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Factors Affecting Consumers' Continuance Intention Online Home Appliances Under The Expectation Confirmation Model *

Beklenti Onay Modeli Kapsamında Tüketicilerin Çevrimiçi Ev Aletleri Kullanmaya Devam Etme Niyetlerini Etkileyen Faktörler

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ÖZ

Teknolojik gelişmelerle birlikte satın alma davranışları önemli değişikliklere uğrayan tüketiciler, hayatlarını kolaylaştıran ürünleri tercih etmektedirler. İnternet donanımlı nesnelerin insan hayatındaki önemi giderek artmaktadır. Elektronik cihaz, bilgisayar ve internetin birleşmesi ile ortaya çıkan çevrimiçi nesnelerden biri olan robot süpürgeler bu araştırmanın çalışma alanını oluşturmaktadır. Robot teknolojilerinin en az kullanıldığı alanlar olan evlerde robot süpürgelerin kullanımında gözlenen artış araştırmayı gerekli kılmaktadır. Yapılan analizler sonucunda ürün deneyiminin sonucu olan olumlu onayın algılanan fayda ve memnuniyet üzerinde olumlu etkisi olduğu tespit edilmiştir. Ayrıca algılanan faydanın memnuniyet ve devam etme niyeti üzerinde pozitif etkiye sahip olduğu, hedonik faydanın tatmin ve devam etme niyeti üzerinde pozitif etkiye sahip olduğu ve alışkanlık ve tatminin devam etme niyeti üzerinde pozitif etkiye sahip olduğu bulunmuştur.

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ABSTRACT

Consumers, whose purchasing behaviors have under gone significant changes with the technological developments, prefer products that make their lives easier. The importance of internet-equipped objects is increasing in human life. Robot vacuums, one of the online objects that emerged with the combination of electronic device, computer and internet, constitute the field of study of this research. The increase observed in the use of service robots in homes, which are the most minimal areas where robot technologies are used, necessitates research. As a result of the analyzes, it was found that the positive confirmation, which is the result of product experience, has a positive effect on perceived usefulness and satisfaction. In addition, it was found that perceived usefulness had a positive effect on satisfaction and continuance intention, hedonic benefit had a positive effect on satisfaction and continuance intention, and habit and satisfaction had a positive effect on continuance intention.

1. Introduction

The internet of things, which emerged as a result of rapidly developing technology, constitutes an open area to examination in terms of both business and other disciplines. The internet of things, a concept that has been introduced to the literature in the last decades, was first tested byRomkey in 2017 by testing physical control by combining computer, internet and electronics on a toaster.

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Online objects, which can detect many elements from temperature to pressure, from humidity to weight, thanks to the processor defined for them, also have the feature of transmitting the elements they perceive via the internet. Robot Technologies are another example of online objects that have examples that make human life easier in many ways such as smart watches, smart homes, smart cities. Robots are products that are frequently preferred by consumers in many areas from industrialization to health services, from household appliances to Office equipment. In a study conducted by Cross (2018) on robots, which are no longer an important part of daily life, it was emphasized that robots will be able to perform all the functions that humans can do after about a century.

Robots, which have been among the futuristic scenarios of daily home life since the early 1950s, gained importance with the prediction of Bill Gates (2008) that "there will be a robot in every house soon". The common purpose of robotics, which is the product of multidisciplinary science by nature, is to increase people's work and life quality by providing human - robot interaction and to develop new robots accordingly. Robots, which work with humans and are under the control of the user, also enable the development of social relations between humans and information systems. The home environment that people use is a good place to understand how smart systems are adopted and used. Recently, the design of robotic products to help people in homes, institutions and workplaces and to facilitate work has caused these products to be described as social products (Forlizzi, 2007).

Tea and coffee machines, air humidifiers, men's care products and robot vacuums, which are in the small household appliances category, are the source of the growth in the market. Particularly, the rapid growth experienced in the robot vacuum segment has been quite remarkable compared to other product groups. The main feature that distinguishes robot vacuums from other vacuums is that they do the cleaning regardless of the physical power of the user. Robot vacuums, which map the instructions created by the consumers before use and save them in their memory, are smart tools that can clean with the instructions they receive online, without being dependent on the physical power of their users, thanks to these features.

Expectation Confirmation Model (ECM), developed by Bhattacherjee (2001); is a model developed to explain the effect of consumers on re-purchase behavior to examine the level of satisfaction with the product. The model, which is among the models that explain consumer behavior towards technological products in the literature, states that the long-term use of technological products depends on continuance intention (Bhattacherjee, 2001). In the research, it is aimed to inquire into the continuance intention, which is the result of consumer experience for robot vacuums, which are smart technological products. Accordingly, it was aimed to measure the perceived usefulness, confirmation and satisfaction variables in the research model and the intention to continue using it. The increase observed in the use of service robots in homes, which are the most minimal areas where robot Technologies are used, necessitates research The research is expected to contribute to the academic literature.

