Examination of The Factors Effective in The use of the e-government system with the technology acceptance model

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Abstract. In this study, it was aimed to determine the factors affecting user behaviors in adopting the e-government system with the theory of reasoned action and technology acceptance model used in the literature. In this regard, 5500 academic and administrative staff working at Atatürk and Gümüşhane universities were included in the study using the questionnaire. In consequence of the survey application, 463 questionnaires were analyzed. The Cronbach Alpha Coefficient method was used for the reliability, and the Confirmatory Factor Analysis was used for the validity of the research scales. After determining the reliability and validity of the scales, research hypotheses were tested by the Structural Equation Model. According to the analysis results, in the first model of the study, anxiety has a negative impact on perceived usefulness and perceived ease of use. On the other hand, results showed that reliance has no significant effect on perceived usefulness and perceived ease of use. Furthermore, it has been obtained that perceived usefulness is the most important factor for the attitude with a rate of 69.2%. In the second model of the study, it has been obtained that self-efficacy is the most important factor for the perceived behavior control with a rate of 82.3% and perceived behavior control is the most important factor for the perceived behavior control with a rate of 75.6%. Moreover, the actual behavior factor for adopting the e-government system in the first model was explained with more percentage than the second model

Keywords. E-Government, Electronic government, Technology acceptance model, Theory of reasoned action, Structural equation model.

JEL. C38, H11, H19.

1. Introduction

With the development of the internet, many new concepts have entered our life. Concepts such as electronic mail, portable personal computers, smartphones, electronic banking, electronic commerce, and e-government are a part of the electronic transformation process we are experiencing. Developments in information and communication technologies have also led to significant changes in corporate governance structures. Administrative structures and service approaches of public institutions affected by this process also undergo

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significant transformations. In today's world where globalization is also rapidly realized, the information technology is rapidly advancing. Along with the globalization processes, many countries are going through structuring in public administrations. The most important structuring practice is e-government applications. With the acceleration and expansion of the globalization process, the most important revision observed in the public administrations of the countries is the implementation of e-government models. The electronic government, which began to show itself in the 1990s, is based on information and communication technologies. The e-government was quickly implemented and became a part of life all around the world. In this context, the concept of e-government has become a phenomenon that needs to be studied and developed.

In this context, the main purpose of the study is to determine the factors that affect the usage behaviors of users who use the e-government system. In this framework, using Davis' technology acceptance model, it was tried to reveal a structural model determining the relationships and effects between the factors of the perceived benefit, perceived ease of use, compliance, facilitating conditions, reliance, anxiety, time, subjective norms, external influences, self-efficacy, perceived behavioral control, attitude, intention, and actual behavior and it was tried to determine the degree of influence of each factor. In the study, the results of the statistically tested model were interpreted taking into consideration the institution in which the technology is applied.

2. Literature review

It is thought that after studying the factors affecting the acceptance of the e-government system with the technology acceptance model and the theory of reasoned action, it would be useful to include in the study the other studies that reveal and examine the factors affecting the acceptance and adoption of new systems and technologies. From this point of view;

In the first stage of his two-stage study, Davis (1989) conducted a survey with 120 employees in a lab at IBM in Toronto and received 112 feedbacks. In the study, the employees were investigated for their use of e-mail and a file editor, and it was determined in the study that 109 employees used e-mail and 75 employees used file editor programs. A second study was conducted on 40 students who did master's degree in business administration at Boston University. In the study, students were asked to work on two graphic systems for one hour, and the data were collected with the questionnaire. In this study, it was revealed that the perceived benefit and perceived ease of use directly and positively affected the use of the system.

In a study they conducted, Kyriakidou *et al.,* (1999) compared the attitudes of Cypriot and British students and teachers in Cyprus towards the ICT use in education. The study data were collected through a questionnaire in Cyprus and phone calls in the UK. As a result of the study, it was found out that the use of technology in education is more beneficial in the candidate with a computer and that teachers who own a computer use the interactive whiteboard more effectively.

In the study of Venkatesh & Davis (2000), four different systems were used in four different organizations by 156 employees, and the model was measured at three different times in each organization. As a result, the secondary determinants of the perceived benefit intentions at all three times and in all four organizations were determined to be both the social impact processes (subjective norms, voluntarism, and image) and cognitive instrumental processes (relevance, output quality, and perceived ease of use) .

Moon & Kim (2001) conducted a study to evaluate the acceptance of the World Wide Web concept within the technology acceptance model. As a result of the study, it was determined that the attitude toward the use of the World Wide Web positively affected the intention, and as a result, the intention had a positive effect on the actual behavior.

Hu *et al.,* (2003) conducted a study on the technology acceptance of teachers using the PowerPoint program in Hong Kong. In this study, the data were collected by a questionnaire from 138 teachers in the first step and 134 teachers in the second step. A change of mind was observed in teachers between the beginning and the end of the course. At the beginning of the course, the technology acceptance was 47%, and it increased to 72% at the end of the course, and accordingly, the perceived benefit increased from 48% to 58% and the perceived ease of use increased from 30% to 34%. Furthermore, while the effect of subjective norms on the technology acceptance was supported at the beginning of the course, it was not supported when the course ended. The perceived ease of use and subjective norms at the beginning and end of the course were found to have an effect on the perceived benefit.

