AN EXTENDED UTAUT2 PERSPECTIVE - DETERMINANTS OF MOBILE BANKING USE INTENTION AND USE BEHAVIOR[*]

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Abstract

There are different theoretical models regarding the determinants of consumers' intention to use technology and their use behavior. The Unified theory of acceptance and use of technology-2 (UTAUT-2) model explains the variance in behavioral intention and technology use variables in pursuit of a consumer-centric model. This research study aims to figure out the determinants and impacts of individuals' intention to use mobile banking and their use behaviors within the context of Turkey. The data of the study was obtained from 684 participants aged 18 years or older in April-June 2018 via an online survey method. Findings of the research study reveal that the behavioral intention of using mobile banking is influenced by trust, social influence, price value, facilitating conditions, performance expectancy, and habit; whereas habit and trust affect both use behavior and behavioral intention. Furthermore, moderator impacts of trust and age as well as hedonic motivation and age on behavioral intention, whereas moderator impacts of habits and age on use behavior are determined. No significant relationship is found between the behavioral intention of using mobile banking and the use behavior.

Keywords : *Mobile Banking- Unified Theory of Technology Acceptance and Use of Technology-2(UTAUT-2)-Trust-Mobile banking use intention and use behavior.*

Jel Classifications : *G2, M3.*

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GENİŞLETİLMİŞ UTAUT2 PERSPEKTİFİ - MOBİL BANKACILIK KULLANIM NİYETİ VE DAVRANIŞININ BELİRLEYİCİLERİ

Öz

Tüketicilerin teknolojiyi kullanma niyeti ve kullanma davranışlarının belirleyicilerinin neler olduğunun ortaya konulması ile ilgili farklı teorik modeller bulunmaktadır. Birleştirilmiş teknoloji kabul ve kullanma teorisi-2 (BTKKT-2) modeli tüketiciyi merkeze alan bir model arayışında, davranış niyeti ve teknoloji kullanımı değişkenlerindeki varyansı, açıklamaktadır. Bu araştırma; Türkiye bağlamında bireylerin mobil bankacılık kullanma niyetlerinin ve kullanma davranışlarının belirleyicilerini ve etkilerini ortaya koymayı amaçlar. Araştırmanın verileri, 2018 yılı Nisan-Haziran ayları içerisinde 18 yaş ve üzerinde bulunan 684 katılımcıdan elde edilmiştir. Araştırma sonucunda mobil bankacılık kullanma davranış niyetini; güven, performans beklentisi, sosyal etki, kolaylaştırıcı şartlar, fiyat değeri ve alışkanlıkların etkilediği, alışkanlıklar ve güvenin hem kullanma davranışını hem de davranış niyetinde etkisinin olduğu saptanmıştır. Ayrıca, güven ile yaşın, hedonik motivasyon ile yaşın davranış niyeti, alışkanlıklar ile yaşın ise kullanma davranışında moderatör etkisi belirlenmiştir. Mobil bankacılığı kullanma davranış niyeti ile kullanma davranışı arasında ise anlamlı bir ilişki bulunmamıştır.

Anahtar Kelimeler   : Mobil bankacılık-Birleştirilmiş teknoloji kabul ve kullanma teorisi-2 (BTKKT-2)-Güven-Mobil bankacılık kullanma niyeti ve davranışı.

Jel Sınıflandırılması   : G2, M3.

INTRODUCTION

As the banking sector becomes more and more digital, mobile banking appears to be a necessity for clients (Özecan, 2018). Mobile banking provides users with a great deal of advantages by mitigating the distance between customers and banks (Söylemez & Taşkın, 2020: 412). Convenience, personalization, mobility, and ability of performing banking transactions regardless of time and place are the leading advantages provided by mobile banking (Doğan & Burucuoğlu, 2018). By courtesy of mobile banking, people can now make money transfers, pay bills, and perform many tasks on their own, such as investment transactions, via technological devices such as smartphones, computers and tablets at their own location (Kaplan, 2019). Due such advantages, mobile banking is widely utilized in various locations of the world, particularly in rural and remote areas with insufficient or no banking infrastructure (Söylemez & Taşkın, 2020: 412). Easy accessibility renders mobile banking an indispensable service for clients and also a crucial competitive tool for banks. Turkish banks have also initiated mobile banking practices in line with the improvements in the world (Bakırtaş & Ustaömer, 2019).

Many researchers have conducted various research studies on the subject throughout the process covering the early stages of the provision of banking transactions via mobile technologies until today. In these research studies carried out in both national and international scales, it was reported that mobile banking technology utilization rates were below expected levels (Alalwan, Dwivedi, & Rana,2017; Malaquias & Hwang, 2016; Dineshwar & Steven, 2013; Zhou, Lu, & Wang, 2010; Luarn & Lin, 2005; Köksal, 2016).

Although Technology Acceptance Model (TAM) has been frequently utilized in studies conducted on intention behavior to use mobile banking (Chung & Kwon, 2009; Koenig-Lewis, Palmer, & Moll, 2010), the Unified Theory of Acceptance and Use of Technology (UTAUT) has become the commonly applicable method to examine the actual participation of the user in the mobile banking system (Yu, 2012). UTAUT-2 model, however, explains the variance in technology usage and behavioral intention variables better than the UTAUT in pursuit of a client-centric model.

Investigation of the reasons affecting the acceptance of mobile applications by the Bank's clients is crucial in terms of developing alternatives that may increase the demand for use. The chances of success of a newly offered product or service depend mainly on the client's acceptance

of this new service or product. The study uses age and experience as moderator variables within the framework of UTAUT-2 to examine the determinants and impacts of individuals' behavioral intentions and use behaviors regarding mobile banking. The study tries to respond to the following questions:

1. What would be the factors that have impacts on the mobile banking usage in Turkey within the scope of UTAUT-2 scale?

2. Do the age and experience variables have moderator impacts on the factors that are effective in the mobile banking usage in Turkey?

3. What is the role of the trust (TR) factor on the use and the acceptance of mobile banking within the context of Turkey?

For finding answers to these basic questions, the hypotheses regarding the association between the predictor variables (such as effort expectancy (EE), habit (HA), performance expectancy (PE), price value (PV), facilitating conditions (FC), social influence (SI), and hedonic motivation (HM)) and the dependent variables (such as use behavior and behavioral intention (BI)) are developed within UTAUT-2 scale in the study. Besides, the moderator impacts of the age and experience variables are investigated. Accordingly, first of all, it is investigated whether or not a significant association exists between FC, PE, PV, HM, HA, EE, and SI variables and BI towards mobile banking. Then, a significant association of FC, HA, and BI with the usage is sought. Consequently, TR factor is included in the model to determine its influence on the use behavior and behavioral intention.

I. CONCEPTUAL MODEL AND RESEARCH HYPOTHESES

The question of which factors are most important for mobile banking users is explored through the theoretical lens of UTAUT-2. This theory has been preferred since it is a proven model for explaining technology users' behavior and is highly predictive (Venkatesh, Morris, Davis, & Davis, 2003). Expectations, perceptions, attitudes, intentions, and behaviors of individuals in the presence of any technology are tried to be measured with the instrument of numerous models in the literature of technology acceptance. The antecedent of these models is the TAM, which was coined by Davis as of 1986 to explain the behavior of using computers (Davis, 1989).

