

BEHAVIORAL ASPECT OF ACCOUNTING TEACHERS' INFORMATION TECHNOLOGY USAGE

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Abstract

This study aims to examine behavioral process of accounting teachers' information technology (IT) acceptance. To this end, we collected data from accounting teachers working in trade high schools. Research model and hypotheses were developed in the light of Theory of Reasoned Action. Accordingly, relationships among attitudes, subjective norms, intentions towards information technology usage and IT usage behaviors were investigated. Explanatory factor analysis and structural equation modeling were used to analyze relationships among variables. The results of analyses show that accounting teachers' IT usage behavior is significantly and positively determined by their intention towards IT usage. Secondly, it was found that accounting teachers' attitudes and subjective norms towards IT usage have significant and positive impact on teachers' intention towards IT usage.

Key Words: information technology, Theory of Reasoned Action, accounting teachers

JEL Classifications: M00, M15, M40

I. INTRODUCTION

In rapidly globalizing world, information technologies (IT) have indispensable role in every part of human life. However, its importance is started to be more vital and dominant in education. In literature, teachers, schools and policy makers are shown as key elements for the successful adoption of information (Mumtaz 2000, 319). As the governments of countries aware of this fact, almost all of them started to realize a series of radical changes on their education system in order to include IT in education.

Turkey is the one of the countries which aware of the importance of IT in education system. In the last decade, so many arrangements and projects have been performed in Turkish education system in order to promote IT usage in education. For example, IT classes were opened in schools. In addition to IT classes, FATİH Project (Movement of Enhancing Opportunities and Improving

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Technology) was started to implement to generate use of technology and increase the success in education (Çelen et al. 2011, 5). This project has aroused great interest both within the country and abroad. Aims of this project could be listed as follows: 1) to improve IT infrastructure, 2) to provide IT tools in order to ensure equality of opportunity in education, 3) rehabilitation of technology in schools, 4) to enhance teaching capability and possibility of teachers and 5) to accomplish effective understanding of lessons by students (Turkish Ministry of Education, FATİH Project 2011). In this context, transformation period in education system was started, and courses have been equipped with advanced technology. In addition to these changes, tablet computers were started to be distributed to teachers and students and in-service training was given to teachers in order to ensure the efficient use of IT equipments (Turkish Ministry of Education, FATİH Project 2011).

All these developments have been performed to realize adoption of IT in education system. However, at this point, the question of whether these efforts are sufficient for acceptance and adoption of IT by teachers and students comes to minds. Teachers have the most crucial role on the acceptance of new technology and providing the continuance of its usage by students (Teo 2011, 2432). As it is stated by Russell et al. (2003, 306-307), the potential benefits of technology in education system depend on teachers who are prepared for effective use of IT and equipped with necessary tools. Because of that, many researchers investigated the technology adoption in teachers' education (Russel et al. 2003; Hughes 2004). According to this point of view, level of teachers' IT competency and capability determines the competency level of students on the IT usage. However, there are some factors that affecting teachers IT usage in education such as their competency and ability.

In literature, this subject has attracted the attention of many researchers, and they performed many studies that investigate the underlying reasons of IT adoption and what factors affect teachers' IT usage behavior. Teo et al. (2008b) conducted a comparative study and examined the antecedents of pre-services teachers' intention to use IT in Singapore and Malaysia in the light of Technology Acceptance Model, which was developed by Davis et al. (1989). They reported that perceived usefulness, perceived ease of use and computer attitudes have statistically significant and positive impact on IT usage intention of pre-service teachers in Singapore and Malaysia. Some researchers who used Technology Acceptance Model in order to investigate IT acceptance of teachers also reported similar results with some differences. Ma et al. (2005) conducted a study on student teachers' intention to use computer. They found that student teachers' perceived usefulness of computer technology directly and indirectly affects their intention to use IT, but perceived ease of use only indirectly affects their intention to use IT. Hu et al. (2003) also found that although

perceived usefulness is an important predictor of teachers' technology acceptance in public school, perceived ease of use has not significant impact on intention to use IT. They also reported that computer self-efficiency is another predictor of their acceptance. Mumtaz (2000) reviewed the literature on determinants of teachers' information and communication technology usage, and they reported that beliefs of teachers related to usage of information and communication technology and pedagogy have critical role in the usage of information and communication technology.