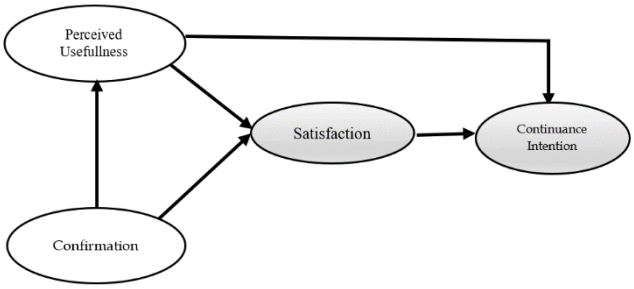
2. Conceptual Framework

2.1. Expectation Confirmation Model (ECM)

ECM, developed in relation to technological products, is a model that examines the relationship between individuals' intention to continue usingin formation technology systems and their repurchase intentions. Within the scope of the model, it is aimed to examine the factors affecting the satisfaction levels experienced by consumers after using the product and to analyze the process that continues until the intention to repurchase (Oliver, 1980; Churchill & Surprenant, 1982; Dabholkar, et al., 2000). The model, which is based on the Expectancy Confirmation Theory developed by Oliver (1980), is based on determining the relationship between the sense of satisfaction that individuals obtain as a result of experiencing technological products and their reuse. According to the model, after using products containing information technologies, consumers will continue to use the productor give up, depending on their level of satisfaction. The model relates individuals' continuance intention to technological products with the variables of perceived usefulness, confirmation and satisfaction.

According to the ECM, consumers buy the product with an expectation, and then evaluate the performance of the product after its use. Product performance, which is evaluated as positive or negative, expresses the benefit that consumers have obtained from the product. The basis of the model is to compare the satisfaction level of the consumers from the product with the benefit from the product and to determine the continuance intentionas a result. At the same time, cognitive standards of the product also has an important role in the model. Since the products in the model are technological products, their decisions about whether to continue using their technological systems are similar to the purchasing decisions of individuals for the products in question (Bhattacherjee, 2001). As a result of this similarity, the relationship between consumers' continuance intention to technological products and their repurchase decisions has led to the ECM in Figure 1 (Bolen et al. 2017).

Figure 1: Expectation Confirmation Model



Source: Bhattacherjee, A. (2001). Understanding information systems continuance: An expectation-confirmation model. *MIS Quarterly*, *25(3)*, 351-370.

The failure of models similar to the Technology Acceptance Model developed by Davis (1989) and the Unified Technological Acceptance Model developed by Venkatesh and Davis (2000) to explain the continuance intention led to the emergence of the aforementioned model. ECM is based on the theory that includes three dimensions of user intent required for consumers to continuance intention to information technologies: perceived usefulness, confirmation and satisfaction. Hayashi et al. (2004) argued that the model is related to the post-acceptance structure, while the expectancy confirmation theory focuses on pre- and post-consumption determinants. In addition to this, the model examines the effect of post-consumption expectations rather than the effect of pre-consumption expectations and refines the theory by considering perceived usefulness.

Perceived usefulness, which is included in the Technology Acceptance Model first among the technology acceptance models, expresses the attitudes of individuals towards the use of technological products. According to Davis (1989), perceived usefulness; it is defined as the degree of perception that using a product containing a certain information system contributes to the individual's work performance. According to Gyampahand Salam (2004), it represents the belief that work performance will increase thanks to the use of technological products in individuals. Based on the Technology Acceptance Model, the perception of performance that occurs in individuals after the use of the product is included as perceived usefulness in the ECM. According to Mathieson (1991), and Taylor and Todd (1995), perceived usefulness is expressed as distinctive beliefs that affect information systems acceptance behaviors in a wide range of user populations. While perceived usefulness emphasizes the functional aspect of information technology use, it also influences subsequent decisions to continuance intention to information systems, since acceptance of information systems use is the primary motivation. When empirical studies comparing the relative effects of perceived usefulness in the stages of information systems use are examined; it is concluded that perceived usefulness significantly and significantly affects the use of information systems (Davis, 1989; Karahanna et al., 1999).

While perceived usefulness in the model expresses the perception of the contribution to reduce the workload that will be provided after individuals use a technological product, it is stated that it directly affects the satisfaction and continuance intention. The fact that perceived usefulness directly affects the continuance intentionis due to the fact that the model is based on user experience (Premkumar & Bhattacherjee, 2008). In addition, in a study conducted by Venkateshand Davis (2000), it was found that perceived usefulness affects intention to use. In a study conducted by Uyar (2019), a significant relationship was found between perceived usefulness and intention to use, in case the benefit obtained from technological devices containing information systems increases, the desire to use increases, therefore, the intention to purchase and use the product is expressed as the benefit obtained from the use of the product. It has been determined that it is affected by the perceived usefulness factor.

According to the Expectation Confirmation Theory, consumers have expectations about a product before purchasing it. After purchasing the product, a perception about the performance of the product is formed in the minds of consumers who use the product for a certain period of time with the motivation of expectation. As a result of the comparison of this perception with the expectation before the purchasing behavior, it is confirmed at what level the expectations are met. In the research conducted by Bhattacherjee (2001), it has been observed that consumers whose expectations are met experience a sense of satisfaction and they intend to re-purchase or continue to use, while dissatisfied consumers experience the opposite. When evaluated from this point of view, if the benefit obtained from the product experienced after the purchasing behavior meets the expected performance from the product, the product is perceived as useful and confirmation is realized by the consumers.

