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AN INVESTIGATION ON THE IMPACT OF PRODUCT DESIGN ON CONSUMERS' ATTITUDINAL AND BEHAVIOURAL BRAND LOYALTY: AN EMPIRICAL STUDY

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ABSTRACT

The study examined how participants' opinions of new product design influence attitudinal and behavioural brand loyalty. An analysis was performed on 451 data sets obtained by survey methodology and convenience sampling. Initially, descriptive analyses were performed to ascertain the demographic features of the subjects. The data collected in the study were analysed utilising the SPSS (Statistical Package for Social Sciences) for Windows version 25.0 software. The study included simple and multiple linear regression, t-tests, and one-way analysis of variance. The study's results indicate a notable inclination towards luxury brands in customers' automotive preferences. All hypotheses of the study were validated. Consequently, new product design exerts a favourable influence on both attitudinal and behavioural brand loyalty. Furthermore, attitudinal brand loyalty influences behavioural brand loyalty. The findings indicate that educational attainment and gender significantly influence product design and its sub-dimensions. Future studies should investigate the same problem across several sectors utilising qualitative methodologies.

Keywords: *Design, Behavioural Brand Loyalty, Attitudinal Brand Loyalty, Brand Loyalty, New Product Design.*

JEL Codes: *M30, M31, M39.*

1. INTRODUCTION

In the current economic landscape characterised by rapid globalisation, eliminating borders, instantaneous international trade via digital platforms, and escalating global competition, the design of products and services is paramount as a strategic differentiation mechanism for establishing competitive advantage. In other words, it can be said that design is a silent message that conveys the meaning of the product to consumers. Product design may enhance business performance by triggering customer purchasing demand (Homburg, Schwemmle and Kuehnl, 2015) and fostering loyalty (Chitturi, Raghunathan and Mahajan, 2007) in today's competitive market (Candi, 2010; Peters, 2005). Moreover, design has a crucial role in identifying and differentiating a product from its competitors (Homburg et al., 2015). Brunner, Emery and Hall, (2008) asserted that product design functions as a brand identity,

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enabling differentiation from competitors. For example, BMW, Apple, and Target employ product design as a crucial strategic instrument to distinguish themselves from their competitors (Jana, 2008). Consequently, designers must account for consumers' favourable responses and the ensuing brand loyalty during the product design process.

Previous research reveal that product design has been assessed using limited methodologies, predominantly focussing on aesthetics to evaluate the hedonic and utilitarian attributes of items (Homburg et al., 2015; Landwehr, Wentzel and Herrmann, 2013; Chitturi et al., 2007). For example, iPhones engage consumers through hedonic attributes, usefulness, and symbolic significance, complemented by the product's striking visual design, while simultaneously fostering brand and corporate identity development. Brunner et al. (2016) claimed that product design positively influences consumers' judgements of products. It also shown efficacy in influencing customers' purchase decisions. These studies examined the influence of specific design aspects on customer preferences and behaviours. Consequently, product design facilitates the communication of information on the product to the user, fosters an image of distinctiveness, and engenders conclusions about the product's further attributes. Diverse design philosophies enhance and strengthen corporate promotion (Forty, 1986). The sense of attractive design enhances consumer satisfaction, whereas the perception of utility heightens knowledge of product performance. The symbolic dimension of design can create diverse links pertaining to a particular location and period (Creusen and Schoormans, 2005). Design facilitates the formation of human identities by articulating the values and emotions associated with a focus element (McCracken, 1986). Bloch (1995) investigated the psychological dimensions of design and its psychological impacts. Product design can elicit diverse psychological responses, particularly among consumers. He asserted that these psychological responses may encompass both cognitive and emotional reactions, which might transpire concurrently. Multiple research (Bekk, Spörrle, Hedjasie and Kerschreiter, 2016; Korhan and Ersoy, 2016; Abarbanel, Bernhard, Singh and Lucas, 2015; Da Silva and Syed Alwi, 2008; Agarwal and Malhotra, 2005; Grimm, 2005) have demonstrated that psychological reactions influence consumer behaviour. Ranganathan, Madupu, Sen and Brooks (2013) investigated the impact of design-related assessments on emotions and the subsequent transformation of feelings into behavioural intentions. Consumers evaluate the intrigue and worth of a product before making a purchase (Palazon and Delgado-Ballester, 2013). As customer connection with the product intensifies, the conversion rate to purchase behaviour correspondingly escalates (Petty and Cacioppo, 1981). Consumers exhibit interest in design because they perceive that created items mirror their identity and enhance their self-image. In such instances, the incurred expenses escalate. The consumer with a greater interest in the product is believed to exhibit higher levels of attitudinal and behavioural loyalty.

The main objectives of this study:

1) To analyse the effect of customer responses to automotive designs on attitudinal and behavioural brand loyalty.

2) To evaluate the extent of design's influence on attitudinal and behavioural loyalty.

The first part of the study is a review of literature pertaining to the ideas of design, attitudinal loyalty, and behavioural brand loyalty. The research framework is introduced, followed by the presentation of its methods. The data analysis and research findings assessment are presented, respectively. The research ends with conclusion and evaluation.

2. CONCEPT OF DESIGN

The term "Design," derived from English, signifies the act of creating, discovering, planning, or determining its structure, form, or illustration. All creative and formative capacities may be articulated through design (Kafadar, 2009). The Turkish Language Association defines it as "the form visualised in the mind, imagination" (Sozluk, 2023).

Product design has consistently captivated marketers since it is a fundamental aspect of the marketing mix elements (Homburg et al., 2015). Pihl (2014) asserts that design is a characteristic of product quality assessed based on the product plan and all attributes influencing the product's perception, tactile experience, and functionality. Homburg et al. (2015), Bolch (1995), and Luchs and Swan (2011) asserted that consumers regard product design as a multi-faceted construct including aesthetic, utilitarian, and symbolic components. They characterised design as a collection of integral components of a thing. In another study, Bolch (2011) developed research about the product's design value and advantages, defining design as: "Design refers to the form features of a product that provide utilitarian, hedonic, and semiotic benefits to the user." Product design functions as a source of information from which buyers draw conclusions about the product (Yamamoto and Lambert, 1994). Tsafarakis, Grigoroudis and Matsatsinis (2011) asserted that product design constitutes a component of product image. Companies are progressively recognising the significance of design in marketing. Regarding the characteristics of a product or service, one should not just consider tangible attributes and this matter ought to be considered comprehensively. For example, The shape and colours of a computer, the scent of a store, and the rhythm of a musical composition should also be seen as characteristics of the product's form (Bolch, 2011).

