

From Aesthetics to Design: Sustainability of Wabi-sabi in Ceramic Product Design in the Contemporary Context

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ABSTRACT

In recent years, wabi-sabi has become a popular trend in product design. While consumerism encourages the masses to pursue 'perfection,' 'luxury,' and 'sophistication,' a materialism that is detrimental to human well-being and the environment, the wabi-sabi aesthetic The acceptance of 'imperfection,' 'incompleteness,' and 'impermanence' in the concept of wabi-sabi helps to alleviate the pervasive social anxiety and establish a positive mental state. Notably, in the contemporary context, wabi-sabi is no longer confined to Japanese philosophy and aesthetics, but has become a global design trend. Wabi-sabi aesthetics is closely related to the concept of sustainable design, yet there is little theoretical knowledge about its sustainability in product design. Based on this premise, this paper discusses the transformation of wabi-sabi from aesthetics to design in a contemporary context and its sustainability in ceramic product design through background research and theoretical understanding of sustainable product design. Ultimately, this paper develops theoretically insightful knowledge of sustainable design for ceramic products to help potential ceramic designers and producers understand the wabi-sabi aesthetic from a sustainable design perspective.

Keywords: Ceramic Design, Sustainable Product Design, Sustainability, Wabi-sabi



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1 INTRODUCTION

The influence of Japanese aesthetics has already permeated the globe. It can be said that it is one of the most influential aesthetics in today's world culture (Avdulov, 2022). According to Cooper (2018), wabi-sabi is not restricted to Japanese or Eastern cultures, it belongs to humanity as a whole. Wabi-sabi may serve as one realistic solution to address the current global state of chaos, inequalities and gross greed (da Silva, 2012). In line with Davies (2016), wabi-sabi in the contemporary society will bring about a juxtaposition of natural design and the material world, and its influence will create a blooming economy based on a simple design of objects. In such a context, products and services will be subjective and will be determined by the user with regard to their function. The purpose of objects will be decided by the user rather than the material. Wabi-sabi as an aesthetic is being introduced and transplanted into contemporary art and product design. To reinterpret this traditional aesthetic, to make it work in contemporary design and ensure its sustainability, in-depth research must be carried out to understand how wabi-sabi has transformed in its contemporary context. This paper will then proceed to compare traditional and contemporary wabi-sabi in order to explain their similarities and differences, before finally explaining wabi-sabi's sustainability in ceramic product design.

2 A COMPARISON OF TRADITIONAL AND COMTEMPORARY UNDERSTANDINGS OF WABI-SABI

2.1 Unchanged Aesthetic Ideas of Wabi-sabi

Wabi-sabi (侘寂) is a Japanese traditional aesthetic and philosophical concept composed of the concepts of *wabi* (侘) and *sabi* (寂). The core idea of wabi-sabi is that all things are impermanent, imperfect and incomplete (Koren, 2008). This implies the acceptance and appreciation of the beauty of imperfect, incomplete and transient, and the comprehension of the flow of time and the constant change of things. Wabi-sabi is also used to understand the fragility of life and the transience of human experience. It is prevalent throughout all forms of Japanese art (Arp, 2013) and is an intuitive response to beauty reflecting the true nature of life (Kempton, 2018).

2.2 People Who Can Understand Appreciate Wabi-sabi

From the traditional Japanese point of view, only those with knowledge and skills were able to discover and comprehend the hidden and inconspicuous beauty of wabi-sabi (Łaziuk, 2020). However, in the context of globalization, advances in technology, transportation and economics have strengthened links and fluidity between different countries, providing people with greater opportunities to engage with cultures, languages and art from around the world. Hence, as an indigenous philosophy and aesthetics of Japan, wabi-sabi has entered the mainstream and attracted attention, with everyone able to appreciate it to some degree, making the concept of wabi-sabi even more inclusive (Łaziuk, 2020). Globalization has extended the aesthetic reach of wabi-sabi, creating the conditions for it to become a popular trend in the field of design. In the case of China, consumers have a culturally-rooted interpretation of wabi-sabi due to its blend of tea ceremony and Zen Buddhism (Zhou & Gao, 2019). Additionally, the West initiated a “Zen fever” following World War II, making the concept easy to comprehend and accept for the Western population. In 2018, similarly, the Western people named this concept as a popular and known design (Łaziuk, 2020). During the process of cultural globalization, the aesthetics of wabi-sabi must be transformed into a value system that is suitable and accepted by the masses (Zhou & Gao, 2019), while also resolving any contradiction between the essence of wabi-sabi and its acceptance by the public.

