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Research Paper

The role of emotional design and user interaction in products based on Iran's tradition and cultural heritage (case study: Dinnerware)

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Abstract
In today's global market, products that meet users' emotional needs are more likely to succeed. Emotional design involves designers incorporating affective thought and user emotions to create a strong emotional connection between the user and the product. Culture plays a significant role in emotional design and user interaction. This study focuses on redesigning dinnerware based on Iran's tradition and cultural heritage. From the viewpoint of design parameters, five historical pottery periods, namely the Samanid, Seljuq, Ilkhanid, Timurid, and Safavid periods, were analyzed, and results were collected. A cultural design model was then created using Kano's questionnaire, which was distributed to thirty participants, both male and female, who were presented with questions related to the redesign of dinnerware. Kano's questionnaire included 16 questions about glazes, colors, patterns, and some of the design ideas used in the vessels from each historical period. A graphical image representing the outstanding pottery of each era was prepared and shown to participants. The results were analyzed using statistical approaches, revealing the cultural-emotional needs of users when interacting with the product. The results indicate a higher preference among Iranian users for ceramic features from the Timurid period. Additionally, the findings suggest that incorporating Sasanian patterns and simple arabesques into the vessels will better attract Iranian users. This approach helps create a more effective and engaging product for users.

Keywords: *Emotional Design, Cultural Model, Kano Model, Dinnerware, Cultural Heritage, User Interaction.*

INTRODUCTION

In the context of international trade, several countries are currently grappling with the phenomenon of globalization. This topic has led to the emergence of strategies such as localization and a native attitude in the internal design of national productions, all of which emphasize the importance of culture and its role in design (Ajdari et al., 2010). Human existence is constantly evolving due to advancements and changes in the political, social, and economic sectors on a global scale. Concurrently, cultural developments and updates also occur (Ergashev & Farxodjonova, 2020). Products derive meaning and value from culture, which are represented in their form and attributes. Industrial designers need to incorporate cultural traits and components into their product designs to create modern designs (Yousif, 2020). Culture holds a special place in the design of unique products, and the use and development of culture in the design of modern products is a design trend in the global market (Boonpracha, 2021). Applying traits from a nation's native culture can serve as an effective tool to identify products and attract native consumers. Furthermore, integrating consumer culture into product design enhances user interaction and improves the user experience. Emotion, however, has an even more significant impact. It is undeniable that emotions are an integral aspect of human existence, contributing to individuals' comprehension and awareness of their

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environment and, consequently, influencing their minds. This includes their use and interaction with products. Therefore, in contemporary times, developing products with exceptional performance and efficiency is no longer sufficient. Instead, designers aim to create products that, in addition to satisfying customers, also elevate their mood and provide pleasure during interactions. As a result, using products that elicit positive emotions like joy and pleasure will lead to more convenient interactions and more harmonious outcomes.

Design is considered a means of addressing needs while solving problems, and the degree to which people's wants are satisfied determines whether a design is successful or unsuccessful (Desmet & Fokkinga, 2020). The study objectives include redesigning dinnerware based on Iran's tradition and cultural heritage, gathering ecstatic features from different periods in Iranian ceramics for emotional investigation, analyzing individuals' emotional reactions to these features using Kano's questionnaire, identifying users' preferences for ceramic features from specific periods, determining the impact of particular patterns on the attraction of Iranian users, and establishing emotional design as a path for the sustainable development of cultural and creative product design. The aim of this study is to understand the role of culture and emotional design in influencing product development and user interaction, with a specific focus on dinnerware based on Iran's tradition and cultural heritage. The authors examine the following hypotheses: redesigning dinnerware based on Iran's tradition and cultural heritage will lead to a higher user preference for ceramic features from specific historical periods, such as the Timurid period; and emotional design, with user experience as the focal point, will be the path to the sustainable development of cultural and creative product design.