Lots of factors could be listed as an impediments against IT usage in classes (Mumtaz 2000; Kayaduman et al. 2011), but the most important impediments are attitudes (Sugar et al. 2004; Kayaduman et al. 2011, 125) and beliefs of teachers towards IT usage (Mumtaz 2000). Sugar et al. (2004) also reported that teachers' attitudes towards acceptance of technology shape the technology acceptance behavior of them; furthermore, teachers' attitudes related to technology acceptance are affected by their beliefs about the results of acceptance behavior. Teo et al. (2008a) found that computer attitude is affected by perceived usefulness, perceived ease of use and subjective norms. Tezci (2009, 2010) also suggested that teachers' years of experience and level of their knowledge have an impact on their attitudes towards IT usage. Some researchers also reported that the length of experience determines whether IT will be used for the purpose of preparation or instruction (Russell et al. 2003).

In this study, accounting teachers working in trade high schools were selected as a sample. The reason behind selecting accounting teachers instead of teachers in other fields is that while teachers in different fields such as literature, history, geography, philosophy, mathematics, geometry, biology could teach their courses without using IT, accounting teachers couldn't teach accounting effectively to their students if they don't use and teach IT. Because performing accountancy profession necessitates using accounting software. Successful and efficient accountancy education should contain IT practices in order to educate students. In other words, effective accounting education could not be thought without IT. Although lots of studies have been conducted on IT usage in schools; IT usage behavior of accounting teachers and its determinants have not been examined in related literature. In this study, the underlying reasons of IT usage behavior of accounting teachers who work in trade high schools were examined. In this context, Theory of Reasoned Action developed by Fishbein and Ajzen (1975) was used in order to investigate the effects of intentions, attitudes and subjective norms of accounting teachers towards IT usage on their IT usage behaviors.

II. THEORETICAL BACKGROUND AND HYPOTHESES

The Theory of Reasoned Action developed by Fishbein and Ajzen (1975) has received appreciable attention from researchers in many fields because of its predictive power for almost all human behaviors (Ajzen and Fishbein 1980). Lots of researchers such as Igarria et al. (1996), Liker and Sindi (1997), Taylor and Todd (2001), Kukafka et al. (2003), Wu (2003), Leonard et al. (2004), Shih (2004), Vijayasathy (2004), Rehman et al. (2007), Hsu and Lin (2008), Kuo and Young (2008), Özer and Yilmaz (2010), Özer and Yilmaz (2011), Yilmaz et al. (2013) used Theory of Reasoned Action as a starting point in order to examine acceptance of IT.

According to Theory of Reasoned Action, individuals are rational and the majority of human behaviors are under volitional control. Because of that, behavioral intention towards certain behavior is the most important predictor of individual's certain behavior (Fishbein and Ajzen 1975; Ajzen and Fishbein 1980; Madden, Ellen and Ajzen 1992; Ajzen 2002; Ajzen and Fishbein 2005). Intention means the willingness of individual to achieve specific behavior in question (Chen, Chen and Kinshuk 2009, 137). Individual's intention towards certain behavior is collectively determined by individual's attitude and subjective norms towards certain behavior (Fishbein and Ajzen 1975; Malhotra and Galletta 1999). Attitude implies the individual's feelings and assessments related to the specific behavior (Leonard, Timothy and Kreie 2004, 144). Subjective norms connote that person's perceptions of social pressure (Fishbein and Ajzen, 1975; Spark, Shepherd and Frewer 1995; Yousafzai et al. 2010). Theory of Reasoned Action posits that if a person has more positive attitudes and subjective norms towards certain behavior; it is more likely for that person to have positive intention towards behavior in question. The Theory of Reasoned Action is illustrated in Figure 1.