Anderson & Schwager (2004) identified the factors that influence the acceptance of wireless network technology by small and medium-sized enterprises in their study. In the study, a questionnaire was applied by e-mail to 1200 companies with less than 500 employees. As a result of the study, the behavioral intention was found to have a positive effect on the use of technology. Moreover, no significant effect of facilitating conditions was observed on the use of technology.

In the study of Çam (2012) conducted on the acceptance of the cloud informatics technology in 300 informatics specialists working at 160 universities, the data were collected by e-mail, fax, and face-to-face interviews. As a result of the study, it was determined that facilitating conditions and reliance positively affect the perceived benefit and perceived ease of use, anxiety negatively affects the perceived benefit and perceived ease of use, and that the perceived benefit positively affects the attitude toward accepting the technology. However, it was found out that the perceived ease of use has no significant effect on the attitude, the perceived benefit positively affects the intention to use the technology, but the attitude has no significant effect on the intention, and that the intention positively affects the behavior to use the technology.

3. Methodology
3.1. Models and hypotheses
In order to determine the hypotheses and the factors in the model in the study, native and foreign literature was reviewed, and many sources were used. For this step, all of the technology acceptance models in the literature were examined and compared with each other. In the models examined, it was found out that the planned behavioral theory and the technology acceptance model Hung *et al.,* (2006) studied had a suitable theoretical framework for the purpose of the study. The suitability of the dimensions of the factors in the model to the study was assessed, and the model was expanded with the addition of appropriate new factors for the purpose of the study. Furthermore, many studies (Hung *et al.,* 2013; Mahadeo, 2009; Alrowili, 2015; Suki & Ramayah, 2010), which measure the new technology acceptance taking into account the factors in the model, contributed to the formation of this model. There are 13 hypotheses to be tested in this study. Factors affecting the adoption of e-government technology in the model are presented in six stages. While compatibility, reliance, time, and anxiety for adopting the e-government system were included in the model as external factors, how the external factors affect the perceived benefit and perceived ease of use was separately expressed. The ultimate dependent variable of the model is the actual behavior. For this reason, it was first tried to measure the transformation ratios of external factors and the perceived benefits and perceived ease to the attitude and intention, and then their effect on the actual behavior.
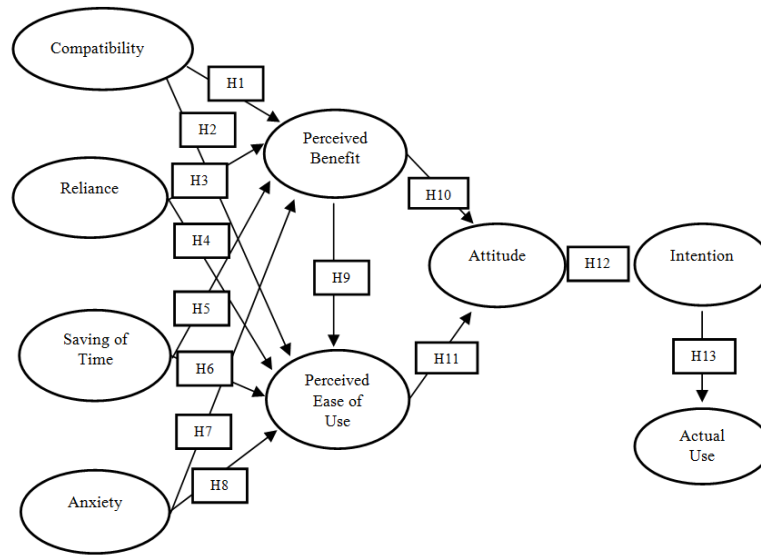
Figure 1. *Research Model*

H1: The higher level of compatibility positively affects the perceived benefit in adopting e-government services.

H2: The higher level of compatibility positively affects the perceived ease of use in adopting e-government services.

H3: The higher level of reliance positively affects the perceived benefit in adopting e-government services.

H4: The higher level of reliance is for adopting e-government services, and it positively affects the perceived ease of use.

H5: The higher level of saving of time positively affects the perceived benefit in adopting e-government services.

H6: The higher level of saving of time positively affects the perceived ease of use in adopting e-government services.

H7: The higher level of anxiety negatively affects the perceived benefit in adopting e-government services.

H8: The higher level of anxiety negatively affects the perceived ease of use in adopting e-government services.

H9: The higher level of perceived benefit positively affects the perceived ease of use in adopting e-government services.

H10: The higher level of perceived benefit positively affects the attitude toward adopting e-government services.

H11: The higher level of perceived ease of use positively affects the attitude toward adopting e-government services.

H12: The attitude positively affects the intention in adopting e-government services.

H13: The behavioral intention positively affects the actual use in adopting e-government services.

3.2. Method and scope

In a research process, after the research methods are determined, the population of the study is determined, and samples are selected from this population. The population is a structure covering all the units within the scope of the study (Arık, 1992). According to Karasar (1998), the population is the whole of the units in which the results of the study are desired to be generalized. The population of the study consists of the academic and administrative staff at Atatürk University and Gümüşhane University. The convenience sampling method was used in determining the sample mass. The sample size of a population of 1000 people with

e=5% error margin within 95% reliance interval should be 278 (Kurtuluş, 1998). In the study, a questionnaire was applied to 500 academic and administrative staff. Faulty and deficient ones of the 500 questionnaires were excluded, and 463 questionnaires were taken into account in the study.