EMOTIONAL DESIGN

Humans are emotional creatures, and their emotions affect many of their interactions with the world around them (Govers et al., 2003). Emotions in all individual contacts have suddenly emerged in the artificial world, shaping their understanding and priorities for a better life. Every product elicits some type of emotional reaction from the user. Thus, it appears that the success of a product is no longer solely determined by its functionality, usability, and aesthetic appeal; rather, the existing emotional dependency between the product and the user is the most critical factor for success or failure in the market (Wrigley et al., 2008). Emotional reactions can motivate users to select a particular product among a range of similar products. In recent years, the design community has focused on a new approach: emotional design. Major companies like Nokia, Philips, and Nike claim to have utilized emotional design strategies for their products (Desmet & Dijkhuis, 2003). Donald Norman, the founder of usable and understandable design, advocates for the role of emotion in design (Norman, 2002). According to his viewpoint, the emotional reaction of the user is the interaction outcome of three intellectual dimensions of human understanding: visceral, behavioral, and reflective. Norman emphasizes that these dimensions significantly impact the knowledge and emotion of the user, thereby fostering effective and enjoyable interactions (Ajdari et al., 2010). Visceral design, specific to the visceral dimension, focuses on the immediate emotional effect of the product on the user. This dimension includes the assessment of perceived qualities of the product's special language; thus, visceral design pertains to the product's appearance as understood by the five senses (Norman, 2002). Visceral design has the power to evoke positive feelings in the customer regarding the product they intend to purchase. Although there is general agreement about the nature of visceral design, there is limited information available concerning the tools and analyses of individuals' emotional reactions to the qualities of visceral design (Wrigley et al., 2008). The behavioral dimension of human understanding follows the visceral dimension and is defined by the user's behaviors in relation to the product, which includes the product's function, usability, understandability, and interaction.

Different emotional responses represent the psychological aspects of the user during their interaction with the product. Therefore, designers must be aware of the culture of the society to design highly acceptable products that elicit positive emotional responses, which in turn benefit industrial organizations (Yousif et al., 2020). With intense competition in the business market, customer expectations for products have gradually increased. Beyond functional features, products are now expected to satisfy customers with impressive attributes such as an attractive appearance, scientific ergonomic structure, and good tactile sensation. While these features are designed to meet practical needs based on logical thoughts, emotional features are crafted to address the customer's perceptual needs. This relates to the emotional needs of the customer and is a deep expression of a product that may include aesthetic, artistic, cultural, symbolic, and moral meanings (Jin et al., 2021). If the product's performance aligns with the customer's expectations, the user will be satisfied. Conversely, if the product's

performance falls short of expectations, the user will be dissatisfied (Ummi et al., 2021). Empirical findings show that consumer perceptions of product and service quality vary, and quality reliability significantly affects customer satisfaction. Therefore, product and service providers can gain a competitive advantage and maintain their market position by offering quality value propositions (Chen et al., 2019). How customers judge products or services they have previously experienced is reflected in their satisfaction or dissatisfaction. Satisfaction or dissatisfaction arises from a perceived discrepancy between expected and experienced performance. Customers have concrete expectations regarding market offerings, formed by their relevant needs and largely influenced by their experiences with similar products in the past (Stauss & Seidel, 2019). Behavioral design involves factors that affect product function and the joy of use. The reflective dimension is the final, non-mediating dimension of the psychological process of the system, which includes consciousness and reflection on past experiences. This dimension, developed through the previous two, involves factors like awareness, interpretation, and comprehension. Reflective design pertains to the thoughts and beliefs that exist in the consumer's mind.

The attractiveness of a product is instinctive, but its beauty arises from reflective design. Beauty stems from intellectual reflection and the unconscious mind's experience. This type of design focuses more on the product's message, the consumer's culture, and the product's meaning. This message can vary across cultures, as the emotional effect of a product is shaped by individual trust and beliefs, evoking different emotions in different people. Norman (2004) was the first to consider the concept of applying sentiment in product design, and his achievements and theories have been followed by many and considered primary principles in numerous studies. In today's fluctuating market, the economic and social benefits of competition must be evaluated from various financial and non-financial aspects. Among these, customer satisfaction measurement is known as a non-financial performance index with broad applicability (Hallencreutz & Parmler, 2021). Customer complaints are a valuable source of information for identifying problems and improving products or services (Kwok, 2021). Interestingly, dissatisfied customers often generate better ideas for innovation than satisfied customers, and their participation in the idea generation process can lead to the most innovative ideas (Kamruzzaman, 2020). Understanding customer needs, followed by aligning customer expectations and perceptions in product and service experiences, presents a significant challenge for ergonomists, product and service designers, and managers (Hartono, 2020).

