

# **Reviving the heritage of ceramic works from the Dilmun era**

## **As an artistic value in the State of Kuwait.**

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### **Abstract**

This study aims to explore the ceramic forms from the Dilmun era as a vital element for understanding the cultural heritage of the State of Kuwait and the region in general. The study analyses artefacts unearthed at archaeological sites throughout Kuwait, employing historical and anthropological methods to comprehend the contexts in which these items were created and their diverse purposes. The study used AI techniques to revive the heritage of ceramic works and empower students with cutting-edge strategies that redefine teaching and learning practices. This technique enhanced student inspiration from the Dilmun era of ceramic works for actionable solutions that transform education by leveraging technology, fostering creativity, and driving meaningful change.

Keywords: Historical ceramic shapes, Dilmun era in Kuwait, AI techniques

### **Introduction.**

The civilisational history of the Arabian Gulf region, particularly the State of Kuwait, is one of the most historical era's rich in cultural and civilisational diversity. Among these eras, the Dilmun civilisation stands out as one of the greatest civilisations that flourished in the Gulf region, as it formed a cultural and commercial bridge between the cultures of Mesopotamia, the Valley of Indus, and the Arabian Peninsula. Dilmun illustrated a strategic center for commercial and economic movement in the ancient world, designated as a meeting point for different civilisations. This left a clear impact on its cultural

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and artistic manifestations, including the ceramic forms created by the people of that era [1].

Ceramics is one of the oldest arts that reflects daily human life and its aesthetic and functional requirements, providing an exceptional perspective to understand ancient societies' social, economic and artistic lifestyles [2]. By studying the ceramic forms discovered in archaeological sites in the State of Kuwait, dating back to the Dilmun civilisation, we can go through the details of that historical era, starting with the materials used in making ceramics, through the methods and techniques they adopted, and reaching the decorative patterns that carried cultural and social connotations. The Dilmun period in the State of Kuwait has captivated historians worldwide, offering insights into an era rich in events and stability. This period is particularly notable for its diverse ceramic forms, which display remarkable craftsmanship and an exceptional ability to shape and embellish these vessels. [3].

The Dilmun civilisation emerged in the Mesopotamian origins as a land of Eden and a supplier of ivory, copper, pearls and dates whose boats came from Ur ports. After the destruction of the Akkadian regime in the second half of the third millennium BC, Dilmun experienced some notable changes in various aspects of life. The existence of planned residential settlements with major architectural components and numerous grave complexes and 'Royal Mounds' in Bahrain marked extraordinary economic growth and socio-political growth in the early second millennium BC, suggesting the emergence of a stratified social scale.

The ceramic forms draw attention to the designs and materials used in manufacturing, reflecting cultural exchanges during Dilmun's evolution. Nevertheless, the artistic legacy of this historically significant civilisation is diminished [4].

### **Research Problem**

- The Dilmun era in Kuwait has been studied from a historical perspective, but no significant attention has been given to the art of pottery as an artistic work taught in a higher education program.
- This research dives into the decision-making process to revive this type of heritage craft.
- Provide an artistic work to be presented to researchers and those interested in studying ceramics, especially the study of the arts, inspired by the heritage of the Dilmun era.

### **Importance of the research**

- There is a significant relationship between ceramic vessels in the historical and artistic Dilmun era.
- The era of Dilmun contains many influential parts, indicating its interest in ceramic vessels.
- Presenting this era in a new way of AI technology for researchers and art pedagogy.

### **Research objectives:**

- Highlighting the historical and artistic value of the Dilmun era in the State of Kuwait.
- Presenting this era in a new way for students, such as the history and artifact of ceramics.
- The Dilmun era in Kuwait contains a special type of ceramic artefacts
- Enhance students' design capabilities, mainly inspired by the Dilmun era and art creativity, using Caneva's AI tool.

### **Research limits:**

- The historical Dilmun era in the State of Kuwait
- Focus on the effects of ceramic vessels in this era.
- Enhance students' design capabilities, particularly in the Kuwait state's composition, layout, and ceramic heritage.

### **Research axis:**

The research adopts the historical, descriptive method with 3 axis.

- First axis: Dilmun era stage in the State of Kuwait. And the other Neighboring countries
- Second axis: Analytical study of Kuwait's Dilmun-era ceramic vessels.
- Third axis: Reviving the heritage of ceramic works as an artistic artifact.

