New Marketing Research Journal
Special Issue, 2013
PP: 39-50

Predicting E-banking Tendency from Personality & Demographic Characteristics

Sima Janatian
Ph.D. Candidate, Department of Psychology, University of Isfahan, Iran
janatyan@edu.ui.ac.ir
Hossein Samavatyan
Assistant Professor, Department of Psychology, University of Isfahan, Iran
h.samavatian@edu.ui.ac.ir

Abstract

Becoming one the important features of our lives, e-banking has brought us a more convenient and fast way to accomplish financial activities. Despite its growing role, it is considered a challenge for some individuals who prefer to still use traditional banking system. In order to obtain a better understanding of those customers, in the current study, two personality dimensions and four demographic variables were studied to find any relationship with using that kind of technology. A group of 329 banking customers including 197 male and 132 female individuals completed a three-section questionnaire containing a measure of banking style including traditional and available forms of e-banking, two personality factors (Neuroticism and Extraversion) scales from the NEO Five-Factor Inventory (NEO-FFI; Costa and McCrae, 1992), and four demographic questions including age, gender, education level, and marital status. In addition to descriptive statistics, multiple regression was utilized to investigate the relationships among the predictors and criterion. Results showed no significant difference in terms of the two personality factors comparing the two groups of customers including traditional and electronic banking. In conjunction with the banking style, investigating demographic variables revealed significant relationships between age, education levels and marital status with e-banking. Beside using the findings to meet individuals' needs, as traditional banking services impose more costs, determining the characteristics of that portion of customers would be important.

Keywords: personality, e-banking, traditional customers, demographic characteristics.

Introduction

Comprehensive changes and developments in transfer and deployment of information technology have occurred. Speed and accuracy are the two ideal consequences of the advancement which along with being inexpensive and easiness to use, has been spread in almost all dimensions of human life in industrial and semi-industrial societies. Technology has had a fundamental role in our reformed life. Regardless of the philosophical aspects and the pros and cons, it has created a huge gap between today life and the life in even few decades ago. Along with the development of various aspects of human life, technology has created new opportunities to areas that previously seemed impossible.

In the field of trade and commerce, electronic banking has been able to use technological perspectives and besides contributing to the protection of environmental resources, especially reducing paper waste, saving time and costs for banks, pave the way to use the optimal way to transport and use of capital and resources and increase further comfort and efficiency.

Compared to traditional offline banking, (retail) e-banking is considered as more effective way to perform banking transactions. Faster transaction speed, the lower or no transaction handling fees, and increased information transparency are among the benefits (Lee, 2009).

Customers can at almost any time of day or night, working days or holidays have access to their accounts, transfer funds, receive and review their financial reports, and beside applying to get cash, perform almost all of their banking activities, electronically. However, despite the rapid increase in electronic technology and its expansion, the number of customers who are willing to do electronic banking methods has not increased respectively as expected. It seems there has been a kind of resistance on a part of customers using electronic banking. This group of people, instead of carrying out banking activities in a virtual environment, tends to attend and experience more tangible ways in their bank branches. In this way, to attract and meet the needs of customers, banks have to maintain traditional banking services (despite its high costs) along with electronic system.

Technology Acceptance Model (TAM) as a compact, predictive, and powerful model to explain and predict behaviour in decision-making and the adoption of a specific technology was first introduced by Davis in 1989 in the field of social psychology.

TRA (Theory of Reasoned Action) and TPB (Theory of Planned Behaviour) are two basic theories in the area of social psychology that have contributed to the creation of TAM. According to the TAM, developed by Martin Fishbein and Icek Ajzen (1975, 1980), behavioural intention and subsequent individual performance on a specific behaviour by the person engaging in the conduct of person's activities, can be predicted.

Also, TPB which as the link between beliefs and behaviour and to improve the predictive power of the TRA, presented by Ajzen (1985), assumes that the behavioural intention to perform different behaviours can be predicted using beliefs, attitudes towards the behaviour, subjective norms, and perceived behavioural control.

Based on the TAM model, an individual's decision to use the technology depends on two behavioural beliefs, including perceived usefulness that is the subjective expectation of the performance improvement using a

technology and perceived ease of use that is person's subjective perception of the technology. These two beliefs are related to each other, as being easier to use a technology makes it to be perceived that it will be useful.

