Technology Acceptance Model in Online Grocery And Supermarket Shopping: A Research in Turkey*

Çevrimiçi Gıda ve Süpermarket Alışverişinde Teknoloji Kabul Modeli: Türkiye'de Bir Araştırma

ABSTRACT

Breakthroughs in the fields of the Internet, online services and mobile communication tools pave the way for significant changes in people's daily lives and habits. One of the areas where change takes place is meeting needs and commerce. Considering the Turkish sample, statistics show that the share of e-commerce in general commerce exceeds 20%. This rate is increasing every year both in Turkey and in the world, and e-commerce is becoming an increasingly important area for both consumers and businesses. Online market applications, which have become widespread especially during the Covid19 pandemic period, are showing significant growth, leaving other e-commerce areas behind, and are rapidly becoming widespread in the global sample. In this study, these online market applications that have recently entered the consumer's life are examined by using the technology acceptance model. In the created model, the effects of usefulness, ease of use, pleasure, social environment and trust dimensions on consumers' online market usage attitudes and intentions are examined. In the field research, the young population under the age of 25, who quickly adapt to technology, was determined as the sample and data was collected from 221 participants. The findings show that the usefulness, ease of use, pleasure, social environment and trust variables have a relationship with consumers' attitudes and intentions.

Keywords: E-Commerce, Online Market, Technology Acceptence Model, Consumer Behaviour, E-Trade Trends

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ÖZET

Internet, çevrimiçi hizmetler ve mobil iletişim araçları alanlarında yaşanan atılımlar insanların günlük yaşamında ve alışkanlarında önemli değişimlere zemin oluşturmaktadır. Değişimin gerçekleştiği alanlardan biri de ihtiyaçların karşılanması ve ticaret olarak öne çıkmaktadır. Türkiye örneklemi göz önüne alındığında istatistikler e-ticaret'in genel ticaret içerisindeki payının %20'yi aştığını göstermektedir. Bu oran hem Türkiye'de hem de dünyada her geçen yıl yükselmekte ve e-ticaret tüketiciler için de işletmeler için de giderek daha önemli bir alan haline gelmektedir. Özellikle Covid19 pandemi döneminde yaygınlaşan online market uygulamaları diğer e-ticaret alanlarını da geride bırakarak ciddi bir büyüme göstermekte ve küresel örneklemde hızla yaygınlaşmaktadır. Bu çalışmada tüketici hayatına yeni giren bu online market uygulamaları, teknoloji kabul modeli aracılığından yararlanarak incelenmektedir. Oluşturulan modelde fayda, kolaylık, haz, çevre etkisi ve güven boyutlarının tüketicilerin online market kullanımı tutumları ve niyetlerine etkisi incelenmektedir. Saha araştırmasında teknolojiye hızla uyum sağlayan 25 yaş altı genç nüfus örneklem olarak belirlenmiş ve 221 katılımcıdan veri toplanmıştır. Bulgular fayda, kolaylık, haz, sosyal çevre ve güven değişkenleri ile tüketicilerin tutum ve niyeti arasında pozitif yönlü ilişki olduğunu göstermektedir.

Anahtar Kelimeler: E-Ticaret, Sanal Market, Teknoloji Kabul Modeli, Tüketici Davranışları, E-Ticaret Trendleri

INTRODUCTION

E-commerce began to be used professionally in the 90s and spread around the world in the 2000s. In the early days, it was mostly carried out between information technology-oriented businesses, banks, large companies and financial institutions (Bucaklı, 2007:44-45). E-commerce, which has great importance in our lives, provides advantages for consumers if done correctly and in a disciplined manner. For example, a consumer benefits from the opportunity to access the product he wants within seconds and make price comparisons without having to visit stores one by one via the internet. In this way, they can find the product more quickly and easily and also get the most suitable product by comparing the prices. E-commerce provides services not only in areas such as clothing and household products, but also in the grocery products and ready-made food sector. While e-commerce provides

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great benefits for consumers, it also leads them to find more ready-made products and become lazy. E-commerce, which is an indispensable part of life, continues its development by keeping up with technological life.