The confirmation variable in the ECM expresses the perception that includes the harmony between the performance expected by the consumers from the use of the information system and the actual performance. Accordig to Alraimi et al. (2015) the confirmation or disconfirmation of consumers to continuance intention to a product; it occurs in three ways as meeting the expectations, exceeding the expectations and being below the expectations. Incases where the pre-use expectations of the users about a product are not formed, the confirmation after the first use is of great importance (Hong, et al., 2006). When individuals do not have great expectations before using information systems, their expectations for gains from information systems increase. For this reason, the frequency of experience of consumers causes different expectations from their pre-use expectations (Thong, et al., 2006). This explains the effect of confirmation on consumers' expectations of the product after use. In the model, it is stated that confirmation affects perceived usefulness and satisfaction. This is also supported by research by Venkatesh et al., (2011), Roca et al., (2006), and Hsuand Lin, (2015). Satisfaction (Locke, 1976), defined as a pleasurable and positive emotional state that occurs as a result of individuals' evaluation of the work depending on

their work performance, was expressed by Oliver (1981) as the summary psychological state that emerges when the emotion covering unapproved expectations is compared with the emotions before the consumption experience. Consumers with a sense of satisfaction with the product have an intention to re-purchase or continue to use, while consumers who experience dissatisfaction develop a negative reaction towards the product. From this point of view, if the consumer expectations are met or exceeded as a result of the experience of the purchased product, confirmation will occur, and a sense of satisfaction will emerge with the effect of confirmation.

The concept of satisfaction in the model; symbolizes the emotional satisfaction levels that a rise as a result of meeting the consumer expectations of information systems. Satisfaction is seen as the key to creating loyal customers in the long run and increases the likelihood of customers staying with the business in times of crisis (Anderson & Sullivan, 1993). It is known that satisfaction is the building block of loyalty and significantly affects the continuance intention (Limayem, et al., 2007). This situation constitutes the source of the relationship between satisfaction and continuance intention to the model.

The intention to continuance intention to information technologies is similar to the product purchase intention of the consumers. The harmony between consumers' continuance intention and purchase intentions has led to the emergence of the ECM. The model associated consumers' intention to continue using three factors: satisfaction, degree of fulfillment / confirmation, and expectations for the benefit to be obtained as a result of use. Roca et al. (2006) found that individuals' intention to continue using e-learning is related to their satisfaction levels, while satisfaction is related to perceived usefulness, information quality, validation, service and system quality, and perceived ease of use. According to the ECM, users' continuance intention to information technologies is primarily determined by their satisfaction with the use of the technological product they have used before (Bhattacherjee, 2001). Inaddition, in a study conducted by Inteco (1998), it was determined that users terminated the use of the a for ementioned technological product as a result of their negative experience and dissatisfaction due to low access speed and busy communication lines. In this respect, satisfaction should be emphasized as a positive emotion that is not ignored by users. The theorizing and validation of emotion as an significant predictor of intention to purchase in models for the use of technological products strengthens the effect of satisfaction on purchase intention.

2.2. Online Home Appliances

The internet, which has an important role in ensuring mutual interaction by increasing communication and information sharing between people, has changed daily life to a great extent by being integrated in to objects in the last two decades. Online objects, also referred to as the Internet of Things, are realized through intelligent connections established through objects that can perceive and communicate with each other. With the inclusion of cloud technology in thereal-time data flow from data terminals and sensor devices, all kinds of storage, application and data processing services are provided. The usage areas of online tools can be in the form of human-to-human communication, as well as human-to-object and object-to-object communication. Human-to-human communication; it is expressed as the communication of a smart device with another person by using it by people. This type of communication is the most common type of communication provided by smart devices. Human-to-object communication, which means communicating with a device for the purpose of usingin formation, which is another usage area of the internet of things; is defined as the use of people by providing remote Access to objects. Object-to-object communication, on the other hand, is characterized as consisting of objects on both sides, one object creating and sending information, and the other object taking action by processing the information in question. Smart robot vacuums, which are becoming increasingly common in daily life, can be shown as an example of human-to-object communication. The fact that the communication is done through smart phones in the use of the robot vacuum does not mean that the communication is from object to object. Because, in order to qualify as object-to-object communication, smart phones must detect the conditions of the environment and transmit the warning that cleaning is required. The fact that the aforementioned technology has not yet been realized causes the communication to be defined as human-to-object communication since the communication is realized by accessing the robot vacuums with the Access provided by the user via smart phones.

Robot vacuums, which have been on the market for the last few years and are gradually easing the work load of users, are the first service robots to autonomously clean surfaces and used in homes. Unlike traditional vacuum cleaners, the most important feature of robot vacuums is that they do the cleaning themselves. The robot vacuums, which move with the Access provided via smart phones, map the entire area and save it in its memory first. Robot vacuums, which have the ability to clean in the areas determined by the user on the created map, are generally round in shape and have different diameters and heights.