There is no doubt that barriers such as fear of being unfinished banking activities due to the interrupted and slow internet connection, as well as lacking some needed knowledge, involve in reducing electronic banking activities. But in many situations, the decrease can also be rooted in human nature and personality which causes them to feel virtual activities unfamiliar. As an example for this line of research, Barrett (2012) reported that only 20.5% of the participants under study performed their financial transactions online without fear of security and the rest of participants were either not using internet banking because of security concerns (31%) or used it but still were concerned about security (48.5%).

Thus, apart from the technical obstacles, psychological aspects of the problem are necessary to consider. In this regard, in the present study, in order to extent the TAM, two aspects of personality and related demographic characteristics which may have influence on the adoption of technology have been investigated.

Regarding demographic characteristics, the Center for Research and Education on Aging and Technology Enhancement (CREATE) conducted a study on the use of technology among community-dwelling adults on 1,204 individuals ranging in age from 18–91 year and found out that the older peoples were less likely to use technology in general, computers, and the World Wide Web. Also, as important predictors of the use of technology, computer anxiety, fluid intelligence, and crystallized intelligence were identified. The significant relationship between age and adoption of technology was mediated by cognitive abilities, computer self-efficacy, and computer anxiety (Czaja, Charness, Fisk, Hertzog, Nair, Rogers, and Sharit, 2006).

Gender has also been studied in several researches on using information technology and except in few studies (e.g., Srivastava, 2007), mostly found no significant relationship (e.g., Ainin, Lim and Wee, 2005; Mermod, 2011; Bamrara, A., Singh, G., Bhatt, M., 2012) while marital status was investigated by Izogo, Nnaemeka, Onuoha, and Ezema (2012) and significant relationship was found.

Several studies have studied the influence of personality on behaviour and particularly the kind and extent of using technologies (e.g. Barrick, Stewart, and Piotrowski, 2002; Devaraj, Easley, and Crant, 2008) and it is concluded that it can be a good prediction for the acceptance of information technology (Nov and Ye, 2008).

The relationship between perceived task technology fit and personality factors resulted in just one significant relationship (openness to experience; Ko, Mancha, Beebe, and Yoon, 2012) while no significant relationship was found between extraversion and perceived task technology fit (Gu and Wang, 2009), between conscientiousness and innovative use of IT (Li, Tan, Teo, and Tan, 2006), and between neuroticism and internet use (Hills, and Argyle, 2003), between agreeableness and internet banking (Ko, Mancha, Beebe, and Yoon, 2012). However, as technology has a variety of areas and applications, not all the researches are indeed comparable.

The emotional, attitudinal, and behavioral response patterns combined together form individuals' personality.

On the basis of different perspectives, different definitions have been presented as there are many personality theories (Engler, 2009).

In order to study personality, one of the approaches is the trait theory which refers to taxonomy of habitual patterns of behavior, thought, and emotion known as traits. Gordon Allport and Hans Eysenck were two pioneers in the study of personality traits. The relatively stable traits differ across people but being categorized, it would be possible to present a profile of each person on the basis of known major factors (Eysenck, 1991).

The Big Five personality traits as one of the related proposed models refer to five broad dimensions of personality including neuroticism, extraversion, openness, conscientiousness, and agreeableness. These can be summarized as follows (Atkinson, Atkinson, Smith, Bem, & Nolen-Hoeksema, 2000):

Neuroticism–(Sensitive/nervous vs. secure/confident). The tendency to experience unpleasant emotions easily, such as anger, anxiety, depression, anxious, depressed, and unstable or vulnerability. Neuroticism also refers to the degree of emotional stability and impulse control.

Extraversion–(outgoing/energetic vs. solitary/reserved). Energy, positive emotions, assertiveness, sociability, talkative and the tendency to seek stimulation in the company of others.

Openness to experience–(inventive/curious vs. consistent/cautious). Receptive to new ideas and appreciation for art, emotion, adventure, unusual ideas, curiosity, and variety of experience. Openness reflects the degree of intellectual curiosity, creativity and a preference for novelty and variety.

Conscientiousness–(efficient/organized vs. easy-going/careless). A tendency to show self-discipline, act dutifully, and aim for achievement, responsible, and organized; planned rather than spontaneous behavior; organized, and dependable.

Agreeableness–(friendly/compassionate vs. cold/unkind). A tendency to be kind, generous, trustful, compassionate, and cooperative rather than suspicious and antagonistic towards others. It is also a measure of ones' trusting and helpful nature, and whether a person is generally well tempered.