CULTURE

Culture is referred to as the "path and manner of life for the entire society" (Bahar, 2009). Today, culture is an expanded term with many definitions and various meanings in different societies. Generally, culture can be viewed as a pattern for human behaviors as well as a symbolic structure that gives meaning to these behaviors. The importance of applying native characteristics in everyday products is increasing in the global market, where products often lose their identity due to similarities in function and form (Lin et al., 2007). Meaning and culture are integral parts of our lives, yet cultural aspects in design are often underrated due to their complexity. However, using culturally inspired design can respond to consumers' need for differentiation in a globalized world, while simultaneously contributing to cultural sustainability and the transmission of tradition. This is achieved through techniques that enable designers to interpret cultural meanings more clearly (Gonzalez Londono, 2021). Regional cultural products play an extremely important role in promoting local culture. Creative products with cultural aspects can integrate regional culture into people's daily lives, providing consumers with psychological satisfaction and spiritual pleasure (Zhong et al., 2020).

In recent years, the interaction between Traditional Cultural Properties (TCPs) and modern lifestyles has received more attention. From this perspective, cultural characteristics can be innovatively transformed into modern products and services that shape people's lifestyles. This involves creating something new by combining elements derived from TCPs with modern sensibilities to satisfy people's psychological reflections of culture. This approach aligns with Norman's definition of reflective design, which emphasizes the cognitive connection between the user and the product (Qin & Ng, 2020). Nowadays, cultural indicators are considered as improvised exclusive characteristics in products to enhance their identity and complete the personal emotional experience of the user. In the context of product design, designers have become aware of the importance of integrating social aspects to enhance the product's value. Additionally, incorporating native characteristics can make historical-cultural objects a reference for study. The cultural model used in this study for gathering cultural characteristics of products is based on the model presented by Leong and Clark (Leong & Clark, 2003). They proposed a model for cultural objects divided into three levels: external or

tangible, middle or behavioral, and internal or intangible. Based on this model, Lin has presented a framework for cultural study, depicted in Chart No. 1 (Lin, 2007). In this model, culture is initially divided into three layers: material culture, which consists of the material elements of a society like food, dress, and objects made by that society; social or behavioral culture, which encompasses human relations within society, organizations, and social institutions; and spiritual culture, which includes the motivational elements of the society's members, such as art and religion. These three layers correspond to the three levels presented by Leong and Clark, where cultural objects are integrated into cultural design (Leong & Clark, 2003).

The three design qualities are defined as 1) internal level, which includes special contents like stories, emotions, and cultural qualities; 2) middle level, which includes function, practical considerations, usability, and safety; and 3) external layers, which include color, texture, design form, surface quality, line quality, and details (Kang et al., 2009). Regarding the three design dimensions previously cited by Norman, he divides the dimensions of human understanding and the emotional process into visceral, behavioral, and reflective. Norman emphasizes the importance of focusing on these dimensions during the design process (Norman, 2002). Therefore, the final model can be represented as a combination of the cultural model with the model of Leong and Clark, showing their relationships with emotional design (Ajdari et al., 2010).

Therefore, to achieve deep and positive effects on the user, it is essential to initially analyze the user's emotional responses based on the presented framework and utilize the insights gained in the design process. In this study, the Kano model has been employed to assess users' emotional reactions.

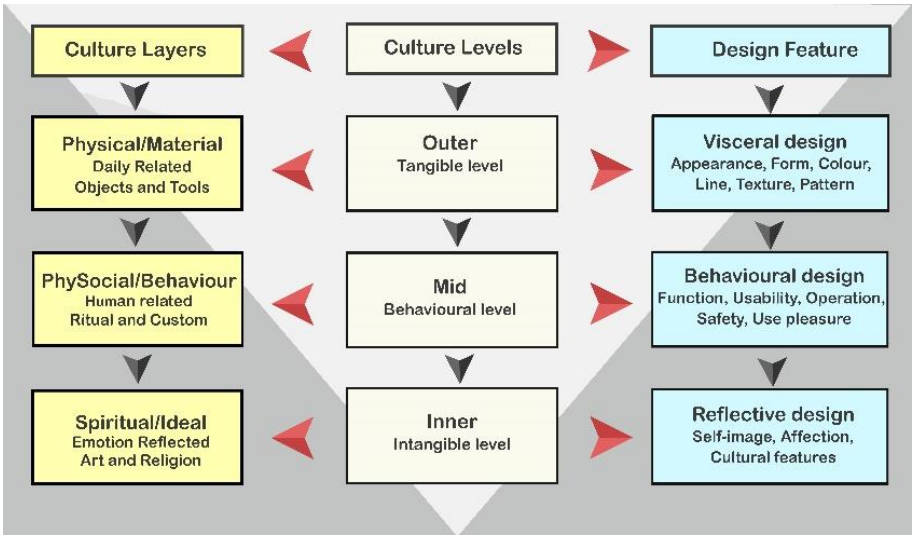


Chart 1. Three layers and level of cultural object and design feature (Lin, 2007)