When the studies in the literature on robot products are examined, Heerink et al. (2010) stated that ease of use is dominant in consumer acceptance. Dautenhahn et al. (2005) and Lee et al. (2006), stated that the circle of friends is effective in their purchasing decisions. Fink et al. (2013), determined that the usability aspect is effective in the consumer experience. Fong et al. (2003) emphasizes that sociality is effective in robot product purchasing decisions. The lack of research on the use of robot vacuum cleaners in the literature and especially in the last few years, the increasing number of users has led to an increase in research in this field.

Interaction relationship between human and robot, which is an considerable factor in the user experience and acceptance of the product by the user, also emerges in the robot vacuum cleaner. Reporting of anthropomorphic aspects, defined as attributing human-specific featureston on-humans, in research on robot vacuum cleaner experience (Forlizzi & DiSalvo, 2006; Sung, Grinter & Christensen, 2010) and in particular, users' attribution of a personality and gender to robot vacuums is the most common anthropomorphization known to users. It is an indication that it adapts easily to vacuum cleaners. The subject of this research is to examine how the robot vacuums produced by many brands are experienced by users and to investigate their repeated use intentions.

2.3. Hedonic Benefit and Habit

Hedonic benefit, which is more personal and objective than rational benefit; is defined as the potential of the product to satisfy the user (Matzler et al., 2006). According to Luk andYip (2008), hedonic benefit refers to the emotional aspect of consumers' shopping transactions. While hedonic benefits are relatively intangible, they have been associated with intrinsic stimulation, entertainment and enjoyment (Kwok & Uncles, 2005). These benefits are manifested in the potential pleasure value of a product and result from the entertainment, excitement and enjoyment that is influenced by the purchasing experience. For this reason, the hedonic benefit to be obtained from a product helps consumers to maximize the benefit, satisfaction, success and performance of the product from their purchasing behavior. According to Chung (2015), hedonic consumers are consumers who have a high tendency to experience excitement and pleasure in the shopping process.

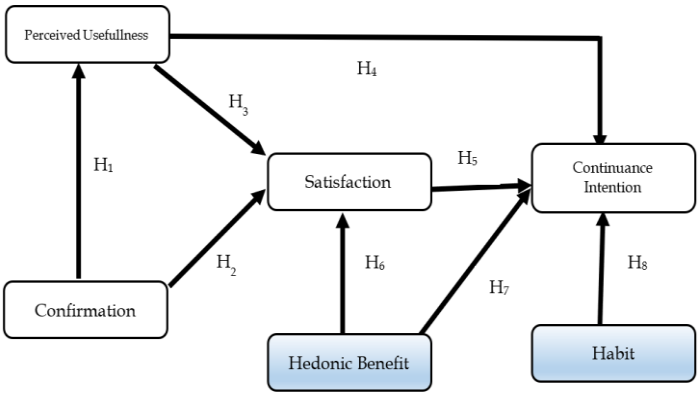
The hedonic benefit that consumers derive from the use of the product is related to the satisfaction and satisfaction they experience. Because consumers are expected to be satisfied with the product if they provide hedonic benefits with the use of the product. Similarly, it is expected that the intention of the consumers, who are satisfied with the hedonic benefit, to continuance intention the product will be directly affected. For this reason, it was desired to develop a model by adding the hedonic benefit variable to the ECM examined in there search.

The habit of using technological products is defined as the tendency to perform the same behaviors automatically due to previous learning experiences (Limayem, et al., 2007; Hsu & Lin, 2015). Verplankenand Orbell (2003) stated that routine repetitions of a behavior and the individual's satisfaction with the result make that behavior a habit over time. Habit usually refers to an automatic set of state-behaviors that can be performed efficiently, controlled at a limited level, and practiced unconsciously (Bargh, 1996; Limayem & Hirt, 2003). The habit of using technological products and the effect of the habit on the continuance intention have been examined in many studies. Khalifaand Liu (2007) examined the moderator role of habit on satisfaction and repurchase intention within the context of online shopping and obtained a significant result. Hsu et al. (2015) also examined the moderator role of habit in the relationship between online repurchase intention and perceived value, trust, and satisfaction in online purchasing sites. At the end of the research, the relationship between perceived value and repurchase intention was stronger for consumers with high habituation level, while it was found to be lower for consumers with low habituation level. Amoroso & Lim (2017) investigated the mediating effect of habit on continuance intention in mobile technologies. According to the findings, it was concluded that the habit did not have a mediating effect on consumer attitude and continuance intention, and consumer satisfaction and continuance intention. Bae (2018) determined the negative regulatorye ffect of habit on the relationship between satisfaction and continuance intention on social networking sites. Nascimento et al. (2018), it was concluded that the moderator effect of habit on the relationship between satisfaction and continuance intention is statistically significant within the scope of wearable technology. Within the scope of the studies in the literature related to the habit, the effect of the habit on the continuance intention to using it is another field of study that is desired to be examined in the research.

