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Experienced Product Quality and Brand Loyalty: Mediating Role of Customer Satisfaction

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ABSTRACT

The quality experience for a product and service is essential for building customer satisfaction and brand loyalty. The purpose of this study is to investigate the CEPQ scale's reliability and construct validity in addition to the relationship amongst customer satisfaction, experiential quality and brand loyalty for managerial and academic purposes. Within the scope of the research conducted in Turkey, online data is collected from 530 mobile phone and 665 computer users over 18. The research findings provide evidence that sub-dimensions of the CEPQ scale is reliable and valid for mobile phone and computer product groups. When the results of the study are evaluated, it is seen that the product quality experienced in both the computer and mobile phone product groups positively affected customer satisfaction. Customer satisfaction in mobile phone and computer product categories positively affects brand loyalty. Moreover, customer satisfaction plays a mediator role between experienced product quality and brand loyalty.

Keywords: Quality, Experienced Product Quality, Product Quality, Brand Loyalty, Customer Satisfaction.

JEL Classification Codes: M30, M31, M39, L15

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INTRODUCTION

Many factors such as today's marketing opportunities, technological developments, and ease of access to information have escalated the competitive environment between enterprises and made the world a global village. Businesses that aim to make a difference between their competitors by producing quality products have aimed to build customer satisfaction and loyalty in this way. The promotion activities carried out by the enterprises, the brand or product perception that is tried to be created only affect the customer to a certain extent. The customer's reaching a concrete opinion occurs through experiences. In this sense, the expression of experienced product quality includes the product evaluations that emerge after the experiences.

In general terms, experience is a series of complex interactions between a business or product and a customer that are affected by context and are related to the perceptions created by the customer who encounters and experiences the product or brand towards that brand or product. Customer experience, with its low imitability and competitive advantage, has a tremendous place in the marketing world (Gupta, 2016). Product quality is related to the level of compliance of a product with the desired qualities and established standards (Forker, Vickery, & Droge, 1996). Product quality, which covers the total characteristics of products capable of meeting a request or need, can be defined as consistently meeting or exceeding a product's customer requirements and expectations. A quality product has features that can meet the wishes and needs of the customer in exchange for monetary considerations and thus provides customer satisfaction (Chinomona, & Maziriri, 2017).

Despite the general definitions introduced, product quality has also been addressed with various approaches among different branches of science. In economics, product quality has been discussed in terms of profit maximization, whereas in marketing, it has been studied regarding customer satisfaction and purchasing behaviors. On the other hand, engineering researchers have approached product quality in the context of

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production control and standards (Garvin, 1988). The quality standards determined during the product design are selected according to the target markets of the products. In order for businesses to offer their products to consumers in international markets, it is necessary to produce in accordance with the standards set by the authorized institutions in the targeted countries for the products, and this must be documented.

TSE (Turkish Standards Institute) in Turkey, DIN (Deutsches Institut für Normung) in Germany and GOST in Russia can be given as examples of these authorized institutions. Some quality elements that are not defined in these standards can be selected at the design stage in a way that will comply with the customer expectations in the targeted markets and provide the company with a competitive advantage in the market. With the quality control activities carried out within operations, it is ensured that the products comply with the determined quality standards. Quality control activities are generally of an objective nature based on measurement.

On the other hand, consumers' evaluation of quality is mostly subjective. Consumers can have a quality judgment about a brand even they have never used it before. This phenomenon is frequently occurs for brands targeting premium segments. Consumers who are not users of these brands know that they are of high quality. The experienced product quality is, however, the integrated customer assessment of how excellent the product performance is in a particular process, and it includes factors such as service quality, advertising, product packaging, product features, and additional services offered by the company (Gao, Melero-Polo, & Sese, 2019).

From a company perspective, it can be considered that providing a quality product or service is enough to create a quality experience. Nevertheless, because the assessment occurs individually and is related to environmental factors, it is quite challenging to create an excellent quality experience. Therefore, the experienced quality is not based on a single dimension of experience, but on the "total experience" (Kim & Choi, 2013).

The SERVQUAL model, which is used in the context of quality assessment of consumers in service-producing enterprises (Parasuraman et al., 1988), are frequently discussed in studies. According to the model, quality evaluation of the customers have five aspects (concrete characteristics, reliability, enthusiasm, assurance, empathy). However, there is no such widespread use for product quality. Tools used to measure product quality, like ACSI (Fornell et al., 1996), only consider particular quality dimensions. For products, Das Guru and Paulsen (2020) proposed the CEPQ model in order to create a standard scale to be used in the quality assessment of consumers. The CEPQ scale, as a valid and reliable instrument to measure product quality, eliminates this deficiency. The CEPQ model has considered product quality in eight dimensions (performance, additional properties, aesthetics, materials, reliability, durability, serviceability and ease of use) and proposes that no single dimension is solely vital for determining product quality. The goal of this study is managerial and academic: to apply and validate the CEPQ model in Turkey in two product categories (mobile phones and computers) as well as to examine the relationship between brand loyalty, customer satisfaction, and experiential quality. Hypothesis development and research methodology design are presented respectively in the next section. Then, the empirical findings are reported, and the theoretical contributions are discussed.

HYPOTHESIS DEVELOPMENT

Experienced Product Quality and Customer Satisfaction

Although product quality is defined in different ways among quality researchers, it is generally characterized as a multidimensional concept that meets human wants and needs (Lakhal, & Pasin, 2008). The quality standards established during product design are determined according to the markets targeted by the products. In order for enterprises to present their products to large masses, the products must be produced in accordance with the determined quality standards. Because, the relationship between product quality and standards affects customer experiences. The experienced product quality reaches judgments such as good/bad by comparing the customer's experience based on standards of excellence (Yoshida, 2017). These judgements focused on the customer's experience are intended to reflect the opinion the consumer has after interacting with the business.

