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The Impact of Automobile Features on Co-Creation: The Mediating Role of Customer Engagement*

(Research Article)

Otomobil Özelliklerinin Ortak Değer Yaratmaya Etkisi: Müşteri Adanmışlığının Aracılık Rolü

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ABSTRACT

In the new reality, passively valued consumers have become more active. Consumers desire to create shared value through their interactions. The interaction between the company and the customer is central to shared co- creation. Networked, empowered, informed, and active individuals in the co- creation process are becoming the key element of value creation between people and businesses. Value, shaped as customer experience, becomes a platform for all. This study examines the relationships between automotive features, co-creation, and customer involvement among Turkish automobile owners. A theoretical model considering the interactions between these components is offered to achieve this goal. The model was evaluated with data from 435 Turkish car users. The findings reveal that automobile features and consumer participation significantly influence co-creation. On the other hand, it is concluded that customer engagement mediates the relationship between automotive features and co-creation.

Anahtar Kelimeler:
Otomobil Özellikleri, Ortak Değer Yaratma, Müşteri Adanmışlığı, Tüketici Davranışları

ÖZET

Yeni gerçeklikte, pasif durumda değerlenen tüketiciler daha aktif bir pozisyona evrilmiştir. Tüketiciler, etkileşimleri aracılığıyla ortak bir değer yaratma arzusundadır. İşletme ve müşteri arasındaki etkileşim, paylaşılan değer yaratımının merkezinde yer almaktadır. Değer üretimi sürecinde ağa bağlı, güçlendirilmiş, bilgili ve aktif bireyler, hem insanlar hem de işletmeler arasında değer yaratımının temel unsuru haline gelmektedir. Müşteri deneyimi olarak biçimlenen değer, tüm bireysel ve durumsal içerikler için bir platforma dönüşmektedir. Bu araştırma, Türk otomobil kullanıcıları bağlamında otomobil özellikleri, ortak değer yaratma ve müşteri adanmışlığı arasındaki ilişkileri incelemeyi amaçlamaktadır. Bu amaç doğrultusunda bu değişkenler arasındaki etkileşimleri kapsayan teorik bir model önerilmiştir. Model, 435 Türk otomobil kullanıcılarından elde edilen verilerin analizi ile test edilmiştir. Bulgular, otomobil özelliklerinin ve müşteri adanmışlığının yeniden değer yaratma üzerinde güçlü bir etkiye sahip olduğunu ortaya çıkardı. Öte yandan otomobil özellikleri ile yeniden değer yaratma arasındaki ilişkide müşteri adanmışlığının aracılık rölüne sahip olduğu tespit edilmiştir.

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1. INTRODUCTION

The business-oriented value creation system in processing is not maintained during the day. From the managers' perspective, value creation becomes more complex, and new fractures are not experienced. Opening a new, unique space for further economic individuals highlights personalized shared value-creation experiences. In the new reality, the meaning given to tourists has grown from passivity to activity. After that, the changes consist of the correct distribution, traditionally starting from the business, without its intervention and contribution. Consumers want to create shared value through their transactions. This interaction between the company and the customer is the center of creating shared value (Prahalad and Ramaswamy, 2004: 4). It is not possible to maintain personalized experiences while producing residual value. Networked, empowered, knowledgeable, and active people become the focus of value creation between people and the business. The value that turns into customer experience becomes a forum for all personal and intersituational content (Prahalad and Ramaswamy, 2004b: 5).

Customer engagement can lead to co-creation. Customer engagement offers a practical framework for assessing customer-brand connections and a fresh perspective on customer management strategies (Bowden, 2009; Verhoef et al., 2010). Various approaches conceptualize customer engagement (Kumar and Pansari, 2016; van Doorn et al., 2010; Bowden, 2009). This study evaluates customer engagement as an element of cognitive, emotional, and behavioral components. In the automotive context, cognitive engagement refers to driving and encouraging customers to focus on and pay attention to the vehicle and its brand. Emotional commitment implies that driving allows buyers to experience cumulative and long-term enthusiasm and happiness with the vehicle and its brand. Behavioral loyalty suggests people connect with the car and intend to use the brand.

This study aims to investigate the effect of automobile features on creating shared value. It also seeks to reveal the mediating effect of customer loyalty on “customer recommendations” and “user-generated content” (UGC). The literature study section examined automobile features, customer loyalty, and shared value creation. The methodology section describes the hypotheses, measurements, data collection procedure, and analysis methodologies. The findings section explains participant profiles, measurement quality, and hypothesis test results.

2. LITERATURE REVIEW

2.1. Automobile Features

The effects of car features on consumers' preferences are essential data for businesses. The impact of automotive features on consumer choices is crucial information for businesses. This is a critical component in product selection and marketing methods. In investigating the cognitive links between automotive features and personal values, Pimenta and Piato (2016) identified safety features, transmission, steering, engine, interior trim, size, and Bluetooth connection features. Akal et al. (2019) in their study examining "automobile demand and behavior of male gender in Istanbul", concluded that the first features that consumers pay attention to when buying their cars are safety equipment, interior equipment, external equipment, multimedia, and new and second-hand. Yavaş et al. (2014), in their study to determine automobile selection criteria, they found interior design, safety, and engine features as the first three criteria according to the Analytical Network Method (1600cc engine volume). Hoen and Geurs (2011), in their study on "The effect of positionality in car purchasing behavior on the downsizing of new cars," emphasized that vehicle class and engine characteristics mainly contribute to positionality. Participants also strongly preferred cars similar to those they used. There are many criteria regarding automobile features (Pimenta & Piato, 2016: 848), and sixteen criteria were considered in this study. These are exterior design, interior design, internal finishing, air conditioning, transmission (gearbox), engine features, electrical system, security systems, fuel type, handling (Steering/wheel compatibility), insulation (Road noise, etc.), bluetooth® connection, sound system, multimedia system, vehicle class/size (B, C, SUV, etc.) and luggage capacity.