Product design is a framework comprising several aspects. Homburg et al. (2015) adhered to the methodology established by Luch and Swan (2011) and said that there were "holistic dimensions in which the features or atomistic properties of a product can be amalgamated." Prior research has included many variables to assess product design. Homburg et al. (2015) assessed 271 articles relevant to this topic and classified them into six groups. Consequently, they condensed these dimensions to three. The categories include aesthetic, utilitarian, and symbolic design.

2.1. Aesthetic Design

Refers to the perceived visual appeal and attractiveness of a product (Bloch, 2011). Aesthetics may be (1) an inherent characteristic, (2) a quality perceived by the observer, or (3) a synthesis of both (Reber, Schwarz and Winkielman, 2004). The notion of the aesthetic dimension coincides with the definition that integrates the two. According to this comprehensive definition, it can be asserted that in product design, a product possesses attributes that elicit a perception of beauty in the observer (Leder, Belke, Oeberst and Augustin, 2004).

Research on aesthetics has concentrated on employing aesthetic design to distinguish products, cultivate brand preferences, and enhance turnover rates. Aesthetic design enhances sales, influences customer value assessments, impacts repurchase intentions, moulds word-of-mouth communication trends, and affects market share. Homburg et al. (2015) and Leder et al. (2004) underscored that the aesthetic dimension serves as an integrative alternative capable of engendering an impression of beauty for the observer. Additional research has demonstrated that visual design may influence customers' views in several manners.

Products that possess a distinct and outstanding look are differentiated from others. It guarantees that the competition and product are recognised in a highly competitive market (Bloch, 1995). The design of a product influences first perceptions and enables individual self-expression. Well-crafted items elicit sensory enjoyment. The aesthetic of a product fosters brand loyalty by encapsulating the connection between the consumer and the brand. It fulfils the consumer's sense of connection to others. Aesthetic things promote favourable instinctive sensations and can engage numerous senses. This fosters more profound relationship results (Gilal, 2020: 5).

Hu, Liu, Lu and Guo (2022) provide a quantitative methodology for evaluating product design based on objective criteria, whereas Hsu, Chen, Yang, Lin and Liu (2018) investigate the influence of design on brand loyalty, considering the mediating effects of psychological elements. The study concluded that design positively influences both attitudinal and behavioural brand loyalty, mediated by psychological considerations. In their study, Gilal, Zhang, Gilal and Gilal (2020) examined the influence of product design on brand loyalty via intrinsic motives and determined that it exerts a favourable impact. The research by Hagedorn, Kremer and Stark (2021) examined the impact of personalised aesthetic design on customer loyalty and sustainability. The study revealed that an increase in personalised design and aesthetics correlates with heightened brand loyalty. These studies indicate that the aesthetic component of design influences both attitudinal and behavioural brand loyalty. In the automobile sector, the focus of this research, product aesthetics influence up to 60% of consumer purchase decisions. The design of a car substantially impacts consumer assessments. This circumstance significantly influences market performance (Burnap, Hauser and Timoshenko, 2023).

2.2. Functional Design

It pertains to the performance attributes or capabilities of a product in achieving its practical function (Bolch, 1995). Boztepe (2007) asserted that buyers utilise the functional component to assess if the product fulfils its intended purpose. Functional design, or the utilitarian approach, prioritises the practical utility of the product in fulfilling customer requirements. Higgins (1997) found in his research that when a product meets its functional specifications, the likelihood of customers encountering disappointment and scepticism over product quality diminishes markedly, hence enhancing consumer loyalty. Srinivasan, Lilien, Rangaswamy, Pingitore and Seldin (2012) assert that functionality is a product attribute, alongside performance and durability, which constitute product characteristics. Furthermore, Chitturi, Raghunathan and Mahajan (2007) found that a product satisfying customers' utilitarian demands and serving its intended function might enhance consumer trust, as well as expand product options and satisfaction.

Functional design not only facilitates the development of buying intentions. It also serves as a dependable metric of success that fosters favourable brand perceptions and a robust brand identity. Furthermore, studies have demonstrated the effect of functional design on purchase intentions, market shares, willingness to pay, and word-of-mouth communication (Gilal et al., 2020).

Hsu et al. (2018) demonstrated that cognitive and emotional responses to product design positively influence attitudinal and behavioural loyalty. This research indicates that the functional aspect of product design positively influences both attitudinal and behavioural loyalty. This perspective is further corroborated by Drucker's (2001) assertion that "customers only pay for items that are beneficial and valued by them."

2.3. Symbolic Design

It denotes the interpreted message that a product communicates to both the primary consumer and others regarding its image, derived from visual features (Bloch, 2011; Aaker, 1999). It denotes the symbolic values assigned to products. Consumers assess products based on their ability to fulfil demands and provide functional advantages, but they also appreciate and acquire them for their symbolic significance. Verganti (2008) asserted that the symbolic component is equally significant as the functional dimension, since products often represent customers' aspiration to express their wider self. Csikszentmihalyi and Rochberg-Halton's (1981) research revealed that the most cherished products in the house are esteemed due to the symbolic significance ascribed to them. Individuals occasionally ascribe significance to items based on factors unrelated to their utility or the producer's intent. According to Veblen's (2001) conceptualisation of conspicuous spending, objects has value since they signify social standing. Baudrillard (2006) posits that consumption serves as a medium for interpersonal communication. This discourse include codes disseminated by certain societal members, while items serve as symbols that communicate particular meanings independent of their functionality.

Consequently, their worth possesses a symbolic significance, distinct from its use and economic value. The consumer distinguishes himself or herself from others and establishes a personality through these things. Bourdieu (1979, 1984) perceives this use of products as a method for building social and symbolic capital. According to Boztepe (2007), the notion of value extends beyond the use of items and their role in communication. He asserted that the value lies in their utilisation and the social purpose, status, reputation, and identity they confer onto customers.

According to the research conducted by Hsu et al. (2018), the symbolic dimension, an aspect of design, influences customers' attitudinal and behavioural commitment.