3. Methodology

The research consisted of six variables and was examined within the framework of the model used in the study by Bolen (2020) and developed on the basis of the ECM. Bolen (2020) developed an expectation validation model for smart watch users that includes individual mobility, perceived aesthetics and habit, and perceived aesthetics, satisfaction, individual mobility and habit are related to the continuance intention, while perceived usefulness is not related to the continuance intention reached its conclusion. Based on the research conducted by Bolen (2020), the research was handled for the users of the robot vacuum cleaner, which is a technological product. In this context, a model consisting of perceived usefulness, confirmation, satisfaction, hedonic benefit, continuance intention and habitual variables was developed and analyzed.

Figure 2: Model of the Research



The use of the new generation robot technology in house holds, which is the smallest mass consumer unit, has led to significant changes in consumption and continuance intention to it. Confirmation resulting from purchasing behavior as a result of positive expectations; it is related to whether individuals perceive the product as useful or not. Individuals who perceive the product as useful experience satisfaction with the product and their intention to continue using it continue in conjunction with each other. Hedonic benefit, which defines the pleasure that individuals experience as a result of using a technological product, is another factor affecting satisfaction. Individuals' perception of the product as useful is another determinant that affects the continuance intention, and the continuance intention is also associated with the habits of the individuals. Because consumers tend to keep going to use regardless of the quality of the product as a result of their habits and routunes. Accordingly, the model to be examined in the research is given in Figure 2.

In the research, the assumption that the confirmation variable causes consumers to perceive the product as useful was examined as included in the ECM. For this reason, the first hypothesis to be examined in the research is;

H_1: The confirmation variable has an effect on perceived usefulness.

formed in the form. At the same time, the hypothesis that includes the assumption that the confirmation that occurs after the positive expectations of the consumers and their purchasing behavior has an impact on the consumer satisfaction;

H_2: The confirmation variable has an effect on consumer satisfaction.

formed in the form. Consumers' perception of a product as useful causes them to be satisfied with the product and to create consumer satisfaction. The perceived usefulness variable, as included in the ECM, has an effect on satisfaction;

H_3: Perceived usefulness has an effect on consumer satisfaction.

form is assumed. Similarly, consumers' perception of a product as useful has a meaningful impact on their continuance intention to the product. This is another hypothesis in the research;

H_4: Perceived usefulness has an effect on intention to continue using.

gave rise to the hypothesis. Satisfaction, which expresses the positive difference between the expectations of the consumers from the product and the performance they encounter, also directly affects the intention of the consumers to continuance intention to the product in question. The fifth hypothesis to be examined in the research is the assumption that consumers who are satisfied with the product and product use are related to their intention to continue using it;

H_5: Consumer satisfaction has an effect on intention to continue using.

makes it necessary to examine the hypothesis. The satisfaction of consumers changes under the influence of many variables. Hedonic benefit, which is one of these factors, is defined as consumers' use of the product and the pleasure they experience from the product. Accordingly, the sixth hypothesis that consumers want to examine in the research is that the satisfaction they will feel from the product will increase as they gain hedonic benefit from a product. At the same time, the assumption that consumers who provide hedonic benefits as a result of product use will tend to continue using the product in question also necessitates the examination of the seventh hypothesis in the research. Accordingly, the relevant hypotheses are;

H_6: Hedonic benefit has an effect on consumer satisfaction.

H_7: Hedonic benefit has an effect on intention to continue use.

formed in the form. Habit, which is another variable that is wanted to be examined in the research; is highly influential on consumers' continuance intention. In this case, the last hypothesis in the research, based on the assumption that the product in question forms a habit in consumers and that this situation has an effect on the continuance intention;

H_8: Habit has an effect on continuance intention.

hypothesis was examined.

3.1. Sample of the Research

In the research, smart robot vacuums, which are among the new generation technological products where information systems can be used intensively, were discussed. In this context, the universe of the research consists of consumers living in Turkey and using robot vacuums. Since ECM, in which information Technologies are used, is based in the research, the research population was determined in this way. In the research, data has been obtained using the questionnaire technique conducted in online and offline environments and the convenience sampling method. Questionnaires applied to obtain information from individuals verbally or in writing are administered through face-to-face interviews, in writing by mail, over the phone or on the internet. One of these techniques can be applied or several of them can be applied together, in other words, both face-to-face and online questionnaires can be used in a research (Arıkan, 2018). Similarly, Biemer and Lyberg (2003) stated that data collection systems in general may not consist of only one type, and mixed-mode surveys are more applicable. Also, De Leeuw (2005), De Leeuw et al. (2008), Blyth (2008), and Dillman et al. (2014), it was stated that mixed-mode surveys, which combine different data collection modes such as face-to-face, telephone and web, have become standard data collection tools. For this reason,

there is no objection to the application of online and offline surveys together. In the research, data obtained from 162 robot vacuum cleaner users living in Çankırı and Kırıkkale cities, who participated in online and offline surveys on a voluntary basis, were evaluated and 154 usable questionnaires were included in the research. The research was applied to the participants between July 1st, 2022 and August 15th, 2022 after the decision of Çankırı Karatekin University Ethics Committee with the decision numbered 26 dated June 28th, 2022 and that it was in compliance with ethical principles.

