The Effect of Performance Expectancy, Effort Expectancy, Social Influence and Facilitating Conditions on Acceptance of E-Banking Services in Iran: the Moderating Role of Age and Gender

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Abstract: Today people increasingly need banking services. People expect more and faster services with higher quality; so attracting new customers and retaining current ones requires an efficient and effective management at all aspects of banks with emphasis on marketing management. Thus, the purpose of this paper is to investigate the effects of performance expectancy, effort expectancy, social influence and facilitating conditions on acceptance of e-banking services in Iran by considering the role of age and gender. Totally, 350 questionnaires were distributed to customers of Bank Melli, that 310 questionnaires were used for the final analysis, which the results from analysis of them based on simple linear regression show that all four variables i.e. performance expectancy, effort expectancy, social influence and facilitating conditions had a positive and significant effect on users' behavior and intention to use e-banking services and variables of age and gender moderated the relationships between these variables. Therefore in order to achieve effective acceptance of e-banking services, extensive, attractive and insightful activities should be done to raise users' awareness of these advantages and e-banking services should be designed in a way that users face no problems while using them. Also with respect to positive and significant effect of facilitating conditions on using e-banking services, it is recommended that infrastructure e.g. computers and high-speed and affordable internet required in this field is provided to all social classes.

Key words: Acceptance of E-Banking Services • Effort Expectancy • Facilitating Conditions • Performance Expectancy • Social Influence

INTRODUCTION

Electronic commerce consists of every type of business and/or economic activity being conducted through electronic communications. Business means all activities which lead to value creation in relationship with customers and suppliers [1]. Emergence of information technology (IT) has influenced many industries e.g. banking one. Electronic services are provided to customers via electronic channels such as ATMs, telephones, PCs, internet and recently mobile phones. Today IT provides many services online and many customers have access to online services [2]. Internet banking also means to provide banking services through internet and facilities of this network [3]. Internet offers many advantages both for banks and its customers. Using this technology, customers not only can perform their banking jobs in any time and place, but also it has the advantage of cost reduction and increased productivity for banks [3]. Despite of this, not all organizations and institutions are equally successful in employing electronic commerce. Thus it is necessary to conduct required studies so that we can create a favorable policy in relation to implementation and employment of electronic commerce and identify factors which facilitate its growth [4].

Iran, similar to my other countries has witnessed a fast growth of ICT during recent years which in turn has resulted in fundamental transformations in banking system of this country. Providing such services as telephone bank, satellite current accounts, debit cards and sales terminal systems to customers are considered as some results of these transformations. But in this context, one of the main concerns of technology management
particularly in e-banking field is acceptance of it by target groups. If technology is not used, it cannot be effective despite all of its technical merits and capabilities, thus the issue of acceptance of technology by people has drawn significant attention [5]. Understanding the reason for acceptance or non-acceptance of new technologies by people is one of the greatest challenges [6]. Thus it seems that decision makers from financial organization initially require understanding factors encouraging users to exploit e-services instead of referring to traditional methods in a correct way. According to the above-said, present study aims to identify factors influencing acceptance of e-banking service by customers and for this purpose UTAUT was used as the newest and most comprehensive model proposed in this field to answer the question that why some users do not exploit e-banking services despite availability of them.

**Literature Review:** TRA, TPB, TAM and IDT address the way technologies are accepted by users. Ajzen and Fishbein [7] developed TRA which argued that intention determined behavior and attitude influenced this intention and in turn behavior. Based on TPB proposed by Ajzen [8], acceptance of a technology or system is influenced by behavioral, normative and control beliefs. The first leads to an attitude towards a certain behavior. Second one creates a perception on the social obligation to show that certain behavior and third one is associated with the control perceived over that behavior. Together these three beliefs lead to emergence of a certain behavior. TAM derived from TRA intends to clarify behavior of computer utilization [9] and has frequently been used by scholars in the field of user acceptance. Some example works are those of Chen et al. [10], Gefen et al. [11] and Moon and Kim [12]. According to TAM, perceived usefulness and perceived ease of use determine acceptance of a system by a user. Using IDT, Rogers [13] argued that acceptance of a technology by users is influenced by such characteristics as complexity, relative advantage, compatibility, trialability and observability related to that technology. Also some measures were developed to evaluate these characteristics [14].

