

UNIVERSITI TEKNOLOGI MARA

**REGENERATING SUSTAINABLY
YIXING ZISHA TEAPOT DESIGN
CONCEPT INTEGRATED WITH
AIGC TECHNOLOGY**

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ABSTRACT

This study investigates the integration of Artificial Intelligence Generated Content (AIGC) technology into the design of Yixing Zisha pottery, a traditional Chinese craft renowned for its cultural heritage and artistic value. While Yixing Zisha pottery embodies a balance of aesthetic creativity and functionality, it faces the challenge of adapting to contemporary expectations of digital innovation without losing its traditional essence. This research examines how AIGC can contribute to design efficiency, creative diversity, and cultural sustainability. A mixed-method approach was adopted to address three main objectives. First, a questionnaire survey was conducted to explore practitioners' acceptance of AIGC and to identify their key design concerns. Second, based on emotional design theory, an evaluation framework was developed and refined through the Delphi method and Analytic Hierarchy Process (AHP). Sixty AIGC-generated teapot designs were then assessed using the Fuzzy Comprehensive Evaluation (FCE) method to reveal both strengths and weaknesses of AIGC-assisted design. Finally, observational studies with seven experienced designers and a focus-group discussion with experts further validated the evaluation system and provided insights into the collaborative role of AIGC in Zisha design. The findings indicate that practitioners demonstrate high acceptance of AIGC, valuing its capacity to enhance creativity, accelerate design processes, and stimulate innovation, while experts emphasize the need for cultural preservation and careful adaptation. This research establishes a systematic framework for evaluating AIGC in traditional crafts, contributes to the theoretical development of emotional design in digital heritage contexts, and offers practical guidance for the sustainable transformation of Yixing Zisha pottery. The study highlights AIGC's potential as a constructive partner in bridging traditional craftsmanship and modern design innovation.

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CHAPTER 1

INTRODUCTION

1.1 Research Background

Yixing Zisha pottery, a prominent representative of China's intangible cultural heritage, epitomizes the culmination of traditional craftsmanship, with its profound artistic, cultural, and functional value. Renowned for its unique clay materials, refined design styles, and unparalleled artisanal techniques, Yixing Zisha pottery has gained global recognition as an emblem of Chinese traditional culture (Pan et al., 2025). The "Top Ten Classic Zisha" (shown in Figure 1.1) reflects Zisha's perfect form and cultural significance, recognized by Yixing authorities at the 7th China Yixing International Ceramic Culture and Art Festival in 2013. These ten classic teapots present varied designs, shapes, and surface details—from minimalistic forms to sculpted or textured motifs—demonstrating how Zisha clay's natural hues (deep reds, browns, and occasionally sandy yellow) adapt to different creative styles (Zhu et al., 2019). Handles, spouts, and lids also differ markedly, underscoring the intricacy of Zisha techniques that meld traditional artistry with modern aesthetics. The unique clay, vital to Yixing Zisha, has a microporous structure known for retaining tea fragrance and extending its aromatic longevity (Jin Xiang, 2018). Historically, these ceramics ranked among China's key exports to Europe in the 17th century (Yang Zhan, 2023), fueling cross-cultural exchanges and elevating Yixing to a global emblem of Chinese artistic heritage. Simsek Franci and Colomban (2021) found compositional distinctions between authentic Yixing pieces and European imitations, reinforcing the originality and value of Zisha.

Scholars generally concur that Yixing Zisha's origins trace to the Song and Yuan dynasties, with its craft maturing during the Ming, forming a legacy of over six centuries (Yang, 2020). During the Ming and Qing eras, Zisha underwent widespread dissemination, integrating with calligraphy, painting, and philosophical thought, thus achieving a unique cultural statement (Tang., 2024; Zhang, 2017). Renowned for meticulous design, distinctive clay, and profound cultural weight, Yixing Zisha has represented refined artistry, praised in literary works—"Why seek worldly jewels when you can have a ball of clay from Yixing?"—reflecting the literati's esteem. Since