



Designing Arab Hospitality Products Inspired by the Heritage of the Kingdom of Saudi Arabia to Enrich its Internal and External Tourism Sector

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Abstract

Innovation in product design is a vital foundation for creating products with unique creative features. This is accomplished through various sources of inspiration, which offer practical designs from a functional perspective and carry original ideas from an aesthetic point of view. Arts of all kinds are seen as a rich source of inspiration, explored by studying their characteristics. By applying artistic techniques and analysing their structural elements, the product designer can develop an artistic inventory to rework into new, innovative designs. This depends on the extent to which the designer engages honestly with these works and his ability to utilise them artistically.

Keywords: Design, Arab Hospitality Products, Heritage, Kingdom of Saudi Arabia, Tourism

Introduction

The fusion of creative thought and technological innovation enables boundless possibilities in technical design. At the heart of this process lies the dynamic interaction between the product designer and technology-a relationship that unlocks immense design potential by integrating human ingenuity with advanced creative capabilities. Emerging technological methods have paved the way for novel design concepts, realised through cutting-edge techniques that push the boundaries of innovation. Applied art, inherently driven by the imperative to meet human needs through functional expression, continually seeks modern applications that elevate both aesthetic and utility. In this pursuit, it strives to produce distinctive products characterised by original design thinking and exceptional functional performance. (El-Majeed, 2021).

Design is considered a mental process of creation. It is linked to the abilities and skills of the person who creates it, as the person plans and organises based on scientific foundations that ultimately lead to presenting a new artistic work that has a sensed, tangible and moral purpose that is linked to the psychological comfort, whether for the person who does the work or the recipient. (Nader & Khasifan, 2011).



Design is generally based on the philosophy of ideas, innovation, and creativity, which involves doing something new and unique with privacy, as it is linked to an urgent need on both functional and aesthetic levels. The functional need is fulfilled by the aesthetic reality that gives meaning in form and design. Design, in its moral dimension, is based on and seeks to achieve content through expression, and building the design work considers the result of mixing idea with material, and the equality of form with content.

Design requires a comprehensive and purposeful plan to fulfil its intended function. It is fundamentally an innovative process-one that harnesses new ideas to enrich human experience and bring joy to everyday life. As a structured and integrated approach, design serves to solve problems, coordinate relationships, and guide actions toward the achievement of specific goals (Deli & Radhiwi, 2022). Honouring guests is regarded as a noble virtue and a hallmark of moral excellence. It reflects key attributes of Islamic ethics, including generosity of spirit, selflessness, tolerance, and chivalry. This tradition has deep roots in Arab culture, where acts of hospitality and generosity have long been celebrated. Classical Arabic poetry and prose are replete with tributes to this enduring custom. Islam further elevated the practice of guest honouring, emphasising its spiritual significance through the teachings of the Holy Qur'an and the Noble Sunnah. It is considered a manifestation of faith, with the Prophet Muhammad (peace be upon him) linking the act of honouring guests to belief in God and the Last Day. (Hussein, 2014) (<https://www.islamweb.net>).

There is no reception, meeting or event without providing appropriate hospitality befitting the host, and in the Kingdom of Saudi Arabia, honouring the guest is a religious and moral duty, and providing the duty of hospitality is closely linked to authentic culture and a long tradition. Guests in the Kingdom are welcomed by offering Saudi coffee and dates, as serving Saudi coffee has become part of Saudi ceremonies (<https://www.pnu.edu>).

Hospitality depends on the method of presentation and the products used in it, as the presentation must be in an orderly manner with hospitality products with attractive designs appropriate to the spirit of the times, such as "cups of all kinds, cups and coffee pots, dessert plates, food plates, trays, and fruit bowls".

The form of the product is one of the most important components of design and the one most affected by the changes that occur and are related to the design process in any of its fields, and this is clearly appears in the design of products, and by looking at everything that man has produced and is producing, we find that the form of the product is constantly changing, so after it was just a simple image showing a product that was only made to meet a basic need, its image has evolved to become more complex to meet other requirements and needs. It has evolved to include other physical and sensory dimensions, and this change and development comes from several influences that affect the established design goals and trends, and thus its outcome, represented by the product and its form (Wissam Ibrahim, 2019, p 94).



Innovation in the field of product design is an essential pillar for manufacturing products with distinct creative features, and this is achieved through the use of various sources of inspiration, which include designs that are practical from a functional aspect and carry original ideas from an aesthetic aspect. Arts of all kinds are considered a fertile source of inspiration, so by studying their artistic features and analysing their plastic structure, the product designer can create an artistic inventory to reformulate it in a new way with innovative product designs, and this depends on the extent of the designer's sincere experience of those works and their ability to employ them artistically.

The designer faces many challenges that push him to the need to search for everything new and distinctive to keep pace with the times, while searching for the spirit of modernity in his cultural heritage to create product designs with a competitive advantage and high quality, in an attempt to confirm his identity and preserve it (El-Rahim & Nash'at, 2017 p, 9).

The Kingdom of Saudi Arabia is replete with a cultural heritage and a historical legacy that confirms its role in human civilisation, as many world civilisations intersected on its land. The General Authority for Tourism and National Heritage in the Kingdom worked on the antiquities sector according to a specific strategy to develop the sector (the General Authority for Tourism and National Heritage, 2020).

The tourism sector in the Kingdom of Saudi Arabia is recognised as one of the most promising and rapidly growing emerging industries. In alignment with Vision 2030, the Kingdom has strategically prioritised tourism development, integrating it as a key objective-albeit indirectly-within the third-tier goals of its national transformation agenda. This policy emphasis reflects a multifaceted commitment to enhancing and supporting the sector through diverse initiatives. Notably, Saudi Arabia holds a distinguished position as a global religious tourism destination, welcoming millions of pilgrims annually for Hajj and Umrah. (Al-Fida, 2020,p 285).