3. BRAND LOYALTY

Brand loyalty is a framework created between the consumer and the brand that withstands competition and price variations. In his (1999a) study, Oliver characterised brand loyalty as follows: The inclination to acquire or reacquire a previously obtained commodity or service in the future, together with the sustenance of this inclination. Consequently, it pertains to the phenomenon of inducing the recurrent purchase of the same brand or collection of brands, irrespective of situational influences and marketing strategies that may alter consumer behaviour (Oliver, 1999a). The alternative definition is provided by Dick and Basu (1994). This definition refers to the alignment between an individual's comparative attitude and their habitual purchasing behaviour. Chaudhuri and Holbrook (2001) characterised brand loyalty as a conditioned reaction to a product stemming from the favourable perception cultivated towards a brand. Aaker (1991) said that brand loyalty, a fundamental concept in marketing, quantifies a customer's allegiance to a brand. Brand loyalty is said to indicate the likelihood of transitioning to an alternative brand, particularly when there are alterations in pricing or product attributes. Aaker (1991) and Oliver (1999b) examined brand loyalty as the likelihood of customers altering their behaviour to choose an other brand. Brand loyalty encompasses a certain level of inclination and affinity for a brand (Assael, 1998; Aaker, 1991). Brand loyalty has two dimensions: behavioural loyalty and attitudinal loyalty (Qu, Kim and Im, 2011; Pike, Bianchi, Kerr and Patti, 2010; Li and Petrick, 2008; Odin and Odin, 2001). The notion of loyalty in this study encompasses both behavioural and attitudinal dimensions. Purchase loyalty refers to the commitment to buy an average brand, whereas attitudinal loyalty denotes the degree of allegiance an average customer feels towards a brand. Numerous scholars have considered it essential to incorporate attitude with behaviour in the definition of brand loyalty. Day (1969) was the inaugural researcher to identify and articulate this necessity. Day (1969) asserted that brand loyalty must be assessed both attitudinally and behaviourally. Oliver (1997, 1999b) established the aspects of attitudinal loyalty in his research. Loyalty, from an attitudinal standpoint, pertains to a customer's disposition towards a brand. Attitudinal loyalty is evidenced by the intention to repurchase and endorse the brand to others (Aaker, 1991). Prior research indicates that attitudes held with conviction are more likely to manifest in behaviour compared to those

held with uncertainty. Consistent attitudes are more likely to manifest in behaviour than are ambivalent and internal attitudes. Attitudes that are easily recalled are more likely to manifest into behaviour compared to those that are harder to remember. Attitudes formed by direct experience yield greater consistency between attitude and behaviour than those formed through indirect experience (Kraus, 1995).

The indication and extent of brand loyalty correlate with the frequency and magnitude of a customer's repeat purchases (Aaker, 1991). This statement suggests that from a design standpoint, brand loyalty is characterised by consumers who consistently buy from brands whose designs they appreciate and have previously purchased. Numerous scholars (Ehrenberg, 2000; Aaker, 1991; Ehrenberg, Goodhardt and Barwise, 1990; Kahn, Kalwani and Morrison, 1986) assert that repeated purchases can foster brand loyalty among consumers. In contrast to these academics, Sharp, Sharp and Wright (2002) contend that attitude is irrelevant in ascertaining brand loyalty. Oliver (1999a) posits in his research that customer pleasure derived from product usage is an essential precursor to the development of loyalty. Loyalty diminishes in significance when individual traits, such as consumer resilience (the extent to which a consumer resists brand switching) and social connections (the extent to which the community encourages consumer loyalty), are considered. When consumers possess these components, the necessity for a unilateral, vigorous effort from the brand or business to maintain loyalty diminishes. The consumer's internal and societal supports facilitate the maintenance of their preferences, rendering them resistant to change (Bandyopadhyay and Martell, 2007).

The experiences of consumers with products and product design are crucial for establishing a basis for customer behaviour. Previous studies has demonstrated that product design influences consumer intentions and behaviours via psychological responses (Candi, Makarem and Mohan, 2017; Coursaris and van Osch, 2016; Homburg et al., 2015; Hoegg and Alba, 2011; Chung and Tan, 2004; Huang, 2003; Tractinsky, Shoval-Katz and Ikar, 2000; Oliver, 1999b; Bloch, 1995). Drawing from the literature, the subsequent hypotheses and sub-hypotheses were formulated for the research:

H_1: Product design positively influences attitudinal brand loyalty.

H1a: The visual dimension of product design positively influences attitudinal brand loyalty.

H_{1b}: The functional dimension of product design positively influences attitudinal brand loyalty.

H_{1c}: The symbolic dimension of product design positively influences attitudinal brand loyalty.

Glasman and Albarracin (2006) posited that when attitudes are readily retrievable and stable, the likelihood of influencing behaviour over time increases. Dick and Basu (1994) assert that brand loyalty must encompass affirmative purchase behaviour and a favourable disposition towards the brand. Analysis of prior research (Tan and Sie, 2015; Karjalainen and Snelders, 2010; Creusen and Schoormans, 2005; Derbaix and Pham, 1998; Veryzer and Hutchinson, 1998; Derbaix and Pham, 1998;

Fazio, Roskos-Ewoldsen and Powell, 1994) revealed that consumers with a favourable perception of brand product design cultivate behavioural loyalty. Based on these studies in the literature, the following research hypotheses and sub-hyphothesis were developed:

H_2: Product design has a positive effect on behavioral brand loyalty

H_{2a}: The aesthetic aspect of product design has a positive effect on behavioral brand loyalty

H_{2b}: The functionality aspect of product design has a positive effect on behavioral brand loyalty

H_{2c}: The symbolic aspect of product design has a positive effect on behavioral brand loyalty

The topic of brand loyalty captivates scholars and marketers alike. Numerous research exist on this topic (Agu, Iyelolu, Idemudia and Ijomah, 2024; Parris and Guzman, 2023; Akoglu and Özbek, 2022; Bernarto, Berlianto, Meilani, Masman and Suryawan, 2020). Evaluating brand loyalty as both an attitudinal and behavioural construct, rather than as a singular entity, and assessing the impacts of each independently will yield more precise outcomes. While both attitudinal and behavioural loyalty are significant indicators of brand effectiveness, they possess distinct consequences (Dick and Basu, 1994). Only a limited number of prior research (Hsu et al., 2018; Chaudhuri and Holbrook, 2001) have concurrently examined these two forms of brand loyalty. This study aims to elucidate the comparative strength of the total influence of product design on both behavioural and attitudinal brand loyalty. Based on these studies, the following research hypothesis has been developed.

H_3: Attitudinal brand loyalty has a positive effect on behavioural brand loyalty.