### **Methodology**

The research aims to comprehensively investigate the impact of artificial intelligence (AI) on reviving Kuwait ceramic production's

heritage during the Dilmun era within a specific academic student artwork.

### **Research Design:**

This study adopts a mixed-methods research design, combining quantitative and qualitative approaches to applying AI's impact on reviving the history of the Berber pottery and non-local pottery of the Dilmun era. The quantitative aspect involves collecting historical Kuwait ceramic production's heritage during the Dilmun era data, while the qualitative component assigns students to use the AI technique for in-depth insights.

This combined-methods design permits a delicate exploration of quantitative directions and qualitative nuances connected to AI as a future educational method.

### **Participants of Sample Selection:**

The study adopted 30 participants from students of the last level of academic art experiences, providing a comprehensive knowledge of AI's impact across disciplines and the best figure samples were chosen and reported.

### **Terminology**

#### **Dilmun**

- It is the name of a political and cultural entity identified by the Sumerians.
- Dilmun refers to a culture that thrived in modern-day Bahrain, the Eastern Province of Arabia, particularly Tarut Island, Saudi Arabia, and Failaka Island, Kuwait.
- The Dilmun was one of the oldest civilisations in the world. Due to Bahrain's strategic location, the Dilmun capital was located in Bahrain [5].

#### **Canva**

- An online design platform qualifies users to produce visually apparent designs by utilising pre-made templates, stock images, typefaces, and different design components.
- It is excessively used in educational settings to teach design principles and foster creativity.

## **Review of literature**

Brumfield et al. (1987). [6] stated that controlling raw materials, craft specialisation, product standardisation, and disseminating standardised products could be indicators of the emerging elite. A new institution, ruler, governmental personnel was necessary to manage the distribution and production of different goods, staples, and wealth finance.

In addition to controlling wealth goods, increasing social complexity and emerging elite and institutions could have been in conjunction with staple finance resources. During the Uruk period (ca. 3900-3100 BC),

Stein[7] noted craft specialists' control, wheel-made pottery standardisation, and temple administrators' wide distribution of utilitarian vessels in ancient Mesopotamia. The staple finance system model was used to discuss how the elite distributed these standardised wares throughout the region.

Højlund et al. [8] suggested that pottery making during the pre-Barbar period in the third millennium at the Qala'at site was exclusively handmade, with irregularity and unevenness in the rim, nick, and body regions.

Ashkanani (2013) [9] and Ashkanani et al. (2020) [11] indicated that the presence of Barbar wares at Dilmun sites suggests a preference for local materials, while non-local goods were minimised, suggesting a controlled trade network that fostered local economic growth.

Ashkanani (2014). [10] Reported that the shift of pottery manufacturing in Dilmun from pre-Barbar to the Barbar Period is crucial to understanding the evolution of ceramic production and Bronze Age craft specialisation. Højlund has suggested that pottery manufacturing during the pre-Barbar period in the third millennium at the Qala'at site was exclusively handmade, with irregularity and unevenness in the rim, nick, and body regions.

Ashkanani. H. J. (2020)[11]. The study was represented by the following: (1) to investigate the development of pottery manufacturing; (2) to resolve if standardised production formulae were used for Barbar wares; (3) to link provenance references to production sites, namely to see if a distinctive site had access to nonlocal pottery; and (4) to specify if the standardisation of provenance origins and production procedures of Barbar wares could be used to suggest Dilmun's nobility having had socio-political authority in the region.

The findings from Bahra 1 also demonstrate a diversity of pottery types, reflecting the socio-economic context of the Gulf region during the Neolithic and its connections to later Dilmun practices. In contrast, some scholars argue that focusing on ceramic analysis may overlook other cultural artefacts that could provide a more comprehensive understanding of Dilmun society. This perspective emphasises the need for a holistic approach to archaeological studies in the region [12].

The study of remains from the Qala'at site, and their development is essential, as archaeologists consider the site the capital of Dilmun [13]. Thus, studying the development of pottery production at Qala'at is one of the crucial windows to understanding the scale of labour, specialisation, and distribution. As mentioned above, Period I, the pre-Barbar period (2150-2050 BC), is known as the chain-ridged pottery type [14].