If we look at e-commerce from an environmental perspective, all consumers use their cars for personal shopping and instead of mixing exhaust fumes into the air, online shopping from e-commerce sites reduces air pollution to a great extent (Jaller and Pahwa, 2020:3).

Especially in 2020, e-commerce and online market applications attract great interest. It is seen that there is an increase in users in many applications such as Getir, Yemeksepeti, İstegelsin and local online market applications with the pandemic period. It is seen that the possibility of contactless payment and the lack of need to leave the house caused an increase in e-commerce during the pandemic period and intense competition in the business world (Yılmaz and Bayram, 2020:50-51). The biggest reason why online market applications attracted more attention during the pandemic period is the possibility of the virus passing from person to person through close contact. In this period, online market applications provide great convenience for consumers. It is seen that local tradesmen, who saw that the use of online market applications increased during the pandemic period, opened their own online market applications or started using applications such as Getirçarşı and Yemeksepeti Mahalle. In this regard, it is seen that businesses attach importance to consumer demands and needs in the developing and constantly changing technological environment and strive to continue their existence.

E-COMMERCE AND ONLINE MARKETS

Electronic commerce, in its simplest form, is the sale of any information, product or service, as well as the provision of logistic communication between institutions and customers through computer networks, which are of great importance in our lives, in order to create demand for the information, product and service offered (Akyön, 1999:213). So, based on the definition here, it is possible to say that it is the world's largest market for the internet. E-commerce is making a revolution by changing the basis of human life. It also forces traditional trade to change. For example, a person anywhere in the world has the opportunity to see the product they want, get information about the product and buy it whenever they want. This situation has forced traditional commerce to shift to e-commerce, improve itself, and change shape. As Özdemir (2023:144) states the need to increase efficiency and value of organizations, it can be said this situation compels organizations to adapt to e-commerce.

An online market is an e-commerce site where the company delivers the product the consumer wants to their door within a certain period of time, using its own vehicles and personnel. It is a sector that reached high profitability, especially during the Covid19 pandemic period. People order many of their needs from these platforms due to the curfew and fear of disease transmission during the pandemic. Even before the pandemic period, online markets were used to save time, spend less energy, and access products easily (İşçioğlu, 2018:101).

Online grocery shopping is done through applications on mobile phones or online shopping sites. There is a variety of products on shopping sites. By typing the desired product into the search engine, products of many brands appear before the consumer with price comparison within minutes. In some sites, both payment on delivery and credit card are accepted as payment methods. It may differ for each site. In 2003, 485 participants were evaluated with a 15-question survey about the use of online markets only on the internet. As a result of this evaluation, most of the online market users indicate that they prefer the online market because they avoid of traffic chaos, find online grocery shopping faster, and avoid the cost of product transportation and the hassle of carrying products. In addition, at the time of the research, the majority of online market users were individuals working in the private sector with high education and income levels (Candan and Kurtuluş, 2010:320-321). When another study is examined, it is seen that consumers prefer cleaning materials that they may have difficulty in carrying and products of standard quality (Çakır and Kazançoğlu, 2020:324).

There are many online markets in Turkey. After noticing the interest of consumers in online markets, existing markets are trying to differentiate themselves from other applications by moving their business to mobile applications and making new promotions online. Nowadays, online markets are not limited to just groceries. Many markets also carry electronic devices, clothing, accessories, decoration and stationery products. For example, Migros Virtual Market has the same products in both its existing markets and its online markets.

The volume of the grocery and supermarket sector in e-commerce in Turkey in the first six months of 2023 was announced as 19.3 Billion TL. It can be stated that by the completion of 2023, the sector will have a volume of over 40 billion TL (Turkish Ministry of Commerce, 2023). As mentioned in previous titles, the online market sector is growing much faster than other sectors due to the impact of the Covid 19 pandemic. The sector, which had a volume of 1.4 billion TL in 2019, is moving towards a volume exceeding 40 billion TL in 2023 (Turkish Ministry of Commerce, 2023).