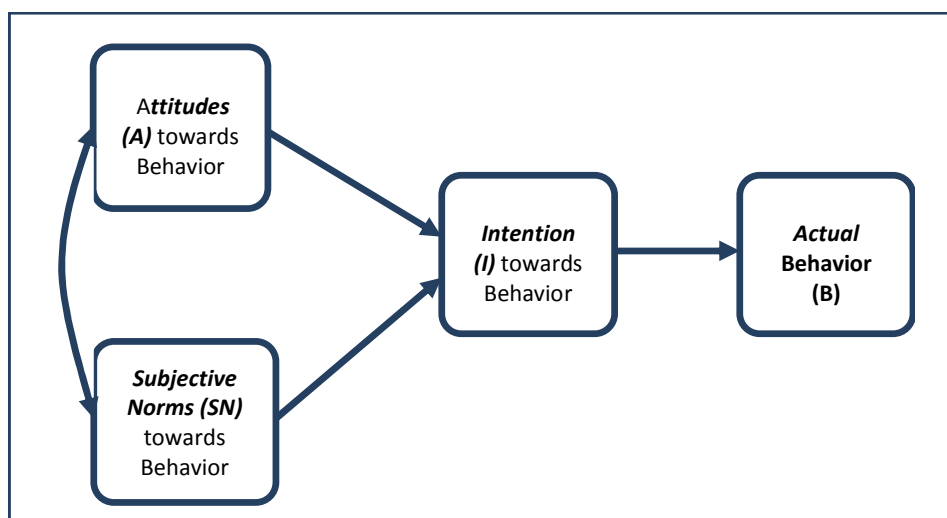


Figure 1. Theory of Reasoned Action (Fishbein and Ajzen, 1975; Ajzen and Fishbein, 1980)

The current study aimed to examine underlying reasons of accounting teachers' acceptance of IT. The hypotheses were developed in the light of Theory of Reasoned Action. Theory of Reasoned Action assumes that if person has favorable intention towards particular behavior, the possibility of performing behavior increases. According to this assumption, if accounting teachers have favorable intention towards IT usage, they will more likely use it. This was hypothesized as follows;

Hypothesis 1: *Accounting teachers' intentions towards IT usage will significantly and positively affect teachers' IT usage behaviors.*

In literature, many researchers who investigate the effect of teachers' attitudes towards IT usage found statistically significant results. For example, Teo et al. (2008b) and Sugar et al. (2004) reported that attitudes of teachers are statistically significant and important antecedent of intention towards IT usage behavior. Sugar et al. (2004) and Kayaduman et al. (2011) also reported that attitudes of teachers are the most important impediment of teachers' acceptance of IT. In the direction of their finding, Hypothesis 2 is developed as follows:

Hypothesis 2: *Accounting teachers' attitudes towards IT usage will significantly and positively affect teachers' intentions to use IT.*

Researchers reported conflicting results related to predictive power of teachers' subjective norms on their intention towards IT acceptance. Ma et al. (2005) and Teo (2011) reported that teachers' subjective norms don't have statistically significant impact on their intention towards IT usage. However Lee et al. (2010) found that subjective norms of teachers have statistically significant impact on teachers' intention towards IT usage. In accordance with Theory of Reasoned Action, the relationship between accounting teachers' subjective norms and their intention was stated as follows;

Hypothesis 3: *Accounting teachers' subjective norms towards IT usage will significantly and positively affect teachers' intentions to use IT.*

III. METHODOLOGY

III.I. Data Collection

The sample of the current study was randomly selected accounting teachers who work in trade high schools in Turkey. The data were collected through questionnaire. Totally, 305 questionnaires were distributed to the accounting teachers by hand and implemented directly. 228 questionnaires were returned. The response rate of accountants is 75%. Some questionnaires were

excluded from the study because of incomplete filling and misleading answers of respondents. As a result, the final data consists of 206 questionnaires with 68% response rate. It means that a good response rate was achieved for the survey data in this study (Babbie 1989, 1990). The data was analyzed using SPSS and AMOS package program.

III.II. Scale Development

In this study, attitudes, subjective norms, intention towards IT usage and information technology usage behavior of accounting teachers, and relationships among these variables are examined. Scales used to measure these variables were adopted from previous researches, and their reliabilities and validities were proven by these previous studies. In line with the explanations of Brislin (1970, 1986) related to scale translation, firstly, scales which were originally developed in English translated to Turkish. Secondly, Turkish version was translated back to English. Result of this process verified the adequacy of scales' Turkish version. Draft questionnaire was evaluated with six accounting teachers. Pre-test procedure was also carried out via questionnaires filled by 20 accounting teachers. Accordance with the feedback of accounting teachers and pre-test process, some items were dropped and some items were modified. All variables were measured by five-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree).

The scales of the studies were adopted from previous studies considering the cultural differences and result of the pre-test process. Variables and studies which scales were adopted from are presented in Table I.

