

The Evolution of Japanese Design: Application and User Perspectives in New Product Development

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Abstract.

The evolution of aesthetics is a constant process, as designers adapt to new materials and knowledge while preserving the essence of their craft. Japanese design embodies this principle, as it has evolved over time while remaining true to its original purpose. This paper aims to investigate the evolution of Japanese design aesthetics from the Prehistoric Jomon period to the contemporary Japanese design of the 21st century, while through specific survey, explores how users interact and perceive Japanese design, and what are the factors that influence their preferences and knowledge of Japanese design.

The paper begins by exploring the characteristics of Japanese design that have remained consistent over time, such as attention to detail, simplicity, and harmony with nature, which are clearly identified in furniture in this research. It then looks into how Japanese designers have incorporated new materials and techniques into their work, including the influence of Western design styles in the Meiji period and the integration of digital technology in contemporary Japanese design using number of case studies as research method. The paper also examines specific case studies of Japanese design, including the concept of 'The Structure of Iki,' which embodies the Japanese aesthetic of understated elegance, and the use of 'wagara' patterns, which are inspired by nature and traditional Japanese art. In addition to analyzing the visual aspects of Japanese design, and conducting survey to gauge the users' interaction and knowledge. The paper also considers the philosophical side of Japanese aesthetics, including the concept of wabi-sabi, which celebrates imperfection and impermanence. By exploring the cultural and historical context of Japanese design, this paper offers insights into the ways in which tradition and innovation have shaped Japanese design aesthetics. Throughout the paper, the focus is on how Japanese design, specifically, furniture to an extent, has evolved while maintaining its core principles, making it a renowned leader in minimalist design. By understanding the evolution of Japanese design, designers can gain insights into how to adapt to new materials and technologies while preserving the essential qualities that make their work unique and timeless.

Keywords: Japanese design and patterns, Iki concept, jomon, Wabi Sabi, minimalism

1 Introduction

Japan has a rich cultural heritage and is one of the oldest civilizations in the world. Its distinct culture and design have evolved dramatically over the centuries, from the pre-historic Jomon period to contemporary modern culture, which draws on influences worldwide. Family is essential in Japanese culture, and this has significantly impacted their design language. The Japanese design emphasizes the simplicity and practicality of things, with elegance and perfection commonly associated with Japanese culture. The objective of Japanese products or furniture, which is extensively discussed in this research, has remained the same throughout - to satisfy the consumer's needs, emphasizing efficiency, with a focus on minimalism.

1.1 Background

Mono no aware, a complex phrase with many different meanings, means "deep feelings of things" and it refers to the pathos of transient beings. This concept is frequently cited in contemporary Japan as manifested by the vast crowds of people who go out every year to see (and picnic under) cherry blossom trees [1].



Figure 1 Of Cherry Blossoms and Wabi Sabi

Wabi is a concept that emphasizes finding beauty in simplicity and the acceptance of imperfection. It means that one does not think of hardship, even under challenging circumstances. Rather than adding something artistic to a wall, for example, one removes the barrier itself and puts it back to its original state, letting light and shade fill the emptiness that has been created [2].

Iki as an aesthetics.

Iki is a concept that represents seduction through maintaining a dualistic relationship, protecting possibility as a possibility. "The Structure of Iki" by Kuki Shuzo is one of the most important pieces of Japanese aesthetics from the 20th century. It exemplifies iki as seduction by maintaining a dualistic relationship, protecting the possibility of seduction [3].

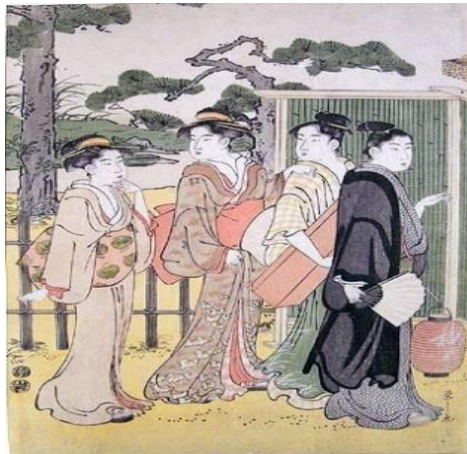


Figure 2 The Structure of Iki [4]

In addition, iki involves wearing thin fabrics, applying makeup thinly, and styling hair naturally with water rather than oil. Japanese fabric arts have a few expressive patterns of iki, such as parallel lines and vertical stripes: most other designs are un-iki because they often involve curved lines [4]. Greys, browns, and blues are the only colors that embody iki.