3.2. Data Collection Tools of the Research

In the study, after the literature scanning, a data collection form adapted from the original scales was applied in line with previous studies. The data collection form consists of two parts: 6 questions asked to define the demographic features of the participants and 18 questions asked to measure the perceived usefulness, confirmation, satisfaction, continuance intention, hedonic benefit and habit to be examined in the research. In order to measure perceived usefulness (PU) in the research, Davis (1989) and Yang et al. (2016) and three questions each adapted from the study conducted by Bhattacherjee (2001) to measure satisfaction (SAT), consent (CON) and continuance intention (CI). In addition, 3 questions adapted from the study conducted by Limayem & Hirt (2003) were asked to the participants in order to measure the habit (HBT) in the study. Finally, to measure hedonic benefit (HB), Hong et al. (2017) were asked 3 questions adapted from the study and they were asked to answer with a five-point Likert scale. The data obtained from the data collection form were analyzed with SPSS 20.0 statistical package program, LISREL 8.7 and Structural Equation Modeling (SEM).

3.3. Analysis and Findings

When the data obtained from the participants participating in the research are analyzed within the scope of demographic variables, the data obtained are given in Table 1.

Table 1: Demographic Characteristics

Gender	**Fre. (N)**	**Per (%)**	**Marital Status**	**Fre. (N)**	**Per (%)**
Female	114	74	Married	140	90.9
Male	40	26	Single	14	9.1
Age			**Career**		
24-29	14	9.1	Public Employee	90	58.4
30-35	26	16.9	Self Employed	12	7.8
36-41	60	39.0	Private Sector Employee	22	14.3
42-47	24	15.6	Not Working	22	14.3
48 and more	30	19.5	Retired	8	5.2
Monthly Income			**Education Status**		
0-4500 TL	6	3.9	Highschool	6	3.9
4501-6000 TL	10	6.5	Associate Degree	2	1.3
6001-7500 TL	8	5.2	Bachelor's Degree	36	23.4
7501-9.000 TL	18	11.7	Postgraduate Degree	110	71.4
9.001 TL and more	112	72.7			

In the study, where the majority of the participants were female (74%), the agerange was between 36-41 (39.0%), marital status was married (90.9%), education level was graduate (71.4%), monthly income was 9001 TL and (72.7%) and public employees (58.4%).

In the questionnaire form adapted from the scales from different studies, the scales were first translated into Turkish, since the original scales were in a foreign language, and then explanatory factor analysis was performed. As a result of Kaiser-Meyer-Olkin (KMO) value greater than 0.60 (KMO=0.850) and Bartlett Sphericity Test result ($p=0.000$) $p<0.05$, the research model was found to be suitable for factor analysis. In the study, the skewness and kurtosis values of the variables were also examined and it was determined that they were in the range of ±2 values.

Table 2: Factor Analysis Results

Factors	**Item**	**Factor Loads**	**Factor Explanation**	**Cronbachs' Alpha**
Continuance Intention	CI1:I will use my robot vacuum frequently in thefuture.	0.892	49.636	0.934
	CI2: I will use my robot vacuum regularly in thefuture as well.	0.871		
	CI3: I plan to continue using my robot vacuum.	0.742		
Perceived Usefullness	PU1: Using a robot vacuum helps me with house cleaning.	0.927	12.241	0.799
	PU3: Using a robot vacuum allows me to achieve results with the least effort.	0.838		
	PU2: Using a robot vacuum makes house cleaning easier.	0.790		
Satisfaction	SAT3: I think I made the rightdecision by using a robot vacuum cleaner.	0.958	9.142	0.881
	SAT1: I am satisfied with my experience of using a robot vacuum cleaner.	0.914		
	SAT2: I find mydecision to use a robot vacuum cleaner wise.	0.851		
Confirmation	CON2: My experience using a robot vacuum cleaner was beter than I expected.	0.912	5.096	0.813
	CON3: The performance of my robot vacuum was beter than I expected.	0.887		

	CON1: In general, most of my expectations for using a robot vacuum cleaner have been met.	0.623		
Habit	HBT3: I use my robot vacuum often.	0.881		
	HBT2: I use my robot vacuum regularly.	0.680	4.446	0.844
	HBT1: Using my robot vacuum has become a habit for me.	0.597		
Hedonic Benefit	HB3: Using a robot vacuum makes cleaning fun.	0.886		
	HB2: Using a robot vacuum makes me happy.	0.793	3.757	0.850
	HB1: Cleaning using a robot vacuum cleaner is enjoyable.	0.632		
TOTAL			**84.317**	**0.928**
Kaiser-Meyer-Olkin Scale Validity=0.852			**Bartlett Test of Sphericity ChiSqure=2544.168 p=0.000**	

In the research, it was aimed to collect each of the sub-dimensions (CON, SAT, PU, CI) that makeup the model variables in the ECM and the other variables (HBT, HB) that are additional to the research, under separate dimensions. Table 2 shows that the sub-dimensions of the variables in the research are grouped as expected and factor loads are included.