Table I. Sources of Scales

Variables	Number of items	Sources of Scales
IT usage behavior	3	Yang and Yoo (2004)
Intention	8	Madden et al. (1992); Lee, Cheung and Chen (2005) and Girgin (2003)
Attitude	5	Lee et al. (2005); Yang and Yoo (2004) and Madden et al. (1992)
Subjective Norms	3	Madden et al. (1992); Girgin (2003) and Baker et al. (1996)

IV. ANALYSES

IV.I. Factor Analysis

Although all scales of the study were tested in previous studies and they are theoretically strong, explanatory factor analysis was performed in order to determine how many factors they will load, and whether these factors will explain related factors mentioned previously. Explanatory

factor analysis posited a structure with four factors and these four factors explains 62,179% of total variance. Kaiser-Meyer-Olkin measure of sampling adequacy (0.921) and Bartlett's test of sphericity ($p=0.001$) confirmed the significance of exploratory factor analysis (Mitchell 1994). In order to measure the reliability of factors, Cronbach's Alpha values were computed. Cronbach's Alpha values of all factors are over 0.70 that is assumed acceptable lower limit in literature (Nunnally 1978). Cronbach's Alpha values of variables are as follows: IT usage behaviors of accounting teachers: 0.713, their intentions towards IT usage: 0.892, their attitudes towards IT usage: 0.802, their subjective norms towards IT usage: 0.735. Factor Loadings and Cronbach's Alpha values of all variables are presented in Table II.

Table II. Factor Loadings and Cronbach's α Values of Variables

Factors and Scales	Factor 1	Factor 2	Factor 3	Factor 4
I :Intention Towards IT Usage (Cronbach's α : 0,892)				
I1	,792			
I2	,732			
I3	,702			
I4	,697			
I5	,691			
I6	,563			
I7	,541			
I8	,521			
A :Attitude Towards IT Usage (Cronbach's α : 0,802)				
A1		,770		
A2		,737		
A3		,688		
A4		,561		
A5		,530		
SN: Subjective Norms Towards IT Usage (Cronbach's α : 0,735)				
SN1			,766	
SN2			,699	
SN3			,634	
B: IT Usage Behavior (Cronbach's α : 0,713)				
B1				,895
B2				,669
B3				,606

IV.II. Assessment of Fit Indices and Test of the Hypotheses

Fit indices were calculated by AMOS in order to assess whether research model fits the research data. According to the results, chi-square value (Chi-square=2,438 with 2 degrees of freedom) is statistically insignificant ($p=0,296$) and the research model has good fit with the data (Barrett 2007; Harrington 2008; Bayram 2010). Although chi-square is the well-known test of overall model fitness to data, because of its characteristics such as sensitivity to size of sample and its assumptions about normality, assessing some other fit indices gives more accurate results (Jöreskog and Sörbom 1993; Hooper et al. 2008; Bayram 2010). For this purpose, goodness-of-fit

index (GFI), adjusted goodness-of-fit index (AGFI), normalized fit index (NFI), comparative fit index (CFI), root mean square error of approximation (RMSEA), root mean square residual (RMR), standardized root mean square residual (SRMR) are examined. The goodness-of-fit statistics are presented in Table III.

Table III. The goodness-of-fit statistics

Goodness of Fit Indices	Results	Suggested in Literature
RMSEA	0,033	≤0,06
GFI	0,994	≥0,90
AGFI	0,970	≥0,90
RMR	0,006	≤0,05
SRMR	0,0307	≤0,05
NFI	0,955	≥0,90
CFI	0,991	≥0,90

RMSEA (0,033) that proves goodness of research model is close to 0 as it is suggested in literature (McDonald and Ho 2002, Hooper et al. 2008; Bayram 2010) and less than 0,06 (Hu and Bentler 1999). According to results, GFI (0.994) and AGFI (0,970) values are greater than 0,90 and close to 1, and consisted with the expected in literature (Hooper et al. 2008; Bayram 2010). The values of RMR (0,006) and SRMR (0,0307) are also lower than 0,05 and close to 0 as it is expected in literature (Hooper et al. 2008; Bayram 2010). NFI (Bentler and Bonnet 1980) value was computed as 0,955, and this value is greater than 0,90 suggested by Bentler and Bonnet (1980) and 0,95 suggested by Hu and Bentler (1999). CFI value was calculated as 0,991, and it signifies good fit in accordance with literature (Hu and Bentler 1999).