Exterior design is one of the first aspects of a vehicle we encounter, and it generally shapes our first impression. Beyond its aesthetically beautiful appearance, this design prioritizes aerodynamic efficiency, safety, and practicality. The automobile’s external design conveys its brand image and identity by balancing aesthetic demands with functionality and safety requirements. It is linked to aesthetic characteristics that distinguish cars and elicit attraction or desire (Kukova et al., 2016: 433). Interior design consists of aspects that improve the driver's and passengers' comfort, convenience of usage, and aesthetic experience. Interior design is evaluated in various ways, including the organization of the vehicle's interior, the materials used, and technological features. Car interior design should be a perfect balance of beauty and functionality. Elements that improve the user experience and personalize the vehicle's interior raise the car's overall worth, also ensuring a favorable relationship between the driver and passengers. According to Yavaş et al. (2014), clients highly value interior design. Internal finishing relates to the quality of automotive interior materials, their durability, aesthetic look, feel of the materials used, and overall comfort and satisfaction supplied by the inside. Good interior material quality provides users with a high-quality, long-lasting interior experience. The quality of automobile interior materials is a significant consideration when evaluating a vehicle. Air conditioning systems are intended to control the air conditioning in automotive interiors and improve comfort. It includes cooling/heating, indoor air filtration, and automated

temperature control. Transmission (Gearbox) Automobile transmissions are classified into manual, semi-automatic, and automatic. Cars with automatic gearboxes are more popular in performance, utility, and technology. Engine feature value is a significant aspect in determining the power and worth of the vehicle. If the engine volume of the car increases, so will its power and fuel consumption. Our country levies a special consumption tax on autos based on engine volume. As engine volume increases, so does the tax rate, which raises the price of the vehicle. The electrical system has several components that power and control the vehicle's electrically operated features. These include the battery, charging system, lights, interior equipment controls, driver assistance systems, airbags, and similar systems. Safety systems: These are the vehicle's capacities to prevent an accident (active safety) or protect its occupants from injury (passive safety) in the event of an accident (Kukova et al., 2016: 433; Yavaş et al., 2014: 115). Combining safety technologies such as road holding control, airbags, blind spot warning, ABS, and lane tracking improves car safety and protects drivers from potential hazards. Automobile fuel types include gasoline, diesel, electricity, and LPG. Of the 945 thousand 768 cars registered for traffic between January and December, 66.1% were gasoline, 16.3% were diesel, 9.3% were hybrid, 6.9% were electric, and 1.4% were electric. It's LPG. As of the end of December, 35.6% of the 15 million 221 thousand 134 vehicles registered in traffic were diesel, 33.5% were LPG, 28.7% were gasoline, 1.5% were hybrid, and 0% were diesel. Five of them are electrical (TUIK, 2023). Steering/wheel sleep (Handling): The vehicle's behavior in motion is determined by the inputs and feedback it receives while driving (Kukova et al., 2016: 433). In its research for the year 2023, KPMG asked, “How important do you think the following features will be for consumers?”. Driving performance was found to be crucial by 80% (43% significant and 37% critical) (KPMG LLP, 2023: 9). Insulation (road noise, etc.): Vehicle sound insulation is a significant application for improving the driving experience and creating a quiet environment within the vehicle. This procedure improves comfort by filtering sounds entering the car from the outside and managing sounds emanating from the inside to the outside. Insulation improves the driving experience by lowering noise from engines, winds, and other environmental sources. Bluetooth® connectivity: Bluetooth® technology is a short-range wireless communication standard that allows for connections between different devices in the car. It is a significant feature that allows drivers and passengers to communicate wirelessly and transmit media files. In its research for the year 2023, KPMG asked, “How important do you think the following features will be for consumers?”. Infotainment personal connection characteristics were determined to be vital at close to 70% (significant 39% to highly critical 30%) (KPMG LLP, 2023: 9). Audio system: A vehicle audio system is equipment fitted in a vehicle to give in-car entertainment and information to the occupants. Vehicle audio systems are an important component that enhances driving pleasure, particularly on lengthy trips. Multimedia system: An automobile multimedia system is a technology that enables drivers and passengers to access and enjoy various sorts of media within the car. These systems perform various activities, such as allowing users to listen to music, watch movies, utilize navigation services, and connect to the Internet, and frequently provide access to a wide range of media sources. These systems are an important component that enhances current automobiles' comfort and technological level. Vehicle/class Size (B, C, SUV, etc.): The automobile segment refers to the class in which the car falls regarding physical and technical characteristics. Today, automotive manufacturers sell their products in nine distinct categories. While categories A, B, C, and D primarily characterize vehicle volume and engine power, the remaining segmentation considers road-terrain conditions, material quality, performance attributes, and maneuverability. Luggage capacity: The trunk is merely the vehicle's storage capacity. The trunk is normally found in the rear of the car. Luggage space is measured in liters. Car trunks typically hold between 200 and 600 liters.

2.2. Co-Creation

In today's dynamic market, where customer power is increasing, businesses must develop an engagement-based strategy to encourage their customers to act as consumers and co-creators. In light of this, "customer loyalty" has recently received significant attention in marketing research and practice. Customer engagement can help businesses gain customer value, increase performance and customer loyalty, and create long-term competitive advantages (Bowden, 2009; Kumar & Pansari, 2016; Kumar et al., 2010; Verhoef et al., 2010). Many studies examine the mechanism underlying customer loyalty from different perspectives (Fang et al., 2020; Li, 2021; Touni et al., 2020; van Tonder & Petzer, 2018).

Creating shared value has emerged as one of the most essential marketing paradigms. Value co-creation means that consumers are no longer at the end of the value chain; Rather, they assume central importance in value creation processes (Pongsakornrungsilp & Schroeder, 2011: 305). Prahalad and Ramaswamy (2004a) were the first to point out that customer-organization connections have evolved. According to these scholars, value is created through management methods focused on something other than a company, products, or services. Therefore, much attention is paid to consumers' value co-creation experiences and how they can participate through interaction with brands, companies, and other consumers (Prahalad & Ramaswamy, 2004a).

