BİNGÖL ÜNİVERSİTESİ
İKTİSADİ VE İDARİ BİLİMLER FAKÜLTESİ DERGİSİ

Bingöl Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi, 10(1), 112-131

The Mediating Role of Attitude in The Effect of Perceived Innovativeness of a Robotic Restaurant on Intention to Use, Wom and Willingness to Pay More

Robotik Bir Restoranın Algılanan Yenilikçiliğinin Kullanım Niyeti, Ağızdan Ağıza İletişim ve Daha Fazla Ödeme İsteği Üzerindeki Etkisinde Tutumun Aracılık Rolü

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Keywords: Robotic restaurant, Perceived innovativeness, Attitude, Intention to use, Willingness to pay more.
Anahtar Kelimeler: Robotik restoran, Algılanan yenilikçilik, Tutum, Kullanım niyeti, Daha fazla ödeme isteği
JEL Kodları: M31
JEL Codes: M31
Geliş Tarihi: 16/04/2025
Kabul Tarihi: 05/01/2026
DOI: 10.33399/biibfad.1677413
Araştırma Makalesi

Abstract

This study aims to examine the impact of perceived innovativeness (PI) of a robotic restaurant on behavioral intentions (BI), including intentions to use (IU) and word-of-mouth intentions (WOM). Willingness to pay more, (WPM) with a focus on the mediating role of attitude (AT). The research idea and model are based on the relationships among perceived innovativeness, attitude and behavioral intentions supported by relevant literature. A total of 245 consumers were reached, who watched a video illustrating the operation of robot waiters in a robotic restaurant. Data analysis was conducted using SPSS and AMOS software. The results of the analysis indicate that perceived innovativeness influences intentions to use, attitude, word-of-mouth intentions, and willingness to pay more. Furthermore, attitude was found to have an impact on intentions to use, word-of-mouth intentions, and willingness to pay more. Additionally, it was observed that attitude mediates the relationship between perceived innovativeness and intentions to use, word-of-mouth intentions, and willingness to pay more.

Öz

Bu çalışmanın amacı, bir robot restoranın algılanan yenilikçiliğinin, kullanım niyetleri ve ağızdan ağıza pazarlama niyetleri dâhil olmak üzere davranışsal niyetler üzerindeki etkisini incelemektir. Daha fazla ödeme isteği tutumun aracılık rolüne odaklanmaktadır. Araştırma fikri ve modeli, ilgili literatür tarafından desteklenen algılanan yenilikçilik, tutum ve davranışsal niyetler arasındaki ilişkilere dayanmaktadır. Robotik bir restoranda robot garsonların işleyişini gösteren bir videoyu izleyen toplam 245 tüketiciye ulaşılmıştır. Veri analizi SPSS ve AMOS yazılımları kullanılarak gerçekleştirilmiştir. Analiz sonuçları, algılanan yenilikçiliğin kullanım niyeti, tutum, ağızdan ağıza pazarlama niyetleri ve daha fazla ödeme isteğini etkilediğini göstermektedir. Ayrıca, tutumun kullanım niyeti, ağızdan ağıza pazarlama niyeti ve daha fazla ödeme isteği üzerinde bir etkisi olduğu bulunmuştur. Ek olarak, tutumun algılanan yenilikçilik ile kullanım niyetleri, ağızdan ağıza pazarlama niyetleri ve daha fazla ödeme isteği arasındaki ilişkiye aracılık ettiği gözlemlenmiştir.

1. INTRODUCTION

Robot technologies, the most popular innovation of the last period, have started to be widely used in the service sector (Zeng, Chen and Lew, 2020: 725). Robot restaurants, integrating automation and robotics into the meal service process, offer a novel dining experience. Innovative organizations such as banks, restaurants, shops, hotels are pioneering the development and use of robots instead of workers in front-line services (Belanche, Casaló and Flavián, 2020: 449). The benefits of robotics in food and beverage operations include workload reduction, employee time savings, process standardization, human error reduction, employee stress reduction and the ability to specialize in skilled tasks (Fernando, Mathath and Murshid, 2016).

Despite the growing prevalence of robotic restaurants, academic research exploring how consumers perceive and respond to such innovations remains limited (Erdem, Barakazi and Seker, 2023; Çelik and Aydın, 2022; Jain, Liu-Lastres and Wen, 2023). While previous studies have examined personal innovativeness (PI), attitudes (AT), and behavioral intentions (BI) in tourism and hospitality contexts, the application of these models to robot restaurants is relatively unexplored. This represents a clear theoretical gap: it is unclear whether the mechanisms observed in conventional hospitality settings (e.g., the mediating role of AT between PI and BI) function similarly in the context of highly innovative service technologies, such as robotic dining. Addressing this gap, the present study investigates the effect of consumers' PI on BI and Willingness to Pay More (WPM) in the context of robotic restaurants. Moreover, the study examines whether AT serves as a mediating factor in this relationship. Specifically, the study seeks to answer the following questions: How do consumers perceive robotic restaurants compared to traditional dining experiences? To what extent does PI influence BI and WPM? Does AT mediate the relationship between PI and BI or between PI and WPM?