The concept of satisfaction, an essential component in understanding human behavior, has been investigated with various approaches. It has been defined as an element that triggers post-purchase behaviors in the marketing literature and has been seen as a means of achieving corporate goals (Tse, Lefkoşa, & Wilton, 1990). On the other hand, in some studies, satisfaction is associated with product and performance ratings; thus, a numerical definition of satisfaction is made (Czepiel, & Rosenberg, 1977). Customer satisfaction is a perceptual, evaluative,

and psychological end-state arising from the consumption experience (Pizam, Shapoval, & Ellis, 2016). Customer satisfaction, which provides low failure costs, an improved reputation, and low price sensitivity, offers the business the chance to manage the process more easily in case of any malfunction in the product or service (Anderson, Fornell, & Lehmann, 1994). High customer satisfaction also indirectly refers to company profitability. Especially since it has become clear that new customer acquisition is more costly than retaining an existing customer, customer satisfaction has become a corporate goal for businesses (Chan et al., 2001). In a study conducted with customers using hotel restaurants, it has been found that customer satisfaction is positively impacted by physical quality (Bilhamta et al., 2017). The link between quality and satisfaction, closely related to the expectation/approval paradigm, has been the subject of many studies and has proven that an increase in quality will also increase customer satisfaction (Caruana, Money & Berthon, 1998). In addition, Moraira, Silva and Moutinho (2017) show that perceived quality positively influences customer attitudes and ultimately leads to customer satisfaction. Hypothesis 1 is formed in light of these studies.

H1: The experienced product quality positively affects customer satisfaction.

Experienced Product Quality and Brand Loyalty

Brand loyalty is a mental state that ensures the brand is constantly purchased over time. In this sense, brand loyalty adds value to businesses and causes high profitability (Severi, & Ling, 2013). The importance of brand loyalty in marketing has increased since the 1950s, with the finding that most sales come from loyal customers. Increased loyalty to a brand reduces the elasticity of demand toward price (McConnell, 1968). In addition, brand loyalty affects customers' preferences against the product or brand and creates awareness in terms of purchasing. In this sense, brand loyalty includes the degree of loyalty of businesses and competing companies (Percy, & Rosenbaum-Elliott, 2021).

In a study on fast food goods, Reich et al. (2008) found that quick takeaway, product taste, freshness, and portion size are all related to quality, and that product quality affects brand loyalty almost twice as much as the quality of service. It has been shown that the perception of quality can enable brand loyalty (Malai, & Speece, 2005). In addition, product quality significantly supports brand loyalty (Wang et al. 2013; Chinomona, & Maziriri, 2017). Based on these studies, Hypothesis 2 is developed.

H2: The experienced product quality positively affects brand loyalty.

Customer Satisfaction and Brand Loyalty

When a product fulfills or surpasses a customer's expectations based on prior interactions with the product, the consumer is satisfied. In this sense, customer satisfaction also influences attitudes about whether the product will be preferred in the future or not (Liang et al., 2018). Customer satisfaction arises when a product or brand meets customer expectations (Spreng, & Mackoy, 1996). The loyalty created by customer satisfaction leads to re-purchase and positive word-of-mouth marketing activities to the brand's environment. In addition, customer satisfaction creates both mental and emotional satisfaction. This, in turn, creates a happy and satisfied customer (Yee & Mansori, 2016). However, it should be noted that not every customer who continues regular purchasing activities may feel satisfied with the brand. Customer satisfaction can create loyal customers, but not every loyal customer is a satisfied customer. Being loyal can be based on several factors (Fornell, 1992).

In Bloemer and Ruyter (1998)'s study on store customers, satisfaction is conceptualized in a continuum (latent to manifest). The study shows that customers who show manifest satisfaction visit the store more often and nurture loyalty. Customers who showed latent satisfaction, on the other hand, are only seen to accept the store and do not realize an attitude of loyalty as intense as in manifest satisfaction (Bloemer, & Ruyner, 1998). In this sense, satisfaction significantly affects brand loyalty (Caruana, 2000). Several studies have proven that companies that offer better products and services than their competitors have more loyal customers. That's because customers tend to rely on their past experiences when performing the act of making a purchase (Moreira, Silva, & Mountinho, 2017). Based on these studies, Hypothesis 3 was developed.

H3: Customer satisfaction positively affects brand loyalty.

The Mediating Role of Customer Satisfaction in the Relationship Between Experienced Product Quality and Brand Loyalty

Product quality, which is seen as an expression of superior performance, is the driving force for many strategic goals of a company, such as survival in an intensely competitive environment, providing high profitability, and expanding the market volume. These returns provided by a quality product to the business

Table 1: Demographic Characteristics of Respondents

		Mobile Phone		Computer	
		Frequency	**%**	**Frequency**	**%**
Gender	Female	320	60.4	412	62
	Male	210	39.6	253	38
Education	High School and Below	107	20.2	66	9.9
	College	36	6.8	18	2.7
	Undergradute	243	45.8	344	51.7
	Graduate	144	27.2	237	35.6
Marital Status	Married	173	32.6	148	22.3
	Single	357	67.4	517	77.7
Monthly Income	Below one minimum wage	89	16.8	142	21.4
	1 to 2 minimum wage	150	28.3	251	37.7
	2 to 3 minimum wage	140	26.4	168	25.3
	4 minimum wage or above	151	28.5	104	15.6
Product usage time in years	1	177	33.4	123	18.5
	2	122	23.0	84	12.6
	3	99	18.7	72	10.8
	4	60	11.3	82	12.3
	5 and above	72	13.6	304	45.7
Fee Paid for the Product	0-1000 TL / 0-2000 TL	27	5.1	144	21.7
	1001-2000 TL / 2001-4000 TL	148	27.9	270	40.6
	2001-3000 TL / 4001-6000 TL	149	28.1	134	20.2
	3001-4000 TL / 6001-8000 TL	78	14.7	70	10.5
	4001-5000 TL / 8001-10000 TL	52	9.8	23	3.5
	5001-6000 TL / 10001-12000 TL	19	3.6	9	1.4
	6001 TL and above / 12001 TL and above	57	10.8	15	2.3
Mobile Phone Brands	Samsung	172	32.5		
	Apple	198	37.4		
	Huawei	60	11.3		
	Xiaomi	62	11.7		
	Oppo	6	1.1		
	General Mobile	7	1.3		
	LG	6	1.1		
	Other	19	3.6		
Computer Brands	Casper			47	7
	Toshiba			37	5.5
	HP			108	16.2
	Apple			40	6
	Lenovo			137	20.5
	Dell			47	7
	Asus			107	16
	Acer			43	6.4
	Samsung			23	3.4
	Huawei			9	1.3
	Xiaomi			3	0.4
	MSI			7	1
	Monster			6	0.9
	Other			51	8.4