We should emphasize that "Creation" in co-creation encompasses creating items and their interpretation and meaning. Meaning is always co-created (Ind & Coates, 2013:87). This viewpoint is essential when thinking about co-creation since it helps us to understand the implicit togetherness and stakeholders' requirements in creative

processes. The growth of consumer brand communities demonstrates the tendency toward generating brand meanings beyond the company (Fournier & Lee, 2009; Muniz & O'Guinn, 2001; Schau et al., 2009).

Consumers' co-creation activities can help businesses increase profitability (Hoyer et al., 2010; Kumar et al., 2010; van Doorn et al., 2010). Customer suggestions are accepted. These suggestions are defined as information the customer provides for the business, leading to improving existing services or developing new ones. Customers help shape the main presentation by making suggestions. Undoubtedly, these recommendations form an essential part of service management for automobile companies. Businesses adopt programs to systematically evaluate these suggestions (Bartkus et al., 2009: 163).

Co-creation encompasses both customer suggestions (CC1) and user-generated content (CC2). Customer suggestions cover all customer feedback. User-generated content (UGC) is content created by customers to share information and opinions with others, typically in the form of text or numerical product ratings (Tang et al., 2014:41). UGC affects other consumers' purchasing decisions (Cox et al., 2009: 747). As a result, users are actively involved in improving the core product through content creation and recommendations. According to Van Doorn et al. (2010), actions such as suggesting ways to enhance the consuming experience, supporting and coaching service providers, and assisting other customers in better consumption are examples of co-creation and customer engagement behaviors.

Co-creation has developed from the junction of many trends caused by variables such as the expansion of internet technologies, the orientation towards services and experiences, a more open approach to innovation, and the growth of social, collaborative, and personalization technologies (Ind & Coates, 2013: 81). Many studies have been conducted focusing on traditional businesses. Compared to physical characteristics, virtual businesses have different features and characteristics in terms of the environment in which they operate. Virtual businesses offer a new perspective in entrepreneurial markets. Developments in technology and communication offer opportunities to establish new structures from the perspective of businesses and customers. This situation provides a service where at least two parties are involved in business (Chandna and Salimath, 2015). The solution of this process through co-creation is a possible new strategy whose ideas can benefit from more (Prahalad and Krishnan, 2008; Zhang and Chen, 2008).

Co-creation has previously been demonstrated in the automotive business, where corporations like General Motors, Local Motors, Volkswagen, and Fiat play an essential role in customers' car design. Local Motors collaborates with consumers to generate new ideas at various stages of production. BMW consulted customers' ideas on navigation design. General Motors sought consumer input during the engine production stages. Fiat received more than 11,000 consumer opinions for the Mio model. Volkswagen has reached 13 million visitors and more than 200,000 consumers in China with its People's Car Project (Opata et al., 2019: 3; Ostermann et al., 2013: 5). Audi Germany, Japan, and the United States completed two concurrent initiatives titled "Audi Virtual Lab 1" and "Audi Virtual Lab 2". More than 7,000 customers helped design the Audi in-car entertainment system. The Virtual Laboratory enabled the collection of many discoveries and information. First, their preferences for features and feature combinations for the future infotainment system were identified. Another noteworthy outcome was the publication of several service suggestions, opinions, and visions for future vehicle solutions in open-text fields (Bartl, 2009). “Co-Creation Laboratory” is a virtual environment created by BMW to create shared value. The web-based program is the meeting point for car lovers who want to share their ideas and suggestions for the cars of the future. Users are led through idea competitions, virtual concept tests, and innovation research methods. All user interactions are recorded and traceable in the system such as electric cars, and search. applications, communication features, parking, etc. These are the topics on which participants mainly offer their opinions. All these show that the brand allows creative minds to create shared value to maintain its leadership in the long term (Bartl et al., 2010).

Their Customer Value Co-Creation in the Automobile Industry study revealed that two antecedents (willingness and ability) had a beneficial impact on co-creation (Opata et al., 2020). Furthermore, co-creation considerably impacts consumer satisfaction (Opata et al., 2020).

Sachdeva et al. (2023) used data mining approaches (content, sentiment, and descriptive analysis) to assess 82,236 customer tweets and investigate customer value co-creation. The findings are crucial because they support the two-dimensional character of value co-creation behavior. Furthermore, the study's findings point to value-creation behavior as an essential predictor of loyalty outcomes. The findings highlight the importance of understanding and improving customer value co-creation behavior to boost customer loyalty and corporate profitability (Sachdeva et al., 2023).

Opata et al. (2019) study of 535 automobile users in Ghana found that customer willingness and social relationships with the company substantially impact interaction and co-creation. It was also noted that social links favorably impact client willingness. Businesses should address their customers' motivational needs and build strong relationships and bonds with them to engage in shared value creation. This is because the research found that social

connections significantly impact customer willingness. Customers are more likely to co-create as their social networks grow and evolve.

Buonincontri et al. (2017) found that the co-creation experience positively affects tourists' satisfaction, spending levels, and happiness. The research also revealed that tourists' attitudes toward sharing their experiences with others did not affect the co-creation experience.

2.3. Customer Engagement

The presence of engagement is seen more as personal engagement in the business world (Kahn, 1990). Kahn (1990) defines personal engagement as the level of integration between individuals' interests and job duties. Articles published in the Journal of Service Research helped establish the importance of customer engagement in marketing literature.