Table 3: Fit Indicesfor the Confirmatory Factor Analysis (CFA) Model

Fit Criteria	Perfect Fit	Acceptable Fit	Values of the Developed Scale
x^2/sd	≤3	≤5	3.98
R.M.S.E.A.	0<RMSEA<0.05	0.05≤RMSEA≤0.10	0.103
S.R.M.R.	0≤SRMR<0.05	0.05≤SRMR≤0.10	0.10
G.F.I.	0.95≤GFI≤1	0.90≤GFI<0.95	0.92
A.G.F.I.	0.90≤AGFI≤1	0.85≤AGFI<0.90	0.91
N.F.I.	0.95≤NFI≤1	0.90≤NFI<0.95	0.90
C.F.I.	0.95≤CFI≤1	0.90≤CFI<0.95	0.92

Source: Schermelleh-Engel, K., Moosbrugger, H., & Muller, H. (2003).

According to the findings obtained as a result of the factor analysis, it is observed that the sub-dimensions of the variables examined in the research are distributed as expected in the research. In Table 2, it was found that the 24-item scale in the study was gathered under 6 dimensions at the expected level and these factors explained 84,317% of the total variance. In addition, the reliability coefficients were examined in calculating the internal consistency of the factors and it was found to be above 0.70, with high reliability. In the study, confirmatory factor analysis (CFA) was performed after factor analysis, and novariable with low standardized value and high error level was found.

Table 3 gives the values of the compliance criteria for CFA. Among these obtained values, it is seen that x2/sd, R.M.S.E.A., S.R.M.R., G.F.I., N.F.I. and C.F.I. values are in the acceptable fit range, while the AGFI value is in the perfect fit range (Schermelleh-Engel et al., 2003). In addition, the mean explained variance (AVE) and construct reliability (CR) values of the factors included in the study were also examined. For the intention to continueusing, AVE=0.7016, CR=0.875; for perceived usefulness, AVE=0.7285, CR=0.889; AVE=0.8257, CR=0.934 for satisfaction; AVE=0.6688 for confirmation, CR=0.8551; AVE=0.5316, CR=0.768 for habit, and AVE=0.604 and CR=0.818 for hedonic benefit were obtained. Since this situation satisfies the conditions of mean explained variance (AVE>0.50) and structure reliability (CR>0.70), hypotheses belonging to the model to be examined in the research were examined and standardized parameter estimates and t values were examined (Yurdugül & Sarıkaya, 2013). In the study, the convergent validity AVE coefficients were examined together with the Cronbach Alpha and CR coefficients. Since the AVE and CR coefficients exceeded the valid threshold values, it was not necessary to exclude any variable from the measurement model. In the study, discriminant validity was also examined. No overlap was detected between items that make up the variables, and then discriminant validity analysis was performed according to the criterion of Fornell and Larcker (1981). According to this analysis, the square root of the AVE coefficient for each of the variables was found to be greater than the correlation coefficient with the other variables.

Consequently, of the determination of the goodness of fit indices obtained as a result of the CFA in the research, the structure to be examined was tested and the SEM analysis was carried out with the LISREL 8.7 program. SEM analysis results regarding the goodness of fit indices are given in Table 4.

Table 4: Fit Indices for Structural Equation Model (SEM)

Fit Criteria	Perfect Fit	Acceptable Fit	Values of the Developed Scale
x^2/sd	≤3	≤5	3.94
R.M.S.E.A.	0<RMSEA<0.05	0.05≤RMSEA≤0.10	0.093
S.R.M.R.	0≤SRMR<0.05	0.05≤SRMR≤0.10	0.10
G.F.I.	0.95≤GFI≤1	0.90≤GFI<0.95	0.91
A.G.F.I.	0.90≤AGFI≤1	0.85≤AGFI<0.90	0.91
N.F.I.	0.95≤NFI≤1	0.90≤NFI<0.95	0.90
C.F.I.	0.95≤CFI≤1	0.90≤CFI<0.95	0.91

Source: Schermelleh-Engel, K., Moosbrugger, H., & Muller, H.

(2003).

When the goodness of fit indices obtained as a result of SEM analysis in Table 4 are examined, it is seen that the x2/sd, R.M.S.E.A., S.R.M.R., G.F.I., N.F.I. and C.F.I. valuesare in the acceptable fit rangeand the A.G.F.I. value is in the perfect fit range.

Table 5: Results of Hypothesis Tests Obtained from the Structural Equation Model (SEM)

Hypotheses	Paths	Standardized Parameter Estimates	t values	Conclusion
H_1	Confirmation → Percieved Usefullness	0.36	2.44	**ACCEPTED**
H_2	Confirmation → Satisfaction	0.38	2.96	**ACCEPTED**
H_3	Percieved Usefullness →Satisfaction	0.51	6.77	**ACCEPTED**
H_4	Percieved Usefullness → Continuance Intention	0.39	4.90	**ACCEPTED**
H_5	Satisfaction → Continuance Intention	0.32	4.37	**ACCEPTED**
H_6	Hedonic Benefit → Satisfaction	0.38	2.99	**ACCEPTED**
H_7	Hedonic Benefit →Continuance Intention	0.45	4.40	**ACCEPTED**
H_8	Habir →Continuance Intention	0.38	2.99	**ACCEPTED**

As a result of the findings obtained from Table 4, when the significance values of the hypotheses were examined, it was determined that there were significant relations at the $p<0.05$ level between the variables included in the hypotheses examined in the research.