In this study, the questionnaire method, one of the quantitative research methods, was used to collect data. The questionnaire of the study was applied to 500 academic and administrative staff from 2 universities between 1.02.2016 and 10.03.2016. While the staff at Atatürk University was reached by the electronic questionnaire method, the questionnaire form was printed and applied to the staff of Gümüşhane University by the face-to-face interview method. In the first part of the questionnaire, 9 questions were used to determine the demographic characteristics of the academic and administrative staff. In the second part of the questionnaire, there are a total of 56 questions consisting of 7 questions expressing the perceived benefit within the technology acceptance model, 5 questions expressing the perceived ease of use, 4 questions expressing the actual behavior, 3 questions expressing the compatibility, 5 questions expressing the attitude, 6 questions expressing the intention, 3 questions expressing facilitating conditions, 4 questions expressing the anxiety, 4 questions expressing the reliance, 3 questions expressing the time, 3 questions expressing subjective norms, 3 questions expressing the external influence, 3 questions expressing the self-efficacy, and 3 questions expressing the perceived behavioral control. The description factors used in the questionnaire and what they mean were expressed in the theoretical framework of the study. Furthermore, the scales on which the factors were taken were explained under the heading of the assessment tool. The academic and administrative staff participating in the questionnaire were asked to provide answers reflecting their opinions. The questionnaire questions were prepared on the 5-point Likert-type scale of 1: Strongly Disagree, 2: Disagree, 3: Undecided, 4: Agree, 5: Strongly Agree.

3.3. Assessment tool of the study

In this study, the sample mass consists of the academic and administrative staff of Atatürk University and Gümüşhane University. The survey's demographic variables are used to determine the participants' age, gender, marital status, title, educational status, computer experience, internet experience, use of e-government website, and monthly income. Factors in the second part of the questionnaire are intended to determine the factors included in the theory of planned behavior and the technology acceptance model. The factors included in the research model and most of the included variables were used in different previous studies. However, since the subject and the main mass of these scales are different, the scales to be used in the model were rearranged in a form suitable for this study. Table-1 shows which studies were used while forming the scale items used in the study.

Table 1. *Scale Structures of the Study and the Literature Benefited*

Factor	Variables	Literature
Compatibility	C1, C2, C3	Hung *et al.,* (2006), Lin (2007), Mahadeo (2009), Agag & El-Masry (2016)
Reliance	R1, R2, R3,R4	Hung *et al.,* (2006), Duyck *et al.,* (2008), Wu *et al.,* (2011).
Time	T1, T2, T3	Alrowili *et al.,* (2015)
Anxiety	A1, A2, A3, A4	Walczuch *et al.,* (2007), Tung *et al.,* (2008), Duyck *et al.,* (2008), Saade & Kira (2007).
Perceived Benefit	PB1, PB2, PB3, PB4, PB5, PB6, PB7	Davis (1989), Hung *et al.,* (2006), Anderson & Schwager (2004), Mohd & Mohammad (2005), Venkatesh & Davis (2000), Wu *et al.,* (2011), DeLone & McLean (2003)
Perceived Ease of Use	PEU1, PEU2, PEU3, PEU4, PEU5	Davis (1989), Hung *et al.,* (2006), Wu *et al.,* (2011), Saade & Bahli (2005), Anderson & Schwager (2004), Lederer *et al.,* (2000), DeLone & McLean (2003)
Attitude	AT1, AT2,	Hung *et al.,* (2006), Lin (2007), Wu *et al.,* (2011), Ajzen

	AT3, AT4, AT5	(2002)
Intention	I1, I2, I3, I4, I5, I6	Hu *et al.,* (2003), Anderson & Schwager (2004), Mohd & Mohamad (2005), Hung *et al.,* (2006), Lin (2011)
Actual Behavior	RB1, RB2, RB3, RB4	Lederer *et al.,* (2000), Hu *et al.,* (2003), DeLone & McLean (2003), Lin (2007), Mahadeo (2009),
Facilitating Conditions	FC1, FC2, FC3	Hung *et al.,* (2006), Lin (2007), Duyck *et al.,* (2008), Sahni (1994), Wu *et al.,* (2007), Mahadeo (2009),
Subjective Norms	SN1, SN2, SN3	Lin (2007), Schierz *et al.,* (2010)
External Influence	EI1, EI2, EI3	Hung *et al.,* (2006), Lin (2007),
Self-efficacy	SE1, SE2, SE3	Hung *et al.,* (2006), Lin (2007), Kim & Mirusmonov (2010), Oostrom *et al.,* (2013), Sharma *et al.,* (2016)
Perceived Behavioral Control	PBC1, PBC2, PBC3	Hung *et al.,* (2006), Lin (2007),

4. Findings of the study

4.1. Demographic findings

When the academic and administrative staff is evaluated from the demographic variables point of view, the results are summarized in Table-2.

Table 2. *Demographic characteristics of the participants*

	Variable	Frequency	Percentage (%)
Age	23-35	255	55.1
	36-48	143	30.9
	49-61	57	12.3
	62 and older	8	1.7
Gender	Female	144	31.1
	Male	319	68.9
Marital Status	Unmarried	175	37.8
	Married	288	62.2
Title	Prof. Dr.	44	9.5
	Assoc. Prof. Dr.	38	8.2
	Assist. Prof. Dr.	82	17.7
	Lecturer	28	6.0
	Res. Assist.	118	25.5
	Specialist	14	3.0
	Director- Administrative Staff	14	3.0
	Personnel- Administrative Staff	125	27
Educational Status	High School	21	4.5
	Associate's Degree and Bachelor's Degree	115	24.8
	Postgraduate	327	70.6
Monthly Income	Less than 3000	120	25.9
	3001-5000	217	46.9
	5001-7000	100	21.6
	More than 7001	26	5.6

Participants' computer, internet, and e-government website usage levels were summarized within the scope of the study in Table-3.