UTAUT-2 is an integrated model which is more prominent in terms of its inclusiveness and demonstrativeness than the others and its usage in the field is becoming more widespread. Being a good synthesis of 8 different technology usage models in the literature, UTAUT-2 scale is utilized in the study since it has an explanatory rate (74%) well above the acceptable values in terms of social sciences (Venkatesh, Thong, & Xu, 2012). UTAUT was introduced to verify technology acceptance, especially by the clients. Thus, in pursuit of choosing a suitable model that covers approximately all variables affecting consumer intention and acceptance to mobile banking, UTAUT-2 is accepted as a theoretical basis for introducing the conceptual model.

In UTAUT-2 model, the impacts of performance expectancy, price value, facilitating conditions, habit, social impact, effort expectancy, and hedonic motivation variables on use behavior and behavioral intention are the subject of the research. The main structures which determine the behavioral intentions of clients in UTAUT-2 towards using mobile banking are introduced as direct determinants of BI, namely, FC, PE, HM, EE, PV, SI, and HA as shown in Figure 1. BI, FC and HA factors are described as the main determinants of mobile banking use behavior. In addition, the moderator impacts of experience and age variables on the association between these variables are investigated. The gender variable suggested by Venkatesh ve ark., (2012) is excluded from the model.

Nevertheless, TR is determined as a crucial factor influencing the perception of clients and intention to use new technology (Zhou, 2011, 2012; Hanafizadeh, Behboudi, Koshksaray, & Tabar, 2014; Alalwan, Dwivedi, Rana, Lal, & Williams, 2015; Luo, X., Zhang, & Shim, 2010, Özcan, Çelik, & Özer, 2019). Such importance can be attributed to the specific features of electronic banking

services specified by ultimate uncertainty associated with the properties of financial services that can be considered as high-risk products (Hanafizadeh ve ark., 2014; Zhou, 2011). As an exogenous factor, TR is included in the UTAUT-2 model introduced by Venkatesh ve ark., 2012). The objective of this inclusion is to support the improvement of UTAUT-2. The proposed model into which the TR factor is included by Venkatesh ve ark., (2012) is illustrated in Figure 1.
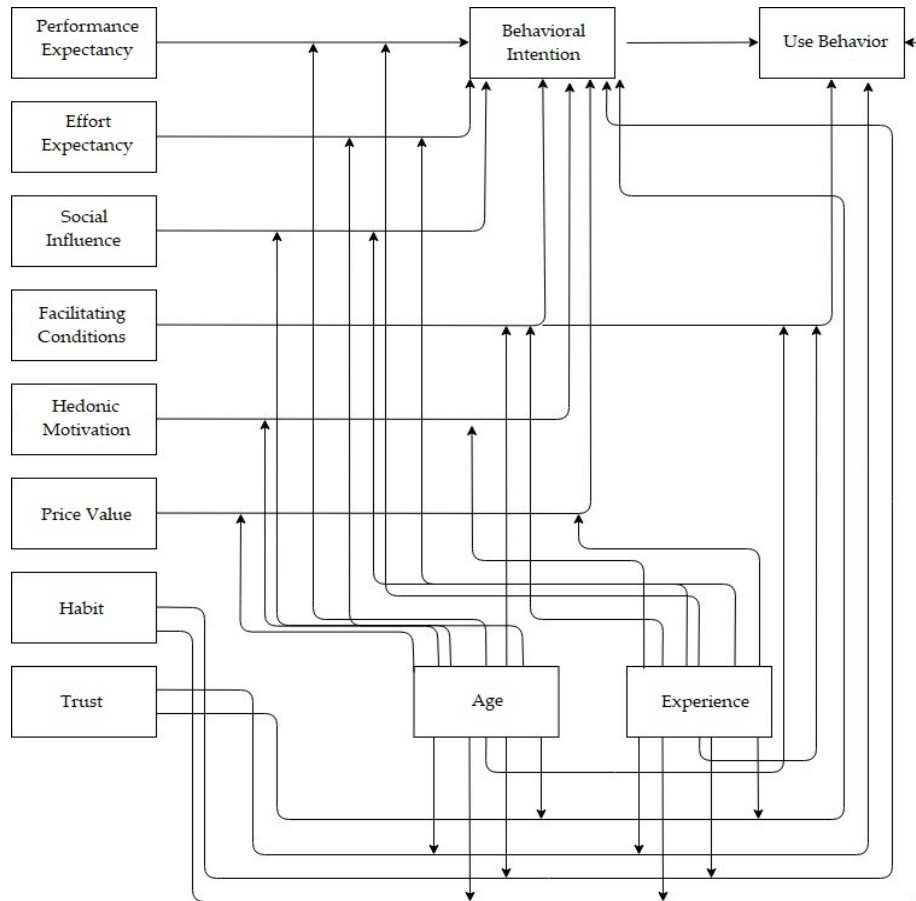

Figure 1: Proposed Structural Model

I.I. Performance Expectancy (PE)

PE refers to the fact that technology usage results in positive outcomes for clients while realizing certain activities (Venkatesh ve ark., 2012). PE variable in UTAUT substitutes for the perceived usefulness in TAM, the extrinsic motivation in the motivational model (MM), the comparative advantages in innovation diffusion theory (IDT), job-fit in model of PC utilization (MPCU), and the outcome expectations variables in social cognitive theory (SCT) (Gürses, 2016). Mobile banking provides the clients with an appropriate conduit that enables them to reach a large variety of products and services along with elasticity in time and space (Alalwan, Dwivedi, Rana, & Williams, 2016).

Mobile banking, in which applications such as SMS banking or WAP banking were used in the past, has reached a state that would allow far more advanced services along with the widespread use of smartphones. Due to its potential advantages, mobile banking has become a conduit that consumers instantly adopt (Seyrek & Şahin, 2016).

There are several studies which indicate that clients are likely to use and accept technology whenever they notice its usefulness (Venkatesh ve ark., 2003; Alalwan, Dwivedi, & Rana, 2017). Zhou ve ark., (2010) claimed that mobile banking usage was significantly influenced by PE, which

is the most effective factor in BI. In order to achieve this objective, the following hypotheses were developed:

H1a: A significant association exists between BI and PE towards using Mobile Banking.

H1b: The age variable has a moderator influence on the association between BI and PE.

H1c: The experience variable has a moderator influence on the association between BI and PE.

I.II. Effort Expectancy (EE)

Venkatesh ve ark., (2003) described EE as "the ease of using a system". In the context of mobile banking, using such services may require certain knowledge and skills; therefore, EE has a crucial role influencing the intention to use (Alalwan ve ark., 2017). Whenever clients believe that the use of mobile banking services does not require much effort, their tendency to technology usage increases. The following hypotheses were proposed in the study:

H2a: A significant association exists between BI and EE towards using Mobile Banking.

H2b: The age variable has a moderator influence on the association between BI and EE.

H2c: The experience variable has a moderator influence on the association between BI and EE.

I.III. Social Influence (SI)

SI means situations in which clients' behavior is affected by others who appreciate the utilization of certain technologies (Venkatesh ve ark., 2012). SI in mobile banking is expressed as an affirmative impact on the use of mobile banking services by the client's social environment (Tam & Oliveria, 2016; Alalwan ve ark., 2017). SI variable is substituted for the variables such as subjective norm in TPB, TRA, TAM-2/3 and C-TAM-TPB, image in IDT and social factors in MPCU (Venkatesh ve ark., 2003). In this context, the following hypotheses are proposed in the study:

H3a: A significant association exists between SI and BI towards using Mobile Banking.