Højlund et al. (1994). [15], Crawford & Crawford (1998) [16] indicated that Period I pottery is tempered with sand and yellowish-white carbonate particles. The colour of Period 1 pottery varies from red to light brown and grey, with a slip applied to the outer surface. It is known as Ware Type 1, the only ware type found at Qala'at in Period I. Period I pottery was produced at a household level, while all the decorated wares seemed to have been imported.

Merry et al. (2016). [17]. Investigated the pottery of the Ubaid period recently discovered in the United Arab Emirates and modified their perceptions of the exchanges between the communities of southern Iraq and those occupying the Arabian coastline of the Gulf up to the south of the Straits of Hormuz. The study shows that these exchanges go back to the middle of the VI<sup>th</sup> millennium, not to the end of the V<sup>th</sup>, as previously suggested. During 1500 years, Ubaid pottery was exchanged gradually along the coast and in certain neighbouring regions with its specific clay, shape, and decoration. From 5500 BC, the quantities of pottery arriving on the sites of the United Arab Emirates are far from insignificant. (Figure 1) shows the Mesopotamian vase found at the Marawah MR11 site in the Emirate of Abu Dhabi in the United Arab Emirates. It has belonged to the level dated to around 5500 BC.

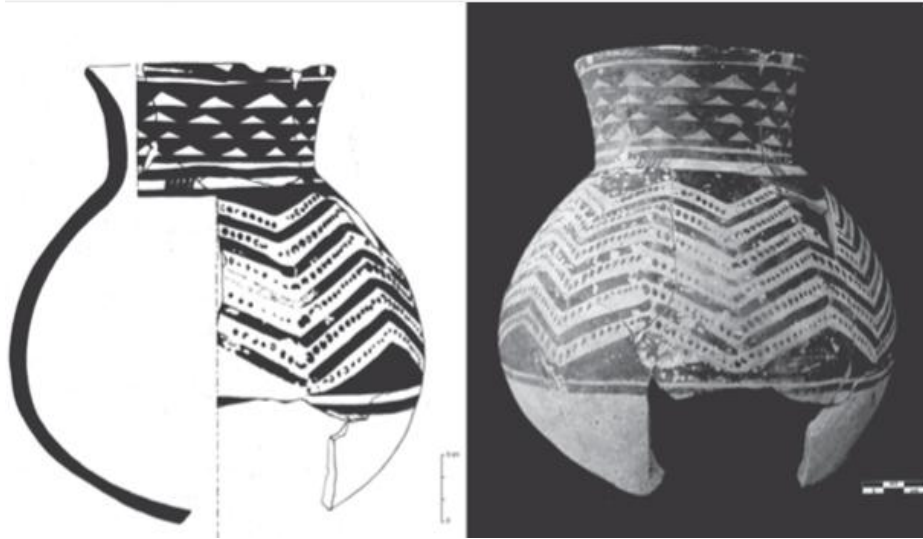


Fig (1)

The vase discovered in Marawah MR11, United Arab Emirates.  
Drawing D. Molez, photo S. Méry.

The pre-Barbar period (ca. 2150-2050 BC) is the hand-made chain-ridged pottery type (Figure 2). Pre-barbar pottery is hardened with sand and yellowish-white carbonate particles, known as ware type 1. The colour of this pottery differs from red to light brown to grey, with the application of a label to the outer surface. Ware type 1 is the only type found at Qala'at in Period 1 or the pre-Barbar period. Hand-made hole-mouthed cooking pots comprised 90 per cent of the local pottery production in this period. It seems that Qala'at Period 1 pottery was produced at a household level while all of the decorated wares seemed to have been imported; the hand-made hole-mouthed cooking pots comprised 90 per cent of the local pottery production in this period. Qala'at Period 1 pottery was produced at a household level, while all the decorated wares seemed to have been imported [14 and 15].



Figure (2)

Chain-ridge pottery of City 1 at Qala'at in Bahrain.

During the Barbar Period (2050-1800 BC), the red-ridged ware, comprehended as the Barbar type, became across-the-board in Bahrain (Figure 3). Local pottery exhibitions had increased with the decline in Mesopotamian pottery and the disappearance of southeastern (Umm an-Nar) pottery types. The Barbar pottery incorporates 92-98 per cent of the total pottery found at Qala'at, with 42 per cent of the hole-mouth



cooking pot. The ratio of Mesopotamian pottery decreased from 19

Figure (3)

Red-ridged jars are characteristic of the Dilmun assemblage



during Barbar II or City II.