Research Methods

To analyze the conceptual model of related factors in adopting e-banking (see Figure 1), a survey approach was applied. 329 banking customers (197 men, 132 women) participated in this study and completed a three-section questionnaire containing a measure of banking style including traditional and available forms of e-banking, two personality factors (Neuroticism and Extraversion) scales, and four demographic questions including age, gender, education level, and marital status.

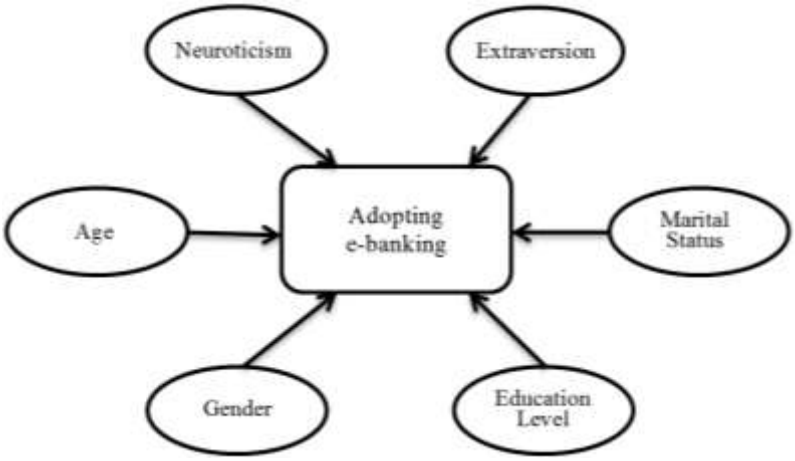

Figure 1: Conceptual Model of Related Factors in Adopting e-banking

Traditional banking services at the branch and non-traditional, electronic banking including ATM, internet banking, Telephone banking, and Mobile banking in which customers can withdraw cash, make transfers, view account activity details, pay bills and check balances at any time, change password, and get related information 24/7). The six banking services were followed by five choices of presenting in the bank and asking the teller to do the transaction or perform it through the four choices of e-banking while and the respondents might choose more than one choice.

Two personality factors of neuroticism and extraversion from the NEO Five-Factor Inventory (NEO-FFI; Costa and McCrae, 1992) was used which is a 60-item inventory (12 for each factor), a well-known questionnaires for measuring the big five personality factors. Participants in the study rated the 24 behaviour-descriptive statements on 5-point Likert scales, ranging from 1 (strongly disagree) to 5 (strongly agree). Test-retest reliability of the inventory had ranges from .63 to .82, and the validity evidence for the scales has been shown in domains of personality and mental health (Costa & McCrae, 1992).

The NEO FFI manual (the 60-item version) has reported the internal consistencies for both neuroticism and extraversion, .79. In this study, reliability for the two factors using Cronbach's alpha was obtained .735 for neuroticism and .653 for extraversion.

Among the five personality factors mentioned above, neuroticism, extraversion were selected to reveal related personality factors to accept and use this line of technology. The four demographic questions of age (7 choices from below 20 years old to 71 and above), gender, education level (7 choices of illiterate to masters degree and above), and marital status (3 choices of single, married, and divorced) were also included.

Each participant answered to 34 questions, in total and the collected data were analyzed using the SPSS (version 20). In addition to descriptive statistics, multiple regression methods were utilized to investigate the relationships among the predictors and criterion.

Using multiple regression methods, researchers may be interested in determining the "best" predictors in the analysis. Alternatively, they may simply be interested in explaining the most variability in the dependent variable with the fewest possible predictors. Two

approaches to exam the quality of predictors are stepwise and hierarchical regression. While stepwise method is to evaluate the order of importance of variables and to select useful subsets of variables, hierarchical regression can be useful for evaluating the contributions of predictors above and beyond previously entered predictors, as a means of statistical control, and for examining incremental validity. Like stepwise regression, hierarchical regression is a sequential process involving the entry of predictor variables into the analysis in steps (Lewis, 2007).

Results

Table 1 shows the related descriptive statistics for the activities and forms of banking including the number and percent of individuals. As it indicates, a minority of customers tends to use the traditional banking and the majority reported that they prefer to do banking activities through electronic formats. But that had some increase for changing password and more (about one-third) for getting related information. If portion of all the activities is considered equally, then calculating the proportion for traditional banking results in a mean of 13.43. It means that, from each set of seven banking customers, approximately only one person tend to stick with the tangible way of banking.

