

INFORMATION TECHNOLOGY USAGE OF ACCOUNTANTS

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Abstract

The purpose of this article is to investigate the reasons behind the information technology (IT) usage of accountants. On this account in the study, based on the Theory of Reasoned Action developed by Ajzen and Fishbein, attitude-subjective norms-intention and behavior relation is investigated. The effect of attitude and subjective norms towards IT usage behavior on the intention towards IT usage behavior, and the effect of intention towards IT usage behavior on IT usage are investigated. For this purpose, the data is obtained from 456 accountants via a questionnaire. As a result of the regression analysis, it may be determined that the intention towards IT usage behavior has a statistically significant impact on IT usage behavior. If the intention towards IT usage is positive, behavior is also positive. Attitude and subjective norms towards IT usage behavior also have a statistically significant impact on the intention towards IT usage behavior. If an individual's attitude and subjective norms towards IT usage is positive, the intention towards IT usage is also positive.

Key Words: Accountant, Information Technology, the Theory of Reasoned Action

Introduction

Some limited research has been recently carried out (Zina, 2006; Taragola, N., Lierde D. V., 2001; Gullkvist & Polytechnic) related to information technology usage behavior of accountants, which have analyzed the effects of attitude on IT usage. However, it has also been found that the research on the relations between IT usage behavior, intention, subjective norms and attitude towards IT usage behavior of accountants is inadequate.

To contribute to the field, where so-far conducted research is very rare, we have tried to find the reasons behind IT usage of accountants in our research. The Theory of Reasoned Action (TRA), developed by Ajzen and Fishbein, which focuses on consciously planned behavior determinants and has a wide range of application in social psychology, is the basis for this study.

1. Theoretical Background And Hypotheses

We have studied relations among attitude, subjective norm, intention and behavior. The TRA model is based on the premise that humans are rational and that the behaviors being explored are under volitional control (Fishbein & Middlestadt, 1997).

TRA provides a conceptual framework for analyzing the behavior behind IT usage. According to TRA, a person's performance of a specified behavior is determined by his or her behavioral intention (BI) to perform the behavior, and behavioral intention is jointly determined by the person's attitude (A) and subjective norm (SN) concerning the behavior in question (Malhotra, Galletta, 1999). Attitude involves judgement whether the behavior is good or bad and whether the actor is in favor of or against performing it (Leonard et al., 2004). Subjective norms are proposed to have similar origins in a combination of people's perceptions that important others think they should or should not perform the behavior in question and their motivation to comply with others' wishes (Spark.1995). The theory includes the attitude towards performing the behavior, behavioral beliefs, evaluation of the behavioral output, subjective norms, normative beliefs and motivation to comply.

Because of its admirable achievement, the TRA has been applied to a wide variety of research fields including psychology, management, marketing, education, and healthcare area (Chang, 1998; Fortin, 2000). Today, the model known as the theory of reasoned action or TRA (Ajzen and Fishbein 1980) is considered the most widely applied model of beliefs and attitudes in social psychology (Grube et al., 1986). In the area of knowledge management, Bock and Kim (2002) conducted a TRAbased study on knowledge sharing behavior in research institutes. Although this study proved the effectiveness of the TRA model, Sheppard et al. (1988) found that the predictive power of the TRA model is not valid if the behavior is not under full volitional control (Ryu et al, 2003). The Theory of Reasoned Action is showed below.