% to 1 % [15]. New pottery constitutions were developed during this period, and other shapes became more prevalent. For instance, the new shapes of the Barbar tradition (e.g. type B7, B21-23, B29-30, B62 and B68) replaced the Mesopotamian and Omani pottery at Qala'at. These wares showed innovations in pottery function (bowl and plates), technique (wheel-made), and shape, such as large rim and ring base.

Benediková (2010)[18] reported that fragments of vessels dating to the Early Bronze Age The Bull were in a layer of yellowish sand. Georg. Natl. Acad. Sci., vol. 11, no. 4, 201 pottery fragments belonged to about 20 clay vessels. Basically, these were the walls of red clay vessels, but several fragments of rims were also preserved. More distinctive vessels had horizontal decorations in relief. Most of these vessels have parallels in the Barbar pottery of the Dilmun Culture dating to 2200-1750 BC.as shown in (Fig 4).



Fig (4)



Fig. (5).

Fig(4) Dilmun-type pottery from Al Awazim.

Fig. (5). Archaeological artefacts from sites KG 9, KG 10 and KG.18.22.

Archaeological artifacts on the sites are similar to 17th-18th century material in the Arabian Gulf. Specifically, types of ceramic such as Bahl (Kunj) ware, Manganese Painted Ware, and Green Monochrome Ware and Julfar ware were found (Fig. 5).

Cilingiroglu (2010)[19] presents a comparative study of impressed pottery of the Eastern Mediterranean and Thessaly, particularly noting the similarities in the performance of this decoration on the vessels and how they vary from those in the western regions of Anatolia. Regarding the allocation pattern of impressed pottery on supra-regional grounds. It seems obvious that a well-established navigational route followed the coastline between the Eastern Mediterranean and the Aegean. The Aegean segregated into two distinct trajectories, where this type of pottery appears without any antecedents. Furthermore, in the northern Aegean, Macedonia, and Bulgaria, such decoration appears in the basal levels of Neolithic settlements.

Kainert (2014)[20] presents the first results of the pottery analysis from Dosariyah, a Middle Neolithic site close to the Central Gulf's shore in the Eastern Province of Saudi Arabia, with almost 15,000 single pieces of pottery; the assemblage recovered from the site represents the most significant amount of ceramic material of this period known from the Arabian Peninsula. Its examination will provide data concerning the relationship between diachronic changes in the two main types of pottery, cuboid Ware and Coarse Ware, during habitation. Both wares appear from the beginning of occupation onwards, but their characteristics vary in numerous aspects, pointing to an independent and Indigenous ceramic tradition of Coarse Ware. At the same time, the occurrence of three Coarse Ware pieces bearing an incised decoration with a geometrical pattern and two Coarse Ware rim fragments imitating a specific 'Ubaid vessel shape led to questioning the actual value of the vessels as well as the consistency of availability of imported pots from distant regions, such as southern Mesopotamia.

The most premature stone seals of the Gulf region were constructed of steatite hardened by firing and constantly glazed after they were carved. The appearance of the hemispherical stamp seal illustrated here shows a male figure in the upper field who holds a



caprid by the neck. To the left, a male figure maintains a staff beneath a recumbent caprid underneath a gridded rectangle.

Fig (6)

Dilmun stamp seal with hunters and goats, rectangular pen,  
early 2nd millennium BC

A snake and possibly a monkey are also depicted in the field. The hemispherical shape and round sealing face are characteristic of seals of the Gulf province, as are the marked lines and concentric circles that embellish the back of this seal. Similar seals (Fig 6) have been discovered in Mesopotamia, Iran, and the Indus Valley, locations with which Gulf merchandisers exchanged and with whom they transferred an ordinary visual vocabulary [21].

Dilmun, often referred to as "the place where the sun rises" and "the Land of the Living," features in various versions of the Eridu Genesis as the location where the deified Sumerian hero of the flood, Utnapishtim (also known as Ziusudra), was accepted by the gods to live forever. Thorkild Jacobsen, in his translation of the Eridu Genesis, represents it as "Mount Dilmun," which he identifies as a distant, semi-mythical place. In the epic tale of Enki and Ninhursag, Dilmun is depicted as the site of creation. The later Babylonian text, the Enuma Elish, describes the creation location as where the salt water, personified as Tiamat, mingled with the freshwater of Abzu. The promise made by Enki to Ninhursag, the Earth Mother, underscores the significance of this site.

