

CLASSIFYING CUSTOMER HANDCRAFT JEWELLERY REQUIREMENTS AND DETERMINING SATISFACTION LEVELS USING THE KANO MODEL: A CASE STUDY OF OLTU STONE (JET STONE)*

EL YAPIMI TAKI GEREKSİNİMLERİNİN KANO MODELİ İLE SINIFLANDIRILMASI VE TATMİN DÜZEYLERİNİN BELİRLENMESİ: OLTU TAŞI ÖRNEĞİ*

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Abstract

Manufacturers face a constant challenge of determining how to satisfy customers, and customer satisfaction largely determines customers' willingness to buy the products. The principal way to succeed in the market is to understand customer needs and design and develop products that meet customer expectations. To accomplish this, analysis of customer needs, expectations and requirements should be conducted. Despite efforts in the handcraft sector, many products still fail to live up to customers' expectations. When such products are brought into the market, resources are wasted. It is essential to thoroughly analyse consumer needs and form designs accordingly to prevent such failure. The aim of this study was to classify consumer requirements for handcrafted jewellery and determine how much craftsmen products satisfy them. The Kano classification was grouped under three categories: exciting, expected and indifferent. In all the analyses, handcrafts were categorised under existing requirements, such as exclusive design and nature-inspired craft.

Keywords: Handcraft Jewellery, Kano Model, Customer Satisfaction

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Öz

Üreticiler, müşterileri nasıl tatmin edeceklerini belirleme konusunda sürekli bir zorlukla karşı karşıyadır ve müşteri memnuniyeti, müşterilerin ürünleri satın alma istekliliğini büyük ölçüde belirler. Pazarda başarılı olmanın başlıca yolu, müşteri ihtiyaçlarını anlamak, müşteri beklentilerini karşılayan ürünler tasarlamak ve geliştirmektir. Bunu başarmak için müşteri ihtiyaç, beklenti ve gereksinimlerinin analizi yapılmalıdır. El sanatları sektöründeki çabalara rağmen, birçok ürün hala müşterilerin beklentilerini karşılayamamaktadır ve bu tür ürünler piyasaya girdiğinde kaynaklar israf olmaktadır. Bu tür aksaklıkların önüne geçmek için tüketici ihtiyaçlarının iyi analiz edilmesi ve buna göre tasarımların oluşturulması gereklidir. Bu çalışmanın amacı, el yapımı takılar için tüketici gereksinimlerini sınıflandırmak ve zanaatkar tarafından üretilen ürünlerin tüketicileri ne kadar tatmin ettiğini belirlemektir. Kano sınıflandırması heyecan verici, beklenen ve kayıtsız olmak üzere üç kategori altında toplanmıştır. Tüm analizlerde el sanatları, özel tasarım ve doğadan ilham alan zanaat gibi mevcut gereksinimler altında kategorize edilmiştir.

Anahtar kelimeler: El İşi Takı, Kano Modeli, Müşteri Memnuniyeti

1. Introduction

Customer needs are at the core of product design. (Pugna et. al., 2016). Because meeting needs supports customer satisfaction. Meeting product requirements depends on customer expectations about the product or service's effectiveness. Therefore, it is not enough to find and incorporate important features into the product. What matters is keeping an eye on how customer needs change and evaluating the product's position in the market on a regular basis (Tontini, 2007). On the other hand, it is necessary to know the different characteristics of craft products when evaluating the market. Due to its relationship with tradition, it has a distinct character. These products reflect the socialization and perception level of the society, the characteristics of the period where they have been produced, and the history of the societies (Altıntaş, 2016). Cultural traditions need to be balance with market trends, when designing craft products. In other words, the traditional pattern should be retained when the items are redesigned in order to protect cultural identity. Innovation in craft products includes innovations in product features, product variety, packaging, labels and transportation (Mendoza-Ramírez and Toledolópez, 2014). Basically, it covers things which are related to improvements in size, design, colour, shape, texture, added value etc. (Mendoza-Ramirez and Toledolópez, 2014; Zhan and Walker, 2018). In other words, small changes can be made to adapt to market demands. These kinds of efforts are important for the growth of craft businesses to gain competitive advantage. Within this context, Dana (2001) argues that craft businesses need to understand the customers' needs in order to focus on a particular market segment. This is the way to gather information regarding the market and its components and to produce products that meet consumers' tastes and preferences. In sum, understanding consumer needs and monitoring market changes have been acknowledged as key factors in ensuring market success.

As one of several approaches to analyzing consumer demands, the Kano model is widely used by businesses of all sizes and types as a practical tool for gaining insight into consumer preferences.

(Kano et al. 1984). According to the principles of Herzberg's theory of motivational hygiene (Kano 1995; Kano et al. 1984), the model responds not only to the needs and wishes of customers, but also focuses on the distinctiveness and importance of features sought in a particular product (e.g., durability, handcraft, traditionality, etc.). The model provides a two-dimensional image capable of mapping satisfaction and development. This model also provides a comprehensive comprehension of the connection between product qualities and consumer satisfaction. (Berger et al. 1993; Kano et al. 1984; Matzler and Hinterhuber, 1998). This information is necessary for all products and services offered to consumers. This analysis allows to better understand consumer expectations. It also allows to determine the criteria that have the highest impact on satisfaction, produce customer-oriented solutions to create a difference in the market.

The model has been widely harnessed in multiple areas, for instance product development, innovation, business planning, strategy and competition development (Huang, 2017; Lin et al. 2017; Wittell and Gustafsson, 2011). For example, on the marketing of craft products (Yang et al. 2020; Shafi, 2020; Zhou, 2021), consumer perception of packaging quality (Ngren, Wittell, and Gustafsson, 2011), defining features of retail complexes (Yoon and Park 2012), architectural integration (Ek and Çıkış, 2015), new product and forming of attractive quality (Hassan et al. 2017) and in determining of recycling strategies (Atlason et al. 2017) were used. The Kano model was constructed for the analysis of consumer needs, unlike other classification methods. The Kano model is most suitable models to be applied in this context, since Oltu stone is also a commercial product, and it is marketed and presented to the taste of the consumers.