UTAUT is a comprehensive model proposed by Venkatesh et al. [15] in relation to user acceptance. It was produced by combining eight models. Also Sang et al. [16] developed a model combining TAM, extended TAM, IDT and trust. Their model explained acceptance and using of e-government in Cambodia. Quality of service and web site design was not regarded by them as significant factors. DeLone and McLean [17] studied the way of addressing e-commerce by IS using an up-to-date model built upon their previous model by adding service quality to dimensions of information quality and system quality already existed in their model [17]. They recommended that success of IS to address users demands can be evaluated by two measures of intention to use and usage behavior. Their model was used by Wang and Liao [18] in evaluation of a G2C system. UTAUT was adopted by Yeow and Benjamin [19] in their study on behavioral intention to use e-banking services in Malacca and Kuala Lumpur using intercepts and snowball method. Included in their study also were performance expectancy, effort expectancy, social influence and facilitating conditions from UTAUT model and anxiety, attitude towards using e-banking services, perceived credibility and self-efficacy. They found a high level of behavioral intention in their subjects and also concluded that performance expectancy and attitude towards using e-banking services influenced intention of using e-banking services.

**Performance Expectancy:** Performance expectancy is the degree to which an individual believes that using the system will help him or her to attain gains in job performance. According to the fact that this model is a combination of previous ones, five factors from previous models helped in formation of performance expectancy variable consisting of perceived usefulness (technology acceptance model), external motivation (motivational model), job fit (PC utilization model), relative advantages (innovation diffusion theory) and outcome expectations (social cognition theory) [6, 15, 20].

**Effort Expectancy:** Effort expectancy is the extent of convenience perceived for using system. Similar constructs in other models and theories from semantic viewpoints are: perceived ease of use (technology acceptance model), complexity (PC utilization model and innovation diffusion theory) [6, 15, 20].

**Social Influence:** Venkatesh et al. [15] stated that by social influence, they meant the degree to which an individual perceives that other ones are important to him/her in using new system. Constructs of subjective norms (rational action theory, planned behavior theory, decomposed planned behavior theory and technology acceptance model 2), social factors (PC utilization model) and image (innovation diffusion theory) were influential in formation of this variable.
**Facilitating Conditions:** Variable of facilitating conditions refers to the extent to which an individual perceives that technical and organizational infrastructure required to use intended system are available. This definition covers constructs of perceived behavioral control (planned behavior theory and decomposed planned behavior theory), facilitating conditions (PC utilization model) and adaptability (innovation diffusion theory) [6, 15, 20].

**Ge and Gender:** Also Venkatesh et al. [15] argued that variables of age, gender, experience and free choice moderated the relationship between independent and dependent variables.

**Research Hypothesis:** Though UTAUT is nearly new among theories proposed in the field of technology acceptance but validity and reliability of this model has been demonstrated for studies on technology acceptance in various contexts [15, 21, 22, 23]. Also as argued by Gupta et al. [24], UTAUT is a valid model to understand acceptance and successful usage of ICT in developing countries [24]. Above reasons motivated researchers to use UTAUT as the theoretical model of present study. Of course, with respect to the fact that using e-banking services is completely optional and also present study was a cross-sectional one, moderating variables of free choice and experience were not considered in present research. Figure 1 shows the conceptual model of present study. Research hypotheses formulated within the above-mentioned conceptual model framework are as follows:

**H1:** The performance expectancy has a significant effect on users' behavioral intention.

**H2:** The effort expectancy has a significant effect on users' behavioral intention.

**H3:** The social influence has a significant effect on users' behavioral intention.

**H4:** The facilitating conditions have a significant effect on users' behavior.

**H5:** The users' behavioral intention has a significant effect on users' behavior.

**H6:** Age and gender will moderate the relationship between performance expectancy and users' behavioral intention.

**H7:** Age and gender will moderate the relationship between effort expectancy and users' behavioral intention.

**H8:** Age and gender will moderate the relationship between social influence and users' behavioral intention.

**H9:** Age and gender will moderate the relationship between facilitating conditions and users' behavior.

Therefore, based on the hypothesis, Figure 1 is a conceptual model to this study.

**MATERIALS AND METHODS**

**Data Collection and Analysis**

**Questionnaire Design:** In present research, questionnaire was used to collect data. Based on this, a standard questionnaire developed by Al-Awadhi and Morris [25] was used to evaluate constructs of performance expectancy, effort expectancy, social influence, facilitating conditions and behavioral intention and Moon and Kim [12]'s questionnaire was used to estimated variable of behavior. Research questionnaire consisted of 2 sections i.e. demographic questions and main question totally including 37 items in such a way that four items were
related to section 1 and 33 items were related to section 2 and main questions were responded using 5-point Likert scale (from completely disagree to completely agree). Content validity was used to determine validity of questionnaire. Primary draft of questionnaire was prepared by reviewing literature and was assessed by experts. As a result of the latter process some modifications were recommended and after applying them, final questionnaire was prepared. Reliability of questionnaire was calculated using SPSS software and Cronbach’s \(\alpha\) was obtained as 93.2%.