Researchers define customer engagement in two distinct ways. This is the earliest psychological perspective. Cognitive Perspective: It comprises elastic, behavioral, and emotional components (Brodie et al., 2011). The second is the behavioral viewpoint (van Doorn et al., 2010: 254). According to relationship marketing theory, Brodie et al. (2011), customer engagement, experience, and values contribute to creating shared value. While customer invitation brings a different perspective to customer management practices, it provides a framework for customer-brand relationships (Bowden, 2009; Verhoef et al., 2010). Three perspectives conceptualize customer engagement. First, it is linked with the idea that the holistic brand is driven by personal motivations, including sharing information, writing blogs/reviews, and making recommendations (Kumar and Pansari, 2016; van Doorn et al., 2010). The second perspective includes cognitive and behavioral components and details. The last perspective considers customer engagement as a process that ensures customer loyalty (Bowden, 2009). This customer orientation has been evaluated as a cognitive, emotional, and behavioral concept. Cognitive participation is the level of thinking and assessing the contents resulting from interaction with the change brand. Emotional detachment refers to inspiration, passion, and pride towards the brand of change. Behavioral engagement and dissociation refer to the loss of effort, energy, and time spent during marking (Hollebeek et al., 2014: 154: Hollebeek, 2011: 555). In the automobile context, cognitive engagement refers to driving an automobile, encouraging customers to focus on and pay attention to the car and its brand. Emotional engagement means that car driving causes customers to experience cumulative and long-lasting excitement and satisfaction for the car and its brand. Behavioral engagement shows customers connect with the car and plan to use the brand.

Touni et al. (2020) investigated customer-brand experience and engagement as two consumer engagement factors. They examined brand connection quality as a critical driver of customer loyalty in a hotel's Facebook brand community. They confirmed their role in garnering attention. Furthermore, customer participation with hotel brand communities on Facebook bridges the customer-brand experience and the quality of the brand connection. According to So et al. (2020), customer loyalty is an essential topic in hospitality research, and future studies should investigate its determinants from many angles. In their study, Islam et al. (2019) found that service quality positively affects customer loyalty, using data from 395 luxury hotel guests. Furthermore, the study found that customer gender influences the relationship between service quality and customer loyalty. They were using scenario-based experiments. Fang et al. (2020) found that employees' physical appearance significantly impacted customer loyalty.

In their study, Dhasan & Aryupong (2019) investigated the effects of customer-perceived value dimensions on customer engagement. They examined the direct and mediating effects of product and service quality and price fairness factors on automobile users. Analysis was conducted with data from 224 car users (Bangkok). As a result, customer engagement is significantly predicted by product quality and price fairness. It has been stated that price fairness, product quality, service quality, and customer loyalty positively affect customer engagement. In this study, where the mediation effect was also examined, a partial mediating effect of customer engagement was observed on service quality and customer loyalty. In their research on electric vehicles, Ullah et al. (2018) emphasized that connection and automation features improve customer experience. They concluded that enhanced customer experience increases customer engagement.

Digital marketing (Social media, etc.) technology offers a new, modern, and powerful marketing strategy due to its interaction, popularity, and ability to reach the target audience. Executives are realizing the importance of using digital channels to engage with customers to deliver value and strengthen relationships. Many studies have been conducted on social media and customer engagement (de Silva, 2021; Kormin & Baharun, 2017; Matosas-López & Romero-Ania, 2021; Piilola, 2021; Schneider & Hoika, 2023). Matosas-López and Romero-Ania (2021) conducted a study on the posts of thirteen Spanish automotive brands on social networks. As a result of this study, which examined Twitter posts in 2020, While content related to the brand's retweet volume and customer experience issues positively affects customer engagement, there is no effect of post components (links, mentions, and hashtags) and post period on customer engagement was found (Matosas-López and Romero-Ania, 2021).

Silva (2021) investigated how the value of information, entertainment, and social interaction linked with automobile Facebook brand sites in Sri Lanka influences consumer loyalty and how customer engagement leads to interactions unique to Facebook brand pages. The study found that the value of information, entertainment, and social interaction significantly increases customer engagement on automotive Facebook brand pages in Sri Lanka. Additionally, the results showed that customer loyalty positively impacts their trust in and loyalty to Facebook brand pages. Further, informational value positively impacted loyalty to Facebook brand pages. In contrast, social interaction value positively affected trust and loyalty to Facebook brand pages (de Silva, 2021). In this study, the determinants of customer engagement were investigated, especially in terms of the automobile features environment.

3. METHODOLOGY

A quantitative research method based on numerical data was utilized to test the hypotheses developed by the research model. Data were collected using a survey technique. The research population consists of Turkish automotive users. Due to the impossibility of reaching all Turkish automobile users and time constraints, a sample approach was used, with the convenience sampling method being favored over non-random methods. Data was collected between September and December 2023, and surveys were completed online. A survey was administered to a total of 435 participants. Since the surveys were online and the questions were mandatory, there was no data loss, and all survey forms were evaluated.

The items on the automobile features in the survey form were adapted from (Pimenta and Piato, 2016), the items on the customer engagement scale (Li, 2021), and the items on the co-creation scale (Bettencourt, 1997). In addition, six questions were asked to determine the participants' demographic traits, followed by five questions about their automotive preferences. The scales utilized in this study were measured using a five-point Likert scale.

3.1. Research Model and Hypotheses

A model was developed for the research (Figure. 1). The data obtained through the survey technique was tested using quantitative research methods. In the light of this information, research hypotheses were created as follows.

H_1: Automobile features affect customer suggestions (CC1).

H_2: Automotive features affect user-generated content (CC2).