Online markets, which have become widespread with developing information technology, are preferred by many consumers. Although the use of online markets is practical for consumers, it is seen that it does not always produce positive results. Online markets also have disadvantages, although not as many as the advantages. When consumers encounter one or two of these disadvantages in a row, they may decide to change their online market habits or preferences. The biggest advantages of a online grocery store for a consumer are time saving and price comparison. Online markets are becoming a convenience for consumers, who have limited time for shopping due to their work life, think that going out and shopping will waste most of this time, and feel tired due to their fast-paced lives. However, the orders that come later in this process are delivered to the consumer late or in a damaged form, not being able to see the products closely, concerns about security and problems that occur during the return process are both a disadvantage and a reason for the consumer to change the online market application he uses. (Saygılı, 2014: 36). The advantages and disadvantages of online market shopping from the research of Saygılı (2014:36) can be seen in Table 1 below.

Table 1. Advantages And Disadvantages of Online Market Use

Advantages	Disadvantages
Millions of product options	Obligation to wait for cargo
Time saving	Faulty and damaged deliveries that may occur during the shipping process
Opportunity to benefit from discounts and campaigns	Lack of opportunity to see products up close
Opportunity to compare products to be purchased	Concerns about security.
Easy payment options	Various problems with returns
Easy return options	

Source*: (Saygılı, 2014: 36)

Since information technology, which is widely used in our daily lives, plays an active role in every field, the use and acceptance of technology are concepts that need to be investigated. Information technologies are not accepted everywhere at the same time and sometimes even not at all. People can sometimes be prejudiced and react to innovations that they have no knowledge about. Knowing the reasons for these reactions is very important for organizations (Işık and Öz, 2021: 44-45). This is where the technology acceptance model comes into play.

The technology acceptance model (TAM) is a model whose use has become widespread, especially as new technologies take up a large place in our lives. The technology acceptance model is used not only for telephones and the internet, but also for innovations such as autonomous vehicles and electronic household appliances that we use at home. The widespread use of technological devices, the emergence of new internet usage areas and their rapid increase with developing technology give rise to new reasons for researching this model. Many businesses are performing digital transformation and using different technologies in their activities. In this process, TAM is used to better understand consumers. With the data they obtain as a result of the technology acceptance model, businesses understand what consumers want and what they do not want and organize their approaches accordingly. In the technology acceptance model, the variables usefulness, Ease of Use, Trust, Attitude and Intention are included in almost all studies in the literature. It is the same in the study of Zhang et al. (2019). In this study focusing on supermarket shopping, the environmental impact variable was included in the model to examine the social impact, and the perceived pleasure variable was included in the model to examine the enjoyment of the users, using the study of Bay (2016). In this context, more comprehensive research emerges.

To exemplify the use of TAM the researches of Toraman (2022) acceptance of use of digital Turkish lira, Yolcu and Özdemir (2020) examination of e-municipality services, Çakır and Özkaynak (2022) study on dentists' use of electronic health records within the framework of TAM can be given. There are more similar frameworks in the literature. These studies reveal how important the decisions of consumers and users are for businesses and how consumers direct the activities of these businesses.

METHODOLOGY

The aim of this research is to measure consumer attitudes and behaviors by examining food and supermarket shopping through e-commerce with the technology acceptance model. In the study, food and supermarket shopping through e-commerce is examined with the technology acceptance model. There are five independent variables: usefulness, ease of use, pleasure, social environment and trust, and two dependent variables: attitude and intention.

The population of this research includes everyone in Çanakkale province who is over 18 years old and under 25 years old. Those who will participate in the sample group are selected using the easy sampling method. Participants in the sample must be over 18 years old and use or have used online market applications before. A survey is used in the study as a data collection method. The majority of the sample consists of students. The reason for this is that there are more students in the region where the survey was conducted.

The survey form contains questions about 5 independent and 2 dependent variables. In the technology acceptance model, the variables usefulness, ease of use, trust, attitude and intention are included in almost all studies in the literature. It is the same in the study of Zhang et al. (2019). In this study focusing on supermarket shopping, the social environment variable was included in the model to examine the social impact, and the perceived pleasure variable was included in the model to examine the enjoyment of the users, using the study of Bay (2016).