2.3 Wabi-sabi in The Broader Art Fields

Wabi-sabi is originally a concept of traditional Japanese aesthetics and philosophy, which is manifested in Japanese literature, painting, architecture, ceramic art, garden art and flower arrangements, etc. In this context, wabi-sabi tends to be more inclined towards an internal experience. In recent years, this concept has been applied to a broader range of art fields such as sculpture, product design, interior design, fashion design, movies and music, etc. In the art and design field, it has become an aesthetic practice that tends towards visual forms. Wabi-sabi in the form of ceramics can be traced back to Japan of the 16th century, where Sen no Rikyu (1522-1591) carried out a wide variety of experiments on the teaware, architectural space, and ceremony of the tea ceremony: he regarded the rough, anonymous, native Japanese and Korean folk handicrafts as the art works of wabi-sabi-thing and thought that their aesthetic level was even higher than that of the smooth, perfect Chinese porcelain (Koren, 2008), consequently Japan’s raku ceramics, in which was embedded the ideal of wabi-sabi aesthetics, came to be. By utilizing the wabi-sabi principle in current ceramics design, designers are able to create practical objects out of simple materials to meet the needs of users in terms of functionality, aesthetics and emotion.

2.4 Different Scopes of Understanding of Wabi-sabi

Traditional Japanese wabi-sabi is an aesthetic appreciation of nature, admiring and worshiping the aged, simple, plain, and austere qualities of all natural things, and can be seen as a contemplation and perception of the natural situation of things (Dai, 2023). In the modern world, influenced by Western philosophy and human-centrism, the subjectivity of humans in the relationship between humans and nature has long been established. Unlike traditional Japanese wabi-sabi, which appreciates nature itself, people nowadays appreciate wabi-sabi more for its “naturalness”. Therefore, the essence of wabi-sabi in this context tends to be a projection and manifestation of human hearts, the aesthetic that entrusts itself to material from nature, rather than nature itself (Łaziuk, 2020). This shift in understanding is also the reason why wabi-sabi has moved from a field of pure art to a field of design that satisfies people’s daily life.

2.5 Difference Emphasized Aspects

The term wabi-sabi in traditional Japanese aesthetics emphasizes ‘poverty,’ ‘simplicity,’ and ‘loneliness’, requiring certain principles of aesthetics when appreciating and understanding this aesthetic. Without the presence of aesthetic principles, poverty would become pure poverty, and loneliness would become a negative psychological state. In today’s Japan, the meaning of wabi-sabi is often condensed into “wisdom in natural simplicity”. In the West, wabi-sabi is often used as a remedy for the perfectionist culture rooted in ancient Greek traditions. In the art world, it is usually defined as “flawed beauty” (Gold, 2010). In terms of spiritual value, Griggs (2001) summarized it as “the subtle art of being at peace with yourself and your surroundings”. The emergence of wabi-sabi in the global design field relieves the aesthetic anxiety brought by fast fashion and consumerism, and soon it has captured a large number of users. Users’ aesthetic preferences reflect their choices of lifestyle. When aesthetics are popular in a certain style, the generalized outcome is often a lifestyle that is easy for the general public to accept (Zhou & Gao, 2019). To interpret people’s understanding of wabi-sabi today requires us to trace it back to the two separate concepts of wabi and sabi. Wabi emphasizes the tranquility and joy hidden behind poverty and loneliness (Suzuki, 2010) and is an internal and subjective spiritual path. Sabi “refers mainly to external symptoms of beauty and its aesthetics” (Kubiak, 2009), cultivating attention, respect and appreciation for the passing of time and the natural changes of things (Avdulov, 2022). In recent years, wabi-sabi has been disseminated to the public through materialized art forms. Due to this pre-emptive nature, the public is more inclined to appreciate sabi instead of wabi in daily life.