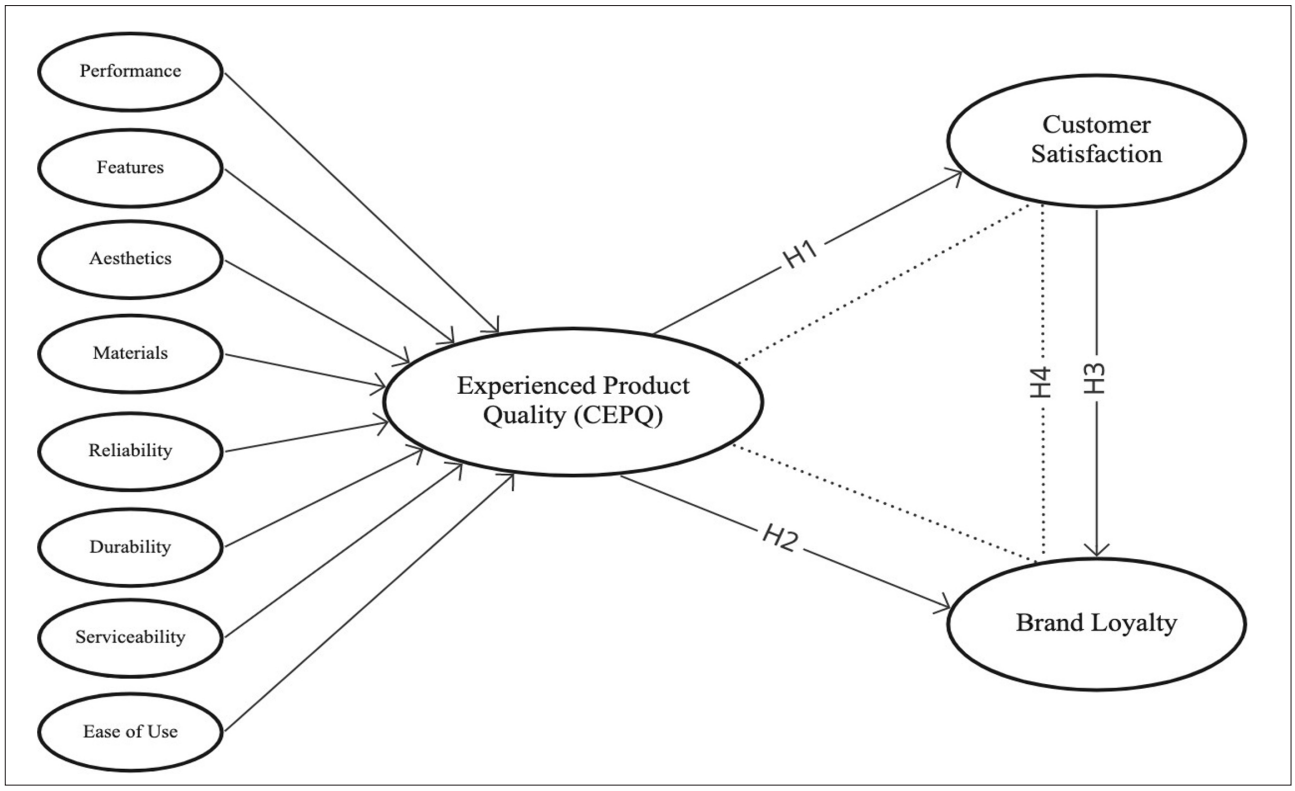

Figure 1: Proposed Conceptual Model

create customer satisfaction and ensure brand loyalty. This has made product quality studies vital for both academics and company managers. The relationship between experienced product quality and brand loyalty is not always direct.

The ACSI model does not specify a direct link between customer loyalty and quality. In contrast, the direct impact of customer satisfaction on brand loyalty is emphasized. In the ACSI model, perceived quality has an impact on customer satisfaction (Fornell et al., 1996). Therefore, the evaluation of the mediating function of customer satisfaction in the link between experienced quality and brand loyalty is included in the scope of this study. Based on the literature, Hypothesis 4 is developed.

H4: Customer satisfaction has a mediating role in the relationship between the quality of the product experienced and brand loyalty.

Figure 1 summarizes the hypotheses regarding the research and illustrates the research model.

METHOD

Sample

Sample of the study consists of mobile phone and computer users in Turkey. A cross-sectional research design is used to evaluate research hypotheses and accomplish the study objectives. Due to the COVID-19 pandemic, data is gathered via online surveys. Only respondents over the age of 18 are allowed to complete the survey questions. Therefore, a convenience sampling approach is adopted in the study. Data is collected from 530 mobile phone users from 12.2020 to 02.2021 and 665 computer users from 03.2021 to 05.2021. According to the data results, the mean age of mobile phone users is 29.08, and the standard deviation is 8.05. On the other hand, the mean age of computer users is 27.94, and the standard deviation is 5.90. Table 1 provides the demographic properties of the participants.

Procedure

The instrument utilized for the study includes sections called "personal information form" "experienced product quality scale", "brand loyalty scale", and "customer satisfaction scale". The survey questions (given in Appendix) are translated into Turkish by marketing academics fluent in English and Turkish. This study uses the CEPQ scale (Das Guru, & Paulssen, 2020) for experienced product quality. In case of any item deletion after reliability and validity examination, two more scale items adapted from Delgado-Ballester (2004) and Bruhn et al. (2012) are added to the reliability dimension of the CEPQ scale. In order to measure brand loyalty, scale items are borrowed from Bashirov (2019). Items adopted from Magi's (2003) and Reichheld's (2003) studies are