In their study, Ashkanani et al. (2019) [22] seek to distinguish and identify the chemical and mineralogical pieces of the ceramic collection from the Bahra 1 site of the As-Sabbiya province, Kuwait. The chemical consequences demonstrated that an assortment of six fraction elements [rubidium (Rb), strontium (Sr), yttrium (Y), zirconium (Zr), niobium (Nb) and barium (Ba)] appear significantly enough to trace clay-based artefact groups—local red granulated from Ubaid. At that exact time, the mineralogical study confirms the pXRF result and determines the source of the raw materials. In addition, analogising the Ubaid and Bronze Age assemblage results indicates that potters used various clay resources within their regions and/or production techniques.

Makharadze et al. (2017). [23] .Investigated the Early Bronze Age by examining two wholly looted burial mounds reinforced with stone slabs and a stone "box" containing a thin layer of pearl shells and fragments of Dilmun vessels. These artefacts, which date back to 2200-

1750 BC, were discovered at the site of Al-Awazim. Nearby, along the bay's shore, seven stone structures are built similarly. Each structure is rectangular, constructed in specially dug pits, and divided into two sections by a wall running along its longitudinal axis. The inner surfaces of these walls were plastered with clay. The materials recovered from these structures show a closest contextual relationship with early Islamic ceramic complexes found at Al-Qusur and Al-Quranyah, dating from the second half of the 7th century to the mid-9th century AD as shown in Fig (7&8)[24].

From Bahrani History, Petrographic analysis of several “Umm an-Nar” traditional vessels discovered in Bahrain confirmed that their clay corresponds to the UAE/Oman foothills region. They were commonly exported to the Early Dilmun sites (Bahrain, Qatif) and perhaps exchanged for the most common type of Dilmun “burial jar” identified on numerous sites of the Oman Peninsula (see, for instance, cat. no. 103-105).as shown in Fig (9)[25]

Mission Archaeological Investigations on The Island Of Failaka In 2011-2017. Bulletin Of The Georgian National Academy Of Sciences, Vol. 11, No. 4.



Fig (7)

Fig (7) Vessel Early Bronze Age, 3rd millennium BCE, From Bahrain (ancient

Dilmun) Medium: Ceramic.



Fig (8)

Fig(8) Vessel, Early Bronze Age, 3rd millennium BCE, From Bahrain (ancient

Dilmun). Ceramic paint.



Fig (9)



Fig (9) Painted Jar in the Omani Tradition Pottery, Early Dilmun, c. 2300-2000 BC.

Painted pottery beakers from the State of Dilmun, 2050-1700 BC, found in the Royal Burial Mounds of A'ali, in the Bahrain National Museum, developed by Hartvig Rasmussen and Krohn, in December 1988 by Amir Shaikh Isa Bin Salman Al-Khalifa, in Manama, Bahrain. The museum accommodates cultural and archaeological assemblages covering 6000 years of history, with spaces entitled Burial Mounds, Dilmun, Tylos and Islam, Customs, Trades, Crafts, Documents and Manuscripts—picture by Manuel Cohen. The symbols illustrate life scenes during the Dilmun era in Bahrain. The meaning of the symbols surrounding the neck of the vase translates to "Dilmun, the Giver of Life.[26].



Fig (10)



fig(11)



fig(12)



fig(13)

Fig (10) The storage jar is decorated with mountain goats, churoolithic, 4000–3600

BCE, Central Iran, ceramic, and paint.

Fig (11) Open bowl, Nabataean, 1<sup>st</sup> century BCE–1st century CE, Levant, Tawilan, Nabataean, Ceramic, paint.

Fig (12) Dilmun Design Contains Carved Seals and Symbols, Colour Blond

Fig(13) Dilmun pottery from Wādī al- Fāw

Laursen, S. T. (2018)[27]. Investigated The Dilmun culture spread from Bahrain around 2500 BC, and some evidence suggests its earliest development began on Tarut Island in the early third millennium.

Dilmun generally refers to a culture that thrives in modern-day Bahrain and the Eastern Province of Arabia, particularly Tarut Island, Saudi Arabia, and Failaka Island, Kuwait. The Sumerians relied on Dilmun agents to transship.