3 SUSTAINABILITY OF WABI-SABI IN CERAMIC PRODUCT DESIGN

Wabi-sabi is an important approach to achieve sustainability in ceramic product design. Its advantages are reflected not only in environmental friendliness and resource efficiency, but also in its aesthetic durability and longer product lifespan. Under contemporary context, wabi-sabi has become an important aspect of sustainable ceramic product design, impacting material selection, production, use and maintenance and upgrading (Figure 1).

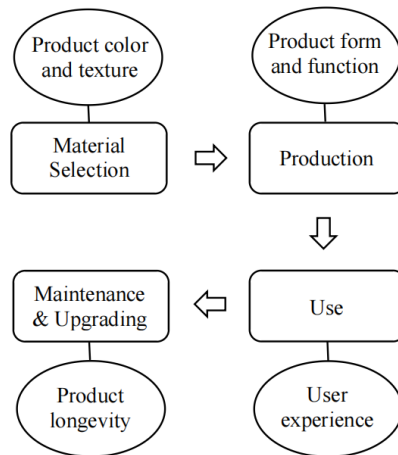


Figure 1 The product could be influenced by each phase in ceramic design

3.1 Material Selection

Ceramic material, one of the earliest materials used for making wares and which is still utilized nowadays, holds an irreplaceable and important position in the daily life products even though more technologically advanced materials have been invented by humans. This is correlated to its material sustainability. Ceramics are normally made from natural materials such as clay, feldspar, and silica, which are non-toxic, low-carbon, require minimal energy to manufacture, and can be recycled back to natural resources, thus posing no harm to both the environment and humans. The attributes of ceramic material determine its durability, corrosion resistance and heat-resistance, making them very suitable for use as material to make wares for daily life, and also rendering them capable to resist fading even in an environment with high UV or ultraviolet radiation, thus with a very long product life.

Ceramic materials originate from the earth, and when referring to nature, it is always thought of the soil first. Clay has an innate intimacy for humans. In the concept of aesthetics, clay is a typical material that demonstrates the naturalness, which conforms to the principle of material in wabi-sabi aesthetics. In ceramic production, earthenware clay, stoneware clay, and porcelain clay are usually used as the types of clay selection (Table 1). Stoneware clay contains iron and other mineral impurities, thus after the firing process, the surface of ceramic still exhibits material with roughness and granularity. Earthenware clay and porcelain clay are relatively less impurity and more plasticity; earthenware clay is especially rich in color types, enabling ceramic products to have diverse colors to satisfy users' individual needs. Ceramic glazes are also natural material from earth, and with its low melting point relative to the clay body, they are easily melted at high temperatures to form glaze layer with various textures and colors. The clay and glazes used in ceramic products pursuing the wabi-sabi aesthetics are usually the ones which are more natural in properties, as listed in Table 1, such as wood ash glaze, shell glaze, raku glaze, and engobe coating glaze. Furthermore, bisque (unglazed firing) must also be noted which highlights the original color and texture of clay for the minimalism and simple beauty pursued in wabi-sabi. The above mentioned glazes and clay often have dark, gray, muddy, impure, desaturated, earthy, murky characteristics in color; rough, uneven, grainy, and matte in texture; as well as weathering, corroded, faded, rusted, worn, broken, flawed, dried, and moss-covered appearances (Table 1), which are coherent with the principle of material qualities of the wabi-sabi aesthetic system (Koren, 2008).