Tourism has witnessed great development and interest in recent years, which has made the Kingdom encourage investment in the tourism sector to change the concept of domestic tourism and make it competitive with foreign tourism to achieve a global tourism industry. The Kingdom of Saudi Arabia intended to focus its economic perspective on establishing huge tourism projects based on its important location that links Asia, Europe and Africa, to activate and develop the tourism sector, encourage tourism investments, and link tourism with entertainment, and that in cooperation between the General Authority for Tourism and National Heritage and the General Entertainment Authority (Al-Shanbari et al., 2023, p 2)

The various heritage sources are considered the distinguishing feature of every people and nation from others. They are the roots that connect people's present with their past, shape their future, determine the identity of their future generations, the source of their pride and



identity. The Kingdom of Saudi Arabia possesses many different and multiple heritage sources that represent its ancient history extending over hundreds of years, and its preservation, maintenance and perpetuation have become a goal for everyone within Vision 2030. (Al-Ghammas & Mohammed, 2021, p 216).

A diverse body of research has explored the design of products inspired by the cultural heritage of the Kingdom of Saudi Arabia. For instance, Al-Khelaiwi (2024) investigated the integration of Saudi heritage into traditional fashion elements to develop wall products that enhance aesthetic appeal. The study examined regional variations in materials and colour schemes used in traditional attire, aiming to reinterpret these elements in contemporary wall designs while preserving the distinctive character of Saudi heritage.

Similarly, Turkistani and Choudhary (2023) focused on the Dadan inscriptions-an enduring symbol of national cultural heritage that reflects the ancient human civilisation of the region. Their study analysed the inscriptions' formal qualities, including line work, colour, material, and texture, to inform the creation of modern ceramic designs that bridge historical legacy with present-day artistic expression.

In another vein, Ali (2021) emphasised the strategic role of innovative packaging in marketing and sales activation. Her research positioned packaging as a cultural conduit, introducing Arab heritage to consumers while fostering a dynamic relationship between packaging design and consumer behaviour.

Shoman (2013) explored the potential of Saudi folklore as a source of inspiration for religious tourism products. His study aimed to reduce reliance on imported goods by developing locally rooted designs that resonate with pilgrims and Umrah visitors. It also highlighted the importance of cultivating creative talent among youth, showcasing aesthetic values in Saudi decorative arts, and revitalising folklore within the religious tourism context.

Al-Dabagh and El-Hafeez (2009) examined the adaptation of traditional Saudi clothing heritage into innovative souvenir products. Their work sought to contribute to tourism development by disseminating the Kingdom's distinctive sartorial culture through design, thereby enhancing the visibility and appeal of Saudi heritage in the tourism sector.

Based on the recommendations of the previous studies, the researcher presented his research idea, which is based on designing Arab hospitality products inspired by the heritage of the Kingdom of Saudi Arabia to enrich its domestic and foreign tourism sector, and carrying within it aesthetic and material values to transform it into a product capable of competing in the Arab and international markets.



Research problem

The research problem consists of the following questions:

- What is the possibility of designing Arab hospitality products inspired by the heritage of the Kingdom of Saudi Arabia to enrich its internal and external tourism sector?
- What is the possibility of highlighting the aesthetics of heritage art for the designs of Arab hospitality products inspired by the heritage of the Kingdom of Saudi Arabia to enrich its internal and external tourism sector?
- What is the degree of specialists' acceptance of the designs of Arab hospitality products inspired by the heritage of the Kingdom of Saudi Arabia to enrich its internal and external tourism sector?

Research objectives

This research aims to:

- Designing Arab hospitality products inspired by the heritage of the Kingdom of Saudi Arabia to enrich its internal and external tourism sector?
- Highlighting the aesthetics of heritage art for the designs of Arab hospitality products inspired by the heritage of the Kingdom of Saudi Arabia to enrich its internal and external tourism sector?
- Measuring the degree of specialists' acceptance of the designs of Arab hospitality products inspired by the heritage of the Kingdom of Saudi Arabia to enrich its internal and external tourism sector?

Research importance

The importance of this research is due to:

- Rooting the heritage features of Saudi society and highlighting the heritage art as an important factor in attracting tourists and activating tourism by introducing it into Arab hospitality products.
- Benefiting from 3D design programs to design three-dimensional products closely for the final visualisation after manufacturing
- Enriching the scientific library and supporting previous research related to designing hospitality products.

Research terms

Design:

It is drawing, planning, imagination, and the significance of a form. Design is the external structure of the product, and might indicate what the internal details it may contain, and it is



considered one of the most important elements of the success of any product (Al-Fida, 2020, p 285).

Products:

A product includes everything that is manufactured or produced for sale, marketing, and exports to individuals, groups, or countries, and varies among industrial and agricultural products and services (Baouli, 2009, p 76).

Hospitality:

The word hospitality is derived from the word "poverty", which means the crowding of people for water and food. In old times, hospitality was represented in the practice of welcoming the guest, which is a moral virtue and an obligatory duty for the individual. The concept of hospitality applies to protecting the traveller or stranger, and taking care of him while he travels, because travel is fraught with risks. As for the concept of hospitality in the modern sense, it is a concept that has great importance from a moral and social aspect, as it contributes to consolidating positive social communication among individuals. Hospitality also means leisure time that results in human relations between a person and his family and friends; it includes kindness and friendliness in welcoming (Al-Saqili, 2022, p 222).

Inspiration:

Inspiration leads to the new and the unfamiliar, and it is not easy to formulate it in a theory while it is in the state of construction, just as the designer treats it with care until he reaches aesthetic discovery and innovation, to turn inspiration into achievements (Suhail, 2015, p 87).

Heritage:

The cultural stock inherited by the ancestors, which includes religious, historical, civilizational and popular values, including customs and traditions, whether these values are written in the heritage or spread between its lines, or inherited or acquired over time. Heritage is the spirit of the past, the spirit of the present, and the spirit of the future for the person who lives, and his personality and identity die if he moves away from it, whether in his words or actions (Al-Ghamas & Mohammed, 2021, p 217).