Table 3. *Internet usage information of the participants*

	Variable	Frequency	Percentage (%)
How often do you use the computer a day?	Less than 2 hours	13	2.8
	between 2-3 hours	55	11.9
	between 4-5 hours	128	27.6
	more than 5 hours	267	57.7
How often do you use the internet a day?	less than 2 hours	51	11.0
	between 2-3 hours	103	22.2
	between 4-5 hours	106	22.9
	more than 5 hours	203	43.8
Have you ever used the e-government website?	Yes	377	81.4
	No	86	18.6

4.2. Results of the reliability and validity analyses

Reliability, one of the essential features of the scale, measures the consistency of measurement. When a reliable scale is repeated in different places and under the same conditions, similar results are to be obtained (Carmines & Zeller, 1982; Gay, 1985; Carey, 1988). The Cronbach's Alpha Coefficient is the weighted standard deviation average and is obtained as a result of the proportion of the variances of the questions in one measure to the overall variance. This number is between 0 and 1, and the closer it is to 1, the higher the reliability of the scale is (Kalaycı, 2010). The Cronbach's Alpha value of the study is 0.884.

The validity analysis, which is defined as the level of measuring of a criterion that a test wants to measure, is expected to measure the criterion that is actually wanted to be measured with the questions in the scale (Altunışık *et al.,* 2005). In the validity analysis, methods such as the content validity, concurrent validity, predictive validity, face validity, and construct validity are used. The factor analysis is often used in the construct validity, which determines the extent to which scale questions that are used to measure a structure can measure the related construct. The confirmatory factor analysis, which is defined as an analysis method used to determine the relationship between the implicit variable and the observed variables forming each implicit variable, was used in the determination of the scale validity in the study (Şimşek, 2007). The confirmatory factor analysis was used in our study since it was used at every stage of the scale development process to investigate hidden structures in a measurement method such as a questionnaire.

The goodness of fit measures of the confirmatory factor analysis are presented in Annex 1. When the goodness of fit measures were examined, $\chi2/df$ ratio, RMSEA, GFI, AGFI, CFI, NFI, TLI, and RFI values were found to be at acceptable levels in terms of acceptable compliance measures. Therefore, as a result of the confirmatory factor analysis, the most appropriate factor structures for the concepts of Perceived Benefit, Perceived Ease of Use, Attitude, Intention, Actual Behavior, Compliance, Reliance, Time, Anxiety, Subjective Norms, Perceived Behavioral Control, External Influence, Facilitating Conditions, were reached.

4.3. Structural equation analysis results of the model

The compliance measures of the first model of the study are presented in Table 4. The goodness of fit measures were examined to see how well the model describes the resulting data. The evaluation of the model started with the chi-square ($\chi2$) statistic. The goodness of fit measures are used in the decision to accept or reject the structural model. The goodness of fit measures for the model are given in Table 4 and examined.

Table 4. *Goodness of fit measures of the study*

Compliance Measure	Ideal Fitness Values	Acceptable Fitness Values	Fitness Value of the Factor
$\chi2$	(P>0.05) is desired.		1213.004
$\chi2$ /df	$\chi2$ /df≤ 2	$\chi2$ /df≤ 5	2.346
RMSEA	0.00<RMSEA<0.05	0.05<RMSEA<0.10	0.054
GFI	0.95<GFI<1.00	0.90<GFI<0.95	0.908
AGFI	0.90<AGFI<1.00	0.80<AGFI<0.90	0.869
CFI	0.95<CFI<1.00	0.90<CFI<0.95	0.937
NFI	0.95<NFI<1.00	0.90≤NFI<0.95	0.895
TLI	0.95<TLI<1.00	0.90≤NFI<0.95	0.927
RFI	0.90<RFI<1.00	0.85< RFI <0.90	0.879

A significant chi-square value depends on the degree of freedom, which means that the observed and estimated variance-covariance matrices are different. On the other hand, if $\chi2$ does not make sense, this means that the two matrices are similar, in other words, the theoretical model reproduces the sample variance-covariance relation in the matrix significantly (Schumacker & Lomax, 2004). If the data are obtained from a population with a certain distribution, the chi-square test (χ^2) is

used to test normally (Snedecor & Cochran, 1989). However, the $\chi 2$ criterion is sensitive to the sample size and the correlation of the model (Schumacker & Lomax, 2004, Garson, 2009). χ^2/df (Chi-square/degree of freedom) is the least of the sample inconsistencies separated by the degree of freedom. This is called the relative chi-square or normal chi-square (Garson, 2009). When the model is evaluated according to $\chi 2$ and the ratio of the degree of freedom ($\chi 2/df=1213.004/517=2.346$), it can be expressed that compliance ($\chi 2 / df \leq 5$) according to the result obtained is an acceptable compliance. This ratio was obtained to be 2.346, and it was statistically determined that the compliance of the data with the model was acceptable.