H3b: The age variable has a moderator effect on the association between BI and SI.

H3c: The experience variable has a moderator effect on the association between BI and SI.

I.IV. Facilitating Conditions (FC)

FC are referred to as "a person's notion that a technical or organizational infrastructure is a resource to support the utilization of the system". In order to use mobile banking, clients need to acquire a basic type of skills and resources, namely, facilitating conditions (Alalwan, 2017). It is claimed that the users are prone to utilize mobile banking services as long as having access to support and infrastructure whenever they need them. For example, online support, tutorials, and training are found to have impacts on the purpose of using mobile banking (Venkatesh ve ark., 2012). In this context, the following hypotheses are proposed:

H4a: A significant association exists between FC and BI for using Mobile Banking.

H4b: Age variable has a moderator effect on the relationship between BI and FC.

H4c: The experience variable has a moderator impact on the relationship between FC and BI.

H4d: A significant association exists between the use behavior and FC for using Mobile Banking.

H4e: The age variable has moderator impact on the association between the use behavior and FC.

H4f: The experience variable has a moderator impact on the relationship between the use behavior and FC.

I.V. Hedonic Motivation (HM)

HM is referred to as a crucial factor in determining technology acceptance. HM is described as the enjoyment and pleasure stemmed from utilizing mobile banking services (Venkatesh ve ark.,

2012). HM concept has been studied as a decisive element in the use of mobile banking in the literature (Puschel, Mazzon, & Hernandez, 2010; Baptista & Oliveria, 2017). Moreover, it was determined that clients are more prone to interact with a mobile service whenever they feel excitement or pleasure (Lee & Jun, 2005). Upon considering the user satisfaction, it is believed that mobile services provide clients with an environment having a higher level of satisfaction, thus boosting user satisfaction and achieving higher purchase rates through mobile devices (Alnawas & Aburub, 2016). Kesari & Atulkar (2016) asserted that HM concept was referred to as one of the most crucial factors influencing user satisfaction. In this context, the following hypotheses are proposed:

H5a: A significant association exists between BI and HM towards utilizing Mobile Banking.

H5b: The age variable has a moderator impact on the association between BI and HM.

H5c: The experience variable has a moderator impact on the association between BI and HM.

I.VI. Price Value (PV)

The technology usage may impose more financial costs on the clients. Therefore, clients can mentally compare the financial costs that must be paid to use these systems and the benefits involved in using new systems. The resources and facilities required for maintaining mobile banking transactions (eg. 4G services, smartphones, Wi-Fi) can cause more financial costs to be incurred by clients which, in turn, accentuate the crucial contribution of PV to the theoretical model (Sathye, 1999; Gerrard, Barton Cunningham, & Devlin, 2006; Alalwan ve ark., 2016). In compliance with this assumption, the tendency of clients to accept mobile banking transactions is determined by budget constraints as suggested by Yu (2012). In this context, the following hypotheses are proposed:

H6a: A significant association exists between BI and PV towards using Mobile Banking.

H6b: The age variable has a moderator impact on the relationship between BI and PV.

H6c: The experience variable has a moderator impact on the relationship between BI and PV.

I.VII. Habit (HA)

The frequency of past experiences has been found to be one of the important and effective determinants of people's future behavior (Limayem, Hirt, & Cheung, 2007). It is also asserted that clients are more prone to think that mobile devices are useful and more likely to use them frequently in their routine (Negahban & Chung, 2014). Baptista and Oliveria (2017) detected that HA had an affirmative impact on the acceptance and use of mobile banking. Similarly, Chiu, Hsu, & Wang, (2006) asserted that HA had a crucial role in intention to use. The following hypotheses are proposed in the study:

H7a: A significant association exists between HA and BI of using Mobile Banking.

H7b: The age variable has a moderator impact on the association between HA and BI.

H7c: The experience variable has a moderator impact on the association between HA and BI.

H7d: A significant relationship exists between HA and use behavior of using Mobile Banking.

H7e: The age variable has a moderator impact on the association between HA and use behavior.

H7f: The experience variable has a moderator impact on the association between HA and use behavior.

I.VIII. Behavioral Intention (BI)

In the literature, BI has been proven to play a profound role in directing the use of new facilities (Ajzen, 1991). Accordingly, the willingness of clients to accept such a system can also be largely predicted, should mobile banking is truly accepted. Such association is also described by Jaruwachirathanakul and Fink (2005). In this context, our study proposes the following hypothesis:

H8: A significant association exists between the use behavior and BI towards using mobile banking.

I.IX. Trust (TR)

TR was described in the literature as the confidence on the other party to act in the interests of the client (Crosby, Evans, & Cowles, 1990), and the anticipation of cooperative and honest behavior (Fukuyama, 1995). It is referred to as the level of confidence of a client towards a service provider in mobile banking. It was proven by different research studies in the literature that TR has a significant effect on the mobile banking usage (Hanafizadeh ve ark., 2014). Also, Kim, Shin, & Lee, (2009) asserted that TR had a crucial role in the use intentions since mobile banking is riskier than traditional banking. In this context, our study proposes the following hypotheses:

H9a: A significant association exists between TR and BI to use Mobile Banking.

H9b: The age variable has a moderator impact on the association between TR and BI.

H9c: The experience variable has a moderator impact on the association between TR and BI.

H9d: A significant association exists between TR and use behavior towards using Mobile Banking.

H9e: The age variable has a moderator impact on the association between TR and use behavior.

H9f: The experience variable has a moderator impact on the association between TR and use behavior.

I.X. Use Behavior

The actual use is the stage that follows technology acceptance. UTAUT was the most widely used model in those studies. Zhou (2012) in China, Yu (2012) in Taiwan, Baptista, and Oliveira (2015) in Mozambique studied the direct impacts of the determinants of mobile banking use behavior using an integrated model for different countries. In all these studies, UTAUT model has been used to explicate use behavior. In this study, the hypotheses related to the variables that affect technology use behavior are introduced in the previous headings on the basis of UTAUT-2 model.

I.XI. Age and Experience

Experience assists to reduce uncertainty over the mobile banking system and heighten a sense of control. Therefore, gaining more mobile banking experience can accentuate behavioral intention. This impact was verified in a web-based system (Venkatesh & Bala, 2008). People with long-run experiences in using mobile banking services may tend to exhibit positive attitude for boosting the actual use. Therefore, it is possible to state that the effect of behavioral intention on the mobile banking usage would be higher as people gain more experience (Riquelme & Rios, 2010).

As people get older, they become more prone to difficulties in comprehending new or complicated information processes and adapting new technologies (Morris, Venkatesh, & Ackerman, 2005). Such difficulties can be attributed to the decrease in cognitive memory characteristics pertinent to the aging process (Posner, 1996). Age reflects the differences in the information processing process that can influence people's dependence on habits to orient their behaviors (Hasher & Zacks, 1979; Jennings & Jacoby, 1993). Therefore, older clients are more prone to notice the availability of adequate support compared to younger clients (Hall & Mansfield, 1975). Once the elderly clients acquire a habit by repeatedly using a certain technology, it becomes difficult for them to adapt to an ever-changing environment (Lustig, Konkel, & Jacoby, 2004). In this study, the impacts of mediator variables such as experience, age and gender in the UTAUT-2 model are investigated as the impacts of age and experience by excluding gender from the model.

II. METHODOLOGY

II.I. Research Model

The research study is conducted in relational survey model.