Understanding these dynamics is particularly important because robotic restaurants combine technological novelty with experiential consumption, making them an ideal context to test innovation adoption models in a real-world service environment. By exploring how consumers form attitudes and intentions toward robotic dining experiences, the study not only extends theoretical frameworks developed in hospitality and tourism research but also provides practical insights for service operators aiming to leverage robotics for customer engagement and premium pricing strategies.

This study tests the mediating role of AT in the impact of the PI of a robotic restaurant on BI and WPM. The first part of the study outlines the theoretical framework and the main outlines of the research problem, along with stating the research hypotheses. Additionally, this section includes a brief review of relevant literature to establish the theoretical foundation of the study. The second part of the study covers the research methodology, describing the research design, sampling procedure, data collection methods, and data analysis techniques used in the research. The study concludes with reporting research findings, discussion, and theoretical and practical recommendations.

2.THEORETICAL FRAMEWORK AND HYPOTHESES DEVELOPMENT

2.1. Perceived innovativeness (PI) and attitude (AT)

Nowadays, innovation is an important factor for a firm to gain competitive advantage and sustain its existence. The dimension of demand for new products is related to the process of acceptance and diffusion of innovations (Bhatnagar, 2000: 4). PI, "is the degree to which consumers believe that the product possesses important attributes of innovation such as newness and uniqueness" (Watchravesringkan, Hodges and Kim, 2010: 268). PI, refers to the tendency of individuals to adopt new ideas, products or processes. It reflects the individual's openness to change and innovation and generally plays an important role in the process of innovation adoption (Rogers, Singhal and Quinlan 2014). Many studies in the literature show that innovative product perception positively affects consumers 'attitude towards the product and thus their purchase intentions (Şahin and Söylemez, 2021; Peppers and Rogers, 2005; Çelik and Aydın, 2022) and that consumers' positive ATs towards the product or service will increase with the increase in their PI levels (Liu, Zhang and Chen, 2022; Çelik and Aydın, 2022).

Some studies show that customers with different gender, age and educational background may have different perceptions and reactions to service robots (Ayyildiz, Baykal and Koç., 2022; Victorino, Karniouchina and Verma, 2009). Wu (2003) stated that women's negative ATs towards innovation perception are due to the complexity of innovation and trust. In contrast to these results, Okazaki (2005) stated that women are more willing to improve their ATs towards e-services and use these services than men. Other studies have shown that mobile technology use is more common among women (Lee and Lee, 2010; Totten, Lipscomb, Cook and Lesch, 2005). In a cross-cultural study, it was found that American students had higher ATs towards using new technologies than Chinese students (Elliott, Hall and Meng 2008: 14). These contrasting findings highlight that gender differences in innovation perception are not universal but rather context-dependent—potentially influenced by technological familiarity, perceived ease of use, and cultural norms. Therefore, examining product innovativeness within the context of robotic restaurants provides an opportunity to clarify how such demographic differences manifest in a novel and technology-intensive service setting. By addressing these inconsistencies, the present study contributes to a more nuanced understanding of the relationship between innovativeness and consumer attitudes in the context of service robotics. Accordingly, the following hypothesis is proposed:

H_1: Perceived innovativeness (PI) has a significant and positive effect on attitude (AT).

2.2. Perceived Innovativeness (PI) and Intention to Use (IU)

Artificial intelligence (AI)-based applications that develop, lead to a significant change and transformation in many areas. One of these areas is the robot application for restaurant businesses. In highly competitive service industries, the implementation of robotic technology is increasingly leveraged to enhance customer satisfaction and positively influence behavioral intentions (BIs) (Sudari, Tarofder, Khatibi and Tham, 2019).

One of the positive consumer responses to service robots is IU (Law, Ye and Chan, 2022:628). Kayabaşı, Demirağ and Erçin Yurcu (2022), stated in their study that perceived benefit has a positive and positive effect on the IU service robots İnce and Başer (2023) found that job outcomes, social impact and performance have a positive effect on employers IU

robots. Kazandzhieva and Filipova (2019) reported that perceived benefit and ease of use significantly affect the AT towards using technology and the IU it, As a result, an individual' openness to experience and try new technologies is an expression of innovativeness or innovation seeking tendency (Slade, Dwivedi, Piercy and Williams, 2015: 861). Therefore, as the PI of an individual increases, the IU that technology or service will also increase (Hwang, Lee and Kim, 2019: 94). By synthesizing these insights, the present study emphasizes not only the direct effects of PI on IU but also situates these effects within the broader context of service robotics in the restaurant sector. This approach addresses gaps in previous research by clarifying how consumer innovativeness translates into behavioral intentions in technology-intensive service settings. Accordingly, the following hypothesis is proposed:

H_2: Perceived Innovativeness (PI) has a significant and positive effect on Intention to Use (IU).