4. Conclusion

The ever-increasing technology has quickly taken its place in the homes, which are the most minimal areas of use, and has started to make life easier with new generation smart vehicles. Among these technological products, robot vacuums, whose share in the market has increased remarkably, have entered the field of interest of users. These robots, which provide ease of cleaning without wasting time for their users and can clean in a short time with the commands directed, constitute the field of study of the research. In this research, the main aim of which is to investigate the factors affecting the intention to continue using the robot vacuum cleaner, ECM was used theoretically. However, the model has been developed by adding the hedonic benefits that individuals gain from the use of robot vacuums and the habitual feelings they have gained over time. The model created in the research was tested empirically through the SEM using LISREL 8.7.

Within the scope of the data obtained, it has been designated that the relationship between the variables to be examined in the research is generally compatible with the studies conducted by Bhattacherjee (2001) and Bolen (2020), which constitute the core of the research. Accordingly, it has been determined that the confirmation obtained as a result of the use of the product is positively related to the satisfaction, the perceived usefulness affects the satisfaction positively, and the satisfaction positively motivates the contnuance intention. Based on the assumption that the perceived usefulness of a product affects consumers' continuance intention to the product, the hypothesis was confirmed in the research and it was found that there was a positive and significant relationship between them. Accordingly, the fact that a product is considered useful as a result of its experience by users directly affects the intention of users to continue using the product in question. This is the case with Venkatesh & Davis (2000), Bhattacherjee (2001), Guriting & Ndubisi (2006), Natarajan et al. (2017) coincides with the studies conducted by.

The relationship between perceived usefulness and satisfaction, which is another hypothesis examined in the research, was found to be significant and positive, as expected from the research. Perception of a product as useful by users means that expectations for the product are met positively. In this case, it leads to the emergence of satisfaction as a result of meeting the expectations in a positive way. It has been determined that the users of the robot vacuum cleaners discussed in the research experience satisfaction as a result of finding the product useful. Findings Thong et al. (2006), Agrebi & Jallais (2015), and Yuan et al. (2016) are similar to the studies conducted by.

It is thought that users will experience cognitive dissonance if the expected performance and benefit from the use of information technologies is not confirmed in the post-use period (Bhattacherjee, 2001). For this reason, it has been argued that validation, which is the confirmation of expectations in the ECM, has a positive effect on users' satisfaction and perceived usefulness. In this context, when robot vacuums are examined, it is likely that confirmation will significantly affect users' satisfaction and perceived usefulness. The fact that the preliminary expectations of potential users without using a robot vacuum cleaner are useful as a result of experiencing the product means that the user confirmation to the product. This situation coincides with the studies in the literature explaining that confirmation positively affects satisfaction and perceived usefulness (Sorebo & Eikebrokk, 2008; Li & Liu, 2014; Alraimi et al. 2015; Hew, et al. 2017; Lin, et al. 2017).

In addition to the model discussed in the research, the habit added; it can be defined as automatically repeating acquired behaviors. Users' familiarity with a technology increases their intention to continue using the product in question (Nascimento et al. 2018). This situation was similar in the robot vacuum users examined in the study, and it was found that the robot vacuum users' familiarity with the product

positively affects their continuance intention.

Another variable added to the ECM is hedonic utility; The use of the product reduces the loss of time for users. The satisfaction arising from the use of robot vacuums used to provide hedonic benefits affects the intention to continue using it. This is the case in Picot-Coupey et al. (2021) stated that consumers' use of the product as well as finding it fun and useful creates hedonic benefits. According to the findings obtained from the research, it has been determined that the pleasure of the users as a result of the use of the robot vacuum directly affects the intention of the users to continue using the product and the result obtained is supported by the literature.

In the research, it is suggested that robot vacuum cleaner manufacturers should follow strategies to increase satisfaction by takingin to account the feedback they receive from users. This is because this situation constitutes an important criterion on the intention of users to continue using it. At the same time, the effect of the confirmation resulting from the user's experience of the product on the perception of the product as useful requires manufacturers to turn to products with technological equipment that will meet consumer expectations. Because meeting the expectations constitutes a very important element in the user's characterization of the product as useful, in the formation of satisfaction and on the intention to continue using it. Similarly, considering the effects of the products that create hedonic value on the satisfaction as well as the benefits on the users, it is recommended that the robot vacuum cleaner manufacturers developelements that will transform the use of the product into pleasure with benefit. Also in the study, Ayanso et al. (2015) and Hsiao et al. (2016), the opinion that perceived usefulness affects the continuance intention through satisfaction will contribute to the development of the research accordingly. Therefore, examining satisfaction as a mediator or regulatory variable will benefit to the development of the research. With these aspects of the research, it is expected to contribute to future studies.

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