II.II. Data Collection Tool

The data are obtained using an online survey questionnaire method. In the preparation of the questionnaire, the scale items of UTAUT-2 (Venkatesh ve ark., 2012), trust (Zhou, 2012a), use behavior (Martins, Oliveira, & Popovič, 2014) are utilized.

In the first phase of the survey questionnaire; such demographic questions as level of education, age, level of income, occupation, gender, and city of residence are included. In the second phase of the questionnaire, the variables of the study including 1) facilitating conditions, (2) effort expectancy, (3) price value, (4) performance expectancy, (5) hedonic motivation, (6) social influence, (7) habit, and (8) trust sub-dimensions as well as the use behavior of using mobile banking and behavioral intention are measured. In these sub-dimensions; PE, FC, EE, and HA are measured under four items, whereas HM, BI, PV, TR, and use behavior are measured under three items. The original scale which was prepared for mobile internet is adapted to mobile banking. The measuring tool is determined as a 7-point Likert-type scale. Items in the scale are determined as 1- absolutely disapprove, and 7- absolutely approve.

The validity and reliability test of the scale is initially performed. The construct validity of the Turkish version of the scale is examined via confirmatory factor analysis, which predicted that certain items would be included in the previously expected sub-dimensions. The models that constitute the original structure of the scale are tested whether or not they would be applicable in the context of Turkey using this method.

Calculation of Cronbach's alpha coefficient is the most frequently used measurement tool of internal consistency in confirmatory factor analysis. High levels of Cronbach's alpha value indicate that the internal consistency of a survey questionnaire is high (Tezbaşaran, 2008). The values obtained in this study range from .79 to .91. Cronbach's alpha values in accordance with the variables are as follows: TR (.83), FC (.83), HA (.79), PE (.79), PV (.91), EE (.86), HM (.91), SI (.87), Use Behavior (.81), and BI (.86).

II.III. Population and Sample

In this study, the individuals among the social media users who aged 18 and older also using mobile banking applications in Turkey are identified as the population. The online survey questionnaire is utilized as the data collection tool in this study using judgmental sampling method in the selection of the sample aged 18 and older. The restrictive question presented in the questionnaire form involves the requirement of mobile banking usage in the collection of research data to be included in the analysis. Individuals must be over 18 and have signed an electronic banking contract with the bank to use mobile banking applications.

Data are collected from a total of 1,053 participants. 738 of the participants state that they used mobile banking, whereas 315 participants stated that they did not use mobile banking. Upon preliminary examination of the obtained data, responses of 54 participants are excluded from the analysis since it is found that they gave sloppy and inconsistent answers to the items. Eventually, the data obtained from 684 out of 738 participants who state that they used mobile banking are included in the analysis.

II.IV. Analysis of the Data

This study aims at examining the existence of linear associations among the UTAUT-2 variables. Confirmatory Factor Analysis (CFA) and Structural Equation Modelling (SEM) are preferred also for investigating construct validity.

In the context of this study, Path Analysis technique is used for investigating the theoretical model developed to test research hypotheses within the scope of mobile banking services. It is aimed to detect the associations between the predictor (exogenous), interactional independent, mediated and dependent (endogenous) variables of the research study. The predictor variables of the research study include TR, PE, FC, HA, PV, EE, SI, and HM. The dependent variable of the research study is use behavior, and the mediated variable is behavioral intention. Experience and age are defined as

moderator variables. The impacts of predictor variables on dependent and mediated variables are measured both individually and as an interaction impact in terms of age and experience.

II.V. Descriptive Findings of The Participants

Upon considering the validity of 999 participants out of the sample consisting of 1,053 participants, 684 participants claim using mobile banking, whereas 315 participants claim not using mobile banking. According to the obtained data, the percentage share of mobile banking users is determined as 68.4% and the percentage share of non-users is determined as 31.5%.

45.9% of the participants are male, and 54.1% are female. 49.9 % of participating male individuals and 50.1% of female individuals use mobile banking. In 315 samples that do not use mobile banking, the proportion of women was 62.5% which is higher than of men (37.5%). The proportional distribution among participants using mobile banking by age is 48.7% for 24 years or younger and 24.4% for the 25-34 age group. Of 999 participants, 8.6% have primary school diploma, 5.4% have secondary school diploma, 18.9% have high school diploma, 59.6% have undergraduate degree, 5.2% have masters degree, and 2.3% have Ph.D. degree. Considering the distribution of the participants using mobile banking in terms of income levels, the highest participation rate 44.4% belongs to the income group with a monthly income of 1,500 TL or less. The distribution of participants using mobile banking in terms of occupation is as follows: students (39.5%), public personnel 16.7%, artisans/employers 6.4%, workers 8.6%, professionals 5.6%, housewives 4.7 %, retirees 2.5%, the unemployed 3.2%, and the others 10.8%. Regarding the duration of mobile banking use of the participants, 20.5% of them used mobile banking service for 0-1 years, 30.1% for 1-2 years, 17.5% for 2-3 years, and 31.9% for 3 years or more.
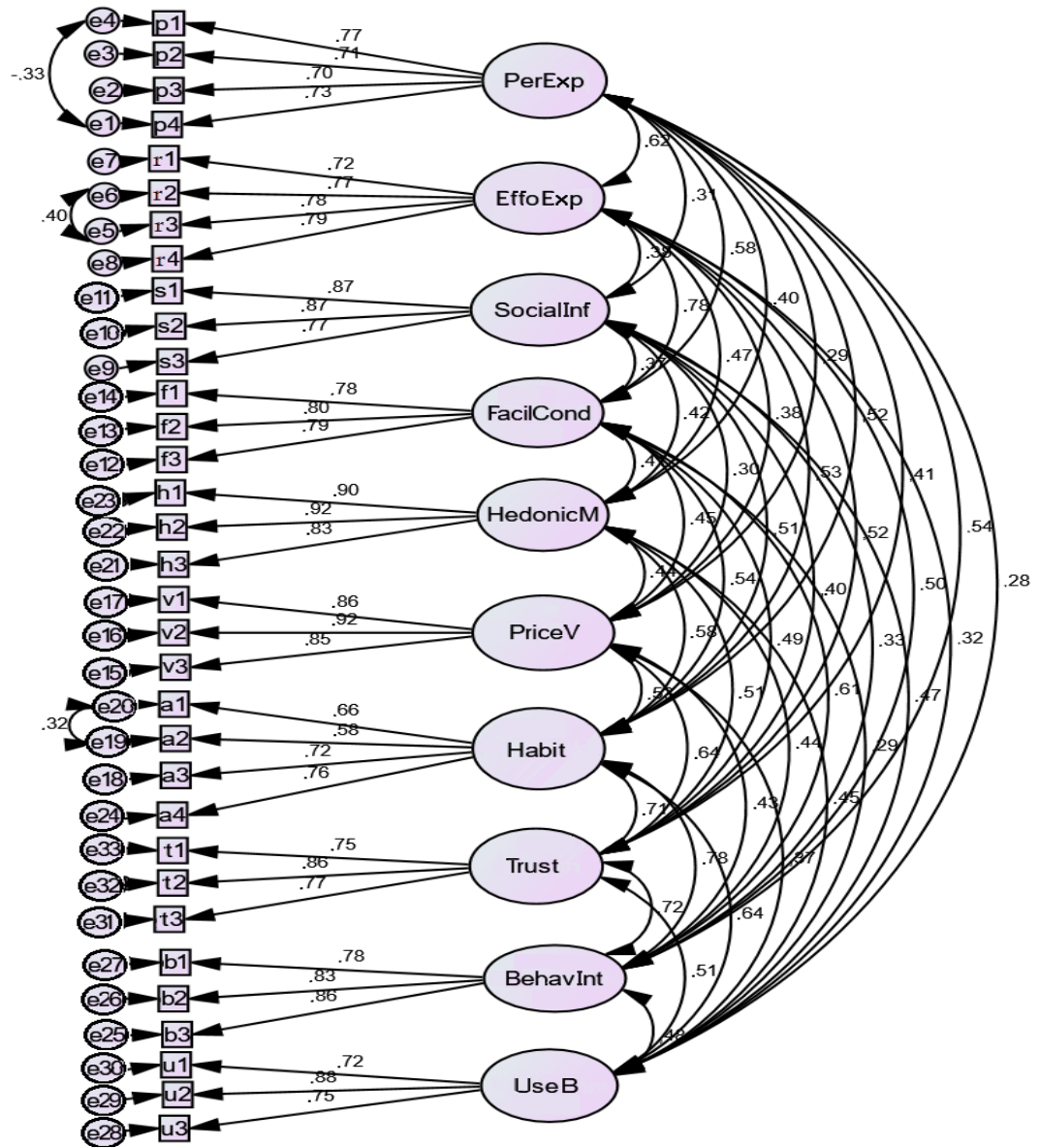
II. VI. Confirmatory Factor Analysis Results