There are 26 question statements in the questionnaire prepared with the survey method. Participants answer the survey questions by marking on a 5-point Likert Scale such as strongly disagree, disagree, neither agree nor disagree, agree, strongly agree. Survey answers were received face to face. The survey questions also ask questions about the 7 variable and the demographic characteristics of the participants. Data was collected from 261 people using the convenience sampling method, 40 of the surveys were deemed invalid due to incomplete answers, and the analyzes were conducted on 221 surveys.
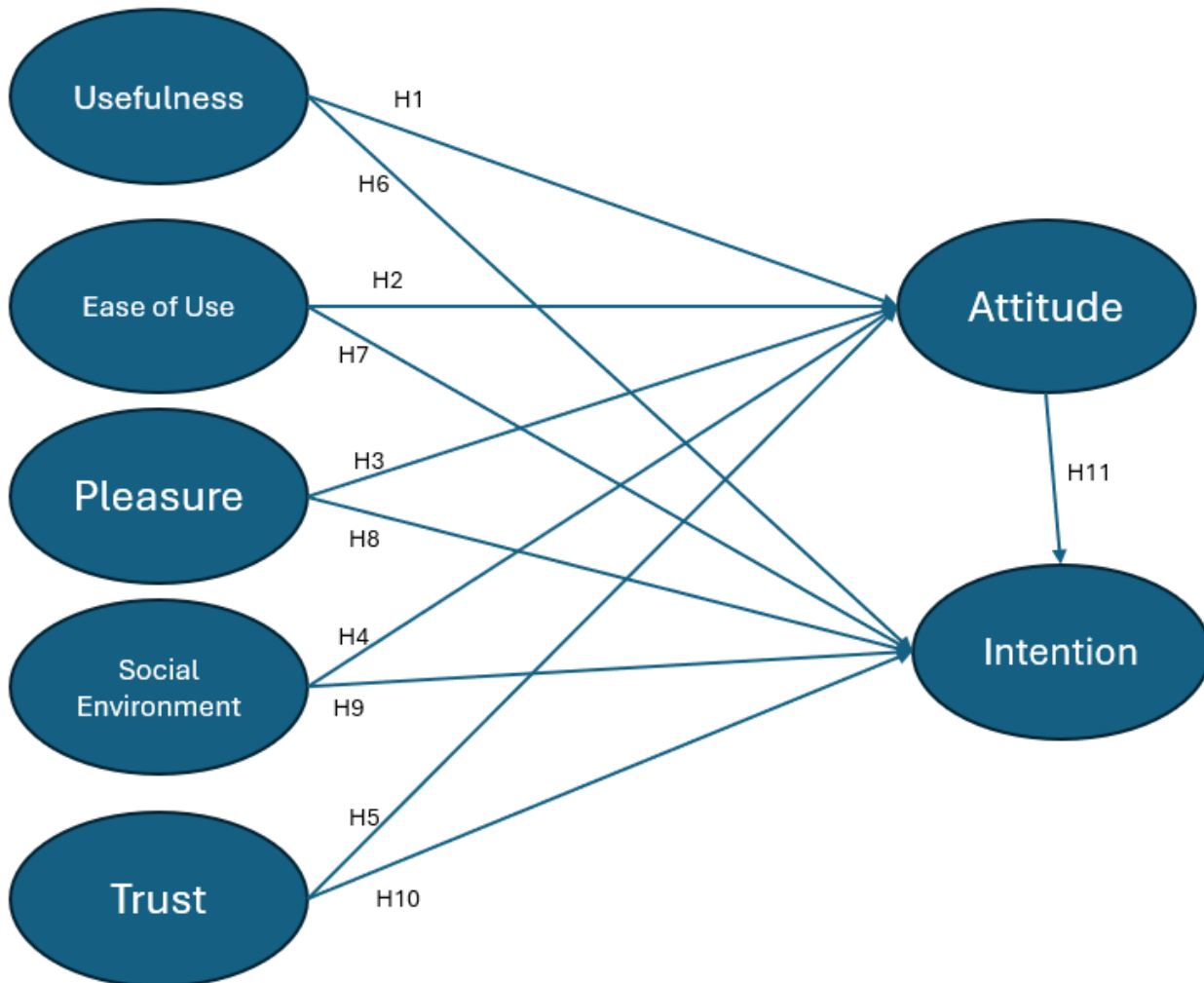

Figure 1: Research Model
Source: Created by authors.