Laursen, et al (2022)[28]. This paper aims to fill based on new proof from Wādī al- Fāw, Saudi Arabia. The common belief that interior Southeast Arabia had contradicted diverted forlorn Badlands after the Holocene Humid Phase and until the dromedary domestication. This investigation shows that a commercial passageway connected the Kingdom of Dilmun on the Arabian Gulf coast during the earlier Bronze Age with the southern parts of Saudi Arabia, presumably Yemen. Seals of Dilmun Type, Dilmun pottery and corresponding burial praxis make up the essence of the evidence from Wādī al- Fāw, as shown in Fig (13).

## **Experimental work**

### **Artificial Intelligence Technologies**

As reported above, the experimental work aims to revive the heritage of pottery production during the early second millennium in Bronze Age sites. The study included ceramic sherds from Bronze Age sites on Failaka Island in Kuwait, Bahrain, and the Indus Valley. Collecting samples from the abovementioned areas is necessary due to their widespread distribution throughout the Arabian Gulf during the Bronze Age.

Now, a detailed characterisation will be performed to compare the homogeneity and quality of the ceramic recipes from the Dolman period with current ones based on artificial intelligence technologies. This will include material composition and how the materials are produced. Our goal is to identify the technological innovations and traditional practices that have influenced pottery production through time by systematically comparing archaeological recipes with modern methods generated by AI. All the designs will be labelled on a selected set of samples, with names already found in museums.

### **Canva AI technology**

By integrating Canva AI technology, educators offer students the tools to forge active understanding and creativity, enabling them to be digitally capable. This preparation for modern fields, facilitated by Canva, not only supplements traditional design education but also

equips students for the future of design, ensuring they are ready to experiment with their designs. 30 students participated in Canva AI technology engagement in this art project from the Department of Art Education College of Basic Education State of Kuwait.

### **Design I**

**Dilmun stamp seal with hunters and goats, rectangular pen, early 2nd millennium BC.**



Figure (14)

AI technology has created Figure (14) with the same label indicated on the piece of heritage: represents the Tile Handling Dilmun stamp seal with goats.

### **Design II**

**Vessel Early Bronze Age, 3rd millennium BCE, From Bahrain (ancient Dilmun) Medium: Ceramic**

The vessel is designed to contain a carved Dilmun-painted surface and is decorated with mountain goats and hunter shapes, as shown in figures (15).



Figure (15)

Figure (15) Dilmun Design jar plain surface with two hands. The Dilmun Design jar with two hands Contains lines and symbols of mountain goats and the symbol of the hunter.



Figure (16)

Figure (16) Open bowl, Nabataean, 1<sup>st</sup> century BCE–1<sup>st</sup> century CE, Levant, Tawilan, Nabataean, Ceramic with black clay.

### Design III

**Dilmun pottery from Wādī al- Fāw and Dilmun Design Contains Carved Seals and Symbols, as shown in Figures (17&18).**





Figure (17)

Figure (18)

Figure (17) Dilmun's design contains wide carved seals and symbols with wide callers that remain in the upper half of the vessel with a curved shape. The neck is more exhaustive and thick-curved.

Figure (18) Assembled sculptures with additive rounded clay pieces on the surface. The neck is short and curved, and the rim is everted. The vessel is encased in an upper and lower panel of two or more horizontal and elevated lines.

#### **Design IV**

**Early Bronze Age, 3<sup>rd</sup> millennium BCE, From Bahrain (ancient Dilmun)**

Painted Jar in the Omani Tradition Pottery, Early Dilmun, c. 2300-2000 BC with more developing.



Figure (19)



Figure (20)

Figure (19) shows that the Jar's body is decorated with elevated lines of different painted surface colours, such as dark blond, black, and ivory. The upper third is decorated with a pattern formed by an elevated thick lines shape. The second part of the Jar is decorated with the symbol of a hunter shape with a plain ivory surface. The third part of the jar is decorated with zigzag lines.

Figure (20) shows that the upper third of the Jar's body is decorated horizontally with different painted surface colours, zigzags, and lines, such as dark blond, black, and ivory. The second third of the pottery is decorated with a pattern formed by an elevated tree shape symbol. The third part of the Jar is horizontally composed of the HL and EL lines.