**Research Sample:** In present research, information was collected in October 2012 and statistical population of present research consisted of all customers of Bank Melli at Tehran city. According to Krejcie and Morgan’s [26] table, Sample size would be 300, but considering the probable cases in which questionnaire are filled out wrongly or not returned, 350 questionnaires were distributed among them 310 ones were used.

**Data Analysis:** In order to test 5 research hypotheses, considering to significance values and t-value in original regression analysis table, it is judged that if sig. value is less than research error coefficient value, i.e. 0.05 and also t-value is more than 1.96 or less than -1.96, then the related hypothesis will be supported with a CI confidence intervals of 95%.

Also in order to identify moderating role of emotional intelligence in hypotheses 6 to 9, research hypotheses will be judged employing hierarchical multiple regression in 2 blocks. For each phase, \(R^2\) is calculated and variance extension (\(\Delta R^2\)) is estimated using \(R^2\) from previous phase. In each R phase, \(\Delta R\) represent the influence of the variable being introduced to the analysis in the same phase. In each phase, \(R^2\) will be significant if introducing of variables in each phase leads to increase in \(R^2\) and decrease in standard error which in that case moderating role of the newly introduced variable i.e. emotional intelligence is demonstrated.

**Table 1: Results of original regression analysis table**

<table>
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<tr>
<th>Hypothesis</th>
<th>Independent Variable</th>
<th>Dependent Variable</th>
<th>B</th>
<th>Std. Error</th>
<th>Beta</th>
<th>t</th>
<th>Sig.</th>
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<td>Users' Behavior</td>
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<td>.184</td>
<td>17.148</td>
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<td>Users' Behavior</td>
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**Table 2: Results of hierarchical multiple regression analysis**

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</table>
RESULTS AND DISCUSSIONS

Hypothesis Testing

Hypothesis 1: Findings of original regression analysis table (t-value = 7.208; sig = 0.000) in relation to hypothesis 1 show that performance expectancy has a significant effect on users' behavioral intention; Thus hypothesis 1 is supported.

Hypothesis 2: Findings of original regression analysis table (t-value = 6.202; sig = 0.000) in relation to hypothesis 2 show that effort expectancy has a significant effect on users' behavioral intention; Thus hypothesis 2 is supported.

Hypothesis 3: Findings of original regression analysis table (t-value = 5.724; sig = 0.000) in relation to hypothesis 3 show that social influence has a significant effect on users' behavioral intention; Thus hypothesis 3 is supported.

Hypothesis 4: Findings of original regression analysis table (t-value = 2.481; sig = 0.014) in relation to hypothesis 4 show that facilitating conditions have a significant effect on users' behavior; Thus hypothesis 4 is supported.

Hypothesis 5: Findings of original regression analysis table (t-value = 7.625; sig = 0.000) in relation to hypothesis 5 show that users' behavioral intention has a significant effect on users' behavior; Thus hypothesis 5 is supported.

Hypothesis 6: A) According to results from hierarchical regression, R² for first phase in which performance expectancy was introduced in equation equaled 0.229 and then by introducing age in second phase R² value for these two variables equaled 0.442 and ΔR² for age variable was 0.213. According to increase in from 0.229 to 0.442 and also decrease in standard error of estimation from 0.502 to 0.429 it can be concluded that age variable can play a moderating role between 2 variables of performance expectancy and users' behavioral intention, thus this hypothesis is supported.

B) According to results from hierarchical regression, R² for first phase in which effort expectancy was introduced in equation equaled 0.229 and then by introducing age in second phase R² value for these two variables equaled 0.449 and ΔR² for age variable was 0.268. According to increase in from 0.229 to 0.449 and also decrease in standard error of estimation from 0.518 to 0.426 it can be concluded that age variable can play a moderating role between 2 variables of effort expectancy and users' behavioral intention, thus this hypothesis is supported.

Hypothesis 7: A) According to results from hierarchical regression, R² for first phase in which effort expectancy was introduced in equation equaled 0.180 and then by introducing age in second phase R² value for these two variables equaled 0.449 and ΔR² for age variable was 0.268. According to increase in from 0.180 to 0.449 and also decrease in standard error of estimation from 0.518 to 0.426 it can be concluded that age variable can play a moderating role between 2 variables of effort expectancy and users' behavioral intention, thus this hypothesis is supported.