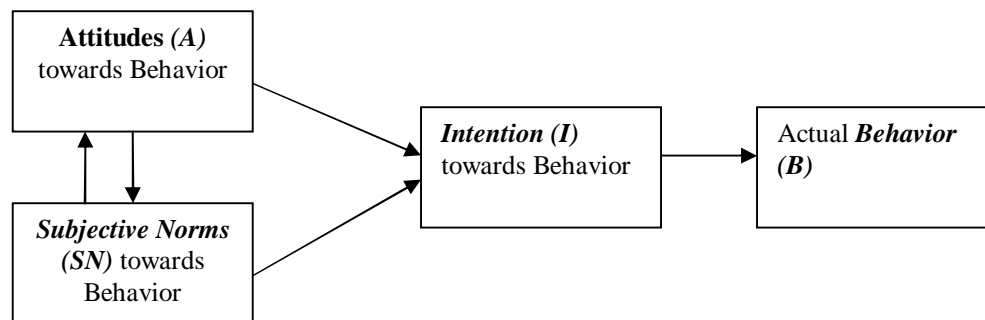


FIGURE 1: Theory of Reasoned Action, Fishbein, 1967)

In a research that is studied by Ahadiat (2003, 2005) it is proposed to determine what factors influence accounting faculty's decisions to use technology in their classes, what factors prevent them from use instructional technology. The results of this study demonstrate that while accounting faculty value technology greatly and do use it in their classes; significant differences exist among them in their views toward technology. With the wrong attitude toward technology, it is likely that faculty will resist integration, resulting in a negative impact on students' job preparation and career (Ahadiat, 2005).

The Theory of Reasoned Action has been generally accepted among scientific disciplines and it has been researched empirically in various situations. Consumer behavior, professional orientation, selection of women, family planning behavior, information sharing behavior of doctors and other corporation staff, attitudes towards acceptance and usage of information systems of workers and senior management and American voting practices could be given as examples for these situations.

In our research, on the guidelines of literature review and previous empirical research, a research model has been developed to predict the effects of intention, attitude, and subjective norms towards IT usage behavior on accountants' IT usage. In the literature, Ajzen and Fishbein have emphasized that there is a positive relation between intention towards behavior and actual behavior. The framework of research model based on Ajzen and Fishbein's research is as follows:

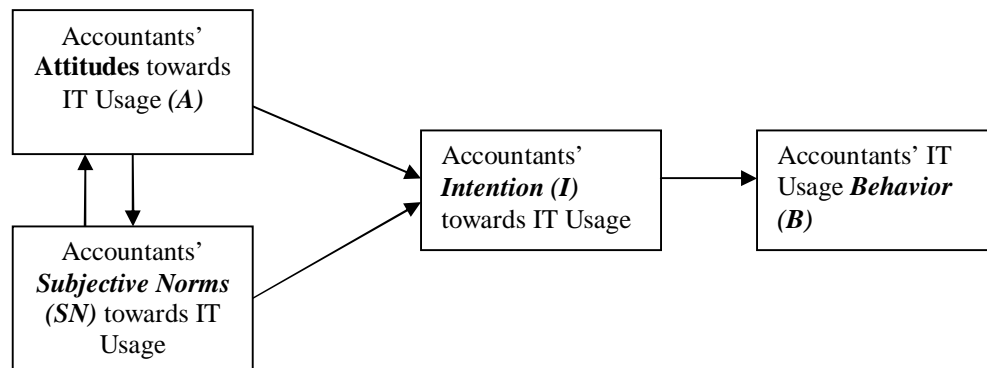


FIGURE 2: Research Model

In the research conducted in the social psychology field, TRA is empirically supported upto a significant degree. (Ryu, 2003; Chang, 1998; Vijayasathy, 2002). According to this, attitude towards performing IT usage behavior is predicted by all of behavioral beliefs and their evaluations by individual and salient consequences. Generally, accountants tend to believe that performing the information technology

usage will cause positive results that will lead to a positive attitude towards IT usage.

Hypothesis 1: Accountants' attitude towards IT usage has a positive effect on the intention towards IT usage.

Most of the research in the literature (Chang, 1998; Ryu, 2003) support the notion that the subjective norm towards behavior has an important role in predicting the intention towards behavior. The subjective norm is determined by a person's normative beliefs and motivation to comply with them. If other related people feel that adopting the behavior is positive and the person is motivated to take these people's point of view into consideration, it is expected that the subjective norm is positive and the accountant's intention towards IT usage behavior will also be positive. If these people believe that adopting the behavior is negative and if the person wants to pay attention to these people's expectations, for the accountant it is likely that the subjective norm will be negative.