Table 1 Types and Characteristics of Materials

Type of Clay	Type of Glaze	Color	Texture	Representation
Earthenware clay; Stoneware clay; Porcelain	Wood ash glaze; Shell glaze; Raku glaze; Engobe coating; Bisque	Dark; Gray; Muddy; Impure; Desaturated; Earthy; Murky	Rough; Uneven; Grainy; Matte	Weathered; Corroded; Faded; Rusted; Worn; Broken; Flawed; Dried; Moss-covered

3.2 Production

Production is an essential part of wabi-sabi's involvement in the design of ceramic products. In ceramic design, the handmade production method makes it easier to achieve the naturalness sought by the wabi-sabi aesthetic. The audiences of the products are inclined to appreciate the manual traces left during the creation process, together with both intentional and unintentional flaws arising from the nature of materials and techniques (Davies, 2015). The first type of ceramic produced for wabi-sabi was raku, a traditional handcrafted ceramic production technique that refers to forming vessels with the desired size and shape by hand-pinching clay on the wheel or patting it with tools, then decorating the surface of the ceramics with a glaze applied by brush, and finally, firing it in a raku kiln. This method of ceramic production satisfies the appreciation for the beauty of wabi-sabi created by handmade production, the natural traces and textures left by hand and tool strikes, and the uneven glaze layer caused by manual glazing, all creating a wabi-sabi taste for 'blemish', transience, and naturally aging.

Not only in the production of raku pottery, but also in the production of other types of ceramics, such as wood-fired ceramics and soda-fired ceramics, handcrafted production is preferred in order to create wabi-sabi aesthetics. Since its inception, handcrafted production techniques have been used for ceramic production and remain favored by the majority of people today. Handcrafted production practice still holds a valuable role in sustainable development in today's society, serving as a continuity of knowledge, expertise, and tradition that should not wane in the wake of mass production (Walker, Evans, & Mullagh, 2019). Socially, handmade production allows for the inclusion of local traditions and craftsmanship, aiding in the preservation of cultural and historical value of ceramic products. Environmentally sustainability, handmade production helps to reduce energy consumption and waste. In terms of product longevity, handmade production also helps to produce personalized and diverse products using specialized production techniques to meet users' increasingly personal and exacting requirements. Additionally, handmade products can be designed to use less and more efficient resources, and be made with greater attention to details and accuracy, resulting in a higher-quality product. This has the effect of prolonging the product's life.

Table 2 lists handcrafted-related methods based on the wabi-sabi aesthetics and sustainability. Forming methods include re-forming after wheel-throwing, pinch-forming, coil-forming, and slab-forming. These methods facilitate the creation of an irregular, non-uniform, and asymmetrical form as well as natural texture. The glazing methods include brushed-glazing, etched-glazing, and rubbed-glazing. Brushed-glazing often enables the creation of the ceramic surface glaze texture with natural and abundant details; meanwhile, the methods of etched-glazing and rubbed-glazing are involved in the subtraction process to generate ceramic surface characterization of 'weathering', 'corroding', 'fading', and 'abrasion', in order to express the wabi-sabi aesthetic ideal of appreciating the beauty of the effects of the passage of time on things. The firing methods are comprised of wood-firing, raku firing, and soda-firing, which often use natural materials to leave firemark traces on the ceramic surface as visual effects to exhibit an appreciation of the beauty of impermanence according to the wabi-sabi aesthetics. These methods follow this principle: the traces made by hand and production processes are used as

decorative elements, and the flaws left by the materials and production crafts are preserved as the aesthetic categories of the product.

Table 2 Methods of Production

Forming	Glazing	Firing
Wheel-throwing combined with other forming methods ; Pinch-forming; Coil-building; Slab-forming	Brushed-glazing; Etched-glazing; Rubbed-glazing	Wood-firing; Raku firing; Soda-firing

3.3 Use

The wabi-sabi aesthetic boasts qualities that create a positive user experience both functionally and visually in ceramic products (Table 3), due to its design’s principles of ‘simplicity’ and ‘imperfection’ providing users with a friendly practical experience and a positive mental experience.