Table 1: Related Descriptive Statistics for the Activities and Forms of Banking

Forms of banking / Activities	Traditional	e-banking
withdraw cash	27 (8.2%)	302 (92.8%)
make transfers	31 (9.4%)	298 (90.6%)
pay bills	35 (10.7%)	293 (89.3%)
view account activity details	23 (7.0%)	306 (93.0%)
change password	40 (12.2%)	289 (87.8%)
get related information	109 (33.1%)	220 (66.9%)

In Table 2 which presents the mean and standard deviation of neuroticism and extraversion for the two groups of traditional and non-traditional customers, it can be seen how each group with other group is close.

Table 2: Related Descriptive Statistics for the Activities and Personality Factors/Forms of Banking

Personality Factors/Forms of banking / Activities	Neuroticism		Extraversion	
	Traditional	e-banking	Traditional	e-banking
withdraw cash	29.00 (1.43)	29.98 (.37)	42.19 (.72)	41.90 (.32)
make transfers	30.74 (1.09)	29.81 (.38)	40.61 (.92)	42.06 (.31)
pay bills	30.63 (1.14)	29.80 (.37)	41.49 (.84)	41.97 (.32)
Banking statements	31.09 (1.46)	29.80 (.37)	39.43 (1.05)	42.11 (.31)
change password	30.75 (1.01)	29.78 (.38)	42.40 (.73)	41.85 (.32)
related information	30.47 (.60)	29.62 (.44)	41.17 (.49)	42.30 (.37)

In order to investigating the relationship of predictors (demographic and personality factors) with criterion (the tendency toward using or not using e-banking), as the first step, the enter method of regression analysis was applied and the relationship was significant (see Table 3). As Table 4 shows, in total, the predictors were able to predict 19 percent of using e-banking variance. Table 5 reveals that the prediction refers to three demographic variables of age, education level and marital status and personality factors of neuroticism and extraversion were far from being significant. In other words, there was no significant difference between the two groups based on their neuroticism and extraversion scores.

Table 3: ANOVA of Regression Analysis, Method: Enter

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	99.105	6	16.517	11.830	>.001[b]
	Residual	413.291	296	1.396		
	Total	512.396	302			

Table 4: Model Summary Regression Analysis, Method: Enter

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.440[b]	.193	.177	1.182

Table 5: Coefficients of Regression Analysis, Method: Enter

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Semi-Partial
1	(Constant)	.800	.963		.831	.407			
	Age	.465	.061	.465	7.616	.000	.369	.405	.398
	Education Level	-.142	.060	-.130	-2.386	.018	-.175	-.137	-.125
	Gender	-.173	.140	-.065	-1.235	.218	-.050	-.072	-.064
	Marital Status	-.556	.151	-.222	-3.671	>.001	.024	-.209	-.192
	Neuroticism	.011	.012	.055	.955	.340	.055	.055	.050
	Extraversion	.008	.014	.032	.542	.588	-.071	.031	.028

a. Dependent Variable: Total_0_1
b. Predictors: (Constant), Extraversion, Gender, Marital Status, Education Level, Neuroticism, Age

In the second step, to investigate existing any possible common variance between the demographic variables and personality factors, hierarchical regression was used. As the first block, neuroticism and extraversion and as the second block, the demographic variables were entered to reveal the personality factors role in selecting the kind of banking. To be concise, the related tables are not included. As it was expected, very small increment (.002) of the personality factors in determining the proportion of variance of the e-banking tendency was found. As well, the related semi-partial correlation of the two personality factors showed almost no relationships with other (demographic) predictors (.001 for Neuroticism and -.008 for Extraversion). The comparison of the results of the enter and hierarchical methods indicates common proportion of variance between predictors.

In the third step, stepwise regression was utilized to reveal the sequence and proportion of each significant factor for prediction. As Tables 6, 7, and 8 show, variables of age (with standard coefficient of .453), marital status (with standard coefficient of -.226), and education level (with standard coefficient of -.138), respectively, were significant predictors of e-banking tendency.

Table 6: ANOVA of Regression Analysis, Method: Stepwise

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	69.942	1	69.942	47.582	>.001[b]
	Residual	442.454	301	1.470		
	Total	512.396	302			
2	Regression	86.173	2	43.086	30.327	>.001[c]
	Residual	426.223	300	1.421		
	Total	512.396	302			
3	Regression	95.450	3	31.817	22.816	>.001[d]
	Residual	416.946	299	1.394		
	Total	512.396	302			

Table 7: Model Summary Regression Analysis, Method: Stepwise

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.369[a]	.137	.134	1.212	.137	47.582	1	301	>.001
2	.410[b]	.168	.163	1.192	.032	11.424	1	300	.001
3	.432[c]	.186	.178	1.181	.018	6.653	1	299	.010