Heritage of the Kingdom of Saudi Arabia:

Saudi heritage represents everything that the Saudi ancestors left behind to their children, and what the previous generations passed down to the current generations of customs, traditions, etiquette, values, and popular, cultural, and material knowledge. Saudi folk heritage has a special taste in which originality is mixed with modernity, and the fragrance of the past and the magical smell of history in it. It is one of the pillars of national identity; it is



the vessel from which faith, traditions, authentic values, language and ideas are derived (<https://aau.ac.ae/ar>).

Internal and external tourism sector:

The tourism sector is interested in highlighting the Kingdom of Saudi Arabia as a tourist destination and marketing it globally and locally, attracting visitors and encouraging tourism there. It also develops, distributes and markets tourism packages and products in cooperation with the private sector, and supervises their distribution locally and internationally. The Saudi Tourism Department supervises the marketing and promotional campaigns for tourist destinations in the Kingdom, participates in tourism exhibitions inside and outside the Kingdom, measures the results of the tourist experience, and proposes opportunities to improve them to the concerned authorities (<https://www.sta.gov>).

Procedural definition:

Designing Arab hospitality products, represented in "Arabic Coffee Thermos", inspired by the heritage of the Kingdom of Saudi Arabia, through diversity in design elements of "line, dot, shape, material, colour", to support the tourism sector in the Kingdom of Saudi Arabia in accordance with the goals of Vision 2030, using artificial intelligence (AI) technology.

Research hypotheses

- There are statistically significant differences among the four designs in highlighting the aesthetics of the heritage art, according to the specialists' opinions.
- There are statistically significant differences among the four designs in supporting the tourist sector, according to the specialists' opinions.
- There are statistically significant differences among the four designs in creativity by the artificial intelligence technology, according to the specialists' opinions.
- There are statistically significant differences among the four designs according to the specialists' opinions.

Research methodology

The research methodology is determined according to its objectives and procedures. Accordingly, the current research follows the descriptive analytical approach with the application. The descriptive approach depends on studying the phenomenon as it exists in reality and is concerned with describing it accurately. It is not limited to collecting data, but rather includes an adequate interpretation to obtain objective results that are consistent with the actual data.



Research sample:

The researcher created four designs for the Arab hospitality products inspired by the heritage of the Kingdom of Saudi Arabia to enrich the internal and external tourism sector, and they were presented to 10 specialised professors to express their opinions on the innovative designs.

Research tools:

A questionnaire of the specialists' evaluation for designs of the Arab hospitality products inspired by the heritage of the Kingdom of Saudi Arabia to enrich its internal and external tourism sector :

The researcher prepared a questionnaire to know the opinions of the specialists on the proposed designs. The questionnaire consisted of three axes:

- The first axis: Highlighting the aesthetics of the heritage art: It consisted of "7" phrases.
- The second axis: Supporting the tourist sector: It consisted of "6" phrases.
- The third axis: Artificial Intelligence technology: It consists of "5" phrases.

The answers to the questionnaire phrases were determined according to Likert's treble gradation, so that the sample individuals' express their opinions on a three-dimensional continuum, by choosing one of the alternatives (I agree, I agree to some extent, I disagree), and their responses are given relative weights (3 -2-1) for positive phrases, and (1-2-3) for negative phrases.

Research limits:

This research was limited to:

- Arab hospitality products "Arab coffee thermos".
- The heritage of the Kingdom of Saudi Arabia in the "Asir, Najd, Hijaz, and Al-Ula" regions.

Research theoretical framework

Product designing is defined as the comprehensive approach taken to build a new product from the beginning to finish and includes all stages of production, starting from the idea, proceeding to market research, determining problems and developing products (<https://www.creativeblend.com>).

Product designing divisions:

Product design is divided into two branches that integrate:



▪ **Functional designing:**

Represents the suitability of the product for the final use, taking into account the category to which the product is directed, and applying the basics of optimal use of ease of use and quality of construction and installation, which can be obtained from measuring the performance of using the product.

▪ **Aesthetic design:**

It represents the elements of making the product aesthetically successful, including the proportionality of sizes and lengths, the harmony of the different parts, and the extent of integration of the materials that make up the piece. Drawings and engravings may be included in some products, which would be subject to the basic laws of design, including dot, line, balance, rhythm, and colour harmony. (Al-Fida, 2020, p 285).

Product designing factors:

• **Determining the type of product:**

This means knowing the type of product, whether an aesthetic product, a utilitarian product, or both, and combining the aesthetic elements of the design with the functional element and the suitability of the product for use is considered one of the most important elements of good design.

• **Determining the function of the product:**

This means specifying the name of the product and its uses, and by defining the function, special specifications can be determined for the design of each product that suits the nature of its use.

• **Determining the appropriate material for implementation:**

This means determining the type of basic and auxiliary materials used in manufacturing the product, and studying the extent of the success of integrating more than one material into the product aesthetically, and the extent of the ability to apply it technically.

• **Determining the techniques to be applied to implement the product:**

This means manufacturing techniques to implement the design according to the proposed perception (Ibrahim, 2019, p 102).

Product dimensions:

- **The essential dimension:** the dimension that expresses the benefit that the customer needs and expects from the product.
- **The tangible dimension:** The dimension that represents the tangible aspects of the product, and includes the materiality characteristics such as "shape, quality, trade name".



- **The additional dimension:** the dimension represented by a set of services added to the product, which the consumer obtains when purchasing the product (Baouli, 2009, p 76).

Arab hospitality products:

- **Thermos:**

It is a heat-insulated container that can preserve the temperature of hot drinks. Thermos relies on vacuum insulation technology to preserve temperature, as it contains an inner wall and an outer wall with an airless vacuum between them to prevent the transfer of heat. The thermos industry has developed recently, and many of its shapes and types have spread, as the temperature is now preserved for a longer period (<https://artivira.com>).

The theory of how the thermos preserves temperature is based on making the inner bottle from heat-insulating materials with the use of vacuum insulation technology, in which the inner glass of the thermos is covered with a silver layer to prevent heat transfer by radiation, while the vacuum between the inner and outer wall is to prevent heat transfer through convection, the two inner walls are made thin so that they can prevent heat from entering or leaving, and the outer cover provides additional heat insulation (<https://www.rosethermos.com>).