Although there are many researches on craft enterprises and their products in our country, studies on the marketing problems are very limited. It is stated in the literature that the most important problems of these businesses are marketing and promotion (Toy et al. 2017; Gümüş Çiftçi et al. 2017). For the success of craft products, research emphasizes the significance of understanding consumer expectations and preferences. (Kumar and Rajeev, 2013; Nagori and Saxena, 2012). Understanding consumer views and attitudes is required to generate demand for handcrafted goods.

The Oltu stone, which is the subject of this study, can only be extracted in Erzurum, Turkey. Although it has the ability to contribute to the economic growth of the region, it is vanishing as a result of unfair competition with the market's inexpensive products that can be simply manufactured with the machinery. For this reason, in order to maintain the sustainability of this product and craft, there is a need for research to understand the expectations and needs of the market. By this means, it will be possible to determine marketing problems for this craft.

This study emphasizes the significance of consumer preferences to the success of handmade items. As a result, understanding the market's expectations and requirements is crucial for the survival of these organizations. To develop their businesses and compete on the market, craftsman must differentiate their items from mass-produced goods and create innovative designs that meet consumers' expectations and needs. In this study, we will determine customer expectations and requirements

for an Oltu stone master operating in Erzurum in order to guide him to design and produce jewelries and then analyse the effects on the satisfaction levels of the consumers over these new handcrafted products.

The prime mover of this study is to give an idea to the craftsmen about what the right production and marketing strategies are by researching whether a new craft product designed meets the market requirements, what features are “nice to have” and what features are “must”. A craftsman who has the knowledge of what the customer expectations are would have the opportunity to satisfy his customers with the right approaches. Because satisfied customers make significant contributions to the potential of the business. Ultimately, it will lead to a sustainable growth in the market. It also will bring new competitors into the market as the market volume and demand will expand. In the literature, the kind of innovations and designs in hand crafts required by consumers has been neglected. The findings obtained from the research are important in terms of filling this gap and contributing to the literature.

2. Customer Satisfaction and the Kano model

Many businesses use satisfied customers for measure of service success and many studies have drawn direct correlations between product attributes and satisfaction ratings; apparently, the consensus is that consumers are more content when they believe a product to be of better quality. (Tontini, 2007). However, without exactly knowing what customers will want in the future, making improvements to specific features is not sufficient to increase satisfaction.

Oliver (1999) identify customer satisfaction as the pleasure that a consumer perceives from purchasing, consuming, and using a product. According to Tse and Wilton (1988), customer satisfaction is the response of the consumer to the appraisal of perceived information. Customer satisfaction is about meeting expectations. One of the most studied antecedents of satisfaction is the consumer's pre-purchase expectations (Oliver, 1980). To fulfil these expectations, the product or service must both exist and function in a way that satisfies the demands of the target market. For Chen and Chen (2010) a customer's level of contentment with the goods or service performs depends on how it meets his or her needs and how well the company responds to those needs. They argue that satisfaction is what will be achieved if expectations meet experiences. On the other hand, satisfaction is the precursor to developing loyalty. There is a consensus in the literature that consumer satisfaction is mainly determined by positive experiences with products and services (Nowacki, 2009). Kabir et al. (2009) stated that satisfaction can be defined as the balance or imbalance between expectations and perceptions. According to Pizam and Ellis (1999) customer satisfaction as the level of performance of a product or service and meeting expectations. As a consequence, the term “customer satisfaction” refers to the opinion that a product or service has satisfied the customer's need for that good or service after consumption.

To understand the connection between specific quality features and customer satisfaction, Kano et. al. (1984) This model suggests that requirements for specific products and services fail to contribute equally to customer satisfaction. They classified product requirements as “must be”, “attractive” and “one-dimensional”. These terms using to describe the impact of the product on customer satisfaction.

The Kano model emphasizes how product or service quality affects customer satisfaction. It's purpose is to categorize the requirements of the customers. Kano model classifies the requirements for products as follows.

2.1. Must-be Requirements (M)

Must-be requirements relate to the features that customers expect from a product or service. They must already be present in a product, and customers assume they are present. Failure to meet these features generates great dissatisfaction, but when achieved, they rarely create a positive effect on the customer. Must-be requirements are implicitly expected by customers, thus they are rarely demanded directly. Unless they are fulfilled, the customer will not buy (Matzler et. al. 1998). For example, it is a must be requirement to use Oltu stone in craft products in Erzurum.

2.2. One-dimensional Requirements (O)

One-dimensional requirements are typical requirements customers directly mention when asked. Their presence makes the customer satisfied, while their absence causes dissatisfaction. There is a linear correlation between meeting and failing to meet customer requirements and generating customer satisfaction. For example, a label where the craftsman tells his product story.

2.3. Attractive Requirements (A)

Attractive requirements refer to product and service components that exceed customers' expectations. Unlike the other two classifications, failure to meet These specifications do not lead to dissatisfied customers. Requirements in this group are never openly expressed or demanded by consumers (Matzler et. al. 1998). In essence, these are features that distinguish a product from competing ones. For example, customized packaging design with the craftsman's logo on it.

The Kano model is depicted graphically in Figure 1. The rating of consumer satisfaction with a goods or service is plotted along the vertical axis, while the degree to which it meets customer expectations is shown along the horizontal axis. Although the presence of must-be features in a product result in no positive effect on satisfaction level, if these features are removed from a product, customers are extremely dissatisfied. The better one-dimensional features are provided, the greater the increase in satisfaction level. If attractive quality features are absent in a product, there is no negative effect on the satisfaction level, but if attractive quality features are present, the increase in satisfaction level is remarkable.