2.3. Perceived Innovativeness (PI) and Word of Mouth Intention (WOM)

WOM referrals contribute significantly to purchase decisions and product/brand evaluations, making them a very important source of consumer information and the foundation of interpersonal communication (Grewal, Cline and Davies, 2003). Cheng, Lam and Hsu (2006) define WOM as the act of telling friends, acquaintances or family members about personal experiences with retailers and their satisfactory or unsatisfactory products. It is very important for consumers to spread their own experiences and perceptions to their environment through WOM in terms of shaping consumer behaviour (Marangoz, 2007). The strong influence of WOM on consumer purchasing decisions is emphasised by Goldenberg, Libai and Muller (2001). Aydın (2021) found in his study that the desire to use robotic waiters in restaurants indirectly and directly positively affects WOM through ATs towards using robotic waiters. Hwang and Kim (2017), stated that women who perceive drone services as innovative are more likely to use such services and speak positively to others. These findings collectively suggest that perceived innovativeness fosters a sense of excitement, curiosity, and social distinctiveness, which motivate individuals to communicate their experiences with others. In other words, innovation perception does not only influence usage intentions but also amplifies the social diffusion of new technologies through WOM. Considering that robotic restaurant services are still emerging, WOM represents a vital mechanism for spreading awareness and fostering consumer acceptance. Accordingly, the following hypothesis is proposed:

H_3: Perceived Innovativeness (PI) has a significant and positive effect on Word of Mouth Intention (WOM).

2.4. Perceived Innovativeness (PI) and Willingness to Pay More (WPM)

Technological innovations increase productivity in all industrial sectors, and artificial intelligence is seen as the most important of innovative solutions (Zsarnoczky, 2017: 88). Service robots, which are accepted as the technological innovation of recent periods, are considered as the most innovative technological product of today (Murphy, Gretzel and Pesonen, 2019: 784). Especially in the tourism sector, the use of service robots is increasing rapidly and it is stated that service robots will start to be adopted instead of personnel working in this sector (Thomsen, 2020).

Willingness to Pay More (WPM) reflects the extent to which consumers are prepared to pay a premium for products or services that they perceive as offering superior benefits or added valu (Shin, Jung and Severt, 2017). Since new technological features are primarily added to improve product performance, they may be perceived to offer additional value to consumers. When the perceived value of a product is high, consumers may be WPM by perceiving a high outcome from the potential change (Zhang, Sun, Liu and Chang, 2020; Thomas, 2023). In their study, Zhong Sun, Law and Zhang (2020) compared hotels that offer traditional service with hotels that offer service with robots. In the study, participants were shown a video about a hotel offering traditional service and a hotel offering service with a robot. It was observed that the participants were WPM for the hotels providing service with robots. Considering these insights, examining the influence of PI on WPM in the context of robotic restaurant services offers an opportunity to extend existing knowledge beyond technology acceptance and into the domain of value-based consumer behavior. Accordingly, the following hypothesis is proposed:

H_4: Perceived Innovativeness (PI) has a significant and positive effect on Willingness to Pay More (WPM).

2.5. Attitude (AT) and Intention to Use (IU)

When the studies on the use of service robots are examined, it is generally seen that customer ATs are emphasised. In the studies, there are findings that consumer ATs towards service robots affect the IU service robots (Cha, 2020; Huang, Chen, Huang and Liu, 2024). Ivanov and Webster (2019) stated that people who find the services offered by robots positive have more positive ATs towards service robots and this increases IU. Kazandzhieva and Filipova (2019) states that the IU robot technology is uncertain and limited due to the lack of customer experience due to the newness of the robots used in the service sector. It has been observed that different results have emerged in studies conducted in different countries. According to the study of Ivanov, Webster and Garenko (2018) Iranian hotel customers have different ATs and behaviours towards service robot applications. Doğan and Vatan (2019) stated that some of the customers who experienced robots in their study found robots cool, fun, modern, and interesting, while some customers found robots artificial, uncommunicative, and cold. As a result, consumers' positive ATs towards new technologies increase their IU robot services. However, the consumer's negative AT towards this technology will reduce the IU the robot service (Cha, 2020; Kwak, Lee and Cha, 2021). In the light of this information, the H_5 was stated as follows:

H5: Attitude (AT) has a significant and positive effect on Intention to Use (IU).