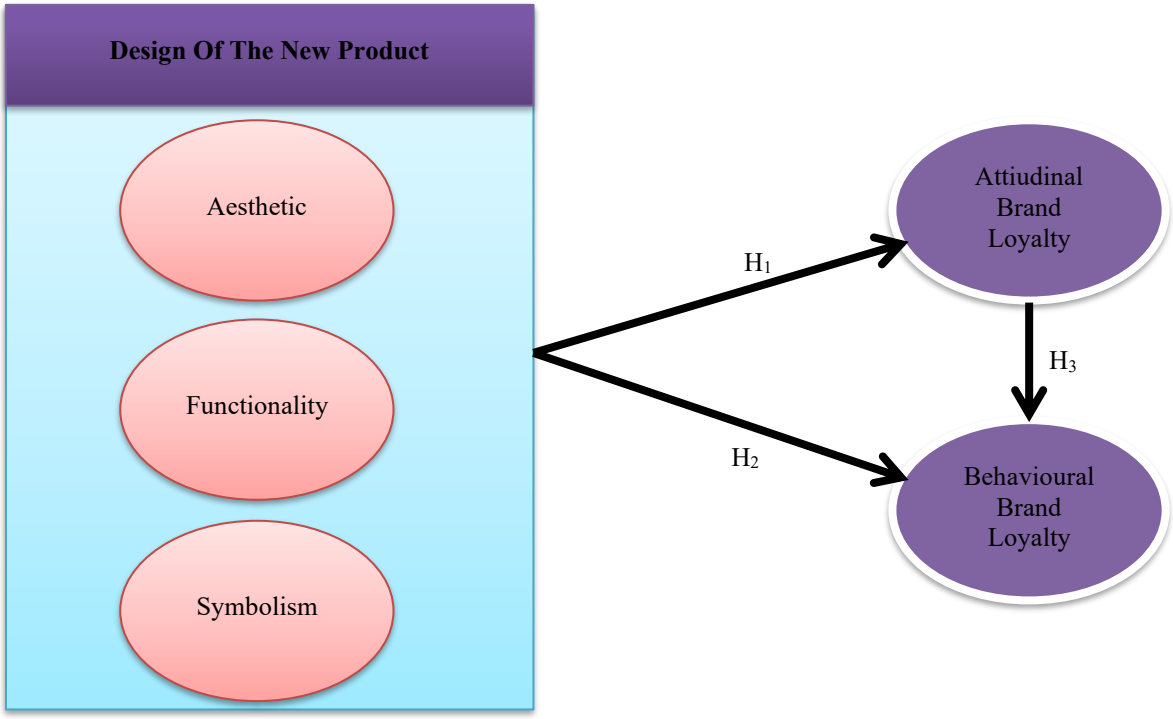
4. METHOD

This section of the study presents information regarding the research aim, model, sample, hypotheses, data collecting methods, and research scales.

4.1. Purpose of the Research Model and Hypotheses

This research aims to investigate the effect of product design on customers' attitudinal and behavioural brand loyalty. The research model, developed from prior studies and literature factors, is illustrated in Figure 1.

Figure 1. Research Model



Resource: Hsu et al., 2018

The model developed from the literature review to fulfil the research objective was modified from the model in Hsu et al.'s (2018) study. This model has three variables: product design, attitudinal brand loyalty, and behavioural brand loyalty, together with three sub-dimensions of product design: aesthetics, usefulness, and symbolism.

4.2. Universe and Sample

The research universe comprises individuals residing within the boundaries of Kahramanmaraş Province who are aged 18 and above. When the population exceeds one million, the requisite sample s Functionality individuals, as indicated in academic literature, with a 95% confidence interval and a 5% margin of error (Krejcie and Morgan, 1970). A cohort of participants embodying the universe was obtained by convenience sampling methodology.

4.3. Data Collection Technique and Implementation Process

The research data was collected using the online survey approach. The survey questions were Symbolism research done by Hsu et al. (2018). The modified questions were administered to a cohort of 100 participants through a pre-test. The survey study was executed after implementing requisite modifications based on the feedback from participants and specialists. A total of 475

participants were surveyed. Following the exclusion of 20 participants deemed invalid due to their indication that the design was not significant to them, the analysis proceeded with 451 surveys.

The research survey has three elements. The first section of the survey comprises multiple-choice enquiries on the participants' preferred automotive brands and the significance of design to them. The second component of 13 scaled questions pertaining to the participants' new product design (9), attitudinal brand loyalty (2), and behavioural brand loyalty (2). A 5-point Likert scale was employed in the formulation of the scaled questions. The third and final section comprises enquiries designed to assess the demographic attributes of the individuals. Data were gathered online from August 15, 2024, until October 15, 2024. Approval from the Ethics Committee was secured for this study from the Kahramanmaraş Sütçü İmam University Social and Human Sciences Ethics Committee on December 29, 2023, at session number 2023-44, with decision number 4.

The data acquired in the study were analysed with the SPSS (Statistical Package for Social Sciences) for Windows version 25.0 software. Descriptive statistical techniques (number, percentage, minimum-maximum values, mean, standard deviation) were employed in the data evaluation.

The conformity of the utilised data with a normal distribution was assessed. Compliance with a normal distribution may be assessed by the construction of a Q-Q Plot (Chan, 2003; 280-285). The normal distribution of the utilised data is contingent upon the skewness and kurtosis values being within ±3 (Shao, 2002).

Pearson correlation was employed to examine the relationship between numerical variables, while simple and multiple linear regression were utilised to assess the impact of independent factors on the dependent variable. In the analysis of quantitative data exhibiting a normal distribution, an independent t-test was employed to compare two independent groups, while one-way ANOVA was utilised for comparisons involving more than two independent groups. The Bonferroni correction was applied to identify the specific group responsible for any observed differences.

5. FINDINGS

This section presents the results of the analysis completed in alignment with the study's objectives. Table 1 displays the demographic characteristics of the research participants.

Table 1. Distribution of Participants in the Research Based on Demographic Factors

Variables			
Gender	Female	214	47.5
	Male	237	52.5
Age	18-29	248	55.0
	30-39	103	22.8
	40 age and over	100	22.2
Marital status	Married	186	41.2
	Single	265	58.8
Education	High School and earlier	119	26.4

	Vocational school	96	21.3
	Bachelor's degree	171	37.9
	Postgraduate	65	14.4
Monthly income	10.000 TLs and less	112	24.8
	10.001-25.000 TLs	87	19.3
	25.001-40.000 TLs	100	22.2
	40.001-55.000 TLs	82	18.2
	55.001 TL and more	70	15.5
Jop	Retired	10	2.2
	Student	129	28.6
	Worker	26	5.8
	Civil Servant	130	28.8
	Housewife	27	6.0
	Self-employed	29	6.4
	Others	100	22.2
Total		**451**	**100.0**

Table 1 presents the demographic characteristics of the research participants. 47.5 per cent of participants are women, 52.5 per cent are men.

Upon analysing the age group distribution, 55% of participants are between 18 and 29 years old, 22.8% are between 30 and 39 years old, and 22.2% are 40 years old or older. This distribution indicates that the research sample primarily consists of young adults. The significant presence of youth enhances the likelihood that the study findings will mirror the perspectives and attitudes of the younger demographic.

58.8% of participants are single, 41.2% are married. Regarding educational attainment, 26.4% had finished secondary school or below, 21.3% had obtained a foundation degree, 37.9% had earned a bachelor's degree, and 14.4% had achieved a master's degree or PhD. This distribution reveals that the overwhelming majority of participants have at least a bachelor's degree. The elevated educational attainment may confer an advantage in the study's analysis of knowledge-based attitudes and behaviours, since those with greater education are likely to possess a heightened understanding of the research issue.