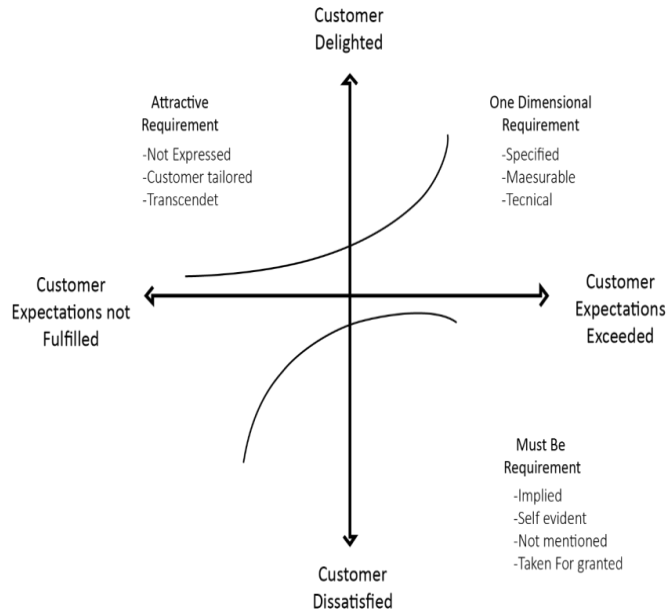


Figure 1: Kano Model

Source: (Matzler & Hinterhuber 1998).

The traditional Kano model classified requirements into three groups. Subsequently, three vital attributes were integrated into this classification (Chen et. al. 2011; Tontini, 2000):

2.4. Indifferent Attributes (I)

The consumer has no emotional response to the indifferent feature group. The presence or absence of such characteristics has no bearing on consumer satisfaction.

2.5. Reverse Attributes (R)

Higher satisfaction results from the absence of a reversal trait. The customer does not prefer these characteristics and anticipates the contrary.

2.6. Questionable Attributes (Q)

These attributes are not included in the map because any level of questionable attribute causes neither satisfaction nor dissatisfaction in consumers. In this feature group, the question may have been stated wrongly or misunderstood, or an illogical response may have been given.

Kano suggests that product and service characteristics have a dynamic nature, and over time, these characteristics will change in the direction of indifferent → exciting → linear → basic quality. As

exciting product features begin to be imitated by other competitors, a requirement may gradually become a linear and then basic need over time. (Kano 2001; Shahin and Zahiri, 2009). For instance, Apple's touchscreen was copied by all smartphone brands, and thus, became ordinary.

2.7. Significance of the Research and Objective

Throughout the history, jewellery has been a symbol of power and nobility. It has been used for adornment and admiration, as well as for religious and protective purposes. It has been employed as a sign of elegance, mystical symbol and indication of social status (Melda, 2019).

Oltu stone, is a semi-precious stone extracted from the north-eastern part of Oltu district in Erzurum city. It is used by craftsmen to make jewellery and ornaments. Oltu stone craft has been practiced by generations of local craftsmen in their house ateliers using simple hand tools. Recognised in the national and global ornamental stone industry, this burnish able stone can only be extracted in Turkey. It is also called black amber, amber, black pearl and jet stone. The trade of Oltu stone started at the end of the 18th century and has continued until today. (Toy et. al. 2017). Oltu stone products include prayer beads, key holders and brooches rings, necklaces, earrings, bracelets, etc. Figure 2.



Figure 2: Traditional Oltu Stone Products from Author's Own Collection

The economic and social growth of the area depends on the creation of an Oltu stone processing sector. However, the production of comparable machine-made items and shifting consumer tastes

and preferences have dampened demand for handcrafts. (Scrase, 2003; Yang et. al. 2018). Although the stone and processing techniques are unique, the similarity in the final products in terms of design leads to Oltu stone products not to be preferred and the target markets to shrink. Copycat products in Oltu stone have also diminished the popularity of the sector. In region limited number of organisations manufacture jewellery via handcraft. In addition to the rivalry from imitation items, the industry has marketing and promotion difficulties. Since the craftsman lacks these talents, he or she cannot attract and maintain customers. In the available literature, tight cooperation between non-governmental organizations and government agencies in the marketing and promotion of traditional handicrafts is recommended for the sector's growth. As, craft communities do not have financial and managerial resources. Additionally, their level of education is minimal. As a result, many people think that assistance from the state is necessary to revive the handcraft sector. (Naipinit et. al. 2016; Shafi, 2020). For the craftsmen, this support is necessary to maintain their competitiveness in the market and for the revival of the sector. It should also explore market expectations for artisans to differentiate products from mechanized products in the market. If necessary, it should make innovations to suit the tastes of consumer while preserving cultural values in products and services. (Shafi, 2021).

As emphasised in the marketing literature (Kotler, 2015), valuable differentiation is vital in existing markets. In fact, the originality, imagination, mastery and creativity inherent in the craft are a source of differentiation. Another problem for craftsmen is how to maintain customer satisfaction. To achieve success on the market, it is vital to comprehend customer wants to design and manufacture products that meet those needs. (Makhitha, 2016; Dash, 2011). While the idea of conserving heritage by transferring on experience from one generation to the next is prevalent in the area of handcraft, it is often considered that tradition reflects a dynamic framework that undergoes ongoing development. (Özdemir, 2018). These improvements aim to increase the product diversity by preserving the hereditary heritage of the products, to strengthen the position of craft products in the market and to create a sustainable structure (Gundolf et. al. 2018). It is suggested that consumer needs and expectations should be understood for the Innovation acceptability in handcrafts. Paige (2009) emphasise that craft businesses should produce different and attractive products in order to provide consumer satisfaction. Generally, acceptance of the innovation mainly depends on the kind of the innovation and the product. For example, minor changes to craft products have a higher chance of acceptance than drastic changes (Shafi et. al. 2021).