2.6. Attitude (AT) and Word of Mouth Intention (WOM)

When purchasing products or services, WOM have a greater impact on customers than advertisements. Because information about goods or services from people they know is more reliable (Yi and Gong, 2008). In the study by Hwang et al. (2019), drone food delivery services were portrayed as a smart and innovative technology in the food service industry and the level of consumer adoption was examined. The researchers suggested that forming a positive AT requires timely and convenient delivery of products. Several studies (Hwang et al., 2019; Kim, Lee and Han, 2020) have investigated the relationship between AT and intention to engage in WOM and consistently found that a positive AT leads to increased intention to speak

positively among consumers. In light of these insights, it is expected that consumers who hold positive attitudes toward service robots will be more willing to share favorable opinions and encourage others to experience such innovations. Accordingly, the following hypothesis is proposed:

H6: Attitude (AT) has a significant and positive effect on Word of Mouth Intention (WOM).

2.7. Attitude (AT) and Willingness to Pay More (WPM)

Research shows that there is a positive correlation between AT and WPM (Ngah, Jeevan, Salleh, Lee and Ruslan, 2020; Sánchez, López-Mosquera, Lera-López and Faulin (2018). People who have experienced robot service are impressed by the appearance and skills of robots (Qiu, Li, Shu and Bai, 2020), which leads to positive perceptions and ATs (McCartney and Cartney, 2020). There are studies showing that more positive ATs are developed towards human-looking service robots (Pillai and Sivathanu, 2020). Customers' WPM to use robotic restaurants than other comparable offers is influenced by their ATs towards using them (Çelik and Aydın, 2022; Hwang, Lee and Kim, 2020). A study of restaurant customers in Taiwan during the COVID-19 pandemic reveals that customers' willingness to use and WPM for robotic restaurants is further strengthened by the need for physical distance and humourophobia (Chuah, Aw and Cheng, 2022). In light of these findings, it is proposed that consumers with more positive attitudes toward service robots are more likely to perceive greater value in robotic dining experiences and thus display higher WPM.

H7: Attitude (AT) has a significant and positive effect on Willingness to Pay More (WPM).

2.8. Mediating Roles

PI is expressed as an individual's interest in innovations and perception of their novelty (Talwar, Talwar, Kaur and Dhir, 2020) and is defined as an individual's AT or feelings towards any innovation (Connolly, Miller, Lindsay and Bauer, 2020). It can be said that PI plays an important role in the diffusion of innovations and the formation of ATs (Hwang et al., 2019). Personal innovativeness affects the IU a product or service, and this effect occurs significantly through AT (Kasilingam, 2020). Studies in the literature, it has been concluded that AT positively and strongly affects the IU (Avirutha et al., 2020; Kim, Kim and Hwang 2021). There are also studies showing that AT has a significant mediating role in the effect of PI on IU (Kasilingam, 2020; Çelik and Yiğenoğlu, 2022).

Innovativeness is the act of adopting innovation. Whether individuals are innovative or not is related to the adoption of new products, services or ideas they encounter (Goldsmith and Foxall, 2003). Innovative consumers are defined as people who provide feedback for new products, promote products through WOM and play a role in the stages of purchasing in the market (Bülbül and Özoğlu, 2014). In a study on how consumers' perceptions of green brand innovativeness support green WOM. The findings indicate that consumers PI of green brands reinforces green WOM directly and indirectly through green competence enhancement and trust (Lin, Huang and Li, 2024). Marangoz (2007) stated that experiences, experiences and perceptions spread to their environment through WOM. Aydın (2021) stated in his study that the robot waiter experience has a positive effect through AT. Mainardes, Portelada and

Damasceno (2023) found that AT towards electronic WOM has a positive effect on purchase intention. In another study, it was stated that positive AT leads to an increase in consumers' intention to speak positively (Kim et al., 2020).

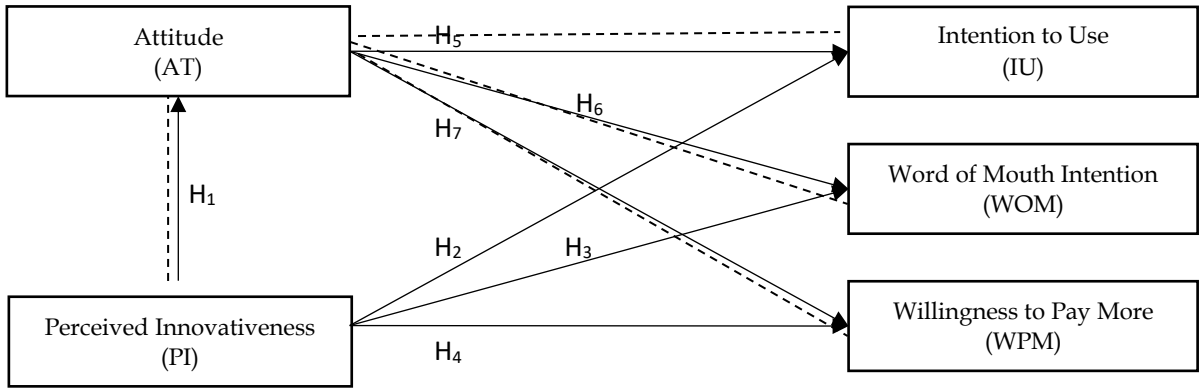
Customers' WPM to use robotic restaurants than other comparable offers is influenced by their ATs towards using them (Çelik and Aydın, 2022; Hwang et al., 2020). Customers who receive Robot service in hotels are positively affected by the appearance and skills of robots and their ATs are positively affected (Qiu et al., 2020; McCartney and McCartney, 2020). These findings suggest that AT functions as a central mediator linking PI to key behavioral outcomes, including IU, WOM, and WPM, thereby translating individual innovativeness into tangible consumer actions. Based on these theoretical and empirical insights, the following hypotheses are proposed:

H8: Attitude (AT) mediates the effect of Personal Innovativeness (PI) on Intention to Use (IU).

H9: Attitude (AT) mediates the effect of Personal Innovativeness (PI) on Word of Mouth Intention (WOM).

H10: Attitude (AT) mediates the effect of Personal Innovativeness (PI) on Willingness to Pay More (WPM).

Figure 1: Research Model



H_8, H_9, H_{10}: Mediating effect AT

3. METHODOLOGY

3.1. Measurements and Survey Design

The scales for perceived innovativeness (PI), attitude (AT), intention to use (IT), willingness to pay more (WPM) (Hwang et al. 2020) and word of mouth intention (WOM) (Hwang et al., 2019) were adapted from previous studies for this study. The scale items are listed in Table 2. An online survey was designed for these scale items and the demographic information of the participants. Using social media tools, the link to the online survey was shared with the participants and they were asked to respond to the survey. However, before responding to the survey, participants watched a short video explaining the operation of robot waiters in a robotic restaurant. A scenario was created and the video link was included in the online survey. The reason for watching the video is to impress the participants (Chiasson, Shaw, Humberstone, Hirshfield and Hartel, 2009) and to obtain a reasonable level of validity for the data obtained (Jin, Muqaddam and Ryu, 2019).

3.2. Target Population and Sampling

In order to conduct the research, the approval of the Van Yüzüncü Yıl University Ethics Committee (number: 29233, date: 21.03.2025) was obtained. The study was evaluated within the framework of the principles of the ethics committee directive, and it was determined that the research is ethically appropriate and approved to be conducted. The target population of this study consists of consumers who watched the video explaining the operation of robot waiters in a robotic restaurant. On the other hand, since it is known that a total of 15 scale items were used in this study, the sample size of 245 people is at least 10 times larger (Hair, Black, Babin and Anderson, 2009: 329). Moreover, considering that a total of 5 variables were used in the research model, it is understood that the sample size of this study is more than "15 times the number of independent variables" (Stevens, 1996) or "the 50 more of 8 times the number of independent variables" (Tabachnick and Fidell, 2006: 123).As a result, sample sizes greater than 200 are considered large for performing SEM (Sivo, Saunders, Chang and Jiang, 2006: 368). The sample size of this study, 245, is a fair sample size for using factor analysis with classical test theory methods (Wilson Vanvoorhis and Morgan, 2007: 49).

3.3. Common Method Variance Bias

As a result of Harman's one-factor technique, the one-factor variance explanation is 47.556%, and since this value is less than 50%, it should be accepted that there is no problem of common method variance bias for the data set obtained (Podsakoff, Mackenzie, Lee and Podsakoff, 2003). Moreover, a common method variance bias can be controlled by the correlation matrix procedure (Rodríguez-Ardura and Meseguer-Artola, 2020). As shown in Table 4, the correlation coefficient between both variables is less than 0.90, which supports that there is no common method variance bias problem for the dataset (Bagozzi, Yi and Phillips, 1991: 437).

4. RESULTS

4.1. Profile of Participants

Table 1 shows that among the 245 respondents, the majority are males (n=140; 57.1%), Generation Y people aged 29-43 (n=129; 52.7%), university graduates (n=183; 74.7%) and those whose monthly income is between 0-20000 TL (n=78; 31.8%).