Schematic diagram of the components of a thermos

<https://www.rosethermos.com>

Properties that must be available in a thermos:

- Internal and external cohesion of the thermos parts.
- The quality of raw materials used in the manufacture of internal and external thermos parts.
- The ideal weight for the thermos to retain heat optimally.
- There are no black dots distributed inside the thermos (<https://artivira.com>).



- **Dallah "coffee pot":**

The vessel used in preparing and serving Arabic coffee. Dallah is associated with Arab folklore in general and the Arabian Peninsula in particular. The traditional Dallah industry has been known to the Arabs since pre-Islamic times. Dallah is usually made of copper, zinc and good metals, as it lasts for suitable use and is passed down through generations among the Arab tribes and the people of the desert due to its status and symbolism. Dallah consists of "the bottom of the Dallah, the mortar, the mouth, the hand, and Al-Lahaj" (Al-Sahahiri, 2023, p 344).

- **Cup:**

A small vessel used for drinking, and cups are usually made of "pottery, porcelain, glass" (<https://web.archive.org>).

- **Cups tray:**

They are commonly used for serving and home decoration, are of different lengths, sometimes have handles for carrying them, and are made of metals such as "copper, stainless steel, aluminium, silver" (Al-Sahahiri, 2023, p 351).

- **Incense burner:**

It is a vessel for burning incense or perfume in its solid form. It varies greatly in size, shape, and manufacturing materials, and has been used since ancient times all over the world. Burning incense has spiritual and religious connotations (Al-Baalbaki, 2008, p 202).

				
Coffee thermos *	Dallah **	Coffee cup ***	Cups tray****	Incense burner *****

* <https://qasaralasar.com>

** <https://eg.almarjanstore.com>

*** <https://sa.tanagra.me>

**** <https://ekitchen.com>

***** <https://mahally.com>



Heritage of the Kingdom of Saudi Arabia:

Heritage is defined as everything left by ancestors to their children and what previous generations inherited to current generations of customs, traditions, literature, values, and popular, cultural, and material knowledge. Folk heritage includes stories, legends, poems, games, songs, popular proverbs, celebrations, feasts, dance, arts, and crafts. All of these elements are the cultural heritage result of the nation, which can be called "the nation's heritage". Folk heritage in Saudi Arabia has a special authenticity that blends with modernity and exudes the fragrance of the past and the magic of history. Folk heritage in Saudi Arabia is one of the pillars of the national identity, as it is the vessel from which it derives its faith, traditions, authentic values, language, and ideas (Kanaan, 2018, p 2).

The Kingdom enjoys a unique diversity in all elements of folk heritage among the regions of the Kingdom, and each type of this ancient heritage represents social life in its various fields in each region. The following are the most important of these regions, explaining their most important heritage features:

Najd region:

One of the historical territories of the Arabian Peninsula and the largest in area, and one of its most famous tourist attractions is "Al-Masmak Palace". It is located in the centre of Riyadh city, and its original name is "Al-Masmak Palace", due to the thickness of its walls and floors. It is considered one of the most prominent national monuments. It is one of the authentic buildings of Riyadh that exists to this day. The palace contains a museum dedicated to the story of the unification of the Kingdom, and it is divided into six main parts: the palace gate on the western side, the mosque to the left of the entrance, the Majlis or Diwaniyah in the front of the entrance, and the well in the north-eastern side, the towers in each of its four corners, and the courtyard surrounded by rooms with columns connected internally, In addition, the palace included three residential units, the first was for the Sovereign, the second was a money house, and the third was for guests' accommodation. (<https://heritage.moc.gov.sa>).

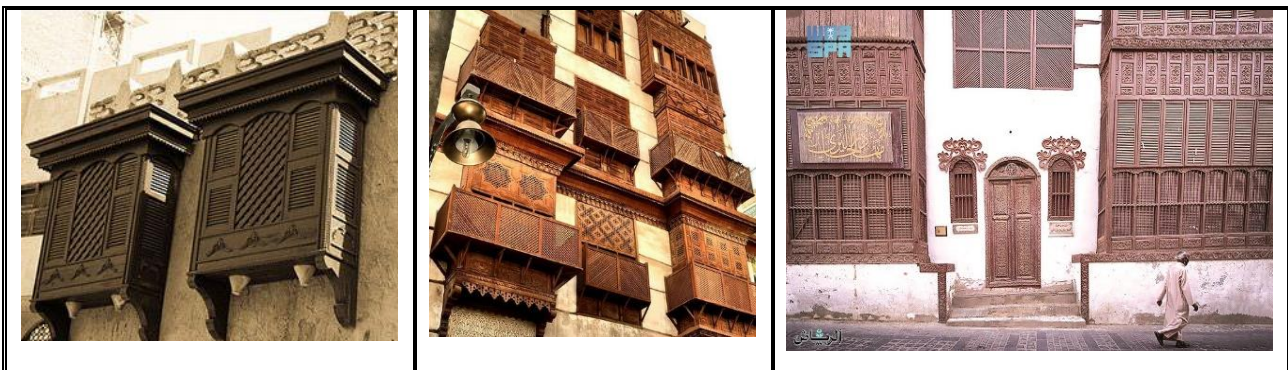


Design of Al-Masmak Palace "externally, internally" <https://heritage.moc.gov.sa>



Hijaz region:

It is considered one of the five territories of the Arabian Peninsula, and is located in the western part of the Arabian Peninsula. Hijaz means the barrier, which is the dividing border, as it separates Tihama from Najd. One of its most famous tourist attractions is "Al-Roshan", and Rawashin industry is considered one of the heritage crafts in which the people of Hijaz excelled and which they passed down from father to son in the late Hegira, sixth century. Rawashin was not only manufactured as a charming decoration for homes, but rather it was built in a smart way that works to cool pottery drinking vessels, and it was made in a way that protects homes from dust, rain and sun. It was also designed in a way to insulate the house while allowing rays of sunlight to enter and illuminate it (Hegazy, 2011, p 521).