However, an innovation that the customer does not find worth paying for is not profitable. It has a significant importance to know the expectations and needs of the market. This is necessary to enable the craftsmen to differentiate their products and to maintain or even increase their existence in the market against the machine-made mass production. For this purpose, consumer needs for craft products will be investigated, and the amount of costumer contentment in order to meet the expectations of consumers for the handmade jewelleryes designed by an Oltu stone master, operating in Erzurum will be examined. The number of studies analysing consumer expectations for craft products

with the Kano model has increased in recent years. (Zhou, 2021; Huddin et. al. 2021; Wu et. al. 2021; Bilgili et. al. 2012). These studies can motivate further research in the field, and the data obtained can shed light on forward-looking designs and contribute to the growth and competitiveness of the market. Similarly, the main motivation of this study is to give an idea to the craftsmen about what the right product strategies are, by researching whether a new craft product designed meets the requirements, what different features that each of the requirement provides and which ones are important for the customer. A craftsman, who knows what requirements his products meet, can produce his products with the right approaches. Because satisfied customers make significant contributions to the potential of the business, thus to its success in the market and its sustainability. As the issue of what kind of innovations in hand crafts is accepted by consumers has been neglected in the literature, it is also aimed to contribute to the literature since there has not been a study on determining requirements for the hand craft products.

The aim of this research is to provide suggestions for hand craft jewellery features that can meet and satisfy consumer expectations, by using findings obtained via Kano model.

3. Research Method

3.1. Determining Consumer Needs

In exploratory studies, identifying consumer needs is the first step in forming a Kano survey. Griffin and Hauser (1993) suggested that 20–30 consumer interviews are sufficient to detect homogenous segments. In other research focus-group interviews were held to identify consumer needs (Chen et. al. 2018; Shahin et. al. 2009). According to the literature, focus group interviews are conducted with small groups of participants and aim to determine their opinions, feelings, and expectations on a topic that concerns all participants (İftar, 2004). Focus group interviews consist of 8 or 12 people (Calder, 1977). In this direction, focus group interviews were held with 10 female consumers who have master's and doctorate degrees in the Department of Industrial Products Design, who have knowledge about jewellery and its design, and who buy it, in order to determine their expectations from handmade jewellery. The participants were asked open-ended questions about the kinds of attributes they demand in handcraft jewellery. Among the stated features, identical ones were classified; a total of 20 features were identified in handcraft jewellery, which are as follows: plainness, brightness, conspicuous, one material, figurative, textured, largeness, durability, valuableness, trend, traditional, craftsmanship, local, hard edge, unicolour, uniform, special design, handcraft, mystical, nature-inspired.

Then, a questionnaire was designed based on the model. Then, snowball sampling method, which is a purposeful learning method used in qualitative research, was used. With this strategy, an expert on the research topic is enlisted as a point of contact. Through this participant, you may communicate with another participant. This method was preferred due to the need to reach women consumers who are knowledgeable about handmade jewellery. 52 female consumers were interviewed.

After the data obtained in the survey were analysed, the findings were interpreted. Below are the stages of research to analyse the requirements for handmade jewellery.

3.2. Designing a Kano Questionnaire

In the literature, many studies classify consumer needs via the Kano method (Baki et. al. 2009; Matzler and Hinterhuber, 1998; Tan and Pawitra, 2001)

The research is based on the literature utilised for the Kano survey in the original version of Attractive Quality Theory, which is the first classification process. This survey was structured via dual consumer needs questions consisting of functional and non-functional question pairs. For instance, for the question, “How would you feel in the presence/absence of a specific feature in the product?” (functional/dysfunctional form of the question), the consumer chooses one of five alternatives, such as ‘I like it that way’, ‘I expect it that way’, ‘I am neutral’, ‘I can accept it to be that way’ and ‘I dislike it that way’.

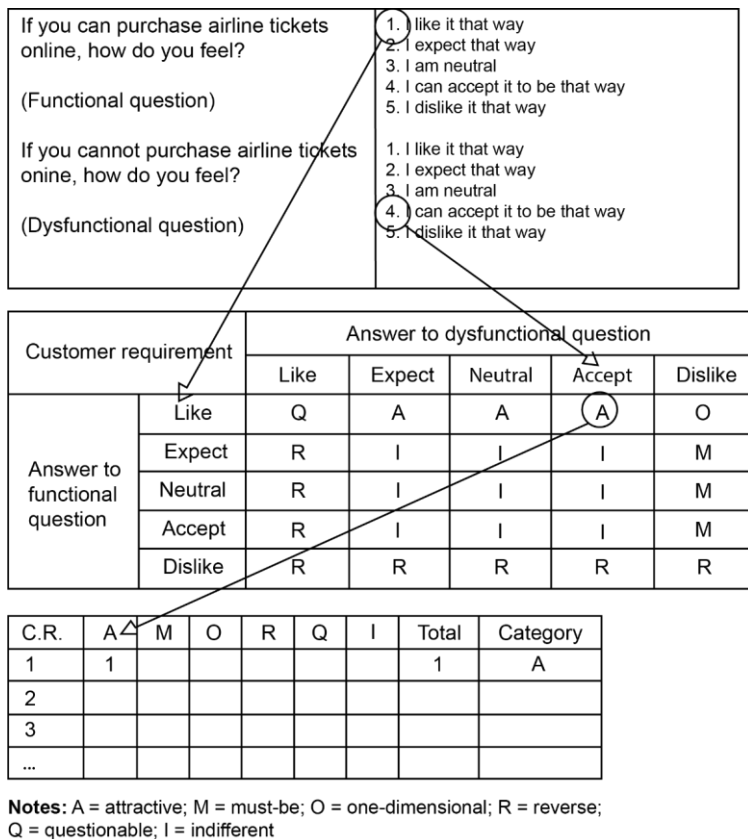


Figure 3: Analysis Table of Question Pairs

Source: (Kano et al. 1984).