Table 8: Coefficients of Regression Analysis, Method: Stepwise

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Semi-Partial
1	(Constant)	-.216	.168		-1.281	.201			
	Age	.369	.054	.369	6.898	>.001	.369	.369	.369
2	(Constant)	.340	.233		1.458	.146			
	Age	.468	.060	.468	7.775	>.001	.369	.410	.409
	Marital Status	-.511	.151	-.204	-3.380	.001	.024	-.192	-.178
3	(Constant)	1.262	.426		2.965	.003			
	Age	.453	.060	.453	7.557	>.001	.369	.400	.394
	Marital Status	-.566	.151	-.226	-3.741	>.001	.024	-.211	-.195
	Education Level	-.151	.059	-.138	-2.579	.010	-.175	-.148	-.135

a. Dependent Variable: Total_0_1
b. Predictors: (Constant), Age
c. Predictors: (Constant), Age, Marital Status
d. Predictors: (Constant), Age, Marital Status, Education Level

Discussion

Despite the speed, convenience, and many more pros of e-banking, it is not preferable for at least a part of customers. The tendency toward using traditional banking system as an example of new technology challenge may be investigated through a variety of factors.

In the current study, two personality dimensions and four demographic variables were studied to find any relationship with using that kind of technology. Undoubtedly, the "variety of factors" may have separate or related effect and considering more factors would help to draw a better picture and understand the process more precisely. Personality factors of neuroticism and extraversion and four demographic variables of age, gender, education level, and marital status, among the mentioned factors were selected to study.

The percent of individuals using e-banking in this study was found 86.7% meaning that majority of customers have chosen it as a better way to do their banking. Coping with any kind of technology may have some resistance at the beginning and it would be adopted over time. However, a part of people remain irreconcilable. Determining the characteristics of that portion is important especially for bank owners as presenting traditional services impose more costs.

Comparing the two groups of customers resulted in no difference in terms of the two personality factors. This means that neuroticism and extraversion could not be a criterion for tendency toward applying traditional or e-banking services. Although this is different than what we expected, this finding is in line with the research done by Gu and Wang (2009), which found no link between extraversion and perceived task technology fit and also Hills, and

Argyle's study (2003) which did not find any significant relationship between neuroticism and Internet use.

However, as it was mentioned earlier, predictors may be related together but the further analysis showed almost no correlation between each of the personality factors with other predictors. Obviously, further investigation is needed to validate this finding and show any relationship with other related factors.

The logic of running different methods of regression analysis explained earlier. The last part of the analysis showed among the six predictors, three demographic variables of age, education level, and marital status identified as significant predictors.

As it was expected and indicated in many studies (e.g., Czaja, Charness, Fisk, Hertzog, Nair, Rogers, and Sharit, 2006), the current research results showed a significant relation of age with preferred banking services. The finding that younger customers prefer to do their banking activities electronically more than older people refers to the fact that they, as a newer generation, adopted more virtual environments. In other words, they have grown up with electronic device and are more comfortable working with them. Also, while learning new banking procedures to do their activities, they have got to know e-banking services while for older people it was not the case and the older may be prone to remain faithful to what learned first.

On the contrary and in line with other researchers' findings (e.g., Bamrara, A., Singh, G., Bhatt, M., 2012 and Mermod, 2011; gender and the internet banking usage), no significant relationship was found between gender and tendency toward e-banking. It means that, although the distance between males and females in the society is big in some domains, at least behavioural intention to use internet banking would not be determined by gender.

As it was expected, investigation indicated that education level was a significant predictor. First of all, they are usually younger and as a matter of fact, a highly significant correlation found between age and education level. Second, people with higher education, experience more presentations of electronic devices and applications during the study or at work as they may get more sophisticated jobs. They are more familiar with electronic procedures as they have been in touch with new technologies more than less educated (and older) individuals.

As well, marital status was identified as a significant predictor. As it was mentioned before, Izogo, E. E., Nnaemeka, O. C., Onuoha, O. A., Ezema, K. S. (2012) found similar result. Single individuals received more score in e-banking than the married. One reason might be the age. As single customers have less age than married ones, that would be the case as the result of correlation between the two showed a high significant relationship.

References

Ainin, S., C. H. Lim, & A. Wee (2005). Prospects and challenges of E-banking in Malaysia. *The Electronic Journal on Information Systems in Developing Countries*, 22 (1), 1-11.