Hypotheses are established between the five independent variables in the figure above and attitude and intention. The hypotheses created within the scope of the research are listed below.

H1: There is a positive and significant relationship between usefulness and attitude.

H2: There is a positive and significant relationship between ease of use and attitude.

H3: There is a positive and significant relationship between pleasure and attitude.

H4: There is a positive and significant relationship between social environment and attitude.

H5: There is a positive and significant relationship between trust and attitude.

H6: There is a positive and significant relationship between usefulness and intention.

H7: There is a positive and significant relationship between ease of use and intention.

H8: There is a positive and significant relationship between pleasure and intention.

H9: There is a positive and significant relationship between social environment and intention.

H10: There is a positive and significant relationship between trust and intention.

H11: There is a positive and significant relationship between attitude and intention.

Factor Analysis

As a result of the relationships between variables in multivariate statistical analysis, there are difficulties in analyzing and interpreting multivariate samples. Factor analysis is performed to minimize this problem.

As seen in Table 2, the KMO Bartlett value was obtained as 0.859 in the factor analysis with varimax rotation. In line with this result, it seems that the research sample is sufficient to conduct factor analysis. Looking at the sphericity test result, it is seen that a factor analysis is viable.

Table 2. KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		,859
Bartlett's Test of Sphericity	Approx. Chi-Square	3019,355
	df	325
	Sig.	,000

The 4th statement of the usefulness dimension and the 4th statement of the pleasure dimension were excluded from the analysis due to low factor loadings. Table 2 shows the factor matrix created using the varimax method.

Table 3. Factor Analysis via Varimax Rotation

Statements/Dimensions	Trust	Pleasure	Attitude	Ease of Use	Intention	Social Impact	Usefulness
Trust 2	,852						
Trust 3	,847						
Trust 4	,786						
Trust 5	,728						
Trust 1	,701						
Pleasure 2		,847					
Pleasure 3		,836					
Pleasure 1		,835					
Ease of Use 5			,765				
Attitude 3			,690				
Ease of Use 4			,665				
Attitude 2			,566				
Attitude 1			,537				
Ease of Use 1				,841			
Ease of Use 2				,837			
Ease of Use 2				,836			
Intention 2					,737		
Intention 1					,689		
Intention 3					,620		
Social Impact 2						,853	
Social Impact 3						,784	
Social Impact 1						,675	
Usefulness 2							,767
Usefulness 3							,758
Usefulness 1							,560
Cronbach α	0,854	0,893	0,779	0,896	0,799	0,878	0,724

This matrix examines the relationship between 7 factors and 25 questions. The lower limit of factor loadings between the factors and the questions used was determined as >0.5 in this study. As mentioned above, the 4th statement of the ease of use dimension and the 4th statement of the pleasure dimension were excluded from the research because they were below this value. Table shows the Cronbach's Alpha reliability coefficients of dimensions, which are the dimensions of the scale used in the research: usefulness, trust, pleasure, ease of use, attitude, social environment, and intention. According to data, it is seen that all alpha coefficients are above 0.7 and therefore all dimensions are reliable. It can be stated that the scale is valid and reliable, considering the findings at this stage.

Correlation Analysis

After factor analysis, the data were subjected to Pearson correlation analysis to evaluate the hypotheses. Correlations between variables were evaluated and the analysis results are seen in the table below. Except for the Trust variable of the technology acceptance model, there is a moderate positive relationship between the variables of usefulness, ease of use, pleasure and social environment and attitude and intention. Although there is a statistically significant relationship between trust and attitude and trust and intention, these relationships are at a very low level. A moderate positive correlation is also observed between attitude and intention variables. Looking in more detail, there is a moderate relationship between usefulness and attitude with a coefficient value of 0.501 (p=0.000), a moderate relationship between usefulness and intention with a coefficient value of 0.538 (p=0.000), and a moderate relationship between ease of use and attitude with a coefficient value of 0.419. (p=0.000), a moderate relationship between ease of use and intention with a coefficient of 0.481 (p=0.000), a moderate relationship between pleasure and attitude with a coefficient of 0.444 (p=0.000), a moderate relationship between pleasure and intention with a coefficient of 0.555, a medium level relationship between social environment and attitude with a coefficient value of 0.324 (p=0.000), a medium level relationship between social environment and intention with a coefficient value of 0.462 (p=0.000), a low level relationship between trust and attitude with a coefficient value of 0.207, a low level relationship between the coefficient value (p=0.002), a low level relationship between trust and intention with a coefficient value of 0.247 (p=0.000), a medium level relationship between attitude and intention with a coefficient value of 0.594 (p=0.000 can be seen in Table 4.