Hypothesis 2: Accountants' subjective norms related to IT usage have a positive effect on the intention to IT usage.

The intention towards adopting IT usage behavior depends on the results of the measurement of attitudes and subjective norms. Positive results determine behavioral intention. If the person perceives that the results of adopting behavior are positive, he or she will have a positive attitude to adopt this behavior or vice versa.

Hypothesis 3: Accountants' intention related to IT usage has a positive effect on the performing IT usage.

Attitude and subjective norm are also assigned weights (w_1 , w_2) to indicate their relative importance. These can change from situation to situation and from person to person and are typically estimated through linear regression (Wu, Ing-Long, 2003). The relations are (Fishbein & Ajzen, 1981):

$$B \approx BN \approx w_1 (A) + w_2 (SN)$$

In our study, we have researched whether there is a correlation between attitude and subjective norm, which are the most important predictors of intention towards accountants' IT usage behavior (Chang, 1998; Ryu et al, 2003; Shepperd ve O'Keefe, 1984). Thus, we have researched whether the degree and direction of the correlation among variables have a determining effect.

2. Methodology And Results

2.1. Sample and Data Collection

In this study, we gathered data from more than 500 accountants operating in and around Istanbul through a questionnaire and 456 of these were evaluated. We gathered the questionnaires by meeting with the accountants face to face and we reached some accountants via the Internet. We tested the data with the help of regression analysis and all items included in the questionnaire were measured on a 5-point Likert-type scale. The items that we used were mostly tested in previous research and are proven to be theoretically strong.

2.2. Measures

In our study we have used the scale of 28 items to measure the variables. These items are shown below:

Table 1: Resources of Measures

Intention Towards IT Usage		
1	I also intend to use IT products in the future.	Lee et al., 2005
2	As regards my profession, I intend to use IT products.	Ryu et al., 2003 Madden et al., 1992
3	After that, I will make an effort to use IT in my profession.	Ryu et al., 2003 Madden et al., 1992
4	I don't think I will be using information technology products in my profession.	Girgin, 2003
5	I will try to apply innovation which will occur.	Ming et al., 2005
6	I intend to practice the changes related to IT in my profession.	Lee et al., 2005
7	I will persuade others to use information technology.	Ming et al., 2005
8	I believe that IT usage will become widespread in the future.	Added by us
Attitude Towards IT Usage		
9	I feel that IT usage is a necessary instrument for accounting.	Yang et al., 2004
10	If I use IT products in my profession, I do not think that using IT products is tiresome.	Yang et al., 2004 Madden et al., 1992
11	Using IT products is an excellent idea.	Ming et al., 2005
12	I think using information technology products is exciting.	Yang et al., 2004
13	I feel comfortable when using IT products.	Yang et al., 2004
Subjective Norms Towards IT Usage		
14	Related trade associations emphasize that successful accountants should give importance to using IT products.	Cohen, 1994
15	I think my colleagues who use information technology products look more popular.	Girgin, 2003
16	Most colleagues who are important to me think that I should	Ryu et al., 2003

	use IT products.	
17	Many colleagues who are important to me think that using IT products will increase success.	Added by us
18	Most colleagues who are important to me are using IT products.	Girgin, 2003
19	Colleagues whose opinions I value would approve my using IT products.	Ajzen, 2002
20	It is expected from me that I use IT products.	Ajzen, 2002
21	Most people who are important to me think that using information technology products is a good idea.	Girgin, 2003
22	Most of my friends are using IT products.	Girgin, 2003
23	My friends and social environment give importance to using IT products.	
24	I think the most people who are important to me are inclined to use IT products.	Girgin, 2003
25	Generally I adopt my colleagues' views that are important to me about IT usage.	Added by us
26	I usually apply advice related to IT of trade associations which I am affiliated with.	Added by us
IT Usage Behavior		
27	On average, I use information technology products frequently.	Yang et al., 2004
28	On average, I use information technology products rarely.	Yang et al., 2004

2.3. Factor Analysis

We used SPSS software, version 10.00 for the evaluation of our data. Factor analysis, correlation, reliability tests, the means of the variables and regression analysis are used to analyze the relation between variables of the research model.