Table 2: Exploratory Factor Analyses Results

		Factor Loadings		Communalities		Variance Explained %	
Factors	**Items**	**MP***	**C****	**MP**	**C**	**MP**	**C**
Durability	Dur1	0.81	0.80	0.84	0.87	7.75	7.22
	Dur2	0.82	0.81	0.84	0.89		
	Dur3	0.77	0.65	0.79	0.81		
Aesthetics	Aes1	0.82	0.85	0.90	0.90	7.98	8.25
	Aes2	0.81	0.82	0.91	0.90		
	Aes3	0.82	0.84	0.89	0.90		
Reliability	Rel1	0.95	0.93	0.91	0.90	7.47	8.16
	Rel2	0.93	0.94	0.87	0.92		
	Rel3	0.90	0.91	0.85	0.88		
Ease of Use	Eas1	0.73	0.69	0.82	0.82	7.49	7.68
	Eas2	0.82	0.83	0.90	0.92		
	Eas3	0.77	0.78	0.87	0.89		
Materials	Mat1	0.78	0.79	0.91	0.92	7.47	7.44
	Mat2	0.79	0.82	0.93	0.94		
	Mat3	0.75	0.71	0.89	0.88		
Serviceability	Ser1	0.85	0.88	0.92	0.92	8.16	8.61
	Ser2	0.88	0.89	0.94	0.94		
	Ser3	0.85	0.89	0.92	0.93		
Features	Fea1	0.75	0.74	0.85	0.87	7.40	7.20
	Fea2	0.77	0.76	0.88	0.91		
	Fea3	0.74	0.75	0.83	0.85		
Performance	Per1	0.64	0.65	0.86	0.88	7.38	4.90
	Per2	0.66	0.64	0.89	0.88		
	Per3	0.58	0.61	0.83	0.84		
Customer Loyalty	Loy1	0.82	0.83	0.76	0.79	18.73	18.91
	Loy2	0.84	0.84	0.76	0.81		
	Loy3	0.84	0.82	0.75	0.73		
	Loy4	0.85	0.79	0.85	0.81		
	Loy5	0.85	0.83	0.79	0.80		
	Loy6	0.78	0.77	0.80	0.81		
	Loy7	0.80	0.81	0.76	0.79		
	Loy8	0.71	0.64	0.76	0.74		
Customer Satisfaction	Sat1	0.69	0.70	0.87	0.88	8.02	7.81
	Sat2	0.75	0.68	0.86	0.84		
	Sat3	0.73	0.66	0.83	0.80		
	Sat4	0.69	0.66	0.86	0.87		

*: Mobile Phone

**: Computer

used for customer satisfaction measurement. The CEPQ and brand loyalty scales consists of respectively 33 and 8 questions of 5-point Likert-type. The first 3 questions of the customer satisfaction scale are 7-point semantic differential scale while the subsequent 4 questions are 11-point. The questionnaire also includes questions about the demographic variables of the participants.

Table 3: Confirmatory Factor Analysis Results

		Factor Loadings		AVE		Cronbach's Alpha		CR (rho_a)	
Factors	Items	MP*	C**	MP	C	MP	C	MP	C
Durability	Dur1	0.909	0.922	0.815	0.831	0.886	0.899	0.886	0.901
	Dur2	0.918	0.916						
	Dur3	0.882	0.897						
Aesthetics	Aes1	0.948	0.944	0.901	0.897	0.945	0.943	0.945	0.944
	Aes2	0.955	0.952						
	Aes3	0.945	0.946						
Reliability	Rel1	0.941	0.946	0.861	0.897	0.927	0.925	0.949	0.945
	Rel2	0.883	0.954						
	Rel3	0.957	0.942						
Ease of Use	Eas1	0.898	0.909	0.853	0.867	0.913	0.923	0.913	0.923
	Eas2	0.945	0.943						
	Eas3	0.926	0.942						
Materials	Mat1	0.955	0.959	0.913	0.914	0.952	0.953	0.953	0.954
	Mat2	0.965	0.966						
	Mat3	0.946	0.944						
Serviceability	Ser1	0.960	0.959	0.924	0.929	0.959	0.962	0.959	0.962
	Ser2	0.963	0.968						
	Ser3	0.961	0.966						
Features	Fea1	0.921	0.939	0.851	0.877	0.912	0.930	0.912	0.932
	Fea2	0.943	0.953						
	Fea3	0.903	0.917						
Performance	Per1	0.933	0.935	0.872	0.870	0.927	0.925	0.927	0.925
	Per2	0.946	0.940						
	Per3	0.923	0.923						
Customer Loyalty	Loy1	0.854	0.860	0.748	0.750	0.952	0.952	0.960	0.957
	Loy2	0.846	0.856						
	Loy3	0.795	0.790						
	Loy4	0.923	0.905						
	Loy5	0.854	0.886						
	Loy6	0.903	0.905						
	Loy7	0.877	0.884						
	Loy8	0.862	0.837						
Customer Satisfaction	Sat1	0.933	0.940	0.843	0.849	0.938	0.941	0.941	0.942
	Sat2	0.924	0.918						
	Sat3	0.884	0.891						
	Sat4	0.931	0.936						

Findings

Exploratory Factor Analysis

During the analysis phase, two exploratory factor analyses with SPSS are applied to the data collected from both computer and mobile phone users. Thus, the eight quality dimensions that make up the CEPQ scale developed by Das Guru and Paulssen (2020) and two related constructs (customer satisfaction and brand loyalty) are evaluated in terms of construct validity.

KMO and Bartlett tests are first used to assess whether the data are appropriate for exploratory factor analysis. According to the results of Bartlett's Test of Sphericity, the data fit into the multiple normal distribution for both computer (approx. Chi-Square= 26443.065; df= 630; sig= 0.000) and mobile phone (approx. Chi-square= 20076.460; df= 630; sig= 0.000) data. Results of the Kaiser-Meyer-Olkin (KMO) test indicate adequate sample size for both computer (KMO = 0.953) and mobile phone (KMO = 0.947) data. Thus, it is concluded that exploratory factor analysis could be performed on both data groups. Since the number of scale factors is determined in the study, Varimax and Principle Component methods are applied to the analyzes performed with Fixed Factors. When the analyses are carried out according to the Eigen value, 8 factors emerge. However, since it is known that the scale consists of 10 constructs the analysis are run with the Fix Factors option. In Table 2, exploratory factor analyses results are provided.

When exploratory factor analyses results for both product groups are evaluated, the factor loadings of the scale items range from 0.58 to 0.95 and are above the minimum suggested threshold of 0.5 (Hair et al, 2014). The smallest communality value is 0.73. With the ten-factor structure, the total variance is explained for mobile phone data is 85.32, while for computer data is 86.16%. Results indicate that the scale items are collected under the related factors for both data groups. Therefore, the exploratory factor analyses conducted on the data of mobile phone and computer users provide evidence that measures of the study have adequate construct validity.

Assessing Reliability and Validity of Measures with PLS-SEM

PLS-SEM approach enables researchers to examine various types of research instruments in terms of reliability and validity. Moreover, more complex research models containing higher-order constructs have been tested with PLS-SEM approach by marketing scholars with various methods. Sarstedt et al. (2019) provide a comprehensive review regarding such approaches and models. The CEPQ, can be classified as a reflective-formative (type II) model. In order to assess the research model the embedded two-stage approach is used.

In line with the embedded two-stage approach, in the first stage validity and reliability of the first order reflective constructs are evaluated. Moreover, for using in the second stage, latent construct scores are saved (Sarstedt et al., 2019). In the second stage, by using first-order scores as formative indicators, validity of the formative construct is assessed.