Japanese patterns and the jomon period

Japanese patterns, known as wagara, come in various forms and have hidden meanings. They date back to the 8th century and are often influenced by nature's symbolism, which is an integral part of Japanese culture. Each pattern represents one or more Japanese symbols, and every period in history has a distinct pattern. For example, Jomon period pots and jars were decorated with dynamic streak marks and spirals, while the Heian aristocracy favored elegant, refined patterns depicting natural landscapes [5]



Figure 3 Japanese patterns [6]

In the 1950s, Japan embraced western trends to gain economic power, leading to a shift in the language of design towards busier and more cluttered styles. However, this clutter caused depression, and Japanese people have since rediscovered the value of minimalism, especially during the COVID-19 pandemic. This mindset is also influenced by the size of Japanese homes, which are typically small and narrow, and the abundance of natural disasters.

Japanese designs and the people's preferences

Japanese design has been a significant influence in the world of product design for many years [7]. People are drawn to the simplicity, elegance, and functionality of Japanese-inspired products, which often incorporate traditional Japanese concepts such as "The Structure of Iki". This concept refers to the aesthetic of refined simplicity and sophistication that is characteristic of Japanese design [8]. It emphasizes the importance of understated elegance and restraint, which can be seen in the clean lines and minimalist design of many Japanese-inspired products. People's preferences in recent years, for Japanese-inspired products have only grown stronger. With the rise of global brands like Muji and Uniqlo, which incorporate Japanese design principles into their products, people have become more aware of the unique aesthetic and functional qualities of Japanese design [9].

This trend reflects the Japanese concept of "wabi-sabi", which emphasizes the beauty of imperfection and impermanence [10]. It values simplicity, asymmetry, and natural materials, which can be seen in the use of wood, stone, and other natural materials in Japanese-inspired products. The popularity of Japanese-inspired products can also be seen in the growing trend of "Japandi" design, which combines Japanese and Scandinavian design elements to create a harmonious and calming atmosphere in homes. Additionally, Japanese design often incorporates "wagara" patterns, which are traditional Japanese patterns that are inspired by nature and the seasons. These patterns,

which often feature a repeating motif, are popular in Japanese design and can be seen [11] in everything from clothing to home decor.

Overall, the incorporation of these traditional Japanese concepts and patterns into modern product design has made Japanese-inspired products highly desirable to consumers around the world.

2 Literature review

The Japanese aesthetic is a complex and distinct subject that has been extensively explored in various articles and publications. One of the primary sources of information regarding the Japanese aesthetic is the article on the Stanford Encyclopaedia of Philosophy Archive by Edward N. Zalta. The article provides a detailed discussion of the Japanese aesthetic and introduces several complex concepts, including *mono*, *Wabi Sabi*, *Yugen*, and *Iki*. To comprehend and appreciate the Japanese aesthetic fully, one must be familiar with these concepts. In this research, which focuses on the evolution of Japanese design aesthetics, furniture pieces are the main focus and taken as case studies in order to analyze the ways in which traditional Japanese design principles have been adapted and incorporated into contemporary furniture design.

In addition to Zalta's article, articles in the Japan Times [12] have provided valuable insights into the subtleties and depths of Japanese design, as well as introducing different galleries that host Japanese paintings, designs, and sculptures. These galleries allow viewers to establish a personal connection with the work and sift thoroughly through the Japanese design's evolution. The galleries showcase the Japanese designs from the Jomon Period, how the design evolved during the different periods of medieval Japan in the Meiji period, and how it all flowed naturally into the contemporary period.



Figure 4 Arc coffee table

Ditte Vad and Julie Begtrup combined the classical Japanese furniture sense with modern Minimalism to create a transforming arc coffee table seen in figure 4, that is captivating and puts forward a strong statement about Japanese culture. This design showcases the fusion of traditional and modern design elements.