Since the scales that are used have been generally tested in previous research, they are theoretically strong. However, varimax rotational, exploratory factor analysis in SPSS software has been used to evaluate factor structure for the variables. The KMO (Kaiser-Meyer-Olkin) Sample Sufficiency Scale and Barlett Test have been employed to test the appropriateness of the factor analysis and homogeneity of the variables used in this analysis. After using a factor analysis for the questionnaire consisting of 41 questions, eight questions unrelated to the factor structure, two questions related to the subjective norms, one question related to the intention, and two questions related to the behavior were eliminated in order to reach the best factor structure. The results of the analysis address a structure with four factors. These items and factor loadings are presented in Table 2.

TABLE 2: Factor Loadings of Research Dimensions

	Factors and Scales	Factor 1	Factor 2	Factor 3	Factor 4
1. Intention Towards IT Usage (Crombach α: 0,9169)					
	I also intend to use IT products in the future.		,781		
	As regards my profession, I intend to use IT products.		,843		
	After that, I will make an effort to use IT in my profession.		,800		
	I don't think I will be using information technology products in my profession.		,634		
	I will try to apply innovation which will occur.		,749		
	I intend to practice changes related to IT to my profession.		,812		
	I will persuade others to use information technology.	,653			
	I believe that IT usage will become widespread in the future.		,744		
2. Attitude Towards IT Usage (Crombach α: 0,7252)					
	I feel that IT usage is a necessary instrument for accounting.			,576	
	If I use IT products in my profession, I do not think that using IT products is tiresome.			,668	
	Using IT products is an excellent idea.			,640	
	I think using information technology products is exciting.			,775	
	I feel comfortable when using IT products.			,688	
3. Subjective Norms Towards IT Usage (Crombach α: 0,9163)					
	Related trade associations emphasize that successful accountants should give importance to using IT products.	,687			
	I think my colleagues who use information technology products look more popular.	,586			
	Most colleagues who are important to me think that I should use IT products.	,712			
	Many colleagues who are important to me think that using IT products will increase the success.	,750			
	Most colleagues who are important to me are using IT products.	,714			

	Colleagues whose opinions I value would approve my using IT products.	,749			
	It is expected from me that I use IT products.	,599			
	Most people who are important to me think that using information technology products is a good idea.	,723			
	Most of my friends are using IT products.	,628			
	My friends and social environment give importance to using IT products.	,691			
	I think most people who are important to me are inclined to use IT products.	,608			
	Generally I adopt my colleagues' views that are important to me about IT usage.	,672			
	I usually apply advice related to IT of trade associations which I am affiliated with.	,617			
4. IT Usage Behavior (Cronbach α: 0,7115)					
	On average, I use information technology products frequently.				,747
	On average, I use information technology products rarely.				,806

The KMO (Kaiser-Meyer-Olkin) (0,927) and Barlett Test Value ($p < 0,000$) which were found out by exploratory factor analysis, show that the results of the analysis are significant. In other words, the variables used in the questionnaire are appropriate for the factor analysis. According to this exploratory factor analysis, 28 questions fall under 4 factors. Cronbach's α coefficient was used to measure the reliability and internal validity. All cronbach's α values are over 0.70 for our variables. Because of this, Cronbach's α values for the variables are greater than the correlation values among the variables, it could be stated that discriminant validity is provided (Gaski, 1984).

2.4. Correlations and Associations between Variables of the Study

When we look at the correlation results, statistically significant correlation at the 0,01 significance level draw attention among subjective norms and attitudes towards IT usage, attitudes towards IT usage and intention toward IT usage, subjective norms toward IT usage and intention toward IT usage, intention toward IT usage and IT usage behavior.