Al-Roshan Al-Hijazi

<https://twitter.com>

Asir region:

Among its most famous tourist attractions are the Asiriya houses, which are pieces of ancient Saudi heritage and are distinguished by many features that differ from other regions. The house is distinguished by its exquisite design and saturated colours from the inside, and the local architecture is characterized by the harmony of the blocks and the distribution of small windows on the external facades, which achieves harmony between the interior and the exterior, and creativity appears in choosing geometric units that suit the external building space, which were abstract geometric units that arouse curiosity to enter the building, wander inside it, and enjoy the decorative drawings and inscriptions it contains (<https://tasmeemblog.wordpress.com>).

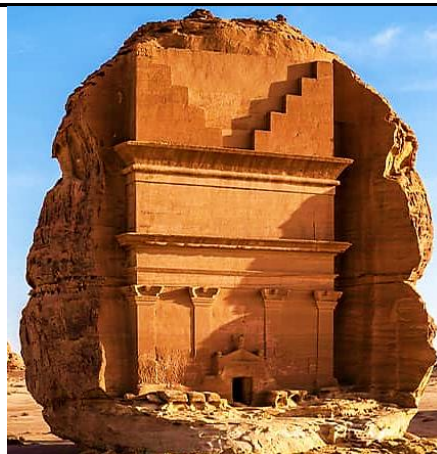


One of the Asir houses

<https://arabsstock.com>

Al-Ula area:

One of the cities of the Kingdom of Saudi Arabia, and one of its most famous tourist attractions, is the Nabataean City of Al-Hijr, which dates back to the first century BC. Visitors to the historical site will find more than 100 huge, well-preserved tombs, and most of these tombs are distinguished by elaborately carved facades of Rock formations (<https://ar.unesco.org>).



Nabataean City of Al-Hijr

<https://ar.unesco.org>



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Applied framework:

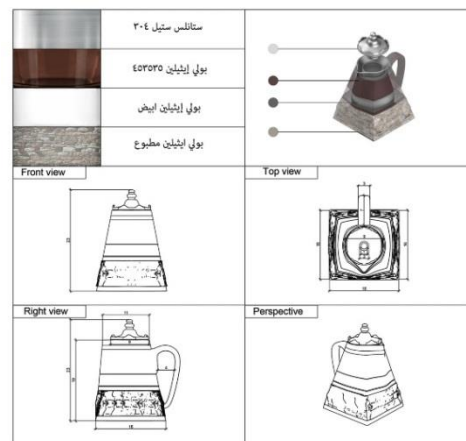
Saudi folk heritage has a special taste in which authenticity is mixed with modernity, and exudes the fragrance of history. It is one of the pillars of the Saudi national identity from which its belief is derived, and caring for Saudi heritage is a necessity and a national duty. The researcher was prompted to design Arab hospitality products inspired by the heritage of the Kingdom of Saudi Arabia, and highlighting the role of Saudi folklore in supporting the internal and external tourist sector. The following is a presentation of the designs of the products that are the research subject:

The first design

The source of inspiration is "Asiri Urban Heritage"



Components of the designed product, and a schematic drawing of it from different directions



The first designed product, "coffee thermos"



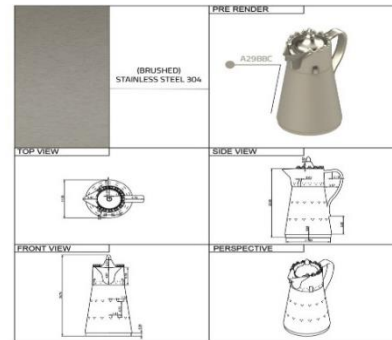


The second design

The source of inspiration is "Al-Masmak Palace"



Components of the designed product, and a schematic drawing of it from different directions



The second designed product, "coffee thermos"

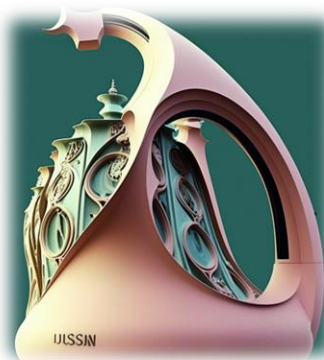


The third design


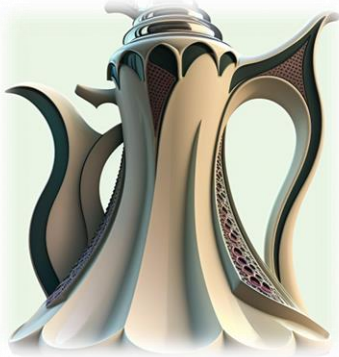
The source of inspiration is "Antoni Gaudí"
The most famous Spanish architectural school



The designed product





The fourth design	
<p>The source of inspiration is "Antoni Gaudí" The most famous Spanish architectural school</p> 	<p>The designed product</p> 

Sincerity and Reliability

A questionnaire of the specialists' evaluation for the proposed designs:

Sincerity of the questionnaire:

It means the ability of the questionnaire to measure what it was used to measure.

Sincerity of the internal consistency:

- 1- Calculating the correlation coefficients between the degree of each phrase of the phrases that make up each axis, and the total degree of the axis in the questionnaire.
- 2- Calculating the correlation coefficients between the total degree for each axis of the questionnaire and the total degree in the questionnaire.

The first axis: Highlighting the aesthetics of the heritage art:

Sincerity has been calculated using the internal consistency obtained from the correlation coefficient (Pearson correlation coefficient) between the degree of each phrase and the degree of the axis (**Highlighting the aesthetics of the heritage art**), and the following table shows that:

Table (1) values of the correlation coefficients between the degree of each phrase and the degree of the axis (Highlighting the aesthetics of the heritage art)

S-	Correlations	Significance
1-	0.870	0.01
2-	0.794	0.01



3-	0.618	0.05
4-	0.725	0.01
5-	0.954	0.01
6-	0.630	0.05
7-	0.819	0.01

It is clear from the table that all the correlation coefficients are significant at the 0.01 to 0.05 level because they are close to the whole one, which indicates the validity and homogeneity of the questionnaire phrases.