The RMSEA (Root Mean Square Error Approximation) value is an important indicator of the model compliance (Jackson *et al.,* 2009; Taylor, 2008). According to Kelloway (1998), RMSEA has been the most commonly used compatible/incompatible evaluation in SEM applications. If the RMSEA value is less than or equal to 0.05, it means that this is a good fit; if it is between 0.05 and 0.08 or equal to 0.08, then it is a good fit; and if it is between 0.08 and 0.1 or equal to 0.1, then it is an acceptable fit (Hayduk, 1987; Chou & Bentler, 1990; Bollen & Long, 1992). When the model's RMSEA value (0.054) was evaluated, it was determined that the model showed an acceptable fit.

The GFI (Goodness of Fit Index) measures the relative amounts of variance and covariance of the sample data explained by a hypothesis model (Mulaik *et al.,* 1989). The most important limitation of the GFI is that the expected value varies with the sample size, although not as much as the RMSEA value (Kline, 2011). The GFI value is affected by the number of samples because its value increases as the number of samples increases (Hooper *et al.,* 2008). It is desired that the model has a GFI value higher than 0.90 and approaching 1 at the test phase (Hooper *et al.,* 2008). When the model's GFI value (0.868) was evaluated, it was found out that the model was very close to an acceptable compliance value. When the literature is examined, values above 0.85 for GFI are regarded as acceptable values.

The AGFI (Adjustment Goodness of Fit Index) fit index was developed instead of the GFI, which is expressed not to show good results, to correct bias due to the model complexity, in complex models with many variables (Çerezci, 2010). AGFI is between 0 and 1. While when AGFI is between 0.90 and 1 or close to 1, it means that the model shows a good fit, it is considered to be an acceptable value when it is higher than 0.85 (Raykov & Marcoulides, 2006). The AGFI value also increases as the size of the sample increases, just as the GFI (Raykov & Marcoulides, 2006; Bayram, 2013). The AGFI value was calculated to be 0.869 and is at the limit of the acceptable compliance value. The fact that these values are at the limit indicates that it is affected by the small size of the sample when evaluated together with other fit indexes. The simulation studies also show that GFI and AGFI are affected by the sample size (Schermelleh-Engel *et al.,* 2003). According to Anderson & Gerbing (1984), the GFI and AGFI values are low in complex models in which the sample size is small.

The CFI (Comparative Fit Index) shows the difference between the established model and default model ifthere is no relationship between the variables (Munro, 2005). The CFI value is affected by the sample size and is related to the power (Kim, 2009). The CFI is between 0 and 1. If this index is between 0.90 and 0.95, there is a good fit, and if it is greater than 0.90, it is an acceptable fit (Raykov & Marcoulides, 2006; Kline, 2011; Iacobucci, 2010). The CFI value of the research model is 0.937, which can be regarded as an acceptable fit measure.

The NFI (Normed Fit Index) is based on rescaling of the chi-square value to 0 (incompatible) and 1 (perfect fit) (Bollen, 1989; Kaplan, 2000; Schumacker & Lomax, 2004; Raykov & Marcoulides, 2006; Mulaik, 2009; Byrne, 2010). The NFI has a value between 0 and 1, which shows the good fit when it is between 0.95 and 1 and approaches 1 (Kaplan, 2000; Kline, 2011). When it has a value between 0.90 and 0.95, it is an indicator of the acceptable fit (Raykov & Marcoulides, 2006). The

NFI value of our model was calculated to be 0.895, which is between acceptable fit values because it is close to the limit.

The TLI (Tucker-Lewis Index) or, in other words, the NNFI (Non-Normed Fit Index) solves some problems of the negative bias (Bentler, 1990). In the case of small sample sizes, TLI may give a poor fit index although other fit indexes show a good fit (Bentler, 1990; Kline, 2005; Tabachnick & Fidell, 2007). Another problem of the TLI is that it sometimes shows a higher value than 1, so it can be difficult to interpret. The TLI usually shows a value between 0 and 1. In our model, this value is within the acceptable fit with the value of 0.927.

The RFI (Relative Fit Index) is known as RHO1. It takes values ranging from 0-1 (sometimes it may go out of these values). It is desired to get a value higher than 0.90 (Demerouti, 2004). In our model, this value is 0.879.

When the goodness of fit measures of the model were examined, it was observed that values of $\chi 2/df$, RMSEA, GFI, AGFI, CFI, NFI, TLI, and RFI were among the recommended acceptable fit values.

Table-5 contains the standard loads and the values to be used in evaluating the hypotheses. Table 5 also evaluates whether the relationships are significant and whether they are in the desired direction. In this evaluation, the p-values of the AMOS program for each relationship were used. Since our hypotheses were unidirectional in the positive or negative direction, one-sided test values were evaluated (Hair *et al.,* 1998). For this reason, p-values <0.05 were considered to be significant.