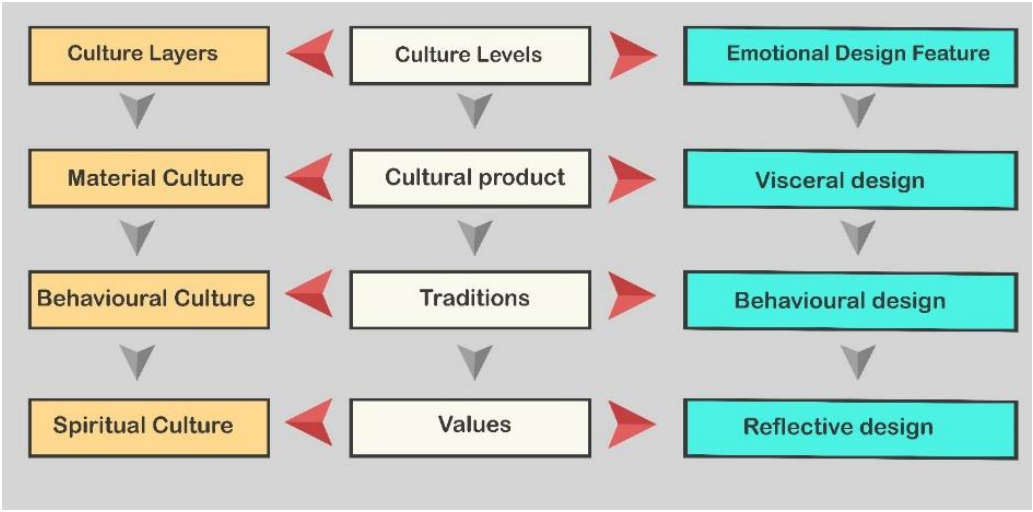


Chart 2. Combination of emotional design with the model of Key Lee (Ajdari et. al., 2010)

Kano Model

Noriaki Kano, in his article titled "Attractive Quality and Must-Be Quality," introduced an approach that assists designers in focusing on developing product features that satisfy consumers both functionally and emotionally (MacDonald et al., 2006). The Kano model, developed by Professor Kano in 1984, categorizes product or service attributes into five categories (Dash, 2021; Kano et al., 1984). This model is widely used as a method or technique to determine which attributes are most influential in achieving customer satisfaction when designing products and services (Ishak et al., 2020).

Kano's studies focus on analyzing users' needs and their relationship with feelings of satisfaction. His model integrates functional attributes and customers' satisfaction into product design. According to Kano, the nature of functional attributes and their impact on satisfaction varies across different product features. Therefore, designers must carefully balance these two components when developing product features (Zultner & Mazur, 2006). The categorization of functional attributes in products, which Kano refers to as "qualitative elements of products," serves as an indicator of the scope of existing functional evolution (MacDonald et al., 2006). This classification is presented in Table 1.

Classification system of Kano

The first step in classifying users' emotional responses to specific product features and categorizing them according to the Kano model involves presenting a questionnaire. This questionnaire includes pairs of questions for each feature or function of the product. The first question in each pair is known as the functional question, and the second question is termed the dysfunctional question. Table 2 (Lin et al., 2010) typically outlines this questionnaire format.

Based on users' responses to the functional and dysfunctional questions in the questionnaire, the features of the product are categorized using Kano's classification, as outlined in Table 3 (MacDonald et al., 2006).

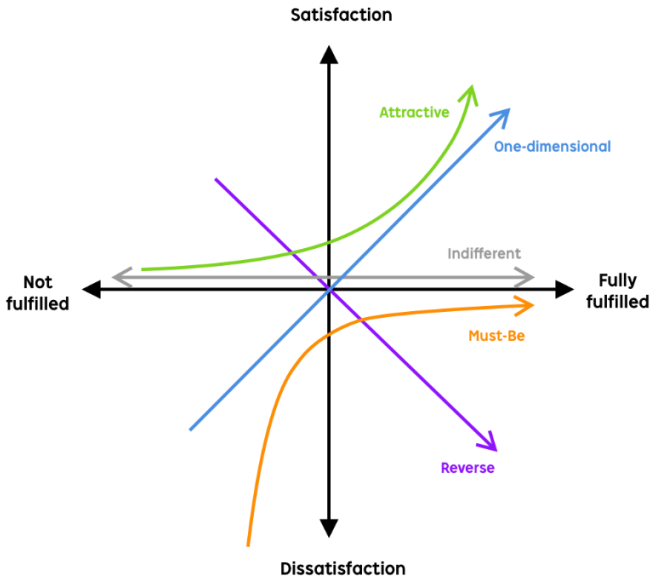


Fig 1. Kano model of customer satisfaction and five categories of quality attribute (Kano et. al., 1984)