Upon analysing the distribution by monthly income level, 24.8% of participants earn 10,000 TL or less, 19.3% earn between 10,001 and 25,000 TL, 22.2% earn between 25,001 and 40,000 TL, 18.2% earn between 40,001 and 55,000 TL, and 15.5% earn 55,001 TL or more. This signifies that the sample encompassed individuals from various income brackets, hence ensuring economic diversity. The relatively equitable income distribution facilitates the comparison of factors associated with socio-economic status.

Upon examining the distribution of participants by occupational groupings, it is evident that civil servants constitute the largest proportion at 28.8%. Subsequently, students comprise 28.6%, while other occupational groupings account for 22.2%. 6.4% of participants have freelance professions, 6.0% are housewives, 5.8% are workers, and 2.2% are retired. The distribution indicates that the sample predominantly comprises governmental employees and students.

Table 2. Distribution of Study Participants Based on Automobile Preferences

Variables		n	%
Preferred brand	ASTON MARTIN	2	0.4
	AUDI	60	12.7
	BENTLEY	1	0.2
	BMW	73	15.5
	BUGATTI	4	0.8
	CHEVROLET	2	0.4
	DACIA	6	1.3
	DODGE	3	0.6
	FERRARI	5	1.1
	FIAT	8	1.7
	FORD	12	2.5
	HONDA	15	3.2
	HYUNDAI	4	0.8
	JAGUAR	3	0.6
	KIA	1	0.2
	LAMBORGHINI	10	2.1
	LAND-ROVER	6	1.3
	LEXUS	1	0.2
	MASERATI	11	2.3
	McLaren	3	0.6
	MERCEDES	77	16.3
	MG	1	0.2
	MINI	2	0.4
	MITSUBISHI	2	0.4
	MUSTANG	8	1.7
	NISSAN	6	1.3
	OPEL	5	1.1
	PEUGEOT	8	1.7
	PORSCHE	15	3.2
	RENAULT	4	0.8
	ROLLS ROYCE	7	1.5
	ROVER	1	0.2
	SABARU	1	0.2
	SEAT	1	0.2
	SKODA	2	0.4
	TESLA	5	1.1
	TOFAŞ	5	1.1
	TOGG	28	5.9
	TOYOTA	12	2.5
	VOLKSWAGEN	15	3.2
	VOLVO	31	6.6
	OTHERS	5	1.1
The importance of the design of the aautomobile used	yes	451	95.8
	no	20	4.2
Total		**471**	**100.0**

Upon examining the distribution of participants by their chosen brand, 0.4% choose ASTON MARTIN, while 12.7% favour AUDI. 0.2% BENTLEY, 15.5% BMW, 0.8% BUGATTI, 0.4% CHEVROLET, 1.3% DACIA, 0.6% DODGE, 1.1% FERRARI, 1.7% FIAT, 2.5% FORD, 3.2% HONDA, 0.8% HYUNDAI, 0.6% JAGUAR, 0.2% KIA, 2.1% LAMBORGHINI, 1.3% LAND ROVER, 0.2% LEXUS, 2.3% MASERATI, 0.6% McLAREN, 16.3% MERCEDES, 0.2% MG, 0.4% MINI, 0.4% MITSUBISHI, 1.7% The market shares are as follows: MUSTANG 1.3%, NISSAN 1.1%,

OPEL 1.7%, PEUGEOT 3.2%, PORSCHE 0.8%, RENAULT 1.5%, ROLLS ROYCE 0.2%, ROVER 0.2%, SUBARU 0.2%, SEAT 0.4%, SKODA 1.1%, TESLA 1.1%, TOFAŞ 5.9%, TOGG 2.5%, TOYOTA 3.2%, VOLKSWAGEN 6.6%, and OTHER 1.1%. Participants were asked, 'Is the design of your car significant to you?' 95.8% of the participants responded affirmatively, and 4.22% responded negatively.

Table 3. Results of the Reliability Analysis for the Scales Employed in the Study

Variables	Reliability Values
BBL	0.850
Aesthetics	0.924
ABL	0.561
Symbolism	0.878
Functionality	0.889

A reliability analysis was initially undertaken to assess the validity and reliability of the measuring instruments employed in the study. Table 3 presents the findings of the reliability analysis for the scales employed in the study. The reliability values, often over 0.60, signify that the scales are reliable. This indicates that the internal consistency of the scales employed in the study is at an acceptable level (Tavşancıl, 2014). The reliability coefficient for the Attitudinal Brand Loyalty sub-dimension is 0.561, indicating questionable reliability. Nunnally (1978) deemed alpha values of 0.50 and above as acceptable. In this situation, the pertinent sub-dimension may also be deemed reliable at a minimal level.

Table 4. Results of Normality Analysis for Variables

	Skewness	Kurtosis	Situation
Aesthetics	-1.858	2.802	Normal
Functionality	-1.842	3.130	Normal
Symbolism	-0.972	-0.018	Normal
Product Design	-1.536	2.140	Normal
ABL	-0.569	-0.541	Normal
BBL	-1.025	0.178	Normal

The findings of the normality analysis for the variables utilised in the study are presented in Table 4. The skewness and kurtosis values of the data range from ±3, signifying a normal distribution (Kline, 2015).

Table 5. Descriptive Statistics of the Variables

	Average	Standart Deviation
Astehthetic	4.37	1.01
Functionality	4.36	0.94
Symbolism	3.92	1.18
Product Design	4.22	0.91
ABL	3.66	1.17
BBL	4.03	1.11

Descriptive statistics of the variables are given in Table 5. It is seen that the aesthetic average is 4.37±1.01, the functionality average is 4.36±0.94, the symbolism average is 3.92±1.17, the product design average is 4.21±0.91, the attitudinal brand loyalty average is 3.66±1.17 and the behavioral brand loyalty average is 4.03±1.11.

Table 6. The Effect of Product Design on Attitudinal Brand Loyalty (ABL) and Behavioural Brand Loyalty

Dependent Variable	Independent Variable	B	Standart Error	Beta	t	p	F	p	R^2	Durbin-Watson
Product Design	Fixed	1.863	0.126	-	14.826	0.000*	188.552	0.000*	0.457	1.811
	ABL	0.227	0.034	0.291	6.621	0.000*				
	ABL	0.378	0.036	0.458	10.436	0.000*				

The regression analysis results in Table 6 indicate that attitudinal (ABL) and behavioural (BBL) brand loyalty significantly influence product design ($F = 188.552$, $p < 0.001$). The model's explanatory power ($R^2 = 0.457$) signifies that the independent variables account for around 45.7% of the variance in product design, suggesting that the model offers a substantial degree of explanation.