## Design V.

**Dilmun Design Contains lines and symbols.**



Figure (21)

Figure (22)

The jar in Figure (21) is painted dark brown and ivory. The upper and lower thirds of the jar's body are decorated with elevated, short, thick lines painted in brown. The middle part of the pottery is decorated with a pattern formed by elevated random thick lines.

In Figure (22), the jars are painted brown and ivory. The upper and lower thirds of the jar's body are decorated with elevated, short, thick lines painted brown. The middle part of the pottery is decorated with a pattern formed by an elevated random thick.

## Design VI

**Dilmun Design Vessel contains Carved Dilmun Seals and Symbols.**



Figure (23)



Figure (24)

Figure (23) shows the design used as inspiration for this piece, which was excavated from an archaeological site in Bahrain. This AI vase is a replica depicting the same symbols, seals, shapes, and handles.

Figure (24) shows a Ceramic jar painted blue on the ground and brown on the surface. It contains carved ancient Dilmun seals and

symbols; two proud leopards are attached to the middle of the vase and almost stand guard.

### **Design VII.**

**Vessel, Early Bronze Age, 3<sup>rd</sup> millennium BCE, From Bahrain (ancient Dilmun). Ceramic paint.**



Figure (25)



Figure (26)

Figure (25) shows that the Dilmun Design Vessel contains Carved Dilmun

Seals and Symbols with ruff surfaces.

Figure (26) shows that the storage jar is decorated with stamped symbols,

Churoolithic, 4000–3600 BCE, Central Iran, ceramic, and varnished surface.

### **Design VIII**

**Vessel, Early Bronze Age, 3<sup>rd</sup> millennium BCE, From Bahrain (ancient Dilmun). Ceramic paint**

The design, figures (27 to 30) show Umm an-Nar” traditional Bahrain vessels designed using AI technology. It is confirmed that the clay design corresponds to that of the UAE/Oman foothills region as the Early Dilmun sites.





Figure (27)



Figure (28)



Figure (29)



Figure (30)

The designs show two handled jars decorated with geometrical spiral shapes and ovals with some engraved drawing on the surface

### **Results and Discussion.**

- The study explored Berber pottery production and investigated non-local pottery circulation in Bronze Age sites during the early second millennium.
- The research includes ceramic sherds from Bronze Age sites on Failaka Island in Kuwait, Bahrain and the Indus Valley.
- Those samples served as a reference group for pottery found at Dilmun sites and assisted in the investigation to revive the heritage of Kuwait in the Dilmun era.
- The study findings indicate that AI technology design web tools significantly contribute to developing visual content creativity to revive the heritage of the Dilmun era.
- This study has shed light on Dilmun's heritage and emphasised the role of pottery as a carrier of cultural and social identity. Nevertheless, the study is an effort to reconstruct the attributes of a culture that shone a light on some of the fundamental symbols of Kuwait's early history and participated in developing its cultural and civilisational identity.
- In this study, the students who participated showed significant improvement in creative skills after completing the training.
- Their better quality and more extensive variety of visual materials allowed them to create new designs similar to those that appeared during the Dilmun Period.
- The holistic view provided by the AI technology model understands the participants' initial positions, reactions to digital understanding, the knowledge gained, changes in creative behaviour, and tangible outputs of their creative work on the ground.

### **Recommendations**

- The Dilmun epoch in the State of Kuwait has intrigued historians worldwide because of its remarkable historical importance. This period is defined by ample ceramic forms, demonstrating a time of robustness and movement. The artistry involved in making and decorating these ceramic vessels indicates the high level of skill enjoyed by craftsmen of the time.
- Focusing on innovation, collaboration, and transformative approaches, the AI techniques will ignite bold ideas and offer insights from renowned leaders. Participants will explore how to advance education systems and equip learners for the demands of tomorrow.
- Heritage preservation and performance are central functions of any country's museum and include the most public dimensions of museum practice. However, Indigenous people repeatedly refer to the limitations of museum exhibitions in expressing and preserving their culture, highlighting that culture is expressing their identities [1&2]. In addition to being a living process, that incorporates both continuity and change. Kalpana Nand, Education Officer of Fiji Museum, emphasised that education, 'Culture is a living, dynamic, ever-changing, and yet ever constant thing– it is a story, of the ancient grandfather's performance, never a 'dead thing' to be represented in the form of an artefact to be looked at the passing years [3].

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