Figure 3 shows which product features belong to which category. For instance, if a customer answers ‘I like it that way’ for a functional question and ‘I can accept it to be that way’ for a dysfunctional question, then the category of this particular feature is ‘A’ (attractive attribute). The Kano model suggests that product and service features form a dynamic structure and that these features will change over time (Kano, 2001).

Table 1. Calculation of Customer Satisfaction Coefficient (CSC and CSCs).

For customer satisfaction (satisfaction dimension)	$\frac{A + O}{A + O + I + M}$
For customer dissatisfaction (dissatisfaction dimension)	$\frac{O + M}{(\square 1) * (A + O + I + M)}$
Sum of CSCs	$\frac{A + O}{A + O + I + M} + \frac{O + M}{(\square 1) * (A + O + I + M)} = \frac{A \square M}{(A + O + I + M)}$

As shown in Table 1, the customer satisfaction coefficient (CSC) is used to determine whether unfulfilled requirements can increase customer satisfaction. The aim is to confirm the classification findings of the Kano model, checking if obtained results overlap and quantifying the satisfaction and dissatisfaction formed according to product features’ capacity to meet customer needs.

The CSC shows how participants’ satisfaction levels vary depending on whether the requirements related to handcraft jewellery are met. In the computation of the CSC, the formulae listed in Table 1 are used.

A CSC satisfaction value is between 0 and 1. If it nears 1, this shows that meeting the need affects participant satisfaction at a high level. A value closer to 0 shows that there is little effect on satisfaction. In contrast, a CSC dissatisfaction value is between –1 and 0. Proximity to –1 shows that unmet need will generate extensive dissatisfaction. A value closer to 0 shows that the product features will not cause great dissatisfaction (Matzler and Hinterhuber, 1998). If the total sum of CSCs is positive, it means that the need is closer to attractive, but if it is negative, then this need is closer to must-be

Another analysis is plotting responses on an asymmetric scale (from –2 to 4). The reason for using the asymmetric scale is that must-be and linear requirements receive much stronger responses compared with contrasting and conflicting requirements (Berger et al. 1993). Each requirement is ascribed “X” and “Y” values. The X value indicates the arithmetic mean of the responses of the participants in case the needs are not met; the Y value is the arithmetic means of responses given when the procedure meets requirements. The formula used in the transformation analysis is as follows:

$$X = \frac{\sum_i X_{ij}}{N}, Y = \frac{\sum_i Y_{ij}}{N} \quad (i = \text{survey quantity}; j = \text{question quantity})$$

Table 2: Transformation Table.

	I like it a lot	I expect it to be so	I feel indifferent	I don't like it, but I can manage	I don't like it at all
Functional	4	2	0	-1	-2
Dysfunctional	-2	-1	0	2	4

4. Research Findings and Data Analysis

4.1. Analysis of Demographic Data

When the research sample is examined, it is seen that the ages of the participants are mostly between the ages of 18-47. Majority of the participants; 38.5% of them are in the age range of 18-27, 40.4% are in the age range of 28-37, and 17.3% are in the age range of 38-47. 6001 – 80000 TL income group had the highest share in income with 46.2%. Again in education, the majority of them were university graduates with 57.7%. In the profession variable, the majority of them are public employees with 63.5%.

4.2. Analysis of Research Data

Table 3: Classification of the Data According to the Kano Model.

	Prevalence 1	Prevalence 2	Prevalence 3
Plainness	I (16)	O (11)	A (10)
Conspicuousness	I (28)	R (9)	A (2)
One Material	I (27)	A (11)	M (2)
Figurative	I (27)	A (6)	R (5)
Textured	I (25)	A (9)	O (4)
Largeness	I (22)	R (15)	A (2)
Durability	I (15)	O (13)	M (8)
Valuableness	I (14)	O (14)	A (10)
Special Design	A (34)	I (4)	O (3)
Trend	I (26)	O (5)	A (5)
Traditional	I (28)	A (12)	R (1)
Craftsmanship	I (21)	A (14)	O (4)
Local	I (25)	A (12)	R (4)
Hard-Edged	I (28)	A (10)	R (2)
Unicolour	I (32)	A (7)	O (2)
Uniform	I (29)	A (9)	O (2)
Brightness	I (23)	R (7)	O (4)
Handcraft	A (26)	I (13)	O (1)
Mystical	I (23)	A (12)	R (6)
Nature-Inspired	A (27)	I (14)	O (0)

Analyses of frequency were undertaken to determine the requirement group to which the expectations for the attributes of jewellery belong. For every requirement, the three most repeated need groups are shown in Table 3.

The frequency analysis shows that, of all 20 requirements, 17 are indifferent and 3 are attractive/exciting. The most frequently stated indifferent requirements relate to monolithic, flamboyant, traditional, and sharp lines. Jewellery having the attributes a special design and being handcrafted and inspired by nature was viewed as attractive/exciting. Among all the groups, *exclusive design* ranked first as the most repeated requirement.

To determine to what extent service quality can affect customer satisfaction or dissatisfaction, Berger et al. (1993) developed the CSC. Variables that are closer to must-be and attractive requirements are determined and CSC is computed. The aim is to compute the average effect of product quality on satisfaction.