According to Juniper (2011), wabi-sabi aesthetics represent simplicity and minimalism. “Simplicity” as one of the central aspects of wabi-sabi aesthetics is a significant aesthetic attribute in all wabi-sabi products (Flowers, 2011). The simplicity of design not only helps to conserve material and energy during production for environmental sustainability, but also demands the removal of unnecessary functions of products to make them easier to use by users. Furthermore, simple design renders products easy to maintain and update, allowing them to stay useful for a longer period of time. Additionally, the simple forms and colors do not depend on fashionability, which often leads to classic product exteriors and thus ensures that the products are not obsolete and do not need to be replaced by upgraded versions in a short period of time. However, the simplicity of design does not just serve the purpose of product functionality; for ceramicware, its significance oftentimes lies in enhancing the visual aesthetics. By removing redundant internal expressions and external symbols, simple product forms and design logic provide people with a direct visual access to their perceptions and aesthetics, which avoids complicated associations and feelings to reduce the burden on the users’ vision and mind (Lin, 2020). In terms of the aesthetics of wabi-sabi, the simplicity of design often requires the producer to start from the value concept of the product and deliver the beauty of the essence of things to the user through the product visually.

The concept of ‘imperfection’ is another core of the aesthetic of wabi-sabi (Flowers, 2011). In the present society, the pervasive pursuit of perfection is largely influenced by socially constructed notions (shaped by Western ideology) and representations in advertising and social media. Nevertheless, striving for impractical perfection only brings temporary satisfaction and happiness, which not only distances people from reality and presence but also is a serious drain on natural resources. In contrast, the idea of imperfection broadens people’s perspectives, facilitates the understanding and acceptance of other forms of beauty, and opens up a pathway to sustainable happiness. Through ceramic products, wabi-sabi aesthetics brings the aesthetic sensibility of imperfection into people’s lives, which is mostly manifested in the wabi-sabi’s embrace and appreciation of ‘flaws’. Such flaws in ceramic products usually include small cracks, bumps, and distortions, or larger ‘flaws’ like chips, bubbles, and discolorations, and asymmetrical shapes, uneven glazes and off-center decorations. These ‘flaws’ are often intentionally made by taking advantage of the characteristics of clay and glaze in order to achieve the ideal effect of wabi-sabi aesthetics, or may be occurred incidentally in the process of ceramic production by accident due to firing techniques (Reijnders, 2005). By conveying visual aesthetic information, the ceramic products of wabi-sabi aesthetics help to enhance the user’s aesthetic experience and appreciation, setting up the idea of a natural lifestyle. Through understanding the wabi-sabi aesthetic concept, users can have a reflection upon the relationship between themselves and the environment to achieve a healthy and positive state of mind.

Table 3 Aspects of User Experience

Functionally	Visually
Design meets the needs of use	Design meets the needs of aesthetics

3.4 Maintenance and Upgrading

The maintenance and upgrade of ceramic craft products is a relatively arduous process, as it involves not only the restoration of functionality but also the aesthetic appeal. In fact, ancient ceramic repairers have provided a program for the maintenance and upgrading of ceramics through the methods of kintsugi and staple repair. This paper posits that both kintsugi and staple repair have both maintenance and aesthetic upgrading functions in the design of ceramic products.

Kintsugi (金継ぎ), also known as *kintsukuroi* (golden joinery or repair) (Hammill, 2016), is a traditional Japanese philosophy and art practice. Closely linked to the concept of wabi-sabi, it is a wisdom that embraces imperfection and celebrates the beauty of impermanence (Lee, 2022). As a ceramic repair technique, kintsugi is thought to have originated in the late 15th century and, over time, been used as a concrete symbol of impermanence for ceramic repair (Koren, 2008). It is currently the most commonly used ceramic repair technique due to its practical function and aesthetic appeal. Kintsugi is a method of repairing ceramics with golden accents, rather than hiding them with an invisible material. This technique uses damage as a central element for metamorphosis and change (Posthuma, 2016). Ceramics is repaired with gold, silver, or red, brown, and black lacquer, and the repaired areas are highly visible and even highlighted. The repaired ceramic product will continue its life in its new state of imperfection. Apart from satisfying ceramic product to continue to be used, the ‘scar’ formed by the repaired area becomes part of the product’s aesthetic visual. It presents new visual elements and aesthetic meanings. Kintsugi not only creates opportunities for users to extend the lifespan of ceramic products, but also conveys an attitude towards the impermanence of life - adapting to unexpected external environments, embracing the transience of life, and can be a beautiful way of treating life (Lee, 2022).