The numbers $\beta = 0.227$, $t = 6.621$, $p < 0.001$ for attitudinal brand loyalty demonstrate that a one-unit increase in attitudinal brand loyalty results in a positive shift of 0.227 units in the product design score.

The analysis indicates that for behavioural brand loyalty, $\beta = 0.378$, $t = 10.436$, $p < 0.001$, signifying that a one-unit increase in behavioural brand loyalty results in a positive contribution of 0.378 units to product design.

The results indicate that both attitudinal and behavioural brand loyalty enhance the perception of product design, and both forms of loyalty are essential in the evolution of product design.

Table 7. The Effect of Product Design on Attitudinal Brand Loyalty

Model	Dependent Variable	Independent Variable	β	Standard Error	Beta	t	p	F	p	R^2	Durbin Watson
1	ABL	Constant	1.531	0.224	-	6.833	**0.000***	95.547	**0.000***	0.174	1.976
		Aesthetic	0.487	0.050	0.419	9.775	**0.000***				
2	ABL	Constant	1.303	0.237	-	5.505	**0.000***	104.069	**0.000***	0.186	1.902
		Functuanility	0.541	0.053	0.434	10.201	**0.000***				
3	ABL	Constant	1.227	0.150	-	8.162	**0.000***	286.883	**0.000***	0.388	2.099
		Symbolism	0.622	0.037	0.624	16.938	**0.000***				
4	ABL	Constant	0.581	0.215	-	2.708	**0.000***	216.230	**0.000***	0.324	1.962
		Product Deisign	0.730	0.050	0.570	14.705	**0.000***				

*p<0.05

Simple linear regression was utilised to examine the effect of product design on ABL, as presented in Table 7. The established models have statistical significance (p<0.05). The aesthetics variable demonstrates a favourable and substantial impact on attitudinal brand loyalty (β=0.419, p<0.05). The functionialty variable exerts a positive and substantial influence on attitudinal brand loyalty (β=0.434, p<0.05). The symbolism variable exhibits a positive and substantial impact on attitudinal brand loyalty (β=0.624, p<0.05). The product design variable exhibits a positive and substantial impact on attitudinal brand loyalty (β=0.570, p<0.05). In other words, the H_1, H_{1a}, H_{1b} and H_{1c} hypotheses of the research were accepted.

17.4% of the first model, 18.6% of the second model, 38.8% of the third model, and 32.4% of the fourth model are accounted for. Furthermore, Durbin-Watson values ranging from 1.5 to 2.5 suggest the absence of autocorrelation issues in the models (Field, 2018).

Table 8. The Effect of New Product Design on Behavioural Brand Loyalty

Model	Dependent Variable	Independent Variable	β	Standard Error	Beta	t	p	F	p	R^2	Durbin Watson
1	BBL	Constant	1.283	0.191	-	6.703	**0.000***	217.441	**0.000***	0.325	2.045
		Aesthetic	0.628	0.043	0.571	14.745	**0.000***				
2	BBL	Constant	0.816	0.194	-	4.209	**0.000***	288.401	**0.000***	0.390	2.012
		Functuanility	0.737	0.043	0.645	16.982	**0.000***				
3	BBL	Constant	2.212	0.158	-	13.981	**0.000***	144.617	**0.000***	0.242	2.014
		Symbolism	0.464	0.039	0.496	12.026	**0.000***				
4	BBL	Constant	0.784	0.191	-	4.114	**0.000***	304.234	**0.000***	0.403	2.008
		Product Deisign	0.770	0.044	0.636	17.442	**0.000***				

*p<0.05

Simple linear regression was utilised to examine the effect of product design on behavioural brand loyalty, as presented in Table 8. The established models have statistical significance (p<0.05). The

factors of aesthetics (β=0.571, p<0.05), utility (β=0.645, p<0.05), symbolism (β=0.496, p<0.05), and new product design (β=0.636, p<0.05) exhibit positive and substantial correlations with behavioural brand loyalty. According to this result; research hypotheses H_2, $H2_a$, $H2_b$ and H2c were accepted.

32.5% of the first model, 39.0% of the second model, 24.2% of the third model, and 40.3% of the fourth model are elucidated. The Durbin-Watson values across all models range from 1.5 to 2.5, signifying the absence of autocorrelation issues (Field, 2018).

Table 9. The Effect of Attitudinal Brand Loyalty on Behavioural Brand Loyalty

Model	Dependent Variable	Independent Variable	β	Standard Error	Beta	t	p	F	p	R^2	Durbin Watson
1	BBL	Constant	1.922	0.136	-	14.120	**0.000***	265.645	**0.000***	0.370	2.073
		Attitudinal brand loyalty	0.576	0.035	0.610	16.293	**0.000***				

*p<0.05

Simple linear regression was applied to investigate the effect of attitudinal brand loyalty on behavioral brand loyalty and is given in Table 9. As a result, it is seen that the established model is statistically significant (p<0.05). It is seen that attitudinal brand loyalty (β=0.576. p<0.05) It is noted that it exerts a statistically significant and favourable influence on behavioural brand loyalty. The study accepts the final hypothesis H3 based on these data. It is seen that 37% of the model is explained. There is no autocorrelation problem in the established models. Durbin Watson value is between 1.5 and 2.5.

Table 10. ANOVA Analysis Homogeneity Test

Variable	Levene Statistics (Mean/Median)	df1	df2	Sig. (p)	Conclusion
Age	0,781 / 0,276	13	451 / 381,588	0,681 / 0,995	p>0.05 → The variances are homogeneous.
Education	0,807 / 0,728	14	461 / 435,763	0,661 / 0,747	p>0.05 → The variances are homogeneous.
Mothly income	1,031 / 0,703	13	448 / 421,457	0,420 / 0,761	p>0.05 → The variances are homogeneous.
Job	0,719 / 0,642	13	451 / 435,922	0,745 / 0,819	p>0.05 → The variances are homogeneous.

The homogeneity test findings indicated that p>0.05 was observed across all variables. This outcome signifies that the variances among groups are equivalent and that the premise of

homogeneity is fulfilled. The results based on both mean and median are consistent. Consequently, the use of parametric tests like ANOVA and the t-test is statistically valid.