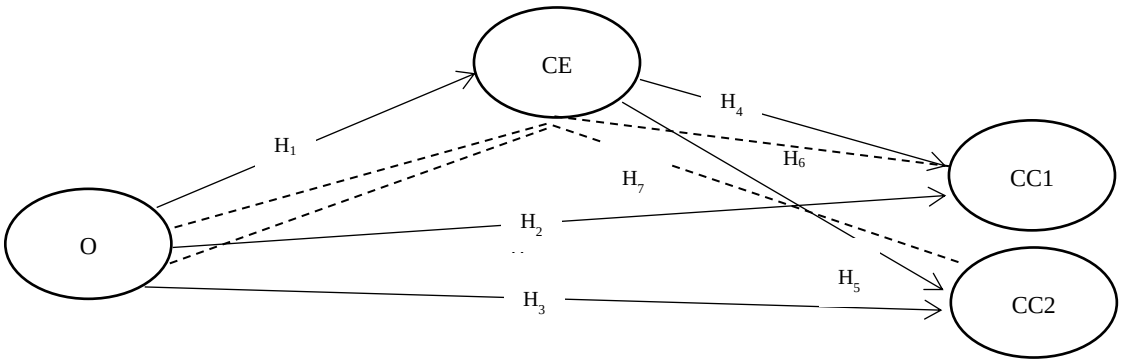
H_3 Automobile features affect customer engagement.

H_4: Customer engagement affects customer suggestions (CC1)

H_5: Customer engagement affects user-generated content (CC2)

H_6: Customer engagement has a mediating role in the effect of automobile features on “customer suggestions.”

H_7: Customer engagement has a mediating role in the effect of automobile features on "user-generated content" (UGC).



(O: Automobile Features, CE; Customer Engagement, CC: Co Creation)

Direct Effect Mediating Effect

Figure 1. Research Model

3.2. Test of Scales

A first-level single-factor confirmatory factor analysis (CFA) was carried out using the AMOS 22 statistical package program to demonstrate the measurement model's construct validity. Because the numbers produced from the analysis did not meet the appropriate compliance values, the program's suggested alterations were implemented. For this purpose, three covariances were created in the car features dimension and one covariance in the shared value creation dimension. As a result of the modifications made, the recommended fit values were obtained.

Table 1. Goodness-of-Fit Indices for the Scales

	x^2	df	x^2/df	GFI	CFI	RMSEA
Model fit values	1720.562	547	3.145	.813	.908	0.70
Good fit values*			≤ 3	≥ 0.90	≥ 0.97	≤ 0.05
Acceptable fit values *			≤ 4-5	≥ 0.89-0.85	≥ 0.95	≤ 0.06-0.08

***Source:** Meydan ve Şeşen, 2015:37

Because the goodness of fit values of the measurement model generated as a consequence of single-factor CFA (X2/df= 3.145; RMSEA= 0.70; CFI= 0.908; GFI=.813) were among the good fit values, the construct validity of all scales was ensured. Table 2 displays the factor loadings and reliability coefficients for the items on each scale. Cronbach's alpha coefficients for all scales in Table 2 range from 0.850 to 0.940. All scales have been proven reliable because their coefficients are within acceptable limits.

Table 2. Factor Loadings of Scales, Reliability, and Validity Coefficients

Factors	Item	Code	Factor loadings	Cronbach Alpha	Skewness	Kurtosis
Automobile Features (O)	Exterior design	O1	.800	.952	-.988	.712
	Interior design	O2	.812		-.812	.367
	Internal finishing	O3	.792		-.743	.017
	Air conditioning	O4	.743		-1.120	.764
	Transmission (gearbox)	O5	.817		-1.093	.801
	Engine features	O6	.770		-1.084	.609
	Electrical system	O7	.853		-.916	.291
	Security systems	O8	.858		-.813	-.037
	Fuel type	O9	.642		-.934	.124
	Handling (Steering/wheel compatibility)	O10	.779		-.985	.224
	Insulation (Road noise, etc.)	O11	.737		-.494	-.851
	Bluetooth® connection	O12	.604		-.611	-.922
	Sound system	O13	.715		-.654	-.516
	Multimedia system	O14	.655		-.524	-.857
	Vehicle class/size (B, C, SUV, etc.)	O15	.746		-.756	-.322
	Luggage capacity	O16	.591		-.748	-.416
Customer Engagement (CE)	Using this brand makes me think about it.	CE1	.862	.863	-.182	-1.105
	When I use this brand, I frequently think of it.	CE2	.818		-.062	-1.166
	Using this brand makes me want to learn more about	CE3	.789		-.503	-.816
	I feel confident when I use this brand.	CE4	.874	.940	-.511	-.708
	Using this brand makes me joyful.	CE5	.957		-.738	-.389
	I feel better when I use this brand.	CE6	.963		-.631	-.562
	I'm proud to utilize this brand.	CE7	.792		-.133	-1.178
	I will continue to use this brand compared with other car brands.	CE8	.918	.924	-.300	-.999
	Whenever I buy an automobile, I will give preference	CE9	.899		.032	-1.129
	When I decide to buy or change an automobile, this brand is one of the brands I will always choose.	CE10	.871		-.307	-1.019
Co-Creation Customer Suggestion (CC1)	I informed this brand of ways that they could better satisfy my needs.	CC1_1	.595	.892	-.211	-1.316
	I offer constructive comments to this brand on how to improve its service.	CC1_2	.708		-.039	-1.320
	If I have a good idea of improving service, I give it to a brand representative.	CC1_3	.853		-.004	-1.398

	When I have a problem with this brand, I notify the brand representative so that they may improve the	CC1_4	.814		-.452	-1.208
	If I see a problem, I notify a brand representative, even if it does not affect me.	CC1_5	.829		.001	-1.383
	If this brand provides good service, I will let them	CC1_6	.708		-.590	-.917
Co-Creation UGC (CC2)	I evaluate and share my thoughts and experiences with this brand's products and services on the company's website with other users.	CC2_1	.857	.850	.048	-1.356
	I leave comments on the blog and/or the brand's social media profiles (e.g., Facebook, Twitter).	CC2_2	.819		.134	-1.389
	I post comments in the brand's forums.	CC2_3	.725		.588	-1.019

4. FINDINGS

4.1. Characteristics of the Sample

The findings of the frequency analysis used to determine the respondent's characteristics are provided in Table 3.