B) According to results from hierarchical regression, R² for first phase in which effort expectancy was introduced in equation equaled 0.180 and then by introducing age in second phase R² value for these two variables equaled 0.449 and ΔR² for age variable was 0.268. According to increase in from 0.180 to 0.449 and also decrease in standard error of estimation from 0.518 to 0.426 it can be concluded that age variable can play a moderating role between 2 variables of effort expectancy and users' behavioral intention, thus this hypothesis is supported.

Hypothesis 8: A) According to results from hierarchical regression, R² for first phase in which social influence was introduced in equation equaled 0.158 and then by introducing gender in second phase R² value for these two variables equaled 0.704 and ΔR² for gender variable was 0.523. According to increase in from 0.158 to 0.704 and also decrease in standard error of estimation from 0.518 to 0.315 it can be concluded that gender variable can play a moderating role between 2 variables of social influence and users' behavioral intention, thus this hypothesis is supported.

B) According to results from hierarchical regression, R² for first phase in which social influence was introduced in equation equaled 0.158 and then by introducing gender in second phase R² value for these two variables equaled 0.704 and ΔR² for gender variable was 0.523. According to increase in from 0.158 to 0.704 and also decrease in standard error of estimation from 0.518 to 0.315 it can be concluded that gender variable can play a moderating role between 2 variables of social influence and users' behavioral intention, thus this hypothesis is supported.
Hypothesis 9: A) According to results from hierarchical regression, $R^2$ for first phase in which facilitating conditions was introduced in equation equaled 0.034 and then by introducing age in second phase $R^2$ value for these two variables equaled 0.065 and $\Delta R^2$ for age variable was 0.031. According to increase in from 0.034 to 0.065 and also decrease in standard error of estimation from 0.894 to 0.882 it can be concluded that age variable can play a moderating role between 2 variables of facilitating conditions and users' behavior, thus this hypothesis is supported.

B) According to results from hierarchical regression, $R^2$ for first phase in which facilitating conditions was introduced in equation equaled 0.034 and then by introducing gender in second phase $R^2$ value for these two variables equaled 0.304 and $\Delta R^2$ for gender variable was 0.270. According to increase in from 0.034 to 0.304 and also decrease in standard error of estimation from 0.894 to 0.761 it can be concluded that gender variable can play a moderating role between 2 variables of facilitating conditions and users' behavior, thus this hypothesis is supported.

DISCUSSION AND CONCLUSION

Purpose for conducting applied research is to find solutions to improve practice; according to this purpose, present research adopted UTAUT model to identify factors influencing acceptance of e-banking services and in this respect variables of performance expectancy, effort expectancy, social influence and facilitating conditions were identified as factors influencing intent and behavior of users of e-banking services. Also moderating role of age and gender was confirmed.

Results obtained from data analysis for H1 suggested the significant and positive effect of performance expectancy on users' behavioral intention to use e-banking services; thus if users feel that using e-banking services improves their performance, they are more motivated to use these services. This result is consistent with that of Davis et al. [9] (technology acceptance model), Venkatesh and Davis [20] (TAM II), Venkatesh et al. [15] (UTAUT), Gupta et al. [24], Chang et al. [5] and finally Al-Awadhi and Morris [25]. Among other factors influencing acceptance of e-banking services, effort expectancy can be mentioned which had a positive and significant effect on users' behavioral intention. Thus if users feel comfortable using e-banking services, they will be willing to use these services. This result is consistent with that of Davis et al. [6], Venkatesh et al. [15] (UTAUT), Gupta et al. [24], Chang et al. [5], Al-Awadhi and Morris [25] and Al-Shafi and Weerakkody [27].

Third, results suggested significant and positive effect of social influence on users' behavioral intention to use e-banking services; this result is contrary to that of Carlsson et al. [28]. Also results obtained from data analysis for H4 suggested significant and positive effect of facilitating conditions on users' behavior in relation to use e-banking services. Thus it seems necessary to provide required resources, information and also continuous support to encourage users to employ services consistent with their life styles. It seems that this result confirms that of Ajzen [8], Thompson et al. [29], Taylor and Todd [30], Venkatesh et al. [15], Gupta et al. [24], Chang et al. [5], Al-Awadhi and Morris [25] and Al-Shafi and Weerakkody [25].

Finally moderating roles of age and gender were observed for the relationships between performance expectancy, effort expectancy and social influence and users' behavioral intention. This result is consistent with that of Venkatesh et al. [15] and contrary to that of Gupta et al. [24]. On the other hand it suggests that age and gender can also moderate the effect of facilitating conditions on users' behavior associated with adoption of e-banking services.

REFERENCES