Otomoshikki designed a series of disposable plates based on traditional Japanese Origami, called The Omotenesino Otomo. These plates are not only pretty to look at but are also made from disposable paper, making them environmentally sustainable. [13]

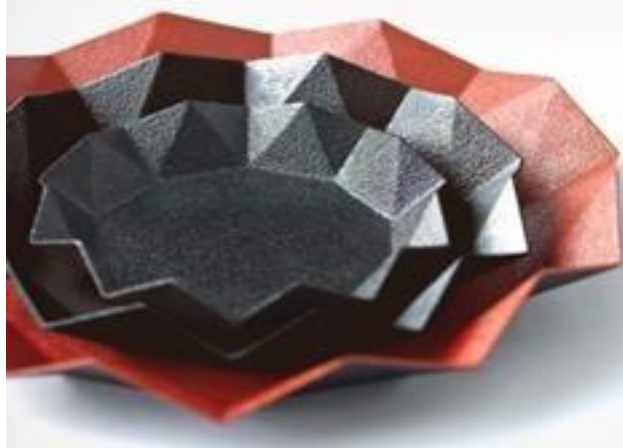


Figure 5 The Omotenesino Otomo

Nakashima is a renowned master in Japanese-based designed furniture making. Nakashima's conoid cocktail table is just one example of his resourcefulness. Throughout his career, Nakashima has tried to work with whatever was present to avoid going out to buy. Utilizing what you already have reflects classical Japanese woodworking, which emphasizes resourcefulness. [14]



Figure 6 Conoid cocktail table

Shiro Kuramata is another well-known Japanese designer who graduated in architecture from Tokyo University. His work, seen in figure 7, is exceptional but rather odd to the untrained eye that does not understand the classical Japanese tradition and its more subtle artistic sense [15].



Figure 7 The Ritz

Melissa Breyer discusses the concept of Minimalism in the evolving Japanese tradition [16, 17]. Ma is a celebration of not things, but the space between them, according to her [18]. Rebecca also writes in Minimalism made simple about the origins of Japanese Minimalism in Zen Buddhism. She writes that "it focuses on keeping life simple, clean, and uncluttered by living just with the essentials." These articles shed light on the influence of Zen Buddhism on Japanese design and the significance of space in Japanese aesthetics. [19]



Figure 8 Jorge De Jorge / Unsplash

The above literature review provides an overview of the Japanese aesthetic, its evolution, and its influence on modern design. The resources mentioned in this review allow for a comparison and contrast of different designers and their works. While there is a significant amount of literature available on Japanese design, more research is needed to explore the Japanese product aesthetics, which is the foundation of the current research.

The evolution of Japanese design has been a significant influence in the world of product design, with users increasingly drawn to the simplicity, elegance, and functionality of Japanese-inspired products. In a study by Kim and Moon [20], participants showed a strong preference for Japanese-style furniture, citing the use of natural materials and clean lines as key factors in their decision. Furthermore, research by Noh and Lee [21] found that consumers preferred Japanese-inspired packaging designs for food products, with the use of minimalist design and traditional Japanese motifs such as sakura (cherry blossoms) and shippō (seven treasures) contributing to the appeal. These findings suggest that users value the incorporation of traditional Japanese design elements into modern product design, highlighting the importance of considering user perspectives when applying Japanese design characteristics to new product development.

The popularity of Japanese design can also be seen in the growing trend of "Japandi" style, which combines Japanese and Scandinavian design elements to create a harmonious and calming atmosphere in homes. In a survey by Houzz [22], Japandi was identified as a top interior design trend, with 40% of respondents expressing an interest in the style. This trend reflects the Japanese concept of wabi-sabi, which emphasizes the beauty of imperfection and impermanence, as well as the Scandinavian concept of hygge, which emphasizes coziness and comfort. The combination of these concepts creates a unique aesthetic that appeals to users looking for a calming and comfortable living space. These findings suggest that the evolution of Japanese design is not limited to traditional Japanese motifs and concepts but also incorporates the adaptation and fusion of different design elements to meet the changing needs and preferences of users.

3 Methodology

The literature review allowed to compare and contrast different designers, the evolution of the Japanese designs, as well as modern Japanese design [23]. In addition to visiting some examples of modern Japanese-inspired products including the Jorge De Jorge/unsplash, the ritz, condoin table, Omotenesino Otomo plates and the arc table.