Table 11. Comparison Analysis According to the Demographic Characteristics of the Participants Taking Part in the Research

Variables		Asthtetic		Funcionality		Symbolism		Product Design		Attitudinal Brand Loyalty		Behaivoural Brand Loyalty	
		$\bar{X}$	SS	$\bar{X}$	SS	$\bar{X}$	SS	$\bar{X}$	SS	$\bar{X}$	SS	$\bar{X}$	SS
Gender	FEmale	4.27	1.05	4.30	0.98	3.73	1.17	4.10	0.92	3.59	1.10	3.99	1.06
	Male	4.47	0.96	4.42	0.90	4.09	1.17	4.32	0.90	3.72	1.23	4.06	1.15
	Test Value	**-2-117*** **		-1.330		**-3.267*** **		**-2.633*** **		-1.130		-0.645	
	p	**0.035***		0.184		**0.001***		**0.009***		0.259		0.519	
Age	18-29	4.39	1.02	4.35	0.90	3.99	1.10	3.92	1.18	3.75	1.11	4.05	1.08
	30-39	4.35	1.05	4.37	1.06	3.81	1.31	4.25	0.88	3.62	1.27	4.00	1.19
	40 age and more	4.35	0.94	4.36	0.91	3.84	1.22	4.18	0.92	3.49	1.22	3.99	1.11
	Test Value	0.75		0.16		1.178		0.281		1.858		0.145	
	p	0.928		0.984		0.309		0.755		0.157		0.865	
	Bonferroni	-		-		-		-		-		-	
Marital status	Married	4.35	1.02	4.40	0.99	3.87	1.25	4.21	0.95	3.56	1.23	4.04	1.15
	Single	4.39	1.00	4.33	0.91	3.95	1.13	4.22	0.89	3.73	1.13	4.02	1.08
	Test Value	-0.382		0.765		-0.762		-0.205		-1.547		0.199	
	p	0.702		0.445		0.447		0.838		0.123		0.843	
Educatio n Level	High School and earlier	4.11	1.23	4.06	1.12	3.72	1.26	3.96	1.10	3.59	1.20	3.79	1.25
	ÖVocational School	4.38	1.03	4.31	1.02	3.91	1.24	4.20	0.95	3.78	1.18	4.14	1.04
	Bachelor's Degree	4.50	0.83	4.47	0.81	3.96	1.10	4.31	0.78	3.57	1.17	4.08	1.09
	Postgraduate	4.53	0.87	4.68	0.53	4.16	1.10	4.46	0.70	3.83	1.11	4.16	0.89
	Test value	4.202**		7.699**		2.106		5.249**		1.271		2.608	
	p	0.006*		0.000*		0.099		0.001*		0.284		0.051	
	Bonferroni	**1>4;1>5;1>6**		**1>6;3>5;3>6**		**1>6**		**1>4;1>5;1>6**		**-**		**-**	
Mothly Income	10.000 TL and less	4.15	1.12	4.17	0.98	3.69	1.11	4.00	0.97	3.42	1.13	3.75	1.13
	10.001-25.000 TL	4.37	0.98	4.26	1.02	3.91	1.24	4.18	0.92	3.77	1.15	4.13	1.12
	25.001-40.000 TL	4.58	0.79	4.55	0.77	4.17	0.95	4.43	0.72	3.83	1.07	4.08	1.07
	40.001-55.000 TL	4.40	1.05	4.38	1.05	3.89	1.33	4.22	1.03	3.65	1.23	4.06	1.17
	55.001 TL and more	4.41	1.03	4.50	0.78	3.96	1.26	4.29	0.87	3.67	1.32	4.25	0.98
	Test Value	**2.466*** **		**2.828*** **		2.257		**3.108***		1.858		**2.696*** **	

	p	**0.044***		**0.024***		0.062		**0.015***		0.117		**0.030***	
	Bonferroni	**1>3**		-		**1>3**		**1>3**		-		-	
Job	Retired	3.90	0.88	4.06	0.62	3.73	0.78	3.90	0.61	3.60	1.04	3.80	0.88
	Student	4.32	1.05	4.31	0.86	3.91	1.06	4.18	0.88	3.64	1.12	4.00	1.11
	Worker	4.43	0.95	4.29	0.93	4.10	1.27	4.27	0.87	4.36	0.84	4.21	1.15
	Civil Servant	4.50	0.95	4.54	0.91	4.09	1.15	4.38	0.88	3.70	1.17	4.11	1.15
	Houese Wife	4.19	1.08	4.16	1.16	3.39	1.42	3.91	1.07	3.31	1.20	4.03	1.11
	Self-employed	4.24	1.25	4.36	1.01	3.59	1.26	4.06	1.07	3.58	1.21	4.06	1.03
	Other	4.40	1.96	4.28	1.00	3.91	1.23	4.20	0.93	3.58	1.27	3.93	1.10
	Test Value	1.016		1.396		1.885		1.556		2.105		0.453	
	p	0.414		0.215		0.082		0.158		0.052		0.843	
	Bonferroni	-		-		-		-		-		-	

*p<0.05. **Independent t test. ***One-way analysis of variance

To ascertain whether the study participants exhibited variations in product design dimensions (aesthetics, functionality, symbolism, product design) and brand loyalty dimensions (attitudinal and behavioural) based on their demographic characteristics, independent sample t-tests and one-way analysis of variance were employed, as presented in Table 10.

An analysis of the participants' distributions by gender and mariatal status reveals a statistically significant difference in the dimensions of aesthetics (p=0.035), symbolism (p=0.001), and product design (p=0.009) (p<0.05). Upon analysing the average results, it is notable that male participants outperform female participants on several categories. No significant difference was seen in the characteristics of functioning, attitudinal brand loyalty, and behavioural brand loyalty based on gender (p>0.05).

No statistically significant difference was found in the distribution of participants by age group on aesthetics, utility, symbolism, product design, and attitudinal and behavioural brand loyalty (p>0.05). This outcome suggests that age does not significantly influence participants' impressions of brands and goods.

An examination of participant distribution by marital status revealed no statistically significant differences between married and single persons across the categories of aesthetics, utility, symbolism, product design, and attitudinal and behavioural brand loyalty (p>0.05). This indicates that marital status does not significantly influence brand loyalty or product design aspects.

Statistically significant variations in aesthetics (p=0.006), functionality (p<0.001), and product design (p=0.001) were detected when analysing participant distribution by educational levels (p<0.05). The Bonferroni test findings indicate that individuals with secondary education or lower had inferior aesthetic and functioning scores relative to those possessing master's or doctoral degrees. No substantial variation was seen in the aspects of attitudinal and behavioural brand loyalty (p>0.05).

Significant variations were seen in the areas of aesthetics (p=0.044), utility (p=0.024), product design (p=0.015), and behavioural brand loyalty (p=0.030) when analysing the distribution of participants by their monthly income categories (p<0.05). The aesthetic and product design scores of the low-income group were notably worse than those of the middle-income groups. No notable variation was detected across income groups for attitudinal brand loyalty and symbolic aspects (p>0.05). Analyses performed across all characteristics based on participants' employment did not indicate any statistically significant differences (p>0.05). This outcome suggests that occupation does not significantly influence views of product design and brand loyalty.