Table 5. *Evaluation of the hypotheses of the model*

Structural Relationships	Standard Loads	Standard Error	Critical Ratio t values	P-values	Hypothesis Result
Variables Influencing the Perceived Benefit Factor					
H1	0.172	0.35	4.057	000	Approval
H3	-0.22	0.033	-0.620	0.535	Rejection
H5	0.476	0.048	9.933	000	Approval
H7	-0.266	0.044	-5.203	000	Approval
Variables Influencing The Perceived Ease Of Use Factor					
H2	0.231	0.044	4.271	000	Approval
H4	0.076	0.044	1.600	0.110	Rejection
H6	0.068	0.063	1.064	0.287	Rejection
H8	-0.137	0.050	-2.351	0.019	Approval
H9	0.287	0.065	4.295	000	Approval
Variables Influencing The Attitude Factor					
H10	0.692	0.068	8.670	000	Approval
H11	0.098	0.030	2.847	0.004	Approval
Intention					
H12	0.923	0.137	1.981	0.048	Approval
Variables Influencing The Actual Behavior					
H13	0.808	1.969	1.992	0.046	Approval

It is observed that the compatibility factor has a positive effect on the Perceived Benefit (Regression load = 0.172; p=000<0.05). When the t-value and the standard error of the significance of the regression coefficient are examined, it is observed that the Compatibility variable has a positive effect on the Perceived Benefit variable (t=4.057, standard error=0.35, p=000<0.05). Therefore, there is a statistically positive and linear relationship between the Compatibility variable and the Perceived Benefit variable. People think that the e-government system will be useful because it is compatible with their work and lifestyle. For these reasons and as Mahadeo (2009) found in his study, the H1 hypothesis was accepted.

It is observed that the compatibility factor has a positive effect on the Perceived Ease of Use (Regression load=0.231; p=000 <0.05). When the t-value and the standard error of the significance of the regression coefficient are examined, it is observed that the Compatibility variable has a positive effect on the Perceived Ease of Use variable (t=4.271, standard error=0.044, p=000<0.05). Therefore, there is a statistically positive and linear relationship between the Compatibility variable and the Perceived Ease of Use variable. People think that the e-government system will be easy to use because it is compatible with their work and lifestyle. For these reasons and as Mahadeo (2009) found in his study, the H2 hypothesis was accepted.

It is observed that the Reliance factor has no effect on the Perceived Benefit (Regression load=-0.022, p=0.535>0.05). The average of the Reliance factor is close to instability, and because people are not sure that the e-government system is secure, the relationship is thought to be insignificant. Therefore, there is no statistically positive and linear relationship between the Reliance variable and the Perceived Benefit variable. For this reason, the H3 hypothesis was rejected.

It is observed that the Reliance factor has no effect on the Perceived Ease of Use (Regression load=-0.076, p=0.110>0.05). The average of the Reliance factor is close to instability, and because people are not sure that the e-government system is secure, the relationship is thought to be insignificant. Therefore, there is no statistically positive and linear relationship between the Reliance variable and the Perceived Ease of Use variable. For this reason, the H4 hypothesis was rejected.

It is observed that the Time factor has a positive effect on the Perceived Benefit (Regression load=0.476; p=000<0.05). When the t-value and the standard error of the significance of the regression coefficient are examined, it is observed that the Time variable has a positive effect on the Perceived Benefit variable (t=9.933, standard error=0.048, p=000<0.05). Therefore, there is a statistically positive and linear relationship between the Time variable and the Perceived Benefit variable. People think that the system provides the saving of time and thus, it is useful. For these reasons, the H5 hypothesis was accepted.

It is observed that the Time factor has no effect on the Perceived Ease of Use (Regression load=-0.068, p=0.287>0.05). People think that the system provides the saving of time, but since the system provides the saving of time, it is not easy to use. For this reason, the H6 hypothesis was rejected.

It is observed that the Anxiety factor has a negative effect on the Perceived Benefit (Regression load=0.266; p=000<0.05). When the t-value and the standard error of the significance of the regression coefficient are examined, it is observed that the Anxiety variable has a negative effect on the Perceived Benefit variable (t=5.203, standard error=0.044, p=000<0.05). Therefore, there is a statistically negative and linear relationship between the Anxiety variable and the Perceived Benefit variable. People think that a system that they are concerned about is not useful. For these reasons and as Walczuch *et al.,* (2007) and Esen & Erdoğmuş (2014) found in their studies, the H7 hypothesis was accepted.

It is observed that the Anxiety factor has a negative effect on the Perceived Ease of Use (Regression load=-0.137; p=019<0.05). When the t-value and the standard error of the significance of the regression coefficient are examined, it is observed that the Compatibility variable has a positive effect on the Perceived Ease of Use variable (t=-2.351, standard error=0.050, p=019<0.05). Therefore, there is a statistically negative and linear relationship between the Anxiety variable and the Perceived Ease of Use variable. People think that a system that they are concerned about is not useful. For these reasons and as Walczuch *et al.,* (2007) and Esen & Erdoğmuş (2014) found in their studies, the H8 hypothesis was accepted.

It is observed that the Perceived Benefit factor has a positive effect on the Perceived Ease of Use (Regression load=0.287; p=000<0.05). When the t-value and the standard error of the significance of the regression coefficient are examined, it is observed that the Perceived Benefit variable has a positive effect on the Perceived Ease of Use variable (t=4.295, standard error=0.065, p=000<0.05).

Therefore, there is a statistically positive and linear relationship between the Compatibility variable and the Perceived Ease of Use variable. People think that the e-government system will be easy to use because they think it is useful. For these reasons, the H9 hypothesis was accepted.