In this study, multiple fit indexes are utilized for CFA and Chi-Square Goodness test. Root mean square error of approximation index (RMSEA), Goodness of fit index (GFI), Relative fit index (RFI), Comparative fit index (CFI), and Normed fit index (NFI) are examined (Hu & Bentler, 1999). Table 1 presents the information about the fit index values obtained from the study and the cut-off points in the literature related to these values.

Table 1: Model Fit Values of Confirmatory Factor Analysis

Fit Indexes	Obtained Values	Cut-off Points	Source
Chi-square/sd	2.867	Lower than 3 indicates good-fit, lower than 5 indicates close-fit.	(Kline, 2011)
RMSEA	.052	Lower than or equal to .05 indicates good-fit, between .05-.08 indicates close-fit.	(Kline, 2011)
CFI	.939	Higher than or equal to .95 indicates good-fit, higher than or equal to .90 indicate close-fit.	(Hu and Bentler, 1999)
GFI	.891	Higher than .95 indicates perfect-fit, higher than or equal to .90 indicate good-fit.	(Tabachnick and Fidell, 2007) (Tabachnick and Fidell, 2007)
AGFI	.863	Higher than or equal to .85 is acceptable.	
RFI	.894	Higher than .95 indicates perfect-fit, higher than or equal to .90 indicate good-fit.	(Tabachnick and Fidell, 2007)

For testing model compatibility in confirmatory factor analyses, firstly Chi-square/sd value is examined. Any value of Chi-square/sd below 3 indicates a good fit (Kline, 2011). According to Table 1, Chi-square / sd value obtained for the model fit of the scale is detected as 2.867. RMSEA value checked for model fit is detected as .052. RMSEA value below .05 indicates good-fit, whereas any value between .05 - .08 indicates close-fit (Kline, 2011). Chi-square/sd and RMSEA values both indicate good model fit. Of the other checked indexes, CFI (.939), GFI (.891) and AGF (.86) values fall within the acceptable limits, while GFI (.891) is slightly below the acceptable limit (Hu & Bentler, 1999; Tabachnick & Fidell, 2007). Consequently, the model which is created to test the validity of UTAUT-2 scale would be considered fit. The model tested for validity with confirmatory factor analysis is illustrated in Figure 2.

Figure 2: Confirmatory Factor Analysis Results Of UTAUT-2 Scale

In Table 2, factor load values, item mean scores and standard deviation values for the items of UTAUT-2 scale are presented. Factor load values are obtained from the CFA. Mean and standard deviation values are also calculated. Factor load values for the items of UTAUT-2 scale are quite high as seen in Table 2. According to DeVellis (2014), factor loads in social sciences are required to be higher than .60. Factor load values for the items constituting the sub-dimensions are as follows: between .75-.86 in trust, between .70-.77 in performance expectancy, between .72-.79 in effort expectancy, between .77-.87 in social influence, between .78-.80 in facilitating conditions, between .83-.92 in hedonic motivation, between .85-.92 in price value, between .58-.76 in habit, between .78-.86 in behavioral intention, and between .72-.88 in use behavior. Upon overall evaluation of these results, it can be concluded that the items are fitted with the sub-dimensions. There is only a low-value item in habit sub-dimension and its score is within acceptable limits.

Table 2: Factor Load Values and Descriptive Statistics of UTAUT-2 Scale Items

Sub-dimensions	Item	Factor Load Value	Mean	Std. Deviation
Trust	T1	.75	5.86	1.38
	T2	.86	5.78	1.41
	T3	.77	5.42	1.63
Performance Expectancy	P1	.77	6.53	.93
	P2	.71	6.12	1.21
	P3	.70	6.62	.79
	P4	.73	6.30	1.091
Effort Expectancy	R1	72	6.39	.99
	R2	.77	6.20	1.14
	R3	.78	6.33	1.01
	R4	.79	6.18	1.08
Social Influence	S1	.87	5.33	1.88
	S2	.87	5.07	1.97
	S3	.77	5.65	1.62
Facilitating Conditions	F1	.78	6.30	1.08
	F2	.80	6.36	1.00
	F3	.79	6.37	1.00
Hedonic Motivation	H1	.90	5.62	1.50
	H2	.92	5.69	1.48
	H3	.83	5.28	1.69
Price Value	V1	.86	5.37	1.86
	V2	.92	5.43	1.71
	V3	.85	5.62	1.60
Habit	A1	.66	5.69	1.69
	A2	.58	4.63	2.08
	A3	.72	5.92	1.49
	A4	.76	5.85	1.47
Behavioral Intention	B1	.78	6.30	1.08
	B2	.83	6.06	1.27
	B3	.86	6.04	1.27
Use Behavior	U1	.72	4.35	2.05
	U2	.88	4.96	1.87
	U3	.75	5.23	1.45

Note: UTAUT-2 is evaluated with a 7-point Likert type scale (1- absolutely disapprove, 7- absolutely approve). Testing the theoretical model with structural equation analysis

It is aimed to determine the associations between the independent (exogenous), interactional independent, mediated and dependent (endogenous) variables of the research study via path analysis. The independent variables of the research study are trust, facilitating conditions, price value, PE, SI, HA, HM, and EE. The dependent variable of the research study is use behavior, and the mediated variable is BI.

Experience and age are defined as moderator variables.

Once the assumptions which constitute the prerequisites for conducting path analysis are fulfilled, the analysis process is commenced. The analysis results of the model are presented in Table 3 and Table 4.

Table 3: Fit Index Values of the Model on Which Path Analysis is Conducted

Fit Indexes	Obtained Values	Results
Chi-square/sd	3.671	<5: Acceptable.
RMSEA	.063	.05-.08: Acceptable.
CFI	.995	>.95: Good fit.
GFI	.994	>.95: Good fit.
AGFI	.861	>.85: Acceptable.
NFI	.993	>.95: Good fit.