Table 1: Profile of Participants

Variables	Groups	f	%
Gender	Female	105	42.9
	Male	140	57.1
	Total	245	100.0
Age	12-28 years old (1996-2012; Gen Z)	74	30.2
	29-43 years old (1981-1995; Gen Y)	129	52.7
	44-59 years old (1965-1980; Gen X)	35	14.3
	60-78 years old (1946-1964; Baby Boomers)	7	2.9
	Total	245	100.0
Education (Graduated)	Primary/secondary school	9	3.7
	High school	53	21.6
	University	183	74.7
	Total	245	100.0
Monthly Income	0-20000 TL	78	31.8
	20001-40000 TL	54	22.0
	40001-60000 t	52	21.2
	60000 TL Over	61	24.9
	Total	245	100.0

4.2. Factor Analysis and Reliability Analysis

As indicated in Table 2, an RMSEA value ≤ .08 is considered a good fit, while GFI, NFI, RFI, IFI, TLI and CFI values above 0.90 and AGFI values above 0.80 are supported as acceptable fit values (Muise, Preyde, Maitland and Milhausen, 2010: Schermelleh-Engel Moosbrugger and Müller, 2003: 52). In addition, the loadings of the factor items are supported to be greater than .50 (Hair et al., 2009: 113). In addition to supporting convergent validity conditions of factors when AVE>0.50, CR>0.70 and CR>AVE (Fornell and Larcker, 1981), divergent validity conditions of factors are also supported when MSV<AVE, ASV<MSV and the square root of AVE is greater than the correlation between factors (see Table 4) (Yaşlıoğlu, 2017). Finally, the Cronbach's alpha of the PI factor dimension is >0.70, which supports this factor dimension as reliable (Nunnally and Bernstein, 1994: 263-265), while the Cronbach's alphas of the other four factor dimensions are >0.80, which supports these four factor dimensions as highly reliable (Kayış, 2005).

Table 2: Factor Analysis and Reliability Analysis Results

Perceived Innovativeness (AVE=0.503; Square root AVE=0.709; MSV=0.256; ASV=0.172; CR=0.751; α=0.738)	λ
A robotic restaurant seems unique.	0.623
A robotic restaurant seems new.	0.740
A robotic restaurant seems creative.	0.759
Attitude (AVE=0.771; Square root AVE=0.878; MSV=0.580; ASV=0.358; CR=0.909; α=0.909)	**λ**
I will be welcome the use of a robotic restaurant.	0.835
I am positive about the use of a robotic restaurant.	0.907
I will be pleasing the use of a robotic restaurant.	0.891
Intention to Use (AVE=0.729; Square root AVE=0.853; MSV=0.518; ASV=0.375; CR= 0.890; α=0 .888)	**λ**
I will use a robotic restaurant when dining out.	0.869
I am willing to use a robotic restaurant when dining out.	0.806
I am likely to use a robotic restaurant when dining out.	0.886
Word of Mouth Intention (AVE=0.664; Square root AVE=0.814; MSV=0.580; ASV=0.382; CR= 0.855; α= 0.853)	**λ**
I am likely to say positive things about the use of robot waiters in the restaurant.	0.834
I am likely to recommend restaurants that use robot waiters.	0.838
I am likely to encourage restaurants that use robot waiters to others.	0.771
Willingness to Pay More (AVE=0.873; Square root AVE=0.934; MSV=0.312; ASV=0.183; CR= 0.953; α= 0.954)	**λ**
I am likely to pay more for a robotic restaurant.	0.941
It is acceptable to pay more for a robotic restaurant.	0.946
I am likely to spend extra in order to use a robotic restaurant.	0.916
Model fit values: $\chi 2$=136.729 P= 0.000 $\chi 2$/df=1.709 GFI= 0.931 AGFI= 0.896 NFI= 0.953 RFI= 0.938 IFI= 0.980 TLI= 0.974 CFI= 0.980 RMSEA= 0.054 SRMR= 0.0502	

Note: λ= Factor loading; α=Cronbach alpha

4.3. Normality Test

Whether the data set has a normal distribution can be determined by looking at the skewness and kurtosis coefficients. However, the skewness and kurtosis coefficients are interpreted differently by different authors. If the coefficient of skewness is between ±3 and the coefficient of kurtosis is between ±10, the data set should be considered to have a normal distribution (Kline, 2005: 50). As a result, the data set should be assumed to have a normal distribution since the skewness and kurtosis coefficients of the factor dimensions are between ±1, as shown in Table 3 (Hair et al., 2009: 34).

Table 3: Normality Test Results

Descriptives	Mean	95% Confidence Interval for Mean		Median	Variance	Std. Deviation	Skewness	Kurtosis
		Lower Bound	Upper Bound					
PI	4.1714	4.08	4.2578	4.3333	0.471	0.68	-0.564	-0.389
AT	3.9946	3.88	4.1052	4.0000	0.773	0.87	-0.487	-0.650
IU	3.5864	3.4630	3.7098	3.6667	0.961	0.98	-0.254	-0.591
WOM	3.8776	3.7717	3.9834	4.0000	0.707	0.84	-0.316	-0.589
WPM	2.7755	2.6159	2.9351	2.6667	1.609	1.26	0.263	-0.948

Note: Minimum=1; Maximum=5

4.4. Correlation Analysis Results

As can be seen in Table 4, the correlation between both factors is positive and significant. While the exact correlation coefficient between AT and WOM is the highest at 0.762, the exact correlation coefficient between AT and WPM is the lowest at 0.290.