It is observed that the Perceived Benefit factor has a positive effect on the Attitude (Regression load=0.692; p=000<0.05). When the t-value and the standard error of the significance of the regression coefficient are examined, it is observed that the Perceived Benefit variable has a positive effect on the Attitudevariable (t=8.670, standard error=0.068, p=000<0.05). Attitude questions were asked negatively in order to see the negative attitudes of the participants on the scale, but they were reversed when being taken to the model. Therefore, there is a statistically positive and linear relationship between the Perceived Benefit variable and the Attitude variable. For these reasons, the H10 hypothesis was accepted.

It is observed that the Perceived Ease of Use factor has a positive effect on the Attitude (Regression load=0.098; p=004<0.05). When the t-value and the standard error of the significance of the regression coefficient are examined, it is observed that the Perceived Ease of Use variable has a positive effect on the Attitude variable (t=2.847, standard error=0.030, p=004<0.05). Therefore, there is a statistically positive and linear relationship between the Perceived Ease of Use variable and the Attitude variable. For these reasons, the H11 hypothesis was accepted.

It is observed that the Attitude factor has a positive effect on the Intention (Regression load=0.923; p=048<0.05). When the t-value and the standard error of the significance of the regression coefficient are examined, it is observed that the Attitude variable has a positive effect on the Intention variable (t=1.981, standard error=0.137, p=048<0.05). Therefore, there is a statistically positive and linear relationship between the Attitude variable and the Intention variable. For these reasons, the H12 hypothesis was accepted.

It is observed that the Intention factor has a positive effect on the Actual Behavior (Regression load=0.808; p=046<0.05). When the t-value and the standard error of the significance of the regression coefficient are examined, it is observed that the Intention variable has a positive effect on the Actual Behavior variable (t=1.992, standard error=1.969, p=046<0.05). Therefore, there is a statistically positive and linear relationship between the Intention variable and the Actual Behavior variable. For these reasons and as Lin (2007) found in his study, the H13 hypothesis was accepted.

5. Conclusion

The growth and development of the ICT field in our age offer the opportunity to provide better and higher quality service and radical change to citizens, institutions, and other states. The emergence of ICT has brought about many changes. These changes reveal how businesses and universities do business, how states serve citizens, and when interaction with major stakeholders is examined. Due to reasons, such as the high costs of governmental institutions, the people's and private institutions' need forquick access to governmental institutions to obtain necessary data and services, all countries seek the provision of new, better, and higher quality services. One of the most important issues in the informatics and technology society with the great development of technology is the e-government issue. For this reason, e-government projects have been practised in almost all countries for ten years. The e-government is a major and important step towards developing internationally accepted links. When the developed countries are examined, it can be understood how much e-government has reduced the public expenditures. The control of social, tax, health, etc. systems and the proceeding and control of their management via the e-government system take the performance and control to a very good level. The e-government covers a large part of the relationships between public institutions and private institutions and individuals. Furthermore, while having a positive impact on the course of the life of

individuals, it also leads to the improvement of the process in which citizens are transformed from being passive consumers to active players and the process of offering services in different institutions. The e-government also contributes to the reduction of the distance between the public and government employees and the development of the social justice. The e-government causes both the restructuring and reforming of processes and methods and reduces the corruption in institutions and organizations without requiring a two-way relationship between the people and authorities and necessitating citizens to go to institutions and institutions. The e-government provides time and costs savings by providing more reliable data to citizens and institutions, providing a faster service regardless of time and place.

The e-government means providing information to citizens, businesses, and other institutions via the internet or other digital means, either national or local states. The e-government makes it easier to provide information about the government to citizens in an electronic environment, to provide better services to citizens, and ensure that people reach information without bureaucracy. It helps government institutions maximize profits by reducing costs and increasing productivity when doing business with suppliers and customers.

When 13 hypotheses of the model established for the purpose of determining the factors affecting the behavior of users using the e-government system of the study are evaluated;

The H1 hypothesis was accepted with a regression coefficient of 0.172 and p=0.000 values. This means that the compliance that the academic and administrative staff feel for the use of the e-government system positively affects the benefit they perceive for the adoption of the e-government system. A one-unit increase in the compatibility of the user increases the benefit they perceive by 17.2%.

The H2 hypothesis was accepted with a regression coefficient of 0.231 and p=0.000 values. This means that the compliance that the academic and administrative staff feel for the use of the e-government system positively affects the ease of use they perceive for the adoption of the e-government system. A one-unit increase in the compatibility of the user increases the ease of use they perceive by 23.1%.

The H3 hypothesis was rejected because the p=0.535 value was p> 0.05. This is because the academic and administrative staff were undecided in relying on the e-government system. Because users do not trust the e-government system, they cannot perceive the benefits of the system.

The H4 hypothesis was rejected because the p=0.110 value was p> 0.05. This is because the academic and administrative staff were undecided in relying on the e-government system. Because users do not trust the e-government system, they do not perceive the ease of use of the system.

The H5 hypothesis was accepted with a regression coefficient of 0.476 and p=0.000 values. This means that the saving of time that the academic and administrative staff feel for the use of the e-government system positively affects the benefit they perceive for the adoption of the e-government system. A one-unit increase in the time-saving perception of the user increases the benefit they perceive by 47.6%.

The H6 hypothesis was rejected because the p=0.287 value was p>0.05. This means that the saving of time the academic and administrative staff felt for the e-government system was not thought to facilitate the use of the system.