Consequently, it was noted that variables such as age, marital status, and occupation were ineffective, however educational status and gender significantly influenced product design and its sub-dimensions. Regarding brand loyalty, it can be evaluated that demographic characteristics often do not produce a substantial difference; nonetheless, there may be variances in some aspects.

Table 12. Hypothesis Acceptance-Rejection Table

Hypothesis Code	Definiton of Hypothesis	Statistical Results
H1	Product design has a positive effect on brand loyalty.	**Accepted**
H1a	The aesthetic aspect of product design has a positive effect on brand loyalty.	**Accepted**
H1b	The functional aspect of product design has a positive effect on attitudinal brand loyalty.	**Accepted**
H1c	The symbolic aspect of product design has a positive effect on attitudinal brand loyalty.	**Accepted**
H2	Product design has a positive effect on behavioural brand loyalty.	**Accepted**
H2a	The aesthetic aspect of product design has a positive effect on behavioural brand loyalty.	**Accepted**
H2b	The functional aspect of product design has a positive effect on behavioural brand loyalty.	**Accepted**
H2c	The symbolic aspect of product design has a positive effect on behavioural brand loyalty.	**Accepted**
H3	Attitudinal brand loyalty has a positive effect on behavioural brand loyalty.	**Accepted**

6. CONCLUSION

This study enhances the literature by analysing the multifaceted effect of product design on brand loyalty using a comprehensive model. In the automobile business, it is crucial to acknowledge that design encompasses not just aesthetic appeal but also functionality and symbolic significance.

A total of 471 participants engaged in the study. Ninety-six percent of the participants, totalling 451 participants, indicated that automotive design is significant, whereas 4.2% asserted that it is not. This finding indicates that design is a significant consideration for the majority of buyers. Design is essential in shaping customer choices, with the majority of participants considering automotive design a key purchase factor. This illustrates the significance of design-centric marketing methods in the

automobile industry. The study's findings indicate a distinct inclination towards luxury brands in customers' automotive choices. Mercedes (16.3%), BMW (15.5%), and Audi (12.7%) are the predominant leaders, together accounting for a total market share of 44.5%. Brand reputation and status symbolism are paramount for Turkish customers. The local automobile TOGG has significant potential.

The study model was evaluated, leading to the conclusion that the characteristics of new product design—specifically aesthetics, functionality, and symbolism—significantly influence the development of attitudinal brand loyalty. This outcome corroborates the findings of prior scientific research (Glasman and Albarracin, 2006; Higgins, 1997). Specifically, with the research conducted by Csikszentmihalyi and Rochberg-Halton (1981), it is observed that products serve not just as functional items but also embody symbolic meanings that represent the identities and values of customers. This circumstance illustrates that the symbolic significance of items is becoming paramount in contemporary consumer behaviour. According to the study conducted by Hsu et al. (2018), the ability of visual design to forge an emotional connection with customers is crucial in establishing brand loyalty. Supporting the findings of Chitturi et al. (2007), it is recognised that functional design aspects foster loyalty by influencing consumers' rational assessments. The research by Dick and Basu (1994) and Chaudhuri and Holbrook (2001) confirms that both emotional and cognitive processes collaborate in the development of attitudinal loyalty. The findings, which align with Oliver's (1997, 1999b) loyalty hierarchy model, demonstrate that certain design characteristics are beneficial at distinct phases of customers' relationships with the brand.

Another result derived from testing the study model is that the characteristics of new product design—specifically aesthetics, functionality, and symbolism—exert a beneficial influence on behavioural brand loyalty. The outcome derived from the model corroborates the findings of scientific investigations in the literature (Creusen and Schoormans, 2005; Bloch, 1995). According to the research conducted by Creusen and Schoormans (2005), beautiful design enhances the perceived value of a product and reinforces customers' intentions for future purchases. Consistent with Bloch's (1995) results, the positive psychological effect of aesthetically pleasing items on customers directly influences purchase behaviour. Consistent with the research of Homburg, Schwemmle and Kuehnl (2015), it is noted that functional design features enhance the product's practical value by augmenting the user experience, hence bolstering consumer loyalty behaviours. Ulrich (2011) underscores that the usability and ergonomic design of items significantly influence consumers' habitual usage patterns. In accordance with Bhat and Reddy's (1998) research, it is recognised that the symbolic significances associated with products significantly influence brand choices. Consistent with the research of Karjalainen and Snelders (2010), the visual identities of brands emerge as a pivotal element in customers' purchase decisions.

The study model concludes that attitudinal brand loyalty positively influences behavioural brand loyalty. This result corroborates the findings of prior investigations in the literature. Consistent with the research of Dick and Basu (1994), genuine brand loyalty is established just when both attitudinal and

behavioural components coexist. In accordance with Oliver's (1999a) loyalty hierarchy model, it is recognised that customers initially cultivate favourable sentiments towards a brand, which subsequently transform into habitual purchase behaviour. In accordance with the results of Chaudhuri and Holbrook (2001), it is noted that brand trust and brand affect significantly influence customers' buy intentions and actual purchasing behaviours. In accordance with Gustafsson's (2005) research, client happiness and emotional commitment are crucial in sustaining long-term customer relationships. In accordance with the brand equity scale established by Yoo and Donthu (2001), attitudinal loyalty is identified as a significant element of brand equity, which favourably influences purchase intentions. The fundamental research by Jacoby and Chestnut (1978) confirms that genuine brand loyalty encompasses not just behavioural repetition but must also be grounded in attitudinal factors. In accordance with Keller's (1993) customer-based brand equity model, it is evident that robust brand associations influence customers' brand preferences and guide their purchasing behaviours.

The study indicated that educational attainment and gender significantly influence product design and its sub-dimensions. This outcome indicates that various demographic groups ascribe distinct values to design features. For instance, it may be asserted that customers with specific educational backgrounds prioritise both aesthetics and functionality to a greater extent.

A holistic evaluation of these results indicates that for brands to thrive in contemporary competitive markets, they must embrace an integrated strategy that transcends mere visual allure or technical functionality, also catering to the psychological and social needs of consumers. Optimising these three elements of design in a balanced manner, particularly in high-involvement purchase processes like automobile, is strategically crucial for fostering brand loyalty. The constraints of this research are financial and temporal. The study is restricted to automotive users alone. The generalisability of the findings may be evaluated by performing analogous experiments across various industries (electronics, fashion, etc.). Furthermore, the factors influencing design perception may be analysed more thoroughly using qualitative methodologies, such as in-depth interviews. This research has demonstrated the essential function of product design in fostering brand loyalty and has provided significant implications for commercial marketing strategy.

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