Table 1. Definition of Kano categorization

Quality	Description
Must-be (**M**)	The lack of this attribute will cause dissatisfaction of the user and probably can make the product unusable.
One-dimensional (**O**)	In the process of designing the product, more attention has been paid to this attribute in order for better satisfaction of the user and better functionality of the product.
Attractive (**A**)	This attribute has been designed for better satisfaction of the user but dissatisfaction will not be caused if the product lacks it.
Indifference (**I**)	The lack of this attribute will not cause dissatisfaction and its existence will not cause satisfaction.
Reverse (**R**)	The existence of this attribute will cause the dissatisfaction of the user and will cause the product to be unusable.

Table 2. Functional and dysfunctional questions of Kano surveys

Functional Question	Dysfunctional Question
How would you feel if the product had a feature?	How would you feel if the product had no feature?
Answers:	Answers:
• I like it (Like)	• I like it (Like)
• It must be so (Must be)	• It must be so (Must be)
• Makes no difference (Neutral)	• Makes no difference (Neutral)
• I can live with it (Live with)	• I can live with it (Live with)
• I don't like it (Dislike)	• I don't like it (Dislike)

Table 3. Kano evaluation table (Decision matrix of qualitative classification)

Customer Requirements		Answer to Dysfunctional Question				
		Like	Must be	Neutral	Live with	Dislike
Answer of Functional Question	Like	**Q**	**A**	**A**	**A**	**O**
	Must be	**R**	**I**	**I**	**I**	**M**
	Neutral	**R**	**I**	**I**	**I**	**M**
	Live with	**R**	**I**	**I**	**I**	**M**
	Dislike	**R**	**R**	**R**	**R**	**Q**

A: Attractive attributes, **O**: One-dimensional attributes, **M**: Must-be attributes, **I**: Indifference attributes, **R**: Reverse attributes, and **Q**: Questionable attributes (This rating indicates that either the question was phrased incorrectly, or the customer misunderstood the question, or an illogical response was given) (Matzler & Hinterhuber, 1998).

RESEARCH METHODOLOGY

The intervention involved the application of cultural qualities in the redesign of dinnerware based on Iran's tradition and cultural heritage. Participants received the ecstatic features of periods under consideration in Iran ceramic, which were then made available to them in the form of Kano's questionnaire for analysis of their emotional reaction. The study also involved analyzing successful cases in the design of cultural and creative products, with a focus on emotional design and user experience. The dataset used in the study is a collection of emotional views and reactions from thirty individuals, including both males and females, who were presented with a questionnaire related to the redesigning of dinnerware based on Iran's tradition and cultural heritage. The individuals were all married and within the age range of 22 to 37 years old. The emotional views and reactions of these individuals were analyzed to understand their preferences and tendencies towards ceramic features in different historical periods of Iran's pottery, particularly the Timurid period. The methodology used in the study involved the analysis of historical periods of Iran's pottery, the design of a Kano's questionnaire based on this analysis, and the collection of emotional-cultural viewpoints from 30 participants (The participants in this research were selected from people who use a lot of eating utensils). The emotional reactions of users were then analyzed and applied in product design.

Dependent variable

The dependent variable in this study is the cultural-emotional aspect of user interaction with the product. It encompasses various dimensions:

Users' cultural-emotional needs in utilizing the product.

Different emotional responses that reflect the psychological aspect of users during their interaction with the product.

Customer satisfaction and dissatisfaction influenced by perceived performance and quality reliability.

Customer perception regarding the quality of products and services.

The alignment between customer expectations and their perceptions in product and service experiences.

Statistical techniques

The study employs statistical techniques to analyze emotional opinions and applies the Kano model to classify product features. This model is a standard and reliable method used in many qualitative research studies.