Table 4: Attractive Requirements

	Most repeated response	Satisfaction dimension	Dissatisfaction dimension	Sum of customer satisfaction coefficients (CSCs)
Plainness	I (16)	0.54	-0.33	0.21
Conspicuousness	I (28)	0.12	-0.06	0.06
One Material	I (27)	0.28	-0.05	0.23
Figurative	I (27)	0.22	-0.08	0.14
Textured	I (25)	0.33	-0.13	0.20
Largeness	I (22)	0.08	-0.04	0.04
Durability	I (15)	0.44	-0.51	-0.07
Valuableness	I (14)	0.56	-0.41	0.15
Special Design	A (34)	0.90	-0.07	0.83
Trend	I (26)	0.28	-0.14	0.14
Traditional	I (28)	0.30	0	0.30
Craftsmanship	I (21)	0.46	-0.10	0.36
Local	I (25)	0.32	0	0.32
Hard-Edged	I (28)	0.26	0	0.26
Unicolour	I (32)	0.22	-0.05	0.17
Uniform	I (29)	0.27	-0.07	0.20
Brightness	I (23)	0.22	-0.19	0.03
Handcraft	A (26)	0.68	-0.03	0.65
Mystical	I (23)	0.34	0	0.34
Nature-Inspired	A (27)	0.66	0	0.66

In need classification, if total customer satisfaction has a negative coefficient, it is placed in the must-be group, but if the coefficient is positive, it is put in the attractive need group. The analysis reveals that the CSC is only found to be negative in the “durability” variable (-0.07). In other words,

durability is closer to the must-be requirement group. Variables close to 1 with positive CSCs are close to attractive requirements, as illustrated in Table 4.

According to the results, jewellery being inspired by nature (0.66), handcrafted (0.68) and specially designed (0.90) affects satisfaction at a high level. Since these variables are close to 1, they are near to attractive requirements. Likewise, since conspicuousness, figurative features, texture, trendiness, unicolour and brightness are closer to 0, they affect satisfaction less. In addition, since all variables except durability are positive, they are close to attractive requirements. The transformation process is performed after the principal analyses to identify the group the requirements closer to the attractive classification belong to, and the results are listed in Table 5.

Table 5: X and Y Values of the Requirements' Levels of Importance

	Y	X	Significance Level	Standard Deviation
Plainness	2.8537	2.0244	4.0488	0.94740
Conspicuousness	-0.3415	-0.5122	2.2927	1.12347
One Material	1.6098	0.3902	2.9756	1.12889
Figurative	0.6098	0.0488	2.4390	1.14124
Textured	1.7317	0.4878	2.9268	1.14870
Largeness	-0.7073	-0.5366	2.0000	1.04881
Durability	2.4878	2.7317	3.9024	1.17909
Valuableness	2.5610	2.1951	3.8537	1.21575
Special Design	3.6585	0.8780	3.9756	1.08369
Trend	0.9756	0.3902	2.5610	1.36104
Traditional	1.0976	0.0244	2.4634	1.28642
Craftsmanship	1.8049	0.7561	3.0976	1.24107
Local	0.7317	-0.2439	2.5610	1.36104
Hard-Edged	1.1707	0.2927	2.7805	1.10707
Unicolour	1.2439	0.5122	2.9268	1.17026
Uniform	1.2683	0.5610	2.8537	1.03829
Brightness	1.0976	0.2439	2.9268	1.25280
Handcraft	2.9268	0.6829	3.8293	1.18115
Mystical	1.0000	-0.3171	2.3659	1.19909
Nature-Inspired	2.8537	0.1951	3.1463	1.21575

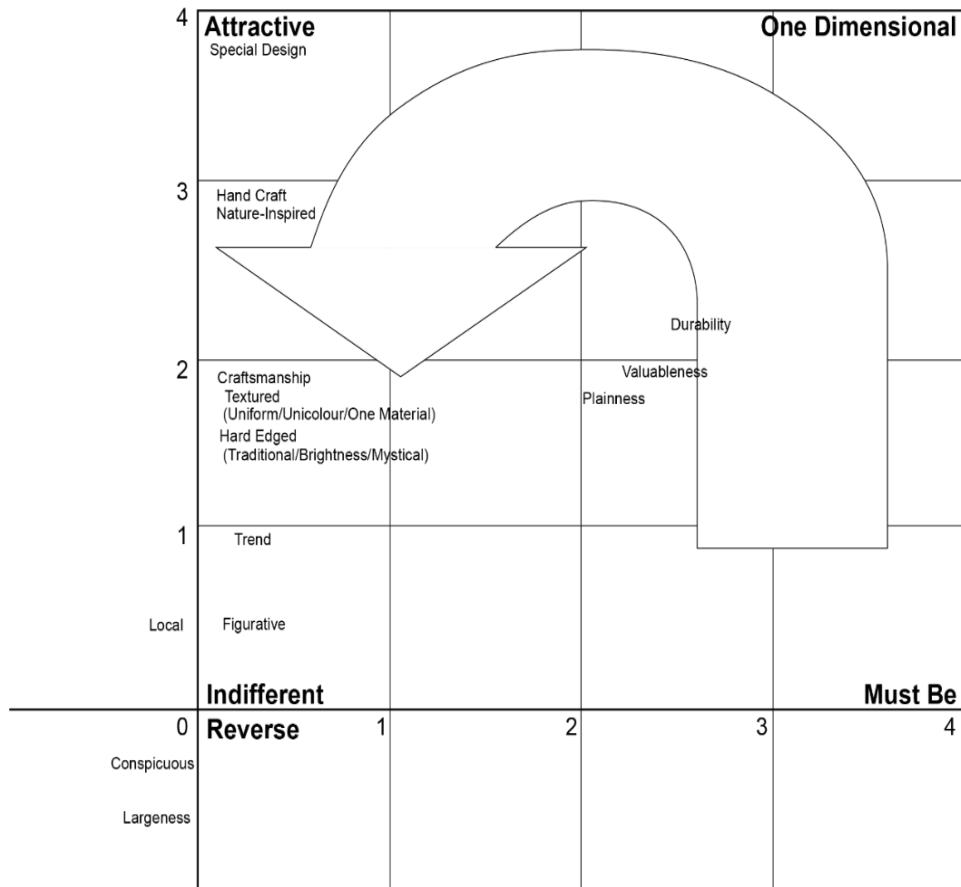


Figure 4: Positions of the Requirements Per X and Y Values

Figure 4 shows the distribution of the properties expected of handcrafted jewellery. When the distribution of the expected features from the handicraft sets is examined, it is seen that there is no expectation in ‘must be’ feature category. These features do not provide a competitive advantage. Because they are also widely used by competitors. As a result of the analysis, conspicuous, largeness and local were not included in any requirement group in this study. These features may not be considered by the craftsman.