In Table 4, the author presents strategies for maintenance and upgrading of ceramic products based on the aesthetic of wabi-sabi. Three different kintsugi methods and nail-repaired methods are introduced. (1) *Crack* (ひび): In this type of kintsugi, gold dust and resin or lacquer are utilized to connect two broken pieces with minimal overlap or fill-in from missing pieces. This approach is most effective when there is only a small amount of missing material and the pieces fit together nicely. Additionally, the gold dust and lacquer aid in filling in any small gaps and can be sanded down for a smooth, flush finish (Santini, 2019). (2) *Piece method* (欠けの金継ぎ例): The piece method of kintsugi utilizes a similarly shaped piece gold piece or a gold/lacquer compound is used to fill the gap instead of the missing piece of the original pieces (Tan, 2021). This approach frequently yields an intriguing patchwork effect, with gold or gold/lacquer pieces standing out against the original fragments. (3) *Joint call* (呼び継ぎ): The joint call method in kintsugi resembles the piece method; however, it employs a non-matching fragment instead of a matching one. Consequently, this technique creates a patchwork effect in which pieces of gold or gold/lacquer stand out against the original pieces. This approach is most suitable for objects with a significant amount of missing material as it facilitates the creation of a distinctive design (Richman-Abdou, 2022).

Attention should also be paid to *staple repair* (鍋瓷) (Table 4), another ceramic repair technique related to the aesthetic of wabi-sabi, which differs from kintsugi in terms of repair method and effect. This method involves using metal staples to secure a broken ceramic piece together (Garachon, 2010). The process entails drilling small holes on both sides of the crack and using metal staples to hold the pieces together. The primary objective of the technique is to restore broken ceramic items to their original condition. The advantage of nail repair lies in the ease of removal and replacement of the staple if the repair needs adjustment or further work. Once dismissed after the emergence of kintsugi, this repair method has recently re-emerged as a trend in the ceramic product market to cater to user tastes which are increasingly personalized and diverse.

Table 4 Aspects of Maintenance and Upgrading

Functionally (Maintenance)	Visually (Upgrading)
Kintsugi (crack, piece method, joint call); Staple repair	Kintsugi (crack, piece method, joint call); Staple repair

4 CONCLUSION

The aesthetic philosophy of wabi-sabi, which embraces imperfection, incompleteness and impermanence, has remained unchanged throughout time. In the contemporary milieu, wabi-sabi has undergone transformations in various aspects:

- i. People are generally able to understand and appreciate wabi-sabi;
- ii. It is being applied to a broader range of areas of arts;
- iii. People's aesthetic judgement of wabi-sabi relates more to naturalness of the materials, rather than nature itself;
- iv. The public tends to appreciate sabi more than wabi in their daily life.

This paper puts forward sustainable suggestions for wabi-sabi in ceramic product design, that may be contemplated as design principles in wabi-sabi ceramic products:

- i. Respect the naturalness of the material in order to create a beauty that is natural, austere and simple;
- ii. Recognize the role of the handcrafted and allow for 'blemishes' — whether intentional or unintentional — that are left by the materials and production processes;
- iii. Adopt an aesthetic notion of simplicity and imperfection to create a good user experience;
- iv. Embrace kintsugi and staple repair as important methods of maintaining and upgrading ceramic products.

In the future, wabi-sabi has the potential to create lasting and richer forms in the field of ceramic design, while there is a need for a more comprehensive exploration of the relationship between wabi-sabi and product design to reverse the current one-sided understanding and commoditization of this aesthetic.

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