Data collection

To gather user emotional-cultural viewpoints and integrate them into product design, the study initially analyzed the ecstatic qualities associated with various periods of Iranian pottery. These qualities were then

compiled alongside exceptional samples, and the findings are detailed in Table 3. Subsequently, this data was incorporated into the questionnaire designed following Kano's model, focusing on historical pottery eras. This approach involved creating specific questions about glazes, colors, patterns, and design concepts used in vessels of each historical period, which were presented to participants. Additionally, graphical representations depicting exemplary pottery from each era (Pictures 1, 2, 3, 4, and 5) were provided to respondents.

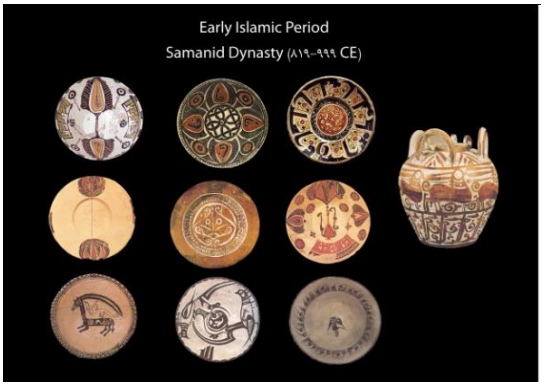
The questionnaire comprised 16 questions focusing on five selected historical periods of Iran's Pottery (Table 4). These periods, chosen from a broader historical timeline, included 1) Samanid, 2) Seljuq, 3) Ilkhanid, 4) Timurid, and 5) Safavid. The questionnaire was administered to 30 individuals. It's important to note that the study not only involved the questionnaire but also analyzed participants' emotional reactions when presented with graphical images depicting pottery from each historical period.

Picture 1. Ilkhanid period

Picture 2. Timurid period

Picture 3. Middle Islamic period: Seljuq Dynasty

Picture 4. Later Islamic period: Safavid Dynasty



Picture 5. Early Islamic period: Samanid Dynasty

Table 4. Features of historical periods of Iran's ceramic after Islam (Kambakhsh, 2000, Kian, 2008)

Historical periods	Ecstatic qualities of each period				
	Content	Form	Color	Patterns	Glaze
Samanid (3,4 H.A)	Views of Imperial Court; Hunting for keepsakes preservation of Samanid's Periods		White & creamy background, patterns with yellow to olive color or red color and in some cases the darken grey color, green & blue	Decoration, orderly patterns of plants & animals, red color rose.	Golden glaze
Seljuq (5, 6 HA)	Versus including Pious & blessing for the owner of vessels, and poetic poems of that period. Enamelled Content of party settings and occasionally subject derived from Persian literature	Bowel, vessel, drinking cup, pitcher.	Application of black & brown color & occasionally purple and blue on white enamelled clayey. bodies with sharp blue colors. Application of seven color approach	Engravings of plants, animal & human along with Kufic script. Engravings of joyful party settings. Use of broken engravings & circular in golden dishes. Also human portrait with Mongolian round faces. These periods more inspired by Miniature	Application of Single & multi-colored and sprayed. using of glaze of enamel, using of golden glaze
Ilkhanid (7. 8 H.A)			Application of pellucid and clear enamel with bright color like golden, Azure, blue & purple turquoises	The engravings of this period are free & circle designs. Including blue Nenuphar flower, dragon phoenix, twisted clouds, flying birds, and animals like dear	Application of Pellucid glaze, golden. Single color glaze
Timurid (8-10 H.A)			White & blue body, dark engraving under glaze of turquoise color. White bright body, painting in blue color	Golden painting re-effect of Sassanian patterns in decoration of vessels, use of Iranian patterns	Bright Turquoise & green to greyish color glaze,
Safavid (10-11 H.A)		Thin & elegant and semi clear bodies, Bowels, plates and bottles with long and narrow necks.	The color used in this period were mostly azure, blue, white, yellow, brown, and green. The backdrop of vessel usually milky white, dark blue, turquoise color blue	Vessels with no pattern with the highlighted image in the color of body. Arabesque patterns as plant patterns etc.	Enamel and golden glaze are also single color glaze Seven-color paintings on tile were widespread in this period.

RESULTS

After participants responded to both functional and dysfunctional questions in the questionnaires, their answers were collected and categorized using Kano's evaluation table (Table 3). This table categorizes quality characteristics into five types: A (attractive), O (one-dimensional), M (must-be), I (indifference), and R (reverse). Table 5 displays the Kano categories obtained for each historical period by utilizing methods such as data frequency and specialized analysis related to the Kano model results.