For the scales in the study, confirmatory factor analysis is run using SmartPLS 4 (PLS Algorithm) after conducting exploratory factor analysis. Since the CEPQ scale has a second-order formative structure, the variance-based structural equation modelling approach is adopted. Two confirmatory factor analyses are performed with PLS algorithm using data obtained from mobile phone users (n=530) and computer users (n=665).

For computer and mobile phone products, it can be shown in Table 3 that the factor loadings of the scale items are at least 0.79. Besides, as a result of 5000 units of bootstrapping, all factor loadings are found to be statistically significant (p<0.001).

Table 4: Correlations among Constructs for Computer / Mobile Phone Data

	1	2	3	4	5	6	7	8	9	10
Aes.(1)	**.95/.95**									
Dur.(2)	.43/.52	**.91/.90**								
Eas.(3)	.57/.60	.63/.55	**.93/.92**							
Fea.(4)	.61/.59	.56/.46	.63/.60	**.94/.92**						
Cus.(5)	.47/.45	.52/.32	.47/.44	.56/.48	**.87/.87**					
Mat.(6)	.51/.51	.68/63	.57/.60	.58/.61	.58/.46	**.96/.96**				
Per.(7)	.57/.61	.69/.60	.71/.68	.70/.70	.58/.52	.67/.71	**.93/.93**			
Rel.(8)	-.22/-.11	-.28/-.21	-.26/-.11	-.17/-.01	-.21/-.02	-.27/-.12	-.33/-.18	**.95/.95**		
Sat.(9)	.57/.59	.57/.49	.57/.56	.63/.59	.73/.69	.61/.55	.69/.66	-.34/-.11	**.92/.92**	
Ser.(10)	.43/.43	.44/.41	.47/.47	.50/.51	.42/.46	.46/.55	.51/.53	-.10/.05	.49/.48	**.96/.96**

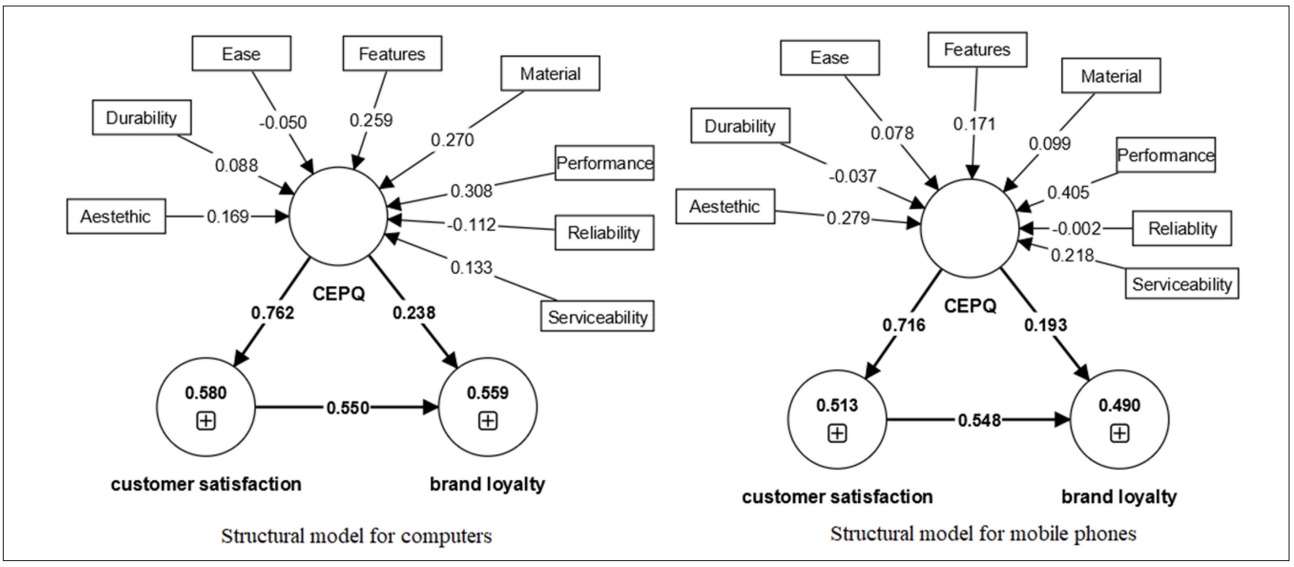

Figure 2: Structural Models for Computer and Mobile Phone Data Sets

For mobile phone and computer data, the CEPQ scale and other research instruments show good Cronbach's alpha and composite reliability. Moreover, two confirmatory factor analyses indicate AVE values greater than 0.5 threshold (Hair et al., 2021) for all dimensions of the CEPQ and other research measures. As a result, scales used in the study show an acceptable convergent validity in two product categories.

The square root of AVE values and intercorrelations among constructs are given in Table 4. It is seen that all square roots of the AVEs (given in bold) are higher than correlation values between constructs. Therefore, according to the Fornell-Larcker criterion (Hair et al., 2021), it could be concluded that measures of the study shows good discriminant validity for both mobile phone and computer data sets.

Another criterion for evaluating discriminant validity between two constructs is heterotrait-monotrait ratio (HTMT). In Table 5, HTMT matrix is given for both computer and mobile phone data sets. It can be seen that all HTMT ratios are below the threshold (0.90) (Hair et al., 2021). As a result, an adequate discriminant validity between constructs is proved.

In the second step of the embedded two stage approach, validity of the second order construct is evaluated. Duarte and Amaro (2018) summarize types of validity criteria for reflective-formative second-order constructs. Formative indicator weights should be statistically significant and above 0.1. Variance inflator factor (VIF) values of formative indicators should be below 0.5. Correlations between second-order construct and other constructs are suggested to be less than 0.7 to show an adequate discriminant validity. For nomological validity, there should be a significant relationship between the second-order construct and other related constructs.