The Chi-square/sd value (3.671), obtained for testing whether or not the structural model is fit, falls within the acceptable limits since it is lower than 5 (Kline, 2011). The RMSEA value checked for model fit is detected as .063. The RMSEA value between .05-.08 indicates a close-fit (Kline, 2011). Since CFI (.995), GFI (.994) and NFI (.993). values exceed .95, the model is proven to be a good fit (see Table 3). AGFI (.861) value is acceptable (Hu & Bentler, 1999; Tabachnick & Fidell, 2007). These results indicate that the structural model is compatible.

In the structural model analyses performed via path analysis, regression coefficients are also checked as well as the fit indexes. The regression values for each defined path must be significant at .05 level at a minimum, therefore the paths with values exceeding .05 must be excluded from the model (Byrne, 2010; Şimşek, 2007). β, std. error, t- and p- values are given in Table 4. As seen in Table 4; Trust (β = .389, p <.05), PE (β = .160, p <.05), SI (β = -.067, p <.05), FC (β = .215, p <.05), PV (β = - .079, p <.05) and HA (β = .307, p <.05) are significant explanatory variables of BI, whereas EE (β = - .035, p> .05) and HM (β = .013, p> .05) are not. According to these results, hypotheses H1a, H3a, H4a, H6a, H7a, and H9a are to be approved, while hypotheses H2a and H5a are to be disapproved (See Table 4).

TR (β = .195, p <.05) and HA (β = .440, p <.05) are significant explanatory variables of Use Behavior while FC (β= -.050, p> .05) and BI (β = .022, p> .05) are not. According to these results, hypotheses H7d and H9d are to be approved while hypotheses H4d and H8a are to be disapproved (See Table 4).

Interaction impacts of TR (β = - .083, p <.05) and HM (β = .004, p <.05) with Age are significant explanatory variables for BI. However, interaction impacts of PE (β = .054, p> .05), EE (β = -.017, p> .05), SI (β = -.024, p> .05), FC (β = -.020, p> .05), PV (β = .055, p> .05), and HA (β = -.044, p> .05) with Age are not significant explanatory variables for BI. According to these results, hypotheses H5b and H9b are to be approved while hypotheses H1b, H2b, H3b, H4b, H6b, and H7b are to be disapproved (See Table 4).

Interaction impacts of Trust (β = .026, p> .05), PE (β = .001, p> .05), EE (β = - .033, p> .05), SI (β = .006, p> .05), FC (β = -.041, p> .05), HM (β = .022, p> .05), PV (β = -.047, p> .05) and HA (β = -.039, p> .05) with Experience are not significant explanatory variables for BI. According to these results, hypotheses H1c, H2c, H3c, H4c, H5c, H6b, H7c, and H9c are to be disapproved (See Table 5).

Interaction impacts of TR (β = -.018., p> .05), FC (β = .013, p> .05) and HA (β = -.044, p> .05) with Age are not significant explanatory variables for Use Behavior. Similarly, interaction impacts of TR (β = .006, p> .05), FC (β = -.053, p> .05) and HA (β = -.043, p> .05) with Experience are not significant explanatory variables for Use Behavior. According to these results, H7e is to be approved, while hypotheses H4e, H7e, H9e, H4f, H7f, and H9f are to be disapproved (See Table 4).

This model explains 57% (R2 = 57) of the variance in BI and 37% (R2=37) of the variance in use behavior (see Table 5). According to these results, it is possible to claim that the variables included in the study explain 57% of the variance in individuals' intention to use mobile banking. This value indicates that intention can be predicted to a great extent through the model. The percentage of variance explained for use behavior is lower. The variables in the model can explain about 37% of the variance in use behavior.

Table 4: Measurement Values of the Tested Model

Hypothesis	Structural Paths	Estimate β	Std. Error	t value	p value	Hypothesis Test Result
H9a	T → BI	.389	.036	10.726**	.000	Approval
H1a	PE → BI	.160	.033	4.830**	.000	Approval
H2a	EE → BI	-.035	.038	-.925	.355	Disapproval
H3a	SI → BI	-.067	.030	-2.249*	.025	Approval
H4a	FC → BI	.215	.041	5.280**	.000	Approval
H5a	HM → BI	.013	.032	.390	.696	Disapproval
H6a	PV → BI	-.079	.033	-2.416*	.016	Approval
H7a	HA → BI	.307	.035	8.697**	.000	Approval
H9d	T → UB	.195	.042	4.643**	.000	Approval
H4d	FC → UB	-.050	.040	-1.261	.207	Disapproval
H7d	HA → UB	.440	.041	10.690**	.000	Approval
H8a	BI → UB	.022	.046	.488	.626	Disapproval
H9b	T*A → BI	-.083	.040	-2.054*	.040	Approval
H1b	PE*A → BI	.054	.036	1.497	.134	Disapproval
H2b	EE*A → BI	-.017	.037	-.462	.644	Disapproval
H3b	SI*A → BI	-.024	.038	-.629	.529	Disapproval
H4b	FC*A → BI	-.020	.045	-.453	.651	Disapproval
H5b	HM*A → BI	.004	.002	2.140*	.032	Approval
H6b	PV*A → BI	.055	.041	1.333	.183	Disapproval
H7b	HA*A → BI	-.044	.042	-1.039	.299	Disapproval
H9e	T*A → UB	-.018	.045	-.402	.688	Disapproval
H4e	FC*A → UB	.013	.041	.317	.751	Disapproval
H7e	HA*A → UB	-.058	.047	-1.235	.017	Approval
H9c	T*E → BI	.026	.040	.653	.514	Disapproval
H1c	PE*E → BI	.001	.001	.743	.458	Disapproval
H2c	EE*E → BI	.033	.041	.815	.415	Disapproval
H3c	SI*E → BI	.006	.034	.183	.855	Disapproval
H4c	FC*E → BI	-.041	.042	-.993	.321	Disapproval
H5c	HM*E → BI	.022	.032	.677	.499	Disapproval
H6c	PV*E → BI	-.047	.041	-1.154	.249	Disapproval
H7c	HA*E → BI	.039	.037	1.039	.299	Disapproval
H9f	T*E → UB	.006	.044	.144	.885	Disapproval
H4f	FC*E → UB	-.053	.041	-1.309	.191	Disapproval
H7f	HA*E → UB	-.043	.042	-1.029	.304	Disapproval
Trust- T, Performance Expectancy- PE, Effort Expectancy-EE, Social Influence- SI, Facilitating Conditions-FC, Hedonic Motivation-HM, Price Value- PV, Habit- HA, Behavioral Intention - BI, Use Behavior - UB, Experience-E, Age-A				* p<.05 **p<.01 Behavioral Intention: R^2=.57 Use Behavior: R^2=.34		

According to the results indicated in Table 4, it is seen that the intention can be estimated more easily than the use within the model. The hypotheses of the research study and its results are given in Table 5.