The primary aim of this study is to utilize key design features and values from each historical period to inform the redesign of pottery. Therefore, a synthesis of the acquired results is being considered to effectively integrate these historical elements into the design process.

Table 5. Kano questionnaire result (unit: %)

Features	A	O	M	I	R	Q	Total (%)	A+O+M	I+R+Q	Category
Samanid period ’s patterns	46	5	1	18	30	0	100	52	48	A
Color combination of Samanid period	40	0	4	36	20	0	100	44	56	I
Using Kufic script	28	0	0	24	48	0	100	28	72	R
Using human miniature	16	0	0	28	56	0	100	16	84	R
Seljuq period ’s patterns	28	0	0	52	20	0	100	28	72	I
Color combination of Seljuq period	48	0	0	32	20	0	100	48	52	A
Using concepts of Iranian Literature	16	8	0	20	56	0	100	24	76	R
Using Seljuq golden and Enamel glaze	24	4	0	44	28	0	100	28	72	I
Ilkhanid period’s patterns	48	4	4	28	12	4	100	56	44	A
Color combination of the Ilkhanid period	72	12	0	8	8	0	100	84	16	A
Using Ilkhanid golden and Monochrome glaze	40	8	0	16	36	0	100	48	52	R
Timurid period’s patterns	56	4	4	20	16	0	100	64	36	A
Color combination of Timurid period	60	12	4	16	8	0	100	76	24	A
Safavid period’s patterns	28	0	0	31	41	0	100	28	72	R
Color combination of the Safavid period	48	12	0	16	24	0	100	60	40	A
Using Safavid golden and Enamel glaze	36	0	0	44	20	0	100	36	64	I

A: Attractive attributes, **O**: One-dimensional attributes, **M**: Must-be attributes, **I**: Indifference attributes, **R**: Reverse attributes, and **Q**: Questionable attributes (This rating indicates that either the question was phrased incorrectly, or the customer misunderstood the question, or an illogical response was given).

In enhancing the quality and user-artifact interaction, cultural features play a pivotal role in the design process. The study underscores the significance of three dimensions of cultural features—visceral, behavioral, and reflective—in shaping the design of environments and artifacts. Findings indicate that participants in this research exhibit a strong preference for ceramic design features from the Timurid periods. This underscores the importance of emotional product design and user experience for sustainable cultural development. Moreover, the study reveals that meeting emotional-cultural needs through creative product design is closely tied to the distinct characteristics of ceramic design across different historical periods of pottery in Iran.

DISCUSSION

The qualitative features of color and pattern during the Samanid period did not exhibit significant diversity. Specifically, the pattern feature alternated between reverse and attractive categories with 36% and 46% respectively, calculated using the corrected formula of the statistical model (Au et al., 2006), categorizing it as attractive. However, these percentages do not fully indicate consensus among responders regarding patterns from the Samanid period. Similarly, there was minimal differentiation in the color features of this period, which, using the same formula, placed these features in the neutral category. The use of Kufic script, an exclusive feature of this period, was not favored by users, resulting in an overall assessment of its features as depicted in Table 5.

The Seljuq period, renowned as one of the peak periods of pottery in Iran, elicited negative emotional reactions from users. Specifically, the use of human miniature figures, with a frequency of 56% categorized as reverse, was strongly opposed by users, indicating that such motifs should not be incorporated into the design patterns of contemporary dinnerware. Additionally, patterns featuring human faces were perceived negatively by users, described with terms suggesting discomfort. The patterns of this period did not receive a neutral reception; however, the color combinations, with 48% categorized as attractive, were positively received. Conversely, the use of literal concepts in pattern designs was also perceived negatively, categorized as reverse features.

The Ilkhanid period's pottery style captivated the responders, evoking feelings of joy and happiness. Responders described vessels from this period as beautiful and interesting. The color combinations of the Ilkhanid style, with a frequency of 72%, were noted most frequently as attractive features in the questionnaire. Similarly, the patterns from this period were also appealing to users.

The Timurid style was also well-received. Responders used positive descriptors such as pleasant to characterize vessels from this period.

The patterns from the Safavid period, with a frequency of 40%, were categorized as reverse features. However, the color combination of this period was attractive, and the type of glaze used fell into the neutral category of features.