Table5: Heterotrait-monotrait Ratio Matrix for Computer/Mobile Phone Data

	1	2	3	4	5	6	7	8	9
Aes.(1)									
Dur.(2)	.46/.57								
Eas.(3)	.61/.64	.69/.61							
Fea.(4)	.65/.64	.61/.52	.68/.65						
Cus.(5)	.49/.46	.55/.34	.49/.46	.59/.51					
Mat.(6)	.53/.54	.73/.69	.61/.64	.61/.65	.60/.47				
Per.(7)	.61/.65	.76/.66	.76/.74	.76/.76	.61/.54	.71/.75			
Rel.(8)	.23/.10	.30/.21	.28/.10	.18/.04	.21/.05	.28/.11	.35/.17		
Sat.(9)	.60/.62	.61/.53	.61/.60	.68/.64	.77/.72	.64/.59	.74/.71	.36/.10	
Ser.(10)	.45/.45	.47/.45	.49/.50	.53/.55	.44/.48	.48/.57	.54/.56	.10/.07	.51/.50

Table 6: Weights and VIF of the First-order Constructs

Construct level		Computer				Mobile Phone			
Second-order construct	First-order construct	Weight	*t*	*p*	VIF	Weight	*t*	*p*	VIF
CEPQ	**Aesthetic**	0.169	3.650	0.000	1.853	0.279	4.196	0.000	1.948
	Durability	0.088	1.595	0.111	2.434	-0.037	0.615	0.539	1.963
	Ease of use	-0.050	0.819	0.413	2.434	0.078	1.186	0.236	2.224
	Features	0.259	4.868	0.000	2.462	0.171	2.298	0.022	2.372
	Material	0.270	5.184	0.000	2.278	0.099	1.429	0.153	2.557
	Performance	0.308	4.631	0.000	3.299	0.405	4.646	0.000	3.196
	Reliability	-0.112	2.803	0.005	1.157	-0.002	0.050	0.960	1.114
	Serviceability	0.133	2.993	0.003	1.494	0.218	3.092	0.002	1.629

Figure 2 illustrates structural models run with the embedded two-stage approach. As mentioned previously, latent variable scores obtained in the first stage are used as second-order construct indicators in the second stage. Therefore, scores for sub-dimensions of the CEPQ scale are saved and analyses are run with such scores as indicators of the CEPQ by using SmartPLS 4 software.

In Table 6, results regarding weights and VIF values of the first-order constructs are given. In the computer data set, apart from ease of use and durability dimensions, all constructs have shown to play significant role in the consumers experienced product quality. Significant weights in the computer model are all above 0.1. In addition, VIF values of the first-order constructs are lower than 5. In computer products, quality experience regarding the performance, features and materials are found to be the most important quality facets. It should be noted that, the reliability measure of the study is about propensity to be a product causes problems. Therefore, increase in the reliability score means the customer experiences more problems with the product. For this reason, weight score of the reliability dimension is negative.

With respect to mobile phones, only four significant dimensions of the CEPQ scale play an important role on consumer quality experience. Weights of aesthetics, performance, features and serviceability dimensions are above 0.1 and shown to be statistically significant. On the other hand, VIF values of the first-order constructs are shown to be in the limits. Performance is by far the most important quality dimension for the mobile phone users.

Results indicate that, ease of use and durability dimensions of the CEPQ scale do not provide sufficient validity for both mobile phone and computer product groups. On the other hand, four dimensions (aesthetic, features, performance and serviceability) of the CEPQ scale remain valid for both product groups.

With regard to computer data, the CEPQ correlates positively with brand loyalty (0.65) and customer satisfaction (0.75). The discrimination between customer satisfaction and the CEPQ is to some extent weak, due to correlation coefficient over 0.71. On the other hand, the CEPQ discriminates well with the brand loyalty construct. As for mobile phone data, the CEPQ show a good discriminant validity. The CEPQ's correlation coefficient between brand loyalty is 0.58, while 0.70 with the customer satisfaction. Overall, the discriminant validity of the CEPQ is acceptable.

Table 7 provides evidence that the CEPQ construct is related with customer satisfaction and brand loyalty. Bootstrap with 5000 samples indicate significant path coefficient in the proposed research model. Therefore, H1, H2 and H3 hypotheses are accepted for both computer and mobile phone data. For mobile phone data set, effect size (f-square) of the CEPQ on customer satisfaction is high (1.052). On the other hand, CEPQ has relatively small effect (0.036) on brand loyalty. Akin to mobile phones, in

Table 7: Nomological Validity and Hypothesis Test Results

	Computer			Mobile phone		
Hypotheses and Paths	Path coefficient	*t*	*p*	Path coefficient	*t*	*p*
H1:CEPQ -> customer satisfaction	0.756	38.527	0.000	0.712	23.757	0.000
H2:CEPQ -> brand loyalty	0.239	4.818	0.000	0.168	2.736	0.006
H3:customer satisfaction -> brand loyalty	0.551	11.072	0.000	0.567	9.518	0.000

Table 8: Means of the Scales for Mobile Phone Brands

	Aes	Dur	Eas	Fea	Mat	Per	Rel	Ser	Cus	Sat
Samsung	10.49	10.34	12.00	10.35	10.44	11.01	7.08	9.63	24.50	15.07
Apple	12.57	11.49	12.89	12.04	12.32	12.67	7.40	11.89	30.93	17.66
Huawei	11.13	11.15	12.42	9.92	11.25	11.62	7.55	10.17	23.12	15.68
Xiaomi	12.23	11.89	12.61	11.87	11.84	12.74	6.27	9.77	23.53	16.58
Oppo	11.50	11.50	11.33	11.17	10.33	10.83	7.50	9.00	25.00	17.33
General Mobile	10.57	9.43	11.86	9.29	11.14	10.71	7.57	9.00	16.43	13.29
LG	9.67	9.00	10.00	9.17	10.17	9.67	10.67	10.33	23.00	11.00
Other	10.67	11.67	12.44	11.06	12.33	11.94	6.83	10.83	23.17	15.06

computer data set the CEPQ has a strong effect (f-square= 1.381) on customer satisfaction, whereas it has small effect size (f-square= 0.054) on brand loyalty. Customer satisfaction moderately effects brand loyalty in both computer (f-square= 0.288) and mobile phone (f-square= 0.287) groups. Therefore, it could be concluded that the CEPQ has an acceptable level of nomological validity.

The effect on the CEPQ on brand loyalty is weak due to mediating role of customer satisfaction. In order to test mediation, two bootstrap analyses are performed with 5000 samples. The CEPQ has significant indirect effect on brand loyalty through customer satisfaction for both computer (**β**=0.419, *t*=9.837, *p*<0.001) and mobile phone (**β**=0.393, *t*=8.262, *p*<0.001) data. In addition in Table 7, the CEPQ has been shown to have a positive direct effect on brand loyalty. Considering Hair et al. (2021)'s procedure, a complementary (partial) mediation role of customer satisfaction is shown for both computer and mobile phone data. As a result, H4 hypothesis is accepted for both product groups.