Table 4: Pearson Correlation Analysis Results

Correlations		PI	AT	IT	WOM	WPM
PI	r	1	0.434**	0.408**	0.506**	0.290**
	p		0.000	0.000	0.000	0.000
AT	r	0.434**	1	0.720**	0.762**	0.385**
	p	0.000		0.000	0.000	0.000
IU	r	0.408**	0.720**	1	0.709**	0.559**
	p	0.000	0.000		0.000	0.000
WOM	r	0.506**	0.762**	0.709**	1	0.435**
	p	0.000	0.000	0.000		0.000
WPM	r	0.290**	0.385**	0.559**	0.435**	1
	p	0.000	0.000	0.000	0.000	

Note: **<0.01

4.5. Testing Hypotheses

The model fit values of the research model given in Table 5 are supported (Schermelleh-Engel et al., 2003: 52). According to the SEM results, PI has a positive and significant effect on AT (Std. β=0.489; p<.01), IU (Std. β=0.136; p<.05), WOM (Std. β=0.242; p<.01) and WPM (Std. β=0.178; p<.05). In addition, the positive effect of AT on IU (Std. β=0.758; p<.01), WOM (Std. β=0.768; p<.01) and WPM (Std. β=0.366; p<.01) is also significant.

Table 5: SEM Resultsfor Direct Effects

Paths			R^2	β	Std. β	S.E.	C.R.	P	Results
PI	→	AT	0.239	0.715	0.489	0.125	5.738	***	Supported
PI	→	IU	0.695	0.221	0.136	0.102	2.169	0.030	Supported
PI	→	WOM	0.830	0.325	0.242	0.083	3.913	***	Supported
PI	→	WPM	0.230	0.393	0.178	0.183	2.149	0.032	Supported
AT	→	IU	0.695	0.840	0.758	0.076	11.044	***	Supported
AT	→	WOM	0.830	0.706	0.768	0.066	10.651	***	Supported
AT	→	WPM	0.230	0.554	0.366	0.115	4.808	***	Supported
Model fit values	$\chi2$=185.172 P=0.000 $\chi2$/df=2.231 GFI=0.907 AGFI=0.866 NFI=0.937 RFI=0.920 IFI=0.964 TLI=0.954 CFI=0.964 RMSEA=0.071 SRMR=0.0694								

Note: ***<0.001

A bootstrap count of 5000 samples with a 95% confidence interval was used to test the mediating role (indirect effect). According to Table 6, the positive mediating role of AT in the indirect effect of PI on IU (Std. β=0.371; Lower Bound=0.268; Upper Bound=0.501), WOM (Std. β=0.376; Lower Bound=0.276; Upper Bound=0.498) and WPM (Std. β=0.179; Lower Bound=0.100; Upper Bound=0.289) is significant.

Table 6: SEM Results for Mediating Roles (Or Indirect Effects)

Paths					β	Std. β	S.E.	Lower Bounds	Upper Bounds	Results
PI	→	AT	→	IU	0.601	0.371	0.081	0.268	0.501	Supported
PI	→	AT	→	WOM	0.505	0.376	0.067	0.276	0.498	Supported
PI	→	AT	→	WPM	0.396	0.179	0.093	0.100	0.289	Supported

5. CONCLUSION AND DISCUSION

5.1. Theoretical Implications

This study examined how the PI of a robotic restaurant influences customers' BI, WOM and WPM. Additionally, it investigated the mediating role of AT in this relationship. Our findings indicate that the innovative nature of robotic restaurants fosters the development of a positive AT among customers towards such establishments.

Based on the literature review, ten hypotheses were developed and the relationships were tested with path analysis created within the scope of structural equation modeling. Our analysis confirmed the relationship between PI and AT, IU, WOM and WPM. Our findings demonstrate that customers' perceptions of robotic restaurants enhance their ATs towards these establishments. As customers perceive higher levels of innovativeness in a robotic restaurant, they develop a more favourable AT towards it. This result supports the idea that robotic technologies are innovatively transforming the restaurant experience, and customers are positively responding to these innovations (Chen, Lughofer and Hsiao, 2013; Ivanov and Webster, 2019; Çelik and Aydın, 2022).

The study results revealed that as customers perceive higher levels of innovativeness in a robotic restaurant, they develop a more positive BI toward this establishment. These findings are consistent with the studies conducted by Hwang et al. (2019).

The innovative nature of robotic restaurants encourages WOM among customers and increases their WPM. In this context, the innovative features of robotic restaurants promote the establishment of a positive verbal communication network among customers (Aydın, 2021) and enhance their WPM (Zhang et al., 2020; Thomas, 2023).