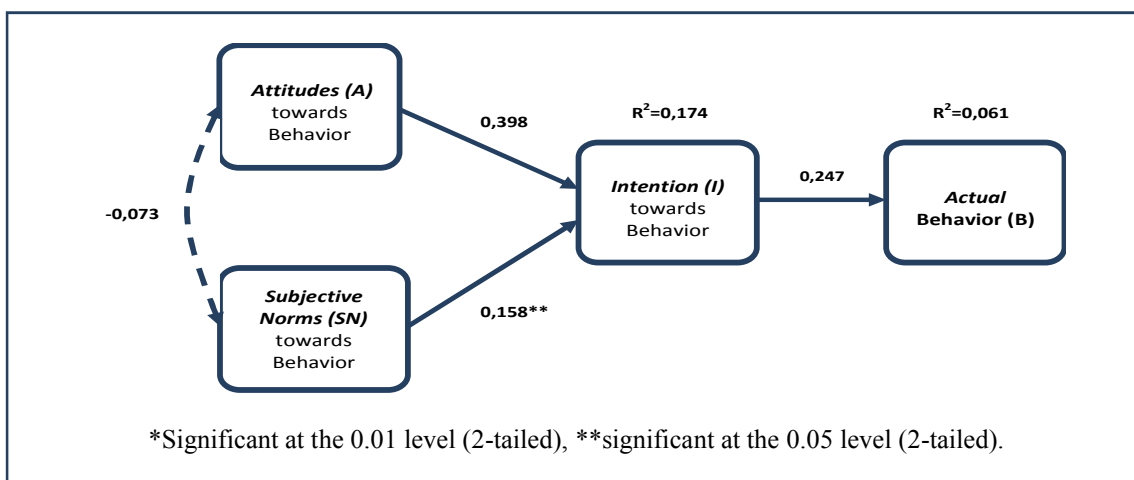


Figure II. Results of the Analyses

All the hypotheses of the current study are supported by the results of analyses. According to standardized regression weight ($\beta = 0,247$, $p < 0.01$), accounting teachers' intention towards IT usage has statistically significant and direct positive impact on the IT usage of them. R^2 value of the first regression shows that intention explains 0,061 of total variance of IT usage behavior of accounting teachers. These findings support Hypothesis 1. The second finding of the study is that accounting teachers' attitudes ($\beta = 0,398$, $p < 0.01$) and subjective norms ($\beta = 0,158$, $p < 0.05$) towards IT usage significantly affect their intention towards IT usage. R^2 value of this regression model reveals that attitude and subjective norms of accounting teachers explain 0,174 of total variance of their intention towards IT usage. These findings support Hypothesis 2 and 3. The results of the study verify that attitudes and subjective norms of accounting teachers working in trade high school have an important role in shaping their intention towards their IT usage. Similarly, their intention towards IT usage has critical importance in determination of whether they will use IT or not.

V. CONCLUSION

The main objective of this study is to investigate influential factors on IT usage behavior of accounting teachers who work in trade high school in Turkey. In order to accomplish this objective, a theoretical model was developed accordance with the Theory of Reasoned Action, and hypotheses were developed in this direction. Explanatory factor analysis and structural equation modeling were used to analyze reliability, fitness of model and hypotheses. Results of the analyses support all the hypotheses of the study. As it is in lots of previous studies, Theory of Reasoned Action has predictive power on the determination of IT usage behaviors of accounting teachers who work in trade high school.

The results of the current study verified that the intention of accounting teachers working in trade high schools in Turkey is quite important factor affecting their IT usage behavior. In other words, if they have positive and greater intention to use IT, it is more likely that they use IT. Otherwise, it is less likely.

The second finding is that attitudes and subjective norms of accounting teachers have significant and positive impact on their intention towards IT usage. It means that if accounting teachers have greater positive attitudes, and if they believe that people who are important for them think that they should use IT in their daily and professional life, and if they have greater motivation to comply these important people thoughts about IT usage, the possibility of having positive intention towards IT will also be greater. Teo (2011) and Lee et al. (2010) found similar results with the current study about impact of attitude on teachers' intentions towards IT usage. According to Lee et al. (2010), attitude is the most important predictor of intention towards using computer for

preparation and delivering lessons. Along with this, subjective norms also have statistically significant impact on teachers' intention towards IT usage in their study (Lee et al. 2010). However, Ma (2005) and Teo (2011) obtained inconsistent result with Lee et al. (2010) and our study. According to Ma et al. (2005), subjective norms of student teachers don't have statistically significant impact on intention towards computer technology usage of them. Teo (2011) also claimed that subjective norms of teachers don't affect their intention towards IT usage. In accordance with the many previous studies, attitudes of accounting teachers also have more predictive power on intention towards IT usage behavior.

Intention, attitude and subjective norms of accounting teachers have important role on the determination of their IT usage. If their IT usage is wanted to be increased, these variables should be taken into account. Adoption of IT in the education of pre-service teachers also another important issue that should be taken into consideration by the researchers. Improving the skills of pre-service teachers in the use of IT and providing support for them could enhance teachers IT adoption. In addition, low adjusted R^2 value shows that there are other variables affecting accounting teachers IT usage behavior. It means that there is need for future research investigating variables affecting IT usage of accounting teachers.

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