Comparisons of Mobile Phone Brands

This section compares mobile phone brands in terms of CEPQ scale dimensions, customer satisfaction, and brand loyalty**.** In this sense, the averages of scales for brands are given in Table 8.

One-way ANOVA results show that mobile phone brands differ significantly (*p*<0.05) regarding the ten constructs. In this study Apple, Samsung, Huawei and Xiaomi have the greatest market share. According to Table 8, it can be said that on the whole, Apple users have experienced a high level of quality, been satisfied with the brand and are loyal to it. Post-hoc tests (Tukey and Dunnett T3) reveal that Apple provide more quality experience than Samsung in each CEPQ dimensions. Moreover, Xiaomi significantly (*p*<0.001) outperforms Samsung in terms of durability, aesthetics, ease of use, features, materials, and performance quality dimensions.

Comparisons of Computer Brands

In this section, averages of CEPQ scale dimensions, customer satisfaction and loyalty scores are given in Table 9. Participants in the computer market mostly use Lenovo, HP and Asus brands. In order to compare brands across the industry one-way ANOVA is carried out. Results show that, in terms of the ten constructs, brands are found to be statistically different (*p*<0,05). As in the mobile phones, it can be said that Apple provides its users a good level of quality experience. Post-hoc tests (Tukey and DunnettT3) indicate that Apple dominates most of the major brands (Lenovo, HP, Asus), especially in terms of aesthetics, durability, features, materials, performance and serviceability dimensions of product quality. Besides, results of the post-hoc tests show that Apple customers are significantly more satisfied and loyal than Lenovo, HP and Asus customers in the study.

CONCLUSIONS AND SUGGESTIONS

The concept of experienced product quality is founded on the idea that a consumer evaluates a product's quality based on his or her personal interactions with it. It is important to stress that the customer interprets the product through their experiences with the product. The term "quality" is typically used to refer to "perceived quality" in modern marketing literature, however, ''experienced product quality" also should be addressed as a key concept based on the fact that the consumer experiences the product to reach a more concrete and realistic interpretation of the quality. Moreover, the concept of experienced product quality focuses on how well the experience between the consumer and the product meets the expectations.

Table 9: Means of the Scales for Computer Brands

	Aes.	Dur.	Eas.	Fea.	Mat.	Per.	Rel.	Ser.	Cus.	Sat.
Casper	10.03	10.18	10.86	8.85	8.85	10.41	8.09	9.06	18.35	13.06
Toshiba	10.51	10.70	10.92	9.51	9.51	10.65	7.76	9.89	20.95	13.78
HP	11.06	10.67	11.66	10.16	10.16	11.25	7.46	10.02	23.46	14.73
Apple	13.38	12.40	12.63	12.50	12.50	12.98	6.68	12.60	31.40	17.43
Lenovo	10.87	11.02	11.84	10.25	10.25	11.32	7.26	10.15	24.01	14.93
Dell	10.40	11.40	11.85	9.57	9.57	11.17	7.11	9.34	23.06	14.62
Asus	10.97	11.04	11.66	10.41	10.41	11.26	7.18	10.29	24.03	15.30
Acer	9.95	10.72	11.30	9.28	9.28	10.49	8.12	9.44	17.56	13.30
Samsung	9.91	9.74	10.30	8.70	8.70	10.26	7.83	9.61	22.61	14.70
Huawei	13.22	13.67	13.89	11.89	11.89	13.89	4.11	11.78	26.78	17.11
Xiaomi	12.00	10.00	10.67	10.67	10.67	12.00	6.33	8.33	24.67	14.67
MSI	12.57	11.86	13.00	11.86	11.86	13.00	6.86	9.14	28.71	16.86
Monster	13.17	13.33	13.83	13.00	13.00	13.17	9.33	12.67	29.67	17.17
Other	10.24	10.91	10.91	10.00	10.00	10.91	7.59	9.09	21.76	13.09

The purpose of this study is to assess how experienced product quality affects consumer satisfaction and brand loyalty. In this sense, this study aims to adapt the CEPQ scale into Turkish literature and assess its reliability and validity. Also, scale's associations with brand loyalty and consumer happiness are examined. With the research carried out in two different product groups, it is seen that the sub-dimensions of CEPQ scale has good validity and reliability in different product groups. In addition to that, a comparison of these two product groups is made within the study. The research is the first study in Turkey to bring the experienced product quality scale to the Turkish literature and measure the relationship between experienced product quality and customer satisfaction and brand loyalty.

Many studies have addressed the impact of the quality experience for a product, service or brand on customer satisfaction and loyalty attitude. For example, Reich et al. (2008) have shown that quality positively affects brand loyalty. Furthermore, the work of Iacobucci, Ostrom and Grayson (1995), reveals that customer satisfaction and quality are directly related. In addition to these studies, it is seen that a customer who experiences high quality about the product tends to be satisfied with it and develop loyalty towards the brand.

The research also examines the relationship between customer satisfaction and brand loyalty to test the nomological validity of the CEPQ scale. In this context, it is seen that the experienced product quality is nomologically valid in mobile phone and computer product groups as in other studies.

The study is carried out with survey questions directed to a total of 1195 participants, including 530 mobile phone and 665 computer users. In the first phase, the study collected data from customers over the age of 18 who were already using mobile phones. In the next stage of the research, the survey questions were directed to computer users over the age of 18. The data are obtained by using the convenience sampling method via online.

The results show that the experienced product quality affects customer satisfaction. Based on these results, it can be concluded that if the quality dimensions of the brand reach or exceed the expected quality, the consumer will be satisfied with this brand. Similar results are obtained in both product groups. From this point of view, the H1 hypothesis is accepted. Similarly, according to the results, the higher the product quality experience, the higher the customer satisfaction. Therefore, the H2 hypothesis is accepted. In addition, findings showed that customer satisfaction positively affects brand loyalty which indicates a customer who is satisfied with a brand can become loyal to the same brand. In this regard, the H3 hypothesis is accepted. The association between experienced product quality and brand loyalty has also been shown to be mediated by consumer satisfaction. Therefore, it is concluded that the H4

hypothesis is accepted. Results of the study show that providing customers a good quality experience leads to satisfied and loyal customers. Quality experience is shown to have both direct and indirect effect on brand loyalty.