The second axis: Supporting the tourist sector:

Sincerity has been calculated using the internal consistency obtained from the correlation coefficient (Pearson correlation coefficient) between the degree of each phrase and the degree of the axis (**Supporting the tourist sector**), and the following table shows that:

Table (2) values of the correlation coefficients between the degree of each phrase and the degree of the axis (Supporting the tourist sector)

S-	Correlations	Significance
1-	0.640	0.05
2-	0.751	0.01
3-	0.607	0.05
4-	0.836	0.01
5-	0.899	0.01
6-	0.921	0.01

It is clear from the table that all the correlation coefficients are significant at the 0.01-0.05 level because they are close to the whole one, which indicates the validity and homogeneity of the questionnaire phrases.

The third axis: Artificial Intelligence technology:

Sincerity has been calculated using internal consistency obtained from calculating the correlation coefficient (Pearson correlation coefficient) between the degree of each phrase and the degree of the axis (**Artificial Intelligence technology**), and the following table shows that:



Table (3) values of the correlation coefficients between the degree of each phrase and the degree of the axis (Artificial Intelligence technology)

S-	Correlations	Significance
1-	0.909	0.01
2-	0.625	0.05
3-	0.827	0.01
4-	0.713	0.01
5-	0.777	0.01

It is clear from the table that all the correlation coefficients are significant at the 0.01-0.05 level because they are close to the whole one, which indicates the validity and homogeneity of the questionnaire phrases.

Sincerity by using the internal consistency between the total degree of each axis and the total degree of the questionnaire:

Sincerity has been calculated using internal consistency obtained from the correlation coefficient (Pearson correlation coefficient) between the total degree of each axis (**Highlighting the aesthetics of the heritage art, supporting the tourist sector, Artificial Intelligence technology**) and the total degree of the questionnaire and the following table shows this:

Table (4) values of the correlation coefficients between the total degree of each axis (Highlighting the aesthetics of the heritage art, Supporting the tourist sector, Artificial Intelligence technology) and the total degree of the questionnaire

	Correlations	Significance
The first axis: Highlighting the aesthetics of the heritage art	0.808	0.01
The second axis: Supporting the tourist sector	0.746	0.01
The third axis: Artificial Intelligence technology	0.851	0.01

It is clear from the table that all the correlation coefficients are significant at the 0.01 level because they are close to the whole one, which indicates the validity and homogeneity of the questionnaire axes.



Reliability:

Reliability means the accuracy of the test in the measurement and observation, and it does not contradict itself. Its consistency with what it provides us with information about the examiner's behaviour, and it is the ratio between the variance of the degree on the questionnaire that indicates the actual performance of the examiner, and the reliability has been calculated by:

- 1- Alpha Cronbach coefficient
- 2- Split-half method

Table (5) values of the reliability coefficient of the questionnaire axes

Axes	Alpha coefficient	Split-half
The first axis: Highlighting the aesthetics of the heritage art	0.824	0.781 – 0.860
The second axis: Supporting the tourist sector	0.913	0.873 – 0.957
The third axis: Artificial Intelligence technology	0.752	0.712 – 0.796
Reliability of the questionnaire as a whole	0.879	0.834 – 0.913

It is clear from the previous table that all values of the reliability coefficients: the Alpha coefficient and the Split-half are significant at the 0.01 level, indicating the high reliability of the questionnaire.

Research results

The first hypothesis:

"There are statistically significant differences among the four designs in highlighting the aesthetics of the heritage art, according to the specialists' opinions".

To investigate this hypothesis, an analysis of variance was calculated for the mean degrees of the four designs in highlighting the aesthetics of the heritage art, according to the specialists' opinions, and the following table shows that:

Table (6): An analysis of variance for the mean degrees of the four designs in highlighting the aesthetics of the heritage art, according to the specialists' opinions

Highlighting the aesthetics of the heritage art	Sum of Squares	Squares mean	Degrees of freedom	Value of (F)	Sig.



Among groups	691.728	230.576	3	54.034	0.01 Sig.
Within groups	153.621	4.267	36		
Sum	845.349		39		

Table (6): shows that the value of (F) was (54.034), and it is a statistically significant at the 0.01 level, which indicates the existence of differences among the four designs in highlighting the aesthetics of the heritage art, according to the specialists' opinions, and to know the direction of the significance, the test of LSD for the multiple comparisons was applied. The following table shows this:

Table (7) test of LSD for the multiple comparisons

Highlighting the aesthetics of the heritage art	The first design M=20.592	The second design M=10.366	The third design M=17.357	The fourth design M=14.668
The first design	-			
The second design	10.226**	-		
The third design	3.235**	6.991**	-	
The fourth design	5.924**	4.302**	2.689*	-

**Significant at 0.01

* significant at 0.05

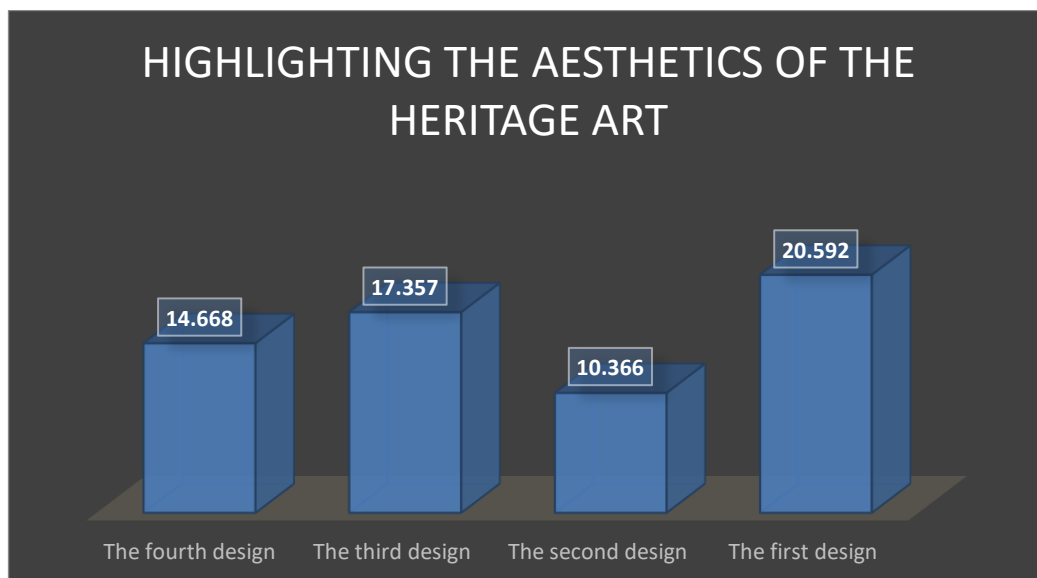


Chart (1) shows the mean degrees of the four designs in highlighting the aesthetics of the heritage art, according to the specialists' opinions