Table 3. Demographic Characteristics of Respondents

Gender	**n**	**%**	**Marital status**	**n**	**%**
Male	372	85.5	Married	131	30.1
Female	63	14.5	Single	304	69.9
Total	435	100	Total	435	100
Age	**n**	**%**	**Education**	**n**	**%**
Ages 18-25	92	21.1	Primary Education	14	3.2
Ages 26-35	89	20.5	High school	75	17.2
Ages 36-45	131	30.1	Bachelors Degree	228	52.4
Ages 46-65	114	26.2	Master's Degree	60	13.8
66 years +	9	2.1	PhD	58	13.3
Total	435	100	Total	435	100
Occupation	**n**	**%**	**Monthly Income**	**n**	**%**
Student	75	17.2	7,500 TL and below	35	8.0
Self Employed	67	15.4	7,501-11,402 (Minimum wage) TL	48	11.0
Retired	44	10.1	11,403-30,000 TL	111	25.5
Housewife	3	0.7	30,001-50,000 TL	154	35.4
Private Sector Employee	80	18.4	50,001-100,000 TL	69	15.9
Public Sector employee	161	37.0	100,001 TL and above	18	4.1
Other	5	1.1			
Total	435	100	Total	435	100

When Table 3 is examined, more than 85% of the participants are men, and approximately 15% are women. About 30% of the participants are married, and about 70% are single. Most participants are between the ages of 36-45, with 30%. The age range of 46-65 comes second with 26.2%. More than 50% of the participants have undergraduate education. The total number of participants with undergraduate education and above is approximately 80%. 37% of the participants are public sector employees, and about 20% are private sector employees. Nearly 20% of the participants have an income level of minimum wage (11,402 TL- minimum wage) and below. Most participants, with 35.5%, have income levels between 30,000-50,000 TL.

Table 4. Features of Automobiles

Fuel Type	**n**	**%**	**Duration of Use**	**n**	**%**
Gasoline	229	52.6	1-3 year	214	49.2
Diesel	195	44.8	4-6 year	101	23.2
Hybrid	11	2.5	7 years and more	119	27.4
Total	435	100	Total	435	100
Model Year	**n**	**%**			
2000 and before	30	6.9			
2001-2010	108	24.8			
2011-2019	213	49.0			
2020 and more	84	19.3			
Total	435	100			

Participants were asked various questions about the vehicles they owned, apart from their demographic characteristics. Table 5 shows the questions and their distribution. 52.6% of the participants use gasoline vehicles and 44.8% use diesel vehicles. The number of electric vehicle users still needs to be increased. Nearly half of the participants have used their cars for 1-3 years. Over 1/4 of the participants have used their vehicles for seven years or more automobiles. When the model year of the automobile owned by the participants is examined, it is seen that nearly half of them are in the 2011-2019 model range. The number of users with the 2020 model and above is approximately 20%.

Table 5. Automobile Use Characteristics

Automobile Brand	**n**	**%**	**Ranking**	**Alternative Automobile Brand**	**n**	**%**
Volkswagen	69	15.9	**1**	Mercedes	69	15.9
Fiat	41	9.4	**2**	Audi	64	14.7
Toyota	37	8.5	**3**	BMW	49	11.3
Opel	36	8.3	**4**	TOGG	34	7.8
Ford	29	6.7	**5**	Volkswagen	34	7.8
Renault	29	6.7	**6**	Toyota	31	7.1
Skoda	21	4.8	**7**	Ford	21	4.8
Peugeot	19	4.4	**8**	Honda	18	4.1
BMW	18	4.1	**9**	Volvo	16	3.7
Mercedes	18	4.1	**10**	Skoda	15	3.4
Hyundai	17	3.9	**11**	Peugeot	13	3
Audi	13	3	**12**	Hyundai	12	2.8
Kia	13	3	**13**	Tesla	12	2.8
Honda	10	2.3	**14**	Alfa Romeo	8	1.8
SEAT	10	2.3	**15**	Dacia	5	1.1
Citroen	9	2.1	**16**	Renault	5	1.1
Nissan	9	2.1	**17**	Nissan	4	0.9
Dacia	8	1.8	**18**	Opel	4	0.9
Mazda	5	1.1	**19**	Fiat	3	0.7
Alfa Romeo	4	0.9	**20**	Jeep	3	0.7
Mitsubishi	4	0.9	**21**	Kia	3	0.7
Land Rover	4	0.9	**22**	SEAT	3	0.7
Chevrolet	3	0.7	**23**	Mazda	2	0.5
Jeep	2	0.5	**24**	Land Rover	2	0.5
Tesla	2	0.5	**25**	MINI	1	0.2
Subaru	1	0.2	**26**	Mitsubishi	1	0.2
Suzuki	1	0.2	**27**	Chevrolet	1	0.2
Volvo	1	0.2	**28**	MG	1	0.2
MG	1	0.2	**29**	Ssangyong	1	0.2
Ssangyong	1	0.2	**30**			
Total	435	100		Total	435	100

When the participants list the cars they use, the top 5 are Volkswagen, Fiat, Toyota, Opel, and Ford. Nearly half of the participants (48.8%) use these top five brands. Brands operated by the least number of participants, with one user each Subaru, Suzuki, Volvo, MG, and Ssangyong. Participants were asked, "If you do not use this brand

which brand would you like to use?" Mercedes, Audi, BMW, TOGG, and Volkswagen were the top five most emulated brands.

4.2. Descriptive statistics

The means and standard deviation values of the items in the automobile features, customer loyalty, and value creation scales are shown in Table 6. Among automobile features, "Exterior design" is the proposition with the highest average (3.967) while "Multimedia system" has the lowest average (3.420). In the customer loyalty scale, the proposition "Using this brand makes me happy" has the highest mean (3.694), while the proposition "I prefer this brand whenever I buy a car" has the lowest mean (2.960). On the value creation scale, the proposition "If this brand provides me with good service, I will convey my satisfaction to the authorities" has the highest mean (3.526), the proposition "I write comments on the forums of this brand" has the lowest mean (2.413).