Ajzen, I. & Fishbein, M. (1980). *Understanding attitudes and predicting social behaviour*. Englewood Cliffs, NJ: Prentice-Hall.

Ajzen, I. (1985). From intentions to actions: A theory of planned behaviour. In J. Kuhl & J. Beckmann (Eds.), *Action control: From cognition to behaviour*. Berlin,

Heidelber, New York: Springer-Verlag.

Atkinson, R. L., R. C. Atkinson, E. E. Smith, D. J. Bem, & S. Nolen-Hoeksema (2000). *Hilgard's Introduction to Psychology*, Orlando, Florida: Harcourt College Publishers.

Bamrara, A., Singh, G., Bhatt, M. (2012). An Explorative Study of Satisfaction Level of Cyber-crime Victims with Respect to E-services of Banks, *Journal of Internet Banking and Commerce*, Vol. 17, Number.3, 1-15.

Barrett, L., "Online Banking Security a Concern for Most: Survey, *http://www.esecurityplanet.com/trends/article.php/3912941/Online-Banking-Security-a-Concern-for-Most-Survey.htm*, February 4, 2012.

Barrick, M. R., G. L. Stewart, & M. Piotrowski (2002). Personality and Job Performance: Test of the Mediating Effects of Motivation among Sales Representatives, *Journal of Applied Psychology*, Volume 87, Number 1, 1-9.

Costa, P., & McCrae, R. (1992). The five factor model of personality and its relevance to personality disorders. *Journal of Personality Disorders*, 6, 343-359.

Czaja, S. J., N. Charness, A. D. Fisk, C. Hertzog, S. N. Nair, W. A. Rogers, & J. Sharit (2006). Factors predicting the use of technology: Findings from the center for research and education on aging and technology. *Psychology and Aging* 21(2): 333–352.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319-339.

Devaraj, S., R. F. Easley, & J. M. Crant (2008). How does personality matter? Relating the five-factor model to technology acceptance and use, *Information Systems Research*, Vol. 19, Number 1, 93-105.

Engler, B. (2009). *Personality Theories*, Eighth Edition. Belmont, CA: Wadsworth, Cenage Learning.

Eysenck, H. (1991). Dimensions of personality: 16: 5 or 3? Criteria for a taxonomic paradigm. *Personality and Individual Differences*, 12, 773–790.

Fishbein, M. & Ajzen, I. (1975). *Belief, attitude, intention, and behaviour: An introduction to theory and research*. Reading, MA: Addison-Wesley.

Gu, L. & J. Wang (2009). A Study of exploring the "big five" and task technology fit in web-based decision support systems, *Issues in information systems,*Volume 10, Number 2, 210-217.

Hills, P. & M. Argyle (2003). Uses of the Internet and their relationships with individual differences in personality, *Computers in Human Behaviour*, 59-70.

Izogo, E. E., O. C. Nnaemeka, O. A. Onuoha, & K. S. Ezema, (2012). Impact of Demographic Variables on Consumers' Adoption of E-banking in Nigeria: An Empirical Investigation, European Journal of Business and Management, Vol. 4, Number 17, 27-39.

Ko, M., R. Mancha, N. L. Beebe, H. S. Yoon, (2012). Customers' Personality, Their Perceptions, and Green Concern on Internet Banking Use, *Journal of Information Technology Management*, Vol. 23, Number 4, 21-32.

Lee, M. (2009). Factors influencing the adoption of Internet banking: An integration of TAM and TPB with perceived risk and perceived benefit, *Electronic Commerce Research and Application*, Volume 8,Number 3, 130-141.

Lewis, M. (2007). Stepwise versus hierarchical regression: Pros and cons. Paper presented at the *Annual Meeting of the Southwest Educational Research Association*, Austin, February 7, 2007.

Li, Y., C., Tan, H., Teo, & B. Tan (2006). Innovative usage of information technology in Singapore organizations: Do CIO characteristics make a difference? *IEEE Transactions on Engineering Management* ,Volume 53, Number 2, 177-190.

Mermod, A. Y. (2011). Customer's Perspectives and Risk Issues on E-Banking in Turkey; Should We Still be Online? *Journal of Internet Banking and Commerce*, 16(1). 1-15.

Nov, O. & C. Ye, (2008). Personality and technology acceptance: Personal innovativeness in IT, openness and resistance to change, *Proceeding of the 41st Hawaii International Conference on System Sciences*.

Srivastava, R.K. (2007). Customer's perception on usage of Internet banking, *Innovative Marketing*, 3 (4), 66-75