TABLE 3: Mean, Standard Deviation, Correlation Coefficients

		Means	Standart Deviation	1	2	3	4
1	ATTITUDE	4,3513	0,6291	1,00			
2	SUBJECTIVE NORMS	3,6243	0,4745	0,265**	1.00		
3	INTENTION	4,4852	0,6013	0,267**	0,538**	1.00	
4	ACTUAL BEHAVIOR	4,0789	0,7910	0,252**	0,373**	0,306**	1.00

** p<0.01 (2-tailed)

2.5. Test of Hypotheses

Regression equations to test the hypotheses are shown below. These are proposed to research with these equations: 1) At the first equation, accountant's intention's (towards performing IT usage behavior) affects the IT usage behavior; 2) at the second equation, accountants' attitudes' and subjective norms' (towards performing IT usage behavior) affects the accountant's intention towards IT usage behavior.

$$B = \beta_0 + \beta_1 * I + e \quad (1)$$

$$I = \beta_0 + \beta_1 * A + \beta_2 * SN + e \quad (2)$$

B: Actual behavior towards IT usage,

I: Accountant's intention towards performing IT usage behavior,

A: Accountant's attitude towards performing IT usage behavior,

SN: Accountant's subjective norms towards performing IT usage behavior.

The first hypothesis that has researched accountant's attitude towards performing IT usage affecting the accountant's intention towards performing IT usage is statistically significant (F=34,961; p<0.01). As a result, the conclusion has been reached that accountant's positive attitude towards IT usage raises the possibility of forming the intention towards IT usage behavior.

Table 4: Results of Regression Analysis

Independent Variables	1. Regression (Intention)		2. Regression (Actual Behavior)	
	b	t	b	t
Intention			0,306*	6,849
Subjective Norms- Attitude	0,503*	12,389		
	0,134	3,306		
F	100,089		46,911	
R ²	0,306		0,094	
Adjusted R ²	0,303		0,092	

* p<0.01 (2-tailed)

The second hypothesis that has researched accountant's subjective norm towards performing IT usage affecting the accountant's intention towards performing IT usage is also found statistically significant. The conclusion has been reached that accountant's subjective norm towards IT usage has a determining effect on the intention towards IT usage ($\alpha=0,538$; $p<0.01$). When the first and second equation are researched, it is found that accountant's subjective norm in comparison with attitude is more effective on the intention. This result shows that an accountant's social environment is an important determinant of his/her intention, since the accountant's family, friends, and colleagues are effective in forming his/her subjective norm.

The third hypothesis that has researched accountant's intention towards performing IT usage affecting the accountant's IT usage behavior is also found statistically significant ($F=46,911$, $p<0.01$). The regression parameter ($\beta= 0,306$, $p<0.01$), shows that if an accountant's intention towards IT usage is positive, the possibility of performing the IT usage behavior will also increase.

According to the findings, when the accountant's attitude and subjective norm toward IT usage are positive, the other variable will also be positive. By looking at the results of the analysis, it can be concluded that an individual's attitude and subjective norms toward IT usage have been mutually affecting each other. The attitude developed towards IT usage is also effective in forming the subjective norms. Similarly, the subjective norms for IT usage contribute to the forming of the attitude. This shows that intention and attitude are not concepts that develop independently. Accountant's attitude and subjective norm towards performing IT usage jointly affect the accountant's intention towards performing IT usage ($F=100,089$, $p<0.01$).