The CEPQ scale has been questioned in terms of reliability and validity in two product categories. Overall, results of the study prove that the CEPQ scale is a reliable measure for experienced quality. In addition, the CEPQ scale is shown to be a satisfactorily valid tool for quality assessments. The sub-dimensions of CEPQ scale shows good convergent, discriminant and nomological validity for both cell phone and computer products. On the other hand, at the second-order level validity of sub-dimensions of the CEPQ varies across two industries. Four quality dimensions (aesthetic, features, performance and serviceability) are found to be valid for both product groups. Ease of use and durability dimensions, however, are shown to be insignificant for both groups. At the second-order level, the CEPQ is proven to have a reasonable level of nomological and discriminant validity.

When the findings are examined, the quality dimensions of performance, features and materials are found more significant than other dimensions for the computer product group. In the mobile phone product group, aesthetics, performance and serviceability dimensions are shown to be more important than other dimensions. Particularly the performance is the most essential dimension influencing the level of experienced quality for both computer and mobile phone product groups.

The CEPQ scale provides important managerial insights by enabling brand comparisons with competitors in terms of relevant quality factors. The CEPQ scale reveals the sufficiencies and deficiencies of brand quality, allowing enterprises to compare their brand quality with their competitors. The eight dimensions in the scale can be considered separately, which allows enterprises to reveal in which quality dimensions their product is deficient while evaluating the quality of their products. Thus, it can be argued that the CEPQ scale can guide enterprises to identify and remedy the deficiencies in brand quality. Therefore, improvements in weak quality dimensions result in a competitive advantage for the company.

In this study, in addition to the evaluating important dimensions above, brand-based comparisons are made in mobile phone and computer product groups. Results indicate that the Apple brand provides a high quality experience to customers, has a good customer satisfaction and brand loyalty in both the mobile phone and computer product groups. According to Mao et al. (2020), Apple, which has a strong brand personality, has achieved a large part of its market volume with the brand image. Yıldız (2014) shows that Apple brand mobile phone users take into account their satisfaction levels consisting of their past experiences when evaluating the product. On the other hand, Samsung users are influenced by marketing practices such as promotions, discount coupons, etc. Also, on the whole, it is seen that Xiaomi mobile phone users experience better quality than the Samsung users.

In line with the results obtained in this study, the following concrete recommendations can be made for enterprises that produce and sell in mobile phone and computer product groups:

- Providing customers with a good performance experience seems vital to improving customer satisfaction and brand loyalty for both mobile phone and computer brands.
- In addition to functionality, the aesthetic elements of the products have an impact on the quality experience for the customers of computers and mobile phones. Computer and mobile phone brands may alter product design to increase customer satisfaction and brand loyalty.
- Businesses that produce mobile phones and computers are advised to avoid attitudes that negatively affect customer satisfaction, such as selling defective products, deceptive advertisements and high service charges.
- Superiority over rivals in after-sales customer service increases the quality of the customer experience even though it is not a tangible component of the product. Therefore, both computer and mobile phone brands could take into account serviceability facet of the CEPQ to develop better customer satisfaction and loyalty.
- It is advised that brands and companies, which are judged to be of low quality, particularly by the customer, take steps to boost customer satisfaction and loyalty by placing a premium

on quality, having a trained and polite employee structure, and offering simple return, free repair, and one-to-one replacement options in the event of failure.

- For both PC and mobile phone brands, frequently monitoring the CEPQ dimensions may reveal fresh product ideas or enhancements.

Due to the convenience sampling procedure, the study's findings are limited to its sample. In addition, in this study the CEPQ scale is applied in mobile phone and computer products. Its reliability and validity is limited to two product categories. Further studies could apply the CEPQ scale in various contexts and provide more insights into its reliability and validity.

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APPENDIX: EXPERIENCED PRODUCT QUALITY SCALE

Lütfen aşağıdaki soruları yanıtlayarak diğer cep telefonları/bilgisayarlar ile karşılaştırıldığında, mevcut ürününüzün boyutlarını nasıl değerlendireceğinizi belirtin.

ESTETİK	Çok Yetersiz	Yetersiz	Ortalama	Yeterli	Çok Yeterli
Ürünümün tasarımının çekiciliği					
Ürünümün genel albenisi					
Ürünümün görünümü ve hissi					
DAYANIKLILIK	Çok Kısa	Kısa	Ortalama	Uzun	Çok Uzun
Ürünümün herhangi bir büyük kusur olmadan çalıştığı/ çalışacağı zaman aralığı					
Ürünümün ömrü					
Ürünümün yoğun kullanımda bile mükemmel bir şekilde çalıştığı/çalışacağı süre					
KULLANIM KOLAYLIĞI	Çok Yetersiz	Yetersiz	Ortalama	Yeterli	Çok Yeterli
Ürünümün sunduğu çeşitli işlevlerle kullanıcı deneyimim					
Ürünümün kullanım kolaylığı					
Ürünümün kullanılabilirliği					
ÖZELLİKLER	Çok Yetersiz	Yetersiz	Ortalama	Yeterli	Çok Yeterli
Ürünümün sunduğu ek özelliklerin sayısı					
Ürünüm tarafından sunulan ek özelliklerin yenilikçiliği					
Ürünümün ekstra özelliklerinden duyduğum heyecan					
MALZEMELER	Çok Yetersiz	Yetersiz	Ortalama	Yeterli	Çok Yeterli
Ürünümde kullanılan malzemelerin dayanıklılığı					
Ürünümde kullanılan malzemelerin sağlamlığı					
Ürünümde kullanılan malzemelerin standardı					
PERFORMANS	Çok Yetersiz	Yetersiz	Ortalama	Yeterli	Çok Yeterli
Ürünümün genel performansı					
Ürünümün istikrarlı çalışması					
Ürününüz temel işlevlerini ne kadar iyi yerine getiriyor?					
GÜVENİLİRLİK	Çok Düşük	Düşük	Ortalama	Yüksek	Çok Yüksek
Ürünümün kusur/aksaklıklarının sıklığı					
Ürünümün kusurlarının/aksaklıklarının ciddiyeti					
Ürünümün hata veya arıza olasılığı					
SERVİS KOLAYLIĞI	Çok Yetersiz	Yetersiz	Ortalama	Yeterli	Çok Yeterli
Ürünümün müşteri hizmetleri personelinin yetkinliği					
Ürünümün müşteri hizmetleri personelinin hızlı çözüm bulabilmesi					
Ürünümün müşteri hizmetlerinin sorunlarıma tepki verme sürati					