Table 6. Descriptive Statistics of Scale Items

Code	Items *n:435*	N	Mean	S.E.
	Automobile Features			
O1	Exterior design	435	3.967	.983
O2	Interior design	435	3.813	1.004
O3	Internal finishing	435	3.737	1.067
O4	Air conditioning	435	3.951	1.069
O5	Transmission (gearbox)	435	3.954	1.050
O6	Engine features	435	3.944	1.088
O7	Electrical system	435	3.880	1.055
O8	Security systems	435	3.818	1.103
O9	Fuel type	435	3.873	1.135
O10	Handling (Steering/wheel compatibility)	435	3.926	1.125
O11	Insulation (Road noise. etc.)	435	3.459	1.296
O12	Bluetooth® connection	435	3.508	1.398
O13	Sound system	435	3.602	1.218
O14	Multimedia system	435	3.420	1.314
O15	Vehicle class/size (B. C. SUV. etc.)	435	3.756	1.175
O16	Luggage capacity	435	3.724	1.226
	Customer Engagement / Cognitive Engagement			
CE1	Using this brand makes me think about it.	435	3.114	1.354
CE2	When I use this brand. I frequently think of it.	435	3.025	1.363
CE3	Using this brand makes me want to learn more about it.	435	3.400	1.306
	Affective Engagement			
CE4	I feel confident when I use this brand.	435	3.482	1.261
CE5	Using this brand makes me joyful.	435	3.694	1.222
CE6	I feel better when I use this brand.	435	3.616	1.230
CE7	I'm proud to utilize this brand.	435	3.144	1.369
	Behavioral Engagement			
CE8	I will continue to use this brand compared with other car brands.	435	3.271	1.328
CE9	Whenever I buy an automobile. I will give preference to the brand.	435	2.960	1.351
CE10	When I decide to buy or change an automobile. This brand is one of the brands I will always choose.	435	3.312	1.338
	Co-Creation / Customer **Suggestions**			
CC1_1	I informed this brand of ways that they could better satisfy my needs.	435	3.128	1.461
CC1_2	I offer constructive comments to this brand on how to improve its service.	435	2.912	1.419
CC1_3	If I have a good idea of improving service. I give it to a brand representative.	435	2.912	1.476
CC1_4	When I have a problem with this brand. I notify the brand representative so that they may improve the service.	435	3.370	1.472

CC1_5	If I see a problem. I notify a brand representative, even if it does not affect me.	435	2.921	1.475
CC1_6	If this brand provides improvement. I will let them know.	435	3.526	1.389
	UGC-User-Generated Content			
CC2_1	I evaluate and share my thoughts and experiences with this brand's products and services on the company's website with other users.	435	2.908	1.454
CC2_2	I leave comments on the blog and/or the brand's social media profiles (e.g. Facebook. Twitter).	435	2.836	1.485
CC2_3	I post comments in the brand's forums.	435	2.413	1.434

4.3. Structural Model and Hypothesis Testing

The study hypotheses were investigated using the structural equation model depicted in Figure 2. As a result of the analysis, necessary modifications were made, and good fit values were obtained. To get good fit values, three covariances were created in the car features dimension and one covariance in the shared value creation dimension.