Table 5: Hypotheses Supported/Not Supported Table

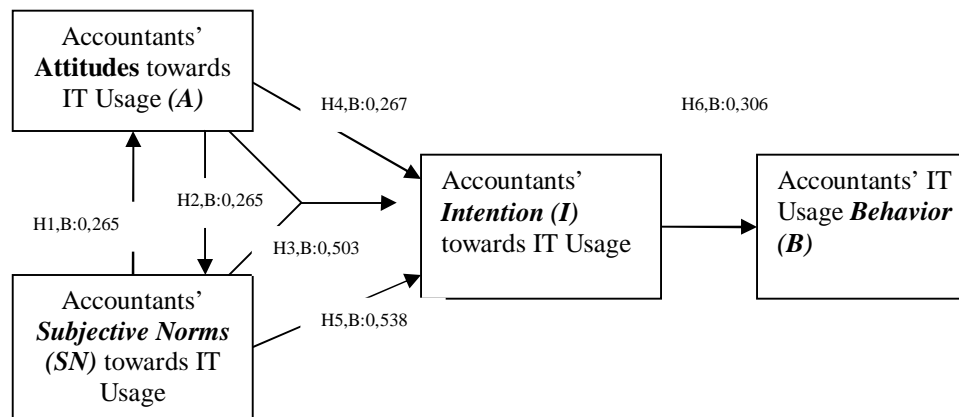
	HYPOTHESES	Supported/not supported
H1:	Accountants' attitude towards IT usage has a positive effect on the intention towards IT usage.	Supported
H2:	Accountants' subjective norms related to IT usage have a positive effect on the intention to IT usage.	Supported
H3:	Accountants' intention related to IT usage has a positive effect on the performing IT usage.	Supported

2.6. Limitations and Suggestions for Future Research

Like all other research, this study also has some limitations. While these theories give compelling explanations and predictions about people's attitudes and behaviors, other social scientists criticize the individual bias or asocial context and linearity of these models (Kippax and Crawford, 1993). Cognizant of these flaws and the complexity of an audience's attitudinal and behavioral processes involved in any communication encounter, the researchers in this study deliberately choose not to anchor the study on a single theory. (Panol & McBride, 2001). Individuals could change their behavior, attitude and intention related to subject. Subjective norms related to subject could change by time. For all these reasons, preparing a questionnaire that measures these variables is quite difficult. Another limitation is the general unwillingness of the participants. Due to the lack of time, some participants gave back the questionnaires without answering.

This research can be a modest beginning in the field but it can lead the future studies to evaluate accountants' attitudes toward using IT products. In the future, new studies researching the variables that are effective on the attitudes and subjective norms of the accountants can contribute to the field. In addition, the effects of the behavioral components described in the IT usage model on accountants' performance can be studied further. More research in this field could increase the hope for finding the structural deficiencies of the theory in the future.

FIGURE 3: RESEARCH RESULTS



3. Discussion and Conclusion

The findings of this study that investigates accountants' intentions, attitudes and subjective norms toward IT usage on accountants IT usage behavior, support the findings of many other previously conducted research (Lucas, 1974; Lucas, 1975; Mykytyn & Harrison, 1993; Hartwick & Barki, 1994; Sheppard et al., 1988; Back, & Kim, 2002).

The first finding of this study is that the intention of accountants toward IT usage bears a positive impact on IT usage behavior and is statistically significant. So intention towards IT usage is one of the important determinants of accountants' IT usage behavior. If accountants truly believe that IT usage has a positive impact on their professions, their behavior will be positive and they will choose to perform the IT usage behavior.

The second finding is that attitudes and subjective norms towards IT usage have a statistically significant impact on intention towards IT usage. But subjective norms have a greater impact than attitudes on forming the intention towards IT usage behavior of accountants. This finding is supported by many other research (Ryu et al., 2003; Sheppard & O'Keefe, 1984). This finding shows that an individual's family, relatives, friends, colleagues and professional groups are considerably influential in forming intention towards IT usage.

Another finding is that a relation exists between attitude and subjective norms that affect intention. If one of these is positive, the other will also be positive. This means that a person's attitude and subjective norms towards IT usage have been mutually affecting each other. The finding is supported by previous research

(Trafimow & Finlay, 2001; Chang, 1998; Ryu et al., 2003; Shepperd & O'Keefe, 1984).

The last finding of this study shows that the Theory of Reasoned Action could be used for the prediction of IT usage behavior of accountants.

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