Durability, valuableness and plainness are listed as one-dimensional requirements. If these features are dealt with carefully, an increase in customer satisfaction will be seen. These requirements are regarded as competitive elements. Special design, handcraft and nature-inspired attributes are placed in the attractive requirements group in the model. They evoke high satisfaction, moving the level of satisfaction beyond the expected level. These attributes can make a difference in competition and increase customer potential. The perception of uniform, unicolour, one material, traditional,

hard-edged, figurative, textured, trend, brightness and mystical attributes can vary across individuals, but this research determined that these attributes fail to create much difference among consumers. That is, they belong to the indifference group.

4.3. Visualising the Three Types of Handcraft Jewellery and the Requirements via PCA

Exploratory data analysis and model building are two applications of principal component analysis (PCA). It is often used for data pre-processing, which maps every piece of information onto the initial few significant elements to generate low dimensional input while maintaining to the max input feasible. Identifying the first main elements entails finding the axis that maximizes the variance of the anticipated data. (Abdi and Williams, 2010; Bro and Smilde, 2014). The PCA method is used in the following situations:

- When it is necessary to reduce the number of variables, but there is a challenge in defining insignificant variables.
- When is a need to make variables independent from one another? As a result, PCA can be more easily visualised and analysed.

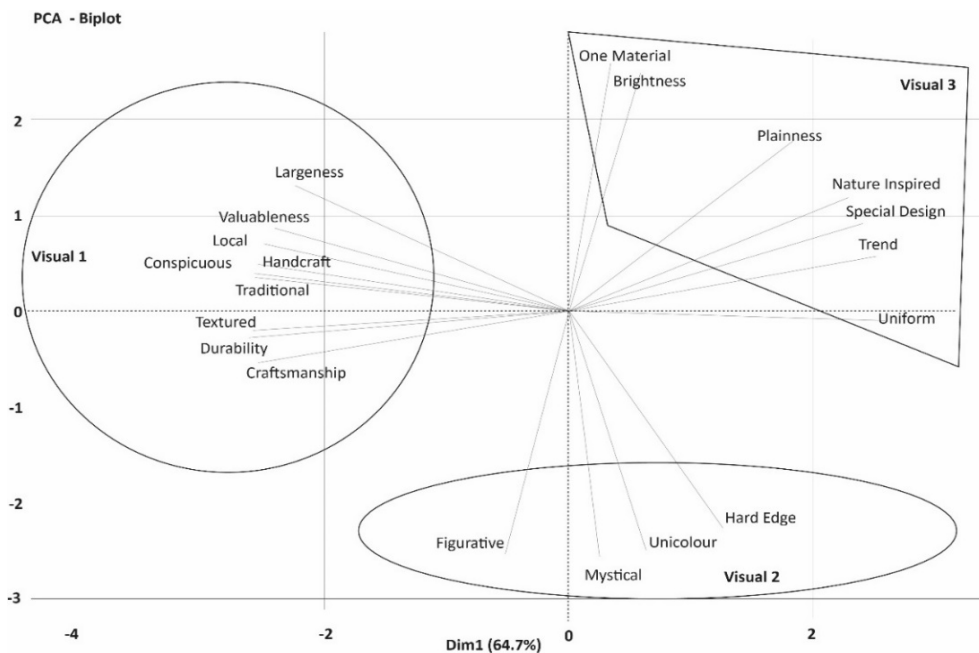


Figure 5: Biplot Graphic of Units and Variables

On the axes, clustered requirements that characterise every visual are observed. In the scope of this study, participants were asked about which of the 20 features existed in the three types of jewellery designed by craftsman shown in Figure 6, and the survey was evaluated via PCA.



Figure 6: Jewellery Designed by Craftsman

In visual 1, the perceived attributes were as follows: valuable look, locality, conspicuous, handcraft, traditional, textured, durable look and good craftsmanship. In visual 2, participants viewed this jewellery as unicolour, hard-edged, mystical and figurative. In visual 3, in the third jewellery piece, the outstanding features were one material, brightness, plainness, nature-inspired, special design, trendiness and uniform.

5. Discussion

The results of analysis showed that durability, valuableness and plainness are one-dimensional requirements. These features cause consumer satisfaction, but handcraft jewellery devoid of such features results in the same level of consumer dissatisfaction. As functionality related to such features increases, so will customer satisfaction and competition opportunity in the market.

Jewellery's special design, handcrafting and inspiration from nature represent attractive attributes. These variables can arguably be employed as competition tools and could accelerate the customer potential of the sector. What should be kept in mind here is that all differences have a specific life cycle. This process is much faster in our age, and it is of utmost value to monitor the changes in customer needs. Applying Kano analysis to determine consumer expectations and satisfaction levels in handcraft products (Zhou et al. (2021); Huddin and Nafiudin (2021); Hwang et al. (2014), Bilgili et al. (2012) studies generally show that products reflect unique and cultural values, it is seen that the features such as construction and so on are attractive. These findings were also among the attractive features in the current study. Therefore, the findings are consistent with the results of other studies in the literature.