The H7 hypothesis was accepted with a regression coefficient of -0.266 and p=0.000 values. This means that the anxiety that the academic and administrative staff feel for the use of the e-government system negatively affects the benefit they perceive for the adoption of the e-government system. A one-unit increase in the anxiety of the user increases the benefit they perceive by 26.6%.

The H8 hypothesis was accepted with a regression coefficient of -0.137 and p=0.019 values. This means that the anxiety that the academic and administrative staff feel for the use of the e-government system negatively affects the ease of use

they perceive for the adoption of the e-government system. A one-unit increase in the anxiety of the user increases the ease of use they perceive by 13.7%.

The H9 hypothesis was accepted with a regression coefficient of 0.287 and p=0.000 values. This means that the benefit that the academic and administrative staff feel for the use of the e-government system positively affects the ease of use they perceive for the adoption of the e-government system. A one-unit increase in the benefit the users perceive increases the ease of use they perceive by 28.7%.

The H10 hypothesis was accepted with a regression coefficient of 0.692 and p=0.000 values. This means that the benefit that the academic and administrative staff feel for the use of the e-government system positively affects their attitude for the adoption of the e-government system. A one-unit increase in the benefit the users perceive increases their attitude by 69.2%.

The H11 hypothesis was accepted with a regression coefficient of 0.098 and p=0.004 values. This means that the ease of use that the academic and administrative staff feel for the use of the e-government system positively affects the ease of use they perceive for the adoption of the e-government system. A one-unit increase in the ease of use the users perceive increases the ease of use they perceive by 9.8%.

The H12 hypothesis was accepted with a regression coefficient of 0.923 and p=0.048 values. This means that the attitude of the academic and administrative staff toward the use of the e-government system positively affects their intention for the adoption of the e-government system. A one-unit increase in the attitude of the users increases their intention by 92.3%.

The H13 hypothesis was accepted with a regression coefficient of 0.808 and p=0.046 values. This means that the intention of the academic and administrative staff for the use of the e-government system positively affects their attitude for the adoption of the e-government system. A one-unit increase in the intention of the users increases their attitude by 80.3%.

It is understood from the 13 hypotheses tested above in general that the e-government technology, which is compatible with the technologies and methods currently used by the participants, arouse both the benefit perception and ease of use perception for this technology in them. Despite positive perceptions due to compatibility, there is a sense of insecurity against the technology. On the other hand, when the staff develop positive benefit perceptions for the e-government technology, the staff who use the e-government technology do not think that the saving of time facilitates their jobs as it provides the saving of time when they perform their jobs. Users are worried about the chaos which may emerge in works and in the usual system since the e-government technology has just being used because the anxiety they feel reduces their rate of use of this technology by 26.6%. In general, the anxiety that users have for the e-government technology should be relieved. In this context, personnel should be informed about the benefits the technology provides and about the use of technology. Considering the data of the study, it is observed that the users are not very compatible with using the e-government technology and have a certain resistance to change. However, when the intentions of the users are pulled to a positive level, it is determined that the use of the technology can be reached at a high level.

If we examine the limitations of the study, the analysis of the research is limited to only academic and administrative staff working at two universities. Therefore, the findings of the study cannot be generalized to all the university staff in Turkey. For this reason, a further study can be carried out in order to adopt the e-government system by collecting data from academic and administrative staff working at universities throughout the country, and the study can be conducted in different regions and analyzed comparatively. Furthermore, in another study that can be conducted, it can be investigated whether the cultural differences between countries create a difference in terms of explaining the intention to use the e-government system and the actual use, by increasing the number of samples.

Appendix

Goodness of Fit Measures of the Confirmatory Factor Analysis of the Factors in Model 1 and Model 2

	χ^2	χ^2/df	RMSEA	GFI	AGFI	CFI	NFI	TLI	RFI	C. Alpha
Perceived Benefit	54.06	4.505	0.087	0.967	0.923	0.982	0.977	0.982	0.960	0.906
Perceived Ease of Use	7.317	2.439	0.056	0.994	0.969	0.997	0.996	0.991	0.986	0.916
Attitude	16.53	4.134	0.082	0.987	0.950	0.990	0.987	0.975	0.967	0.867
Intention	20.93	3.490	0.073	0.972	0.947	0.972	0.962	0.930	0.905	0.853
Actual Behavior	2.241	0.366	0.052	0.998	0.976	0.991	0.985	0.949	0.911	0.758
Compliance	2.356	0.766	0.063	0.996	0.956	0.973	0.975	0.935	0.903	0.769
Reliance	8.654	4.327	0.075	0.991	0.956	0.993	0.991	0.980	0.974	0.772
Time	2.527	0.822	0.071	0.994	0.966	0.985	0.983	0.952	0.921	0.845
Anxiety	1.024	0.325	0.007	0.999	0.989	0.999	0.998	0.999	0.989	0.787
Subjective Norms	1.826	0.589	0.010	0.998	0.986	0.997	0.998	0.998	0.989	0.741
P. Behavioral Control	1.658	0.458	0.063	0.988	0.972	0.985	0.992	0.994	0.937	0.769
External Influence	2.336	0.879	0.071	0.998	0.992	0.998	0.991	0.998	0.925	0.841
Facilitating Conditions	2.416	0.009	0.006	0.998	0.989	0.988	0.998	0.999	0.927	0.702
Self-efficacy	1.336	0.457	0.051	0.987	0.973	0.992	0.989	0.994	0.943	0.710

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