Picture 6. Patterns and color combination of the Samanid period

Picture 7. Patterns and color combination of the Saljuq period

Picture 8. Patterns and color combination of the Ilkhanid period

Picture 9. Patterns and color combination of the Timurid period

Picture 10. Patterns and color combination of the Safavid period

The overall results of each period are summarized in Table 6. According to the table, the use of glaze in pottery, categorized as neutral in two instances and reverse in one, did not receive a positive response from users. Iranian users showed a lack of interest in certain glaze types like golden glaze, preferring clear and semi-clear glazes instead.

Regarding color combinations, users approved of four instances categorized as attractive features. However, their preference leaned strongly towards the Ilkhanid period's color palette, particularly bright colors such as golden, azure, turquoise, blue, and purple, which received a 70% frequency. Following closely was the Timurid period's color combination, featuring white, dark blue, and turquoise, with a frequency of 60%. In terms of pattern preferences, users found the styles from the Samanid, Ilkhanid, and Timurid periods attractive. In contrast, patterns from the Safavid and Seljuq periods were categorized as reverse and neutral, respectively. This finding is noteworthy as Safavid and Seljuq patterns are commonly used in many dinnerware designs. It reflects Iranian users' taste for patterns derived from specific cultural periods. For selecting a period to base the design on, both the Ilkhanid and Timurid periods emerged with similar preferences among users.

The Ilkhanid period exhibited a converse feature in terms of glaze characteristics. To decide between the Ilkhanid and Timurid periods for cultural design, it was essential to compute both the functional and non-functional numbers (Rejeb et al., 2008). The functional number indicates whether the presence of a particular feature increases user satisfaction, while the non-functional number indicates the potential increase in user dissatisfaction if the feature is present in the product (Rejeb et al., 2008). Table 7 presents the results of these indicators for the Ilkhanid and Timurid periods. Upon reviewing Table 7, it is evident that the functional indicator for color combination in the Ilkhanid period is the highest. However, when considering the periods overall, the Timurid period shows lower non-functional indicators and higher median functional indicators. Therefore, the preferred period for cultural design based on these findings is the Timurid period.

Table 6. Assessment of Iranian pottery

Features	Category
Samanid period’s patterns	A
Color combination of the Samanid period	I
Using Kufic script	R
Using human miniature	R
Seljq period’s patterns	I
Color combination of the Seljuq period	A
Using concepts of Iranian literature	R
Using Seljuq golden and Enamel glaze	I
Ilkhanid period’s patterns	A
Color combination of the Ilkhanid period	A
Using Ilkhanid golden and Monochrome glaze	R
Timurid period’s patterns	A
Color combination of the Timurid period	A
The Safavid period’s patterns	R
Color combination of the Safavid period	A
Using Safavid golden and Enamel glaze	I

Table 7. Ilkhanid and Timurid comparison

Historical Period	Functional Number	Non-functional Number
Ilkhanid period’s patterns	0.28	0.20
Color combination of the Ilkhanid period	0.42	0.08
Using Ilkhanid golden and Monochrome glaze	0.24	0.26
Timurid period’s patterns	0.32	0.18
Color combination of Timurid period	0.38	0.12

CONCLUSION

Designing products with an emotional approach aims to create experiences that bring joy and pleasure to users. Understanding how these elements affect human cognition involves considering three cultural dimensions: tangible, behavioral, and intangible aspects of users. In this research, ecstatic features from various periods of Iranian ceramics were collected and presented to users through Kano's questionnaire to analyze their emotional reactions. The analysis used standard methods within the Kano model to categorize user responses. The results indicated a clear preference among Iranian users for ceramic features from the Timurid periods, particularly favoring color combinations of blue-turquoise and patterns with dark engraving, sometimes accented with gold. Additionally, incorporating Sasanian patterns and simple arabesque designs into vessels was found to enhance their appeal to Iranian users. Utilizing these insights in dinnerware design can effectively evoke users' emotions and foster a sense of cultural belonging and identity. Drawing on successful examples in cultural and creative product design highlights the importance of placing user experience at the forefront of emotional design strategies. This approach not only supports sustainable development in cultural and creative product design but also ensures the preservation and enrichment of traditional Iranian cultural values. Designers are encouraged to integrate Iranian traditional elements thoughtfully, apply creative principles rigorously, and continuously enhance their design capabilities to further advance cultural and creative products aligned with Iran's rich heritage.

LIMITATION

The limitations include the focus on specific features of Iran ceramic periods, the lack of information about the sample size, and the generalizability of the findings to other cultural contexts. These biases may affect the validity of the research.

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