Perceptions uniform, unicolour, one material, traditional, hard-edged, figurative, textured, trend, brightness and mystical features in jewellery tend to vary from one person to another. Because of the life cycle of the product, these features may become attractive or expected. Therefore, these requirements must be observed carefully since they have a high potential for gaining competitive advantage. Analyses should be repeated in parallel with ongoing changes in the market.

Finally, PCA was conducted to determine which of the requirement groups refer to the three distinctive handcraft jewellery pieces designed by a craftsman and integrated into the scope of this research.

Zhou (2021) and Hwang (2014), who are among the studies that determined the requirements for craft products with Kano, tried to determine the attractive requirements for craft products in the entire market without making a product separation in their research. Huddin (2021); He tried to discover the attractive properties of bamboo products in a village in Pakistan and argued that creativity should come to the fore. Bilgili (2012), on the other hand, determined the needs of consumers in tile products adapted to jewellery, which they find attractive. Unlike the existing literature, in this study, the requirements of each of the three craft products created with the collaboration of designers and craftsmen were determined separately. This result is important to see the strength of each craft product in the market and gives the craftsman an advantage in terms of market success. According to this;

In Visual 1, it was determined that the participants perceived handmade, durability and valuable appearance features. These attributes are among the attractive and one-dimensional requirements. The handmade requirement is one of the most important features that the research group is looking for in jewellery. The handmade attribute may steer the future of handcraft companies. Participants perceived mastery, experience and a personal touch. In addition, durability and a valuable appearance were important attributes that the craftsman adds to the product. The jewellery exhibits important attributes that will give the craftsman a competitive advantage.

In Visual 2, all the perceived attributes are listed under the indifferent category. The most salient feature of modern markets is change. An attribute that belongs to an indifferent category when entering the market could move to the attractive category over time. Moreover, different consumers could perceive such attributes differently. The craftsman can test this product in other market segments.

In Visual 3, special design and nature-inspired features are listed among attractive requirements, whereas “plainness” belongs to one-dimensional requirements. Based on the research findings, these three features are competitive, evoking unique, different and identity-specific perceptions among the participants. It is a successful design product. As a result, it shows that the visual 1 with a traditional line and the visual 3 with its modern touches meet the expectations. Both traditional and new designs satisfy the consumer.

6. Conclusion

Craft businesses possess different features than traditional small and middle-scale organisations do, and they display a unique structure. Craft products are utilitarian, aesthetic, artistic in nature and dependent on creative culture (“As of March 2, 2020, the UNESCO list on its website www.unesco.org/new/en/%20culture/themes/creativity/creative-industries/crafts-and-design”). So, it is different

from machine-made products. These organisations may have trouble making an impact on the market. Because of insufficient resources and expertise and a limited capacity, they can benefit from opportunities in the market only at a limited level. In most instances, the artistic view stated by craftsmen may not be demanded by retailers and consumers. Hence, according to the material they use, price, product presentation, design, and durability or with respect to product features. They must masterfully blend utilitarian and hedonic benefit expectations. After all, it is the craftsman who can secure the balance between market demand and artistic vision.

Craftsman most effective tools are their differences and individualised interpretations, but continuity of this profession depends on attracting demand. This is also bound to closely monitoring and researching the market. Individuals purchase furniture, jewellery, etc. to demonstrate their regard for aesthetic worth and affection for artistic ability. (Kühne et. al. 2010). This is because product reflects authenticity.

Determining customer expectations and services are priorities of each organisation because meeting customer expectations is among the most vital functions of an organisation. In this case, the answer to the question of how to create a strong positive effect on customer satisfaction becomes vital for handcraft organisations with limited resources. Satisfying needs is both a simple and complex issue and understanding consumer expectations requires a thorough analysis. Hanan and Karp (1989) explain the significance of this matter as follows: “Customer satisfaction is the ultimate goal of every single organisation. The aim is not just to procure, sell or offer service; it should be aimed to establish a long-term relationship by meeting and satisfying the needs”.

According to the research findings, special design emerged as the highest requirement in all groups. Attractive requirements gain craftsmen a major competitive advantage and customer potential because their absence goes unrecognised, but their presence offers a high level of satisfaction to customers. Therefore, special design has been deemed a major component that should be added to the group of features offering competitive advantage and distinguishing craftsman from their rivals.

Also, handcraft and nature-inspired features significantly affect the satisfaction levels. These features were also among the outstanding factors at all stages of the research. This finding is evidence that consumers tend to avoid mass-produced, copycat jewellery that does not reflect handcraft.

As a result of PCA analyse, it was determined that the first (visual 1) and third (visual 3) handcrafted jewellery met the expectations. It is clear that there are features that consumers look for in handcraft products. They represent a well thought out and well-designed jewellery models.

As with any study, there are various constraints for this study. The most important limitation of the research is that the craftsman’s products are subjected to analysis and the research sample is small. And the survey investigates phenomena in their natural setting. So, the result obtains this research cannot be applied or generalized to all types craft products.

By integrating all the analyses and assessments related to both design and the design production process, this research offers a methodological torchlight for prospective studies related to this topic. Furthermore, this research provides hints to reveal that the Kano model is a worthy methodology to be implemented in the product design of such a niche area as handcrafts. On the other hand, future researchers will be able to make a much more valuable contribution to the survival of the craft by considering different types of handmade jewellery in terms of innovation, consumer acceptance, and craftsman's capacity and competence.

Ethics Committee Permission

Ethical Permissions of the Research.

In this study, all the rules stated to be obeyed within the scope of "Higher Education Institutions Scientific Research and Publication Ethics Directive" were followed. None of the actions specified under the title of "Actions Contrary to Scientific Research and Publication Ethics", which is the second part of the directive, have been taken.

Ethics Committee Permission Information

Name of the committee that made the ethical evaluation: ITU Social and Human Sciences Human Research Ethics Committee

Date of ethical review decision: 29.04.2021

Ethics assessment document issue number: 169

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