The findings of the research indicate that the AT towards a robotic restaurant influences customers' BI, WOM and WPM. Accordingly, customers' positive ATs toward a robotic restaurant positively influence their IU (Cha, 2020), intentions to engage in WOM (Hwang et al., 2019; Kim et al., 2020), and WPM for the services received (Çelik and Aydın, 2022; Hwang et al., 2020).

The mediating role of AT on IU, WOM and WPM was also tested. The findings indicate that AT mediates the relationships between these factors. In other words, customers' ATs towards a robotic restaurant strengthen the relationships between UI, WOM and WPM (Çelik and Yiğenoğlu, 2022; Kasilingam, 2020). This mediating effect suggests that AT plays a critical role in shaping customer behaviors and interactions, serving as a significant linkage between these factors.

Beyond statistical significance, the observed effect sizes indicate that the relationships among PI, AT, and behavioral outcomes are of moderate to strong magnitude. This suggests that the identified effects are not only statistically valid but also practically meaningful in explaining consumer behavior toward robotic services. The strength of these relationships implies that even small improvements in customers' perceptions of innovativeness or attitudes can lead to substantial increases in their behavioral intentions, WOM, and willingness to pay.

5.2. Practical Implications

Despite the use of service robots and investment in these technologies in many restaurants around the world, it remains unclear whether robotic services are becoming a significant trend or just a passing fad. The findings of this study provide practical implications for the decision to incorporate robotic services

The acceptance of a product or service in the service sector is very important in terms of business continuity and customer satisfaction. Thanks to service robots, restaurants can make a difference in the sector and gain competitive advantage. The use of robotics in the service process can play an important role in enriching the dining experience and providing higher levels of satisfaction, according to Jain et al. (2023). In addition, robotic services are often considered as innovation, which is considered an important experience and attraction factor for customers, and thus, positive ATs towards service robots can be achieved, resulting in IU and WPM.

The technologies that restaurants will use in reception, service, kitchen and payment processes support positive ATs towards these technologies by contributing to standardising services, minimising errors, creating hygienic conditions and enriching the experience (Erdem et al.,2023).

The fact that service robots are found to be fun and considered as an innovative service also increases the perception of ease of use and usefulness. Managers should consider investing in robots with high interaction capabilities, user-friendly interfaces, and expressive designs that convey friendliness and engagement. Incorporating elements such as voice interaction, emotional expression, or playful gestures can increase customer satisfaction and perceived enjoyment. Lastly, the results of this study can help develop more effective marketing and business strategies to increase the success of robot restaurants. By implementing these strategies, restaurant managers can enhance customer acceptance, strengthen competitive advantage, and ensure long-term success in integrating robotics into service operations.

5.3. Limitations and Future Research Directions

There are also some limitations that should be considered while evaluating the findings of the research. Firstly, The participants were predominantly young, well-educated Turkish consumers. While this demographic group represents a key segment likely to engage with robotic restaurant services, it may not fully reflect the perceptions and behavioral intentions of older or less technologically experienced consumers. Therefore, the generalizability of the findings is limited. Future studies should aim to include more diverse samples across age groups, educational levels, and cultural backgrounds to enhance external validity. Another limitation is that since the use of service robots in restaurants in Türkiye is not widespread, the participants were involved in the survey process after watching a video on the use of service robots. While this approach offers a practical and controlled way to standardize the stimulus, it inevitably reduces ecological validity, since attitudes and behavioral intentions formed after watching a video may differ from those shaped through direct, real-life interactions with robots. Future research is therefore encouraged to conduct field experiments or use augmented/virtual reality simulations to provide more immersive and realistic consumer experiences, thereby enhancing ecological validity. In addition, the scope of the

research is limited to restaurant services. Therefore, future research should be carried out to cover different service sectors (hotels, museums, hospitals, banks, etc.). Future studies could also investigate the relationship between PI and consumer behaviour more comprehensively by combining variables and using longitudinal tracking methods in addition to a larger sample size.

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Ethics Statement: The authors declare that ethical rules are followed in all preparation processes of this study. In case of detection of a contrary situation, BİİBFAD Journal does not have any responsibility and all responsibility belongs to the authors of the study. Ethics committee approval for this study was obtained from VAN Yüzüncü Yıl University (dated March 20, 2025, No. E-29233).

Author Contributions: Zübeyir ÇELİK contributed to the determination of the research topic and the data analysis sections of the study. Bulut DÜLEK contributed to data analysis and reporting, while Reha SAYDAN contributed to the literature review and data collection stages. The contribution rate of the first author is approximately 40%, while the contribution rates of the second and third authors are each 30%.

Conflict of Interest: There is no conflict of interest between the author.

Acknowledgement: We would like to thank the Editorial Board of BİİBFAD Journal for their intense interest and efforts and the referees for their contribution.