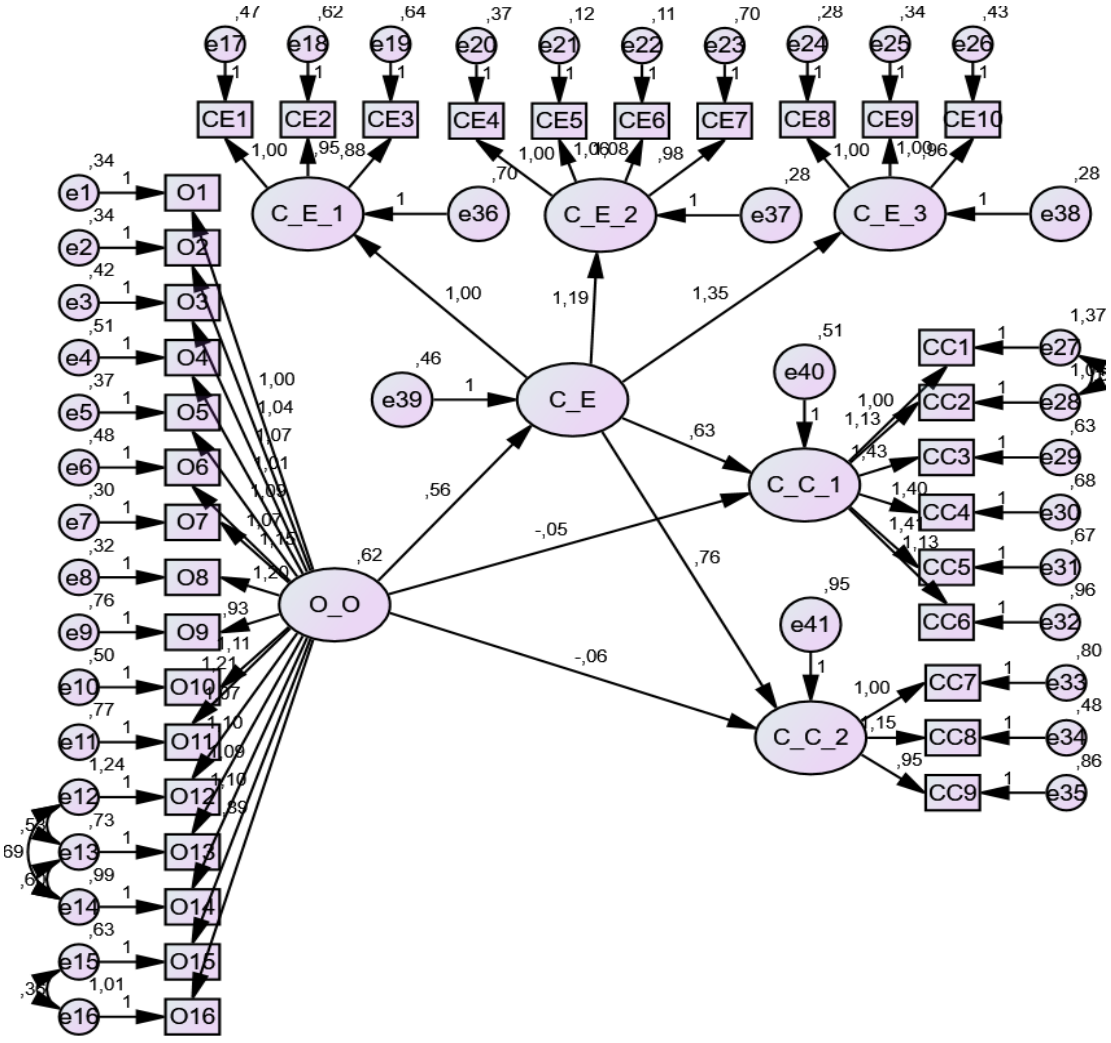


Figure 2. Structural Equation Model

Table 7 displays the research's hypothesis test results based on the path analysis results obtained using the Amos 22.0 statistics package application.

Table 7. The Relationships between Automobile Features. Customer Engagement and Co-Creation

	Hypothesis	*β*	S.E.	C.R.	*p*	R^2	Remarks
H1	Automobile features-Customer Engagement	.564	.062	9.058	*	.300	Supported
H2	Automobile features- Customer Suggestions	-.050	.062	-.797	.425	.272	-
H3	Automobile features-UGC-user-generated content	-.057	.085	-.665	.506	.323	-

H4	Customer Engagement- Customer Suggestions	.634	.086	7.417	*	.323	Supported
H5	Customer Engagement-UGC-User-Generated Content	.765	.103	7.409	*	.272	Supported

*p<.01.

Table 7 supports the H_1 hypothesis (β=.564; p<.01). The results show that automotive features significantly affect consumer engagement. Hypotheses H_2 and H_3 were not supported. That is. automotive features did not significantly affect value re-creation. Customer loyalty positively affects value re-creation, as confirmed by hypotheses H_4 (β=.634; p<.01) and H_5 (β=.765; p<.01).

4.4. Mediating Role

The model included three factors to investigate the mediating effect of customer interaction on the link between automotive attributes and customer suggestions, and the significance of the indirect impact on the variables was tested using the Bootstrap technique. Similarly, to investigate the mediating role of customer contact on the link between automobile features and user-generated content (UGC), the significance of the indirect effects on the variables included in the three-variable model was tested using the Bootstrap method. The research found that customer engagement had a substantial mediating effect, supporting hypotheses H_6 (p <.01; Confidence Interval: 230-441) and H_7 (p <.01; Confidence Interval: 196-423) (Table 8).

Table 8. Mediating Role of Customer Engagement

	Hypothesis	**Lower Bounds**	**Upper Bounds**	***p***	**Remarks**
H6	Automobile Features X Customer Engagement - Customer Suggestions	.230	.441	*	Supported
H7	Automobile Features X Customer Engagement - UGC-User-Generated Content	.196	.423	*	Supported

*p<.01.

5. CONCLUSION

Changing and developing customer demands and expectations increase the interest of businesses in the concept of creating shared value. The automobile sector, which is a large and important sector, involves consumers in production processes with different methods to provide sustainable competitive advantage and to listen and respond to consumer demands and needs more effectively. In this context, automobile features can be expected to be related to co-creation. Customer engagement can be expected to contribute to the creation of shared value by increasing the closeness of consumers to the brand.

According to the results of this study, which examined the mediating role of customer engagement in the relationship between automobile features and co-creation, a significant relationship was found between automobile features and customer engagement, supporting the literature. It has also been concluded that customer engagement positively affects co-creation. In the second stage, it was determined that customer engagement mediates automobile features and co-creation. Similar to studies in the literature, customer engagement can help businesses gain a variety of customer values, increase business performance and customer loyalty, and facilitate the creation of long-term competitive advantages (Bowden. 2009; Kumar & Pansari. 2016; Kumar et al. 2010; Verhoef et al., 2010). Similarly, in their study on innovation, Yen et al. (2020) concluded that customer engagement promotes co-creation (Yen et al., 2020). Opata et al. (2000) showed that two premises (willingness and ability) positively affect co-creation. Additionally, co-creation has significantly affected customer satisfaction (Opata et al., 2020). Sachdeva et al. (2023) looked at consumer engagement and co-creation in their study, and the findings were significant since they validated the two-dimensional nature of co-behavior. The findings show the need to understand and improve customer value co-creation behavior to increase customer loyalty and corporate profitability (Sachdeva et al., 2023). In their study of Ghanaian automotive users, Opata et al. (2019) found that customer willingness and social connections to the enterprise substantially impact engagement and co-creation. Buonincontri et al. (2017) in their study on co-creation, found that it has positively affected tourists' satisfaction, spending levels, and happiness. Contrary to the literature, in our study, the effect of automobile features on co-creation was not found to be significant, and they concluded in their research that the cognitive interpretation of the factors in the web store service network affects customer loyalty (Siddique et al., 2021). The lack of a significant effect of automobile features on co-creation in the Turkish sample may be related to the perception of total brand value rather than direct automobile features.

The study contributes to the existing knowledge base by revealing the relationship of automobile features with customer engagement and co-creation. A model proposal has been made for the relationship between the specified variables. The model was validated with the analysis results. The study results are expected to contribute to the literature. It will assist managers in the development and implementation of sector-related marketing strategies. However, the study also had limitations. The first of these is that the survey covers a specific period. The relationships between the variables may differ depending on the nature of the sample considered. It is anticipated that different and valuable results may emerge with future studies on different samples guided by this study. Retesting the results obtained on a more widely distributed sample will be helpful to confirm the results. Despite these limitations, it is evaluated that this study adds new findings to the literature and provides a theoretical basis for future studies to be conducted in this direction.

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