Table 5: Research Hypotheses and Results

Hypotheses	Results
H1a: A significant association exists between BI to use Mobile Banking and PE.	Approval
H1b: The age variable has a moderator impact on the association between BI and PE.	Disapproval
H1c: The experience variable has a moderator impact on the association between BI and PE.	Disapproval
H2a: A significant association exists between BI to use Mobile Banking and EE.	Disapproval
H2b: The age variable has a moderator impact on the association between BI and EE.	Disapproval
H2c: The experience variable has a moderator impact on the association between BI and EE.	Disapproval
H3a: A significant association exists between SI and BI to use Mobile Banking.	Approval
H3b: The age variable has a moderator impact on the association between BI and SI.	Disapproval
H3c: The experience variable has a moderator impact on the association between BI and SI.	Disapproval
H3d: A significant relationship exists between SI and use behavior towards using Mobile Banking.	Approval
H4a: A significant relationship exist between FC and BI to use Mobile Banking.	Approval
H4b: The age variable has a moderator impact on the relationship between BI and FC.	Disapproval
H4c: The experience variable has a moderator impact on the association between BI and FC.	Disapproval
H4d: A significant association exists between use behavior for using Mobile Banking and FC.	Disapproval
H4e: The age variable has a moderator impact on the association between use behavior and FC.	Disapproval
H4f: The experience variable has a moderator impact on the association between use behavior and FC.	Disapproval
H5a: A significant association exists between HM towards using Mobile Banking and BI.	Disapproval
H5b: The age variable has a moderator impact on the association between use behavior (actual use) and HM.	Approval
H5c: The experience variable has a moderator impact on the association between HM and use behavior (actual use).	Disapproval
H6a: A significant association exists between BI to use Mobile Banking and PV.	Approval
H6b: The age variable has a moderator impact on the relationship between and BI and PV.	Disapproval
H6c: The experience variable has a moderator impact on the relationship between BI and PV.	Disapproval
H7a: A significant association exists between HA and BI to use Mobile Banking.	Disapproval
H7b: The age variable has a moderator impact on the relationship between HA and BI.	Approval
H7c: The experience variable has a moderator impact on the association between HA and BI.	Disapproval
H7d: A significant relationship exists between HA and use behavior towards using Mobile Banking.	Approval
H7e: The age variable has a moderator impact on the association between HA and use behavior.	Approval
H7f: The experience variable has a moderator impact on the association between HA and use behavior.	Disapproval
H8a: A significant relationship exists between BI and use behavior towards using mobile banking (actual use).	Disapproval
H9a: A significant relationship exists between TR and BI to use Mobile Banking.	Approval
H9b: The age variable has a moderator impact on the association between TR and BI.	Approval
H9c: The experience variable has a moderator impact on the association between TR and BI.	Disapproval
H9d: A significant association exists between TR and use behavior towards using Mobile Banking.	Approval
H9e: The age variable has a moderator impact on the association between TR and use behavior.	Disapproval
H9f: The experience variable has a moderator impact on the association between TR and use behavior.	Disapproval

Upon overall consideration of the results, it is seen that 11 regression coefficients are significant, whereas 23 regression coefficients are insignificant. The paths with insignificant results are excluded from the model one by one and the model is re-analyzed. The purpose of this embodiment is that if one path is excluded from the model, the values for other paths may change. The model fit indexes and regression values related to the final state of the model which are formed after the exclusion of insignificant paths according to the regression values are given in Table 6 and Table 7.

Table 6: Fit Index Values of the Second Model on Which Path Analysis is Conducted

| Fit Indexes	Obtained Values	Result
Chi-square/sd	4.059	<5: Acceptable.
RMSEA	.067	.05-.08: Acceptable.
CFI	.989	>.95: Good-fit.
GFI	.992	>.95: Good-fit.
AGFI	.931	>.90: Good-fit.
NFI	.986	>.95: Good-fit.

The fit indexes presented in Table 6 indicate that the second model to be tested is a close-fit (acceptable) in terms of the Chi-square/sd (4.059) and RMSEA (.067), whereas is a good fit in terms of CFI (.989), GFI (.992), AGFI (.931), and NFI (.986) (Hu & Bentler, 1999; Tabachnick & Fidell, 2007).

Table 7: Measurement Values of the Tested Second Structural Model

Structural Paths	Estimate β	Std. Error	t value	p value	Hypothesis Test Results
T ➔ BI	.387	.035	11.127**	.000	Approval
PE ➔ BI	.138	.030	4.577**	.000	Approval
SI ➔ BI	-.071	.029	-2.462*	.014	Approval
FC ➔ BI	.228	.031	7.282**	.000	Approval
PV ➔ BI	-.075	.032	-2.365*	.018	Approval
HA ➔ BI	.305	.033	9.261**	.000	Approval
T ➔ UB	.190	.037	5.101**	.000	Approval
HA ➔ UB	.442	.037	11.834**	.000	Approval
T*A ➔ BI	-.067	.026	-2.550*	.011	Approval
HM*A ➔ BI	.005	.002	3.208**	.001	Approval
HA*A ➔ UB	-.094	.034	-2.764**	.006	Approval
* $p<.05$ **$p<.01$ Behavioral Intention: $R^2=.56$ Use Behavior: $R^2=.34$					

It can be said that the β values in Table 7 are similar to those in the first model. As mentioned above, the interaction impact of Habit and Age (β = - .094, p <.01) becomes significant for use behavior. The final version of the theoretical model is illustrated in Figure 3.
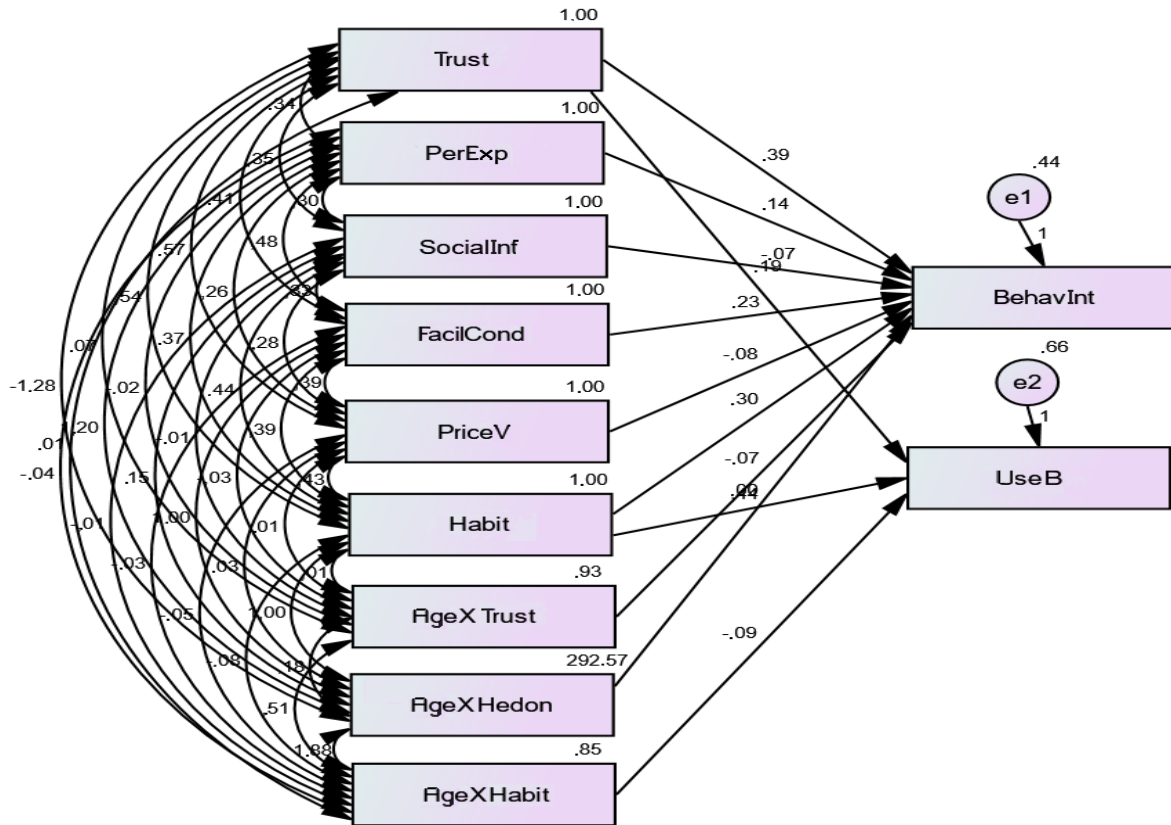
Figure 3: The Final Stage of the Tested Theoretical Model

It is possible to claim that the model established as a result of all the analyses conducted so far is valid and statistically significant. Ensuring the construct validity of the scales used in the research is an indicator that these scales accurately measure the desired properties.