Table 4. Correlation Analysis

Dimension		Trust	Pleasure	Ease of Use	Attitude	Intention	Social Environment	Usefulness
Trust	Pearson Correlation	1	,175**	,360**	,207**	,247**	,121	,186**
	Sig. (2-tailed)		,009	,000	,002	,000	,074	,005
	N	221	221	221	221	221	221	221
Pleasure	Pearson Correlation	,175**	1	,338**	,444**	,555**	,359**	,450**
	Sig. (2-tailed)	,009		,000	,000	,000	,000	,000
	N	221	221	221	221	221	221	221
Ease of Use	Pearson Correlation	,360**	,338**	1	,419**	,481**	,282**	,362**
	Sig. (2-tailed)	,000	,000		,000	,000	,000	,000
	N	221	221	221	221	221	221	221
Attitude	Pearson Correlation	,207**	,444**	,419**	1	,594**	,324**	,501**
	Sig. (2-tailed)	,002	,000	,000		,000	,000	,000
	N	221	221	221	221	221	221	221
Intention	Pearson Correlation	,247**	,555**	,481**	,594**	1	,462**	,538**
	Sig. (2-tailed)	,000	,000	,000	,000		,000	,000
	N	221	221	221	221	221	221	221
Social Environment	Pearson Correlation	,121	,359**	,282**	,324**	,462**	1	,299**
	Sig. (2-tailed)	,074	,000	,000	,000	,000		,000
	N	221	221	221	221	221	221	221
Usefulness	Pearson Correlation	,186**	,450**	,362**	,501**	,538**	,299**	1
	Sig. (2-tailed)	,005	,000	,000	,000	,000	,000	
	N	221	221	221	221	221	221	221
** Correlation is significant at the 0.01 level (2-tailed).								

The relationships observed as a result of the correlation analysis for the established hypotheses are summarized in the table below. It can be said that the findings support the hypotheses.

Table 5. Hypotheses Evaluations

Variables		Hypothesis	Relationship
Usefulness	Attitude	H1	Medium level positive
	Intention	H6	Medium level positive
Ease of Use	Attitude	H2	Medium level positive
	Intention	H7	Medium level positive
Pleasure	Attitude	H3	Medium level positive
	Intention	H8	Medium level positive
Social Environments	Attitude	H4	Medium level positive
	Intention	H9	Medium level positive
Trust	Attitude	H5	Low level positive
	Intention	H10	Low level positive
Attitude	Intention	H11	Medium level positive

CONCLUSION

As the importance of the internet increases in our lives, it is seen that its usage areas also increase. It is possible to say that trade is also included in these areas of use. It can be said that with the widespread use of the Internet, the concept of e-commerce has emerged and intervened in traditional business activities in human life. While e-commerce has advantages for consumers such as saving time, comparing prices, and reaching the product in a short time, it also has disadvantages such as problems in return transactions, security concerns, and delays in shipping. In this context it can be said, many businesses focus on the attitudes and behaviors of consumers and carry out studies for these. This study is a study on consumer attitudes and behaviors for online market applications.

All hypotheses are accepted in the findings. All hypotheses are in a positive and significant relationship. In this study, it is seen that the variables usefulness, ease of use, pleasure, social environment and trust have a positive and significant effect on the attitude and intention variables, the attitude variable on the intention variable. It is recommended that businesses focus on these issues and develop their infrastructure on these issues. Especially the impact of of usefulness, ease of use, pleasure should be studied further.

Finally, it is thought that businesses will attach importance to these findings and that they should not ignore that this study was conducted using the convenience sampling method. It is also thought to be a source of information and guidance for future studies.

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