From table (7) and chart (1), it is clear that:

1. There are statistically significant differences among the four designs at the significance level of 0.01, so we find that the design "1" was the best in highlighting the aesthetics of the heritage art according to the specialists' opinions, followed by the design "3", then the design "4", and finally the design "2".
2. Also, there are differences at the significance level of 0.05 between the design "3" and the design "4" in favour of the design "3".

The second hypothesis:

"There are statistically significant differences among the four designs in supporting the tourist sector, according to the specialists' opinions".

To investigate this hypothesis, an analysis of variance was calculated for the mean degrees of the four designs in supporting the tourist sector, according to the specialists' opinions, and the following table shows that:

Table (8) an analysis of variance for the mean degrees of the four designs in supporting the tourist sector, according to the specialists' opinions

Supporting the tourist sector	Sum of Squares	Squares mean	Degrees of freedom	Value of (F)	Sig.
Among groups	726.509	242.170	3	38.048	0.01 Sig.
Within groups	229.137	6.365	36		
Sum	955.646		39		

Table (8): shows that the value of (F) was (38.048), and it is a statistically significant at the 0.01 level, which indicates the existence of differences among the four designs in supporting the tourist sector, according to the specialists' opinions, and to know the direction of the significance, the test of LSD for the multiple comparisons was applied. The following table shows this:

Table (9) test of LSD for the multiple comparisons

Supporting the tourist sector	The first design M=9.272	The second design M=16.765	The third design M=13.667	The fourth design M=17.841
The first design	-			
The second design	7.493**	-		



The third design	4.395**	3.098**	-	
The fourth design	8.569**	1.076	4.174**	-

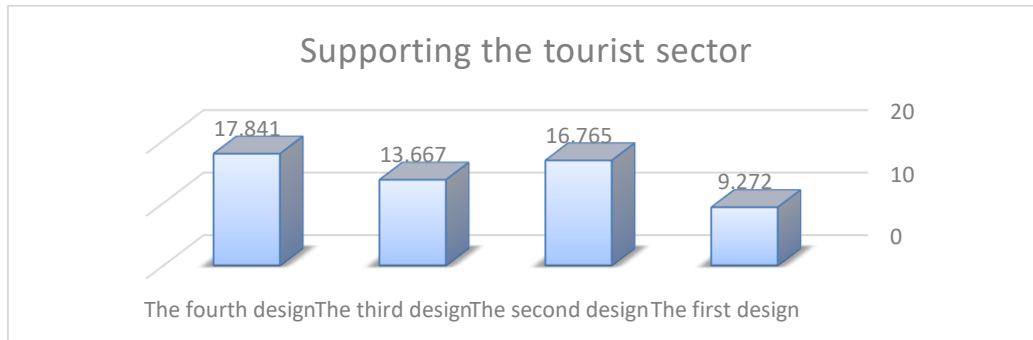


Chart (2) shows the mean degrees of the four designs in supporting the tourist sector, according to the specialists' opinions

From table (9) and chart (2), it is clear that:

1. There are statistically significant differences among the four designs at the significance level of 0.01, so we find that the design "4" was the best in supporting the tourist sector according to the specialists' opinions, followed by the design "2", then the design "3", and finally the design "1".
2. While there aren't differences between the designs "2" and the design "4".

The third hypothesis:

"There are statistically significant differences among the four designs in creativity by the artificial intelligence technology, according to the specialists' opinions".

To investigate this hypothesis, an analysis of variance was calculated for the mean degrees of the four designs in creativity by the artificial intelligence technology, according to the specialists' opinions, and the following table shows that:

Table (10): An analysis of variance for the mean degrees of the four designs in creativity by the artificial intelligence technology, according to the specialists' opinions

The artificial intelligence technology	Sum of Squares	Squares mean	Degrees of freedom	Value of (F)	Sig.
Among groups	763.723	254.574	3	28.334	0.01 Sig.
Within groups	323.446	8.985	36		



Sum	1087.169		39		
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Table (10): shows that the value of (F) was (28.334), and it is a statistically significant at the 0.01 level, which indicates the existence of differences among the four designs in creativity by the artificial intelligence technology, according to the specialists' opinions, and to know the direction of the significance, the test of LSD for the multiple comparisons was applied. The following table shows this:

Table (7) test of LSD for the multiple comparisons

The artificial intelligence technology	The first design M=9.815	The second design M=14.778	The third design M=6.511	The fourth design M=12.568
The first design	-			
The second design	4.963**	-		
The third design	3.304**	8.267**	-	
The fourth design	2.753*	2.210*	6.057**	-