CONCLUSION AND SUGGESTIONS

This study aims to examine the impacts of FC, PE, HM, HA, EE, BI, SI, and TR factors of the UTAUT-2 model on the intention to use and use behavior of mobile banking. In order to achieve this objective, the model is tested with SEM. The results and interpretations of the hypotheses related to the model within the scope of the research are discussed in detail below.

The findings of the research study detect that PE explains BI. Accordingly, it can be stated that the PE affects the survey participants' intention to use mobile banking, whereas the expected benefit from mobile banking is also effective. Venkatesh ve ark., (2003) claimed that individuals who believed that technology would be useful in daily life were more motivated to use that technology. Numerous studies supported the existence of significant influence of PE on BI, which is defined as the measure of the power of an individual's intention to exhibit a particular behavior (Özecan, 2018; Baptista & Oliveria, 2017; Tseng, 2015; Alalwan ve ark., 2017; Bhatiasevi, 2015; Kurt & Turan, 2017). It is concluded that age and experience have no moderator impact on the association between BI and PE. From these results, it can be inferred that PE in each age group explains BI. At the same time, it can be thought that one would intend to use mobile banking for the first time since it is beneficial. The fact that there is no influence of PE on the intention of using mobile banking among people of different age groups and with different technological experiences can be explained by the fact that people of all ages and segments desire to improve their daily lives.

In the study, it is concluded that BI is not influenced by EE, but age and experience have no moderator impacts. This result may be stemming from the fact that the research study is conducted on individuals using mobile banking services. Because EE is related to how easily a technological system can be used. Numerous studies advocated the notion that EE was one of the variables affecting BI in mobile banking transactions (Alalwan ve ark., 2016; Riffai, Grant, & Edgar, 2012). Nevertheless, in two studies conducted on Turkey (Özecan, 2018; Kurt & Turan, 2017), it was found that EE failed to explain BI in a similar manner with the obtained findings of this research study. The failure of EE as a significant explanatory variable may be stemming from cultural and social differences.

It is concluded that SI significantly affects mobile banking BI. It is possible to claim that this research study approves the accepted impact of SI (Venkatesh ve ark., 2012; Venkatesh ve ark., 2003) on intention to use mobile banking (Tam & Oliveria, 2016; Alalwan ve ark., 2017; Zhou ve ark.,2010; Dwivedi, Rana, Chen, & Williams, 2011). The results of numerous studies conducted in this field also support this finding (Alalwan ve ark., 2016; Martins ve ark., 2014; Yu, 2012; Riquelme & Rios, 2010). According to the results of this research study, the intention to use mobile banking is influenced by the experiences of friends and family members. Such a finding can be verified by the fact that Turkish people prefer verbal communication rather than written communication and that it is easily affected by the behaviors of people in their immediate social environment. The moderator impact of experience and age on the association between BI and SI is not determined.

While FC explains BI, it does not explain use behavior. FC, composed of the resources and technical infrastructure provided by banks, is detected to affect the use behavior and BI by various research studies (Yu, 2012; Venkatesh ve ark., 2012; Alalwan ve ark., 2015, 2016). Accordingly, the findings of this study comply with some references in the literature, but not with others. Özecan (2018) found that FC did not explain BI, whereas Kurt & Turan (2017) claimed that they did. Age and experience have no moderator impact on FC factor. Although FC does not affect BI in mobile banking applications, it may be suggested that designs should be made according to the individual differences and the expectations of the individuals while presenting FC based on the conclusion that it does not affect use behavior.

It is concluded that HM alone is not a significant explanatory variable for BI, but its interaction impact with age variable is significant. In the literature, there are studies indicating that HM positively affects BI (Baptista & Oliveria, 2017; Puschel ve ark., 2010), whereas some studies claimed the opposite (Özecan, 2018). The obtained findings of this research study partially comply with the literature. HM is effective in the early stages of technology usage, although loses its impact in the following phases. This may be due to the fact that a novelty in the technology loses its initial motivating impact as it continues to be used in the future, depending on the adaptation factor. New technologies can be very effective for young people in pursuit of technological innovations. As age increases, the attractiveness of the new technology may lose its prominence.

The findings of the research study reveal that PV has a significant influence on the intention to use mobile banking. In order to utilize mobile banking, one needs to have a smartphone and also the Internet access. Therefore, mobile banking has a cost which inflicts an adverse impact on PV (Yang, 2009). The obtained findings indicate that these costs affect individuals' intention to use. This

is also advocated by research studies conducted in different countries (Sathye, 1999; Gerrard ve ark., 2006). Age and experience do not have a moderator impact on PV variable.

In this study, it is determined that HA is an effective variable on the intention to use mobile banking and use behavior of using mobile banking. Among the other variables, HA has the most explanatory impact. Mobile banking applications are also covered by this definition. The mobile banking user gets used to the applications after a certain time and does not need any other motivation to use. The results obtained by this research support the explanations and habits are the most powerful factors affecting the behavior. Similar results were reached in studies conducted on mobile banking (Ajzen & Fishbein, 2005; Baptista & Oliveria, 2017; Özecan, 2018).

The interaction impact of experience and HA is not determined as significant in the study. It is seen that the age variable has a moderator impact on the association between HA and use behavior. The empowering impact of experience on HA is subject to vary according to the age groups in different societies. Therefore, the impact of the experience variable may not be significant due to different moderator impact of age variable in different societies.

According to the results of the research, TR has an indirect influence on BI to use mobile banking and a direct impact on use behavior. Trust factor does not take place in the UTAUT and UTAUT-2 models coined by Venkatesh, ve ark., 2012) to explicate the behavior of using technology. However, this variable, which expresses the trust level of a client towards the service provider (Gefen ve ark., 2003), is considered as a crucial factor predicting the client's mobile banking perception and intention. Research study suggests that TR has a significant impact on mobile banking use. Moderator impact of age and TR on BI is significant. Experience has no moderator impact on the association of TR with use behavior and BI.

The absence of an association between use behavior and BI is very crucial for the whole research study. Because the basis of UTAUT and UTAUT-2 models involves the existence of an association between intention to implement and realize an application. Failure to obtain this result is evaluated as a finding that not all behavioral intentions could turn into a behavior. It may also be due to the fact that the independent variables in the study affect the direct use behavior, not through BI. Gürses (2016), which was conducted on e-government applications, also concluded that intention did not affect use.

Researchers on mobile banking may be advised to develop the model by including different variables into the research model. In this study, use behaviors of mobile banking are examined with moderator impact of age and experience variables within the scope of UTAUT-2. For this reason, it is suggested that the moderator impact of the gender variable can be analyzed in future studies and the model results for men and women would be evaluated separately. Nonetheless, along with the inclusion of different factors, the models with higher explanatory power can also be developed.

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