant impacts on the behavioural intentions for utilizing mobile internet banking, which indicates acceptance of the hypothesis.

**Discussion, Conclusion and Future Research**

The main aim of this study is to identify and examine the factors that effacing the adoption of mobile banking from customer perspective. The findings indicted that self-efficiency and facilitating conditions effect positively on ease of use and usefulness. Therefore, H1, H2, H3, H4 were supported. In addition, the findings indicated that there is a significant impact of perceived ease of use and perceived usefulness on costumer’s behavioral intentions. Therefore, H5 and H6 were supported. The findings of this study were supported by previous work such as (Amoako-Gyampah & Salam, 2004; Jiang et al., 2000; Thompson et al., 1994).

The findings of this study may help the banks especially Libyan banks to consider the adoption and implementation of mobile banking services. The adoption of mobile banking will help the banks to provide high service quality to the customers, thus, the loyalty and satisfaction of customers will be also high.

Future research could be conduct the proposed model in other countries, especially developing countries. In addition, future research could be study the adoption and acceptance of mobile banking from the banks perspective.

**References**