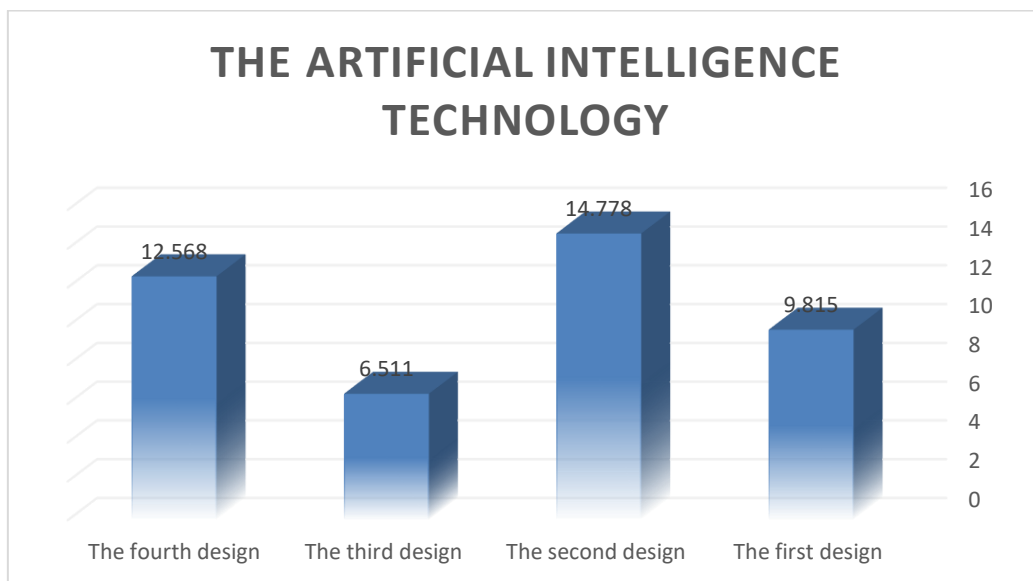


Chart (3) shows the mean degrees of the four designs in creativity by the artificial intelligence technology, according to the specialists' opinions



From table (11) and chart (3), it is clear that:

1. There are statistically significant differences among the four designs at the significance level of 0.01, so we find that the design "2" was the best in creativity by the artificial intelligence technology according to the specialists' opinions, followed by the design "4", then the design "1", and finally the design "3".
2. Also, there are differences at the significance level of 0.05 between the design "1" and the design "4" in favour of the design "4". Also, there are differences at the significance level of 0.05 between the design "2" and the design "4" in favour of the design "2".

The fourth hypothesis:

"There are statistically significant differences among the four designs according to the specialists' opinions".

To investigate this hypothesis, an analysis of variance was calculated for the mean degrees of the four designs according to the specialists' opinions, and the following table shows that:

Table (12): An analysis of variance for the mean degrees of the four designs according to the specialists' opinions

The total sum "the specialists"	Sum of Squares	Squares mean	Degrees of freedom	Value of (F)	Sig.
Among groups	713.666	237.889	3	42.872	0.01 Sig.
Within groups	199.757	5.549	36		
Sum	913.423		39		

Table (12): shows that the value of (F) was (42.872), and it is statistically significant at the level (0.01), which indicates the existence of differences among the four designs according to the specialists' opinions. and to know the direction of the significance, the test of LSD for the multiple comparisons was applied. The following table shows this:

Table (13) test of LSD for the multiple comparisons

The total sum "the specialists"	The first design M=39.679	The second design M=41.909	The third design M=37.535	The fourth design M=45.077
The first design	-			
The second design	2.230*	-		



The third design	2.144*	4.374**	-	
The fourth design	5.398**	3.168**	7.542**	-

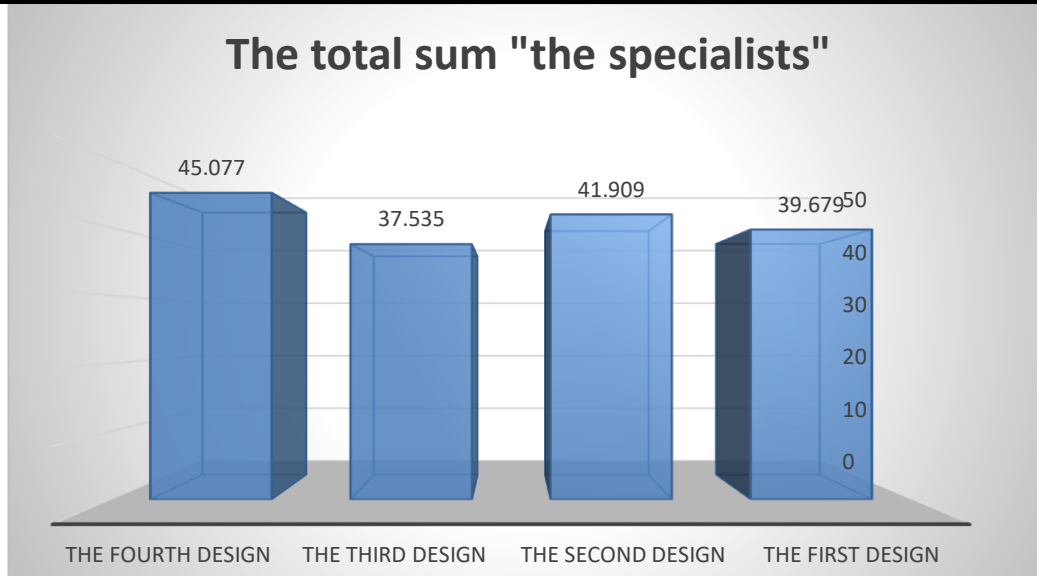


Chart (4) shows the mean degrees of the four designs according to the specialists' opinions

From table (13) and chart (4), it is clear that:

1. There are statistically significant differences among the four designs at the significance level of 0.01, so we find that the design "4" was the best design according to the specialists' opinions, followed by the design "2", then the design "1", and finally the design "3".
2. Also, there are differences at the significance level of 0.05 between the design "1" and the design "2" in favour of the design "2". Also, there are differences at the significance level of 0.05 between the design "1" and the design "3" in favour of the design "1".

Research Recommendations

- 1- Spreading the culture of interest in heritage identity in inspiration of various product designs to support local and foreign tourism in the Kingdom of Saudi Arabia.
- 2- Providing training courses for graduates that will benefit them in the field of drawing designs for the products using two- and three-dimensional computer programs to keep pace with developments in the labour market.
- 3- Interest in studying "the Artificial Intelligence" technology for students to draw designs for various products to reduce costs, effort and time spent on drawing.



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