For this research, Effat University, located in Jeddah, Saudi Arabia is chosen for further investigation. The participants population for this research includes students at Effat University. The ages of the students range from 18 to 30 years old. Since the research focuses on the Japanese design implementations in new products, the research mainly

focused on design department faculty and students to start with and then progress to other populations.

A combination of case study and survey have been used to collect data for this research. These tools will allow to profoundly investigate the application of Japanese design and culture in new product development and gain great insight into the opinions of product design learners and practitioners around this matter.

3.1 Case study

A case study is beneficial to investigate complex phenomena in their natural setting to understand them better. This particular case study showcases some of the furniture designs inspired by various Japanese principles and design elements. This application expresses the beauty of mixing the traditional and modern principles in designing furniture pieces that are pleasant for the contemporary consumer, while still connecting with history.

Furniture designs are restful, minimal, and zen-like; these Japanese-inspired furniture designs immediately transform user's feeling into calmness. Their soft aesthetics, clean edges, and primary forms bring a sense of tranquility and Ikigai to any living environment. They are an excellent addition to contemporary urban homes.

The Srishti Mitra team acknowledges the traditional Japanese aesthetics and is inspired by the wabi-sabi philosophy of being imperfect, impermanent, and incomplete. Asymmetry, roughness, simplicity, economy, austerity, humility, closeness, and an appreciation of natural things and natural forces are all aspects of wabi-sabi aesthetics and principles, which can be observed throughout the project, and this fireplace designed by Lorna-de-Santos.



Figure 9 Fireplace designed by Lorna-de-Santos

Hasu is a tea table designed by Dieter Mortelmans to model the zen practice of tea time. As the tea ritual progresses, Hasu transforms into a contemporary piece of furniture that pays tribute to the ceremony. It starts as a minimalist structure and ends as a complete tea set. Everything you need for tea rituals can be stored on-site and presented one by one during tea time, all conveniently located on-site, making it convenient and neatly stored.



Figure 10 Hasu tea table designed by Dieter

Pavel Vetrov [24] has developed the Katana chair, which was heavily influenced by Japanese katana swords. Using Japanese culture and philosophy, the chair can be mightier than the sword. Embroidery on the edges represents the sword's handle, while carefully chosen colors represent the mood. Designed ergonomically, the chair supports user's back so that the knees do not hurt when you bow to greet people when return to socializing.



Figure 11 The Katana chair developed by Pavel Vetrov [16]

Japanese concepts can be a great extension to our modern lives. The focus on the beauty of simplicity and softness is necessary for people living in this fast-paced world. Modern Home designs can benefit significantly from the Japanese principles of zen, wabi-sabi, and iki. In addition to showcasing this beauty in many creative modern furniture, like the hasu, the fireplace and the katana chair [4].

Survey

The most significant part of surveys is the collection of quantitative data. Respondents are surveyed to receive information on the topic of interest. Online or offline surveys contain structured questions that can lead to skewed results. Surveys, especially online surveys, are a common means of collecting data. Compared to other tools, the researcher can get a more substantial number of responses in less time.

The rationale behind selecting the below sample for the survey is based on the assumption that the target audience for the research is individuals who are interested in Japanese design aesthetics and may potentially be interested in purchasing Japanese-inspired products. While the survey results may not be indicative of the entire population, the sample size and diversity of respondents allow for some generalization. The sample included participants from various Middle Eastern countries, including Saudi Arabia, which can provide insights into the popularity of Japanese design in the region.

And therefore for this research, a variety of close-ended and a few open-ended questions are used as below:

1. What age group includes your age?
2. What is your field of studies/ profession?
3. Are you a fan of ancient inspired designs?
4. Are you aware of Japanese design?
5. Are you interested in Japanese design?
6. How many Japanese design elements do you recognize?
7. Would you buy a Japanese inspired product?
8. Do you like minimalistic approach in design?

4 Results

This is the first cycle of user survey conducted which is still being circulated to collect more data. The first three questions are asked to know the characteristics of the sample. The survey of 102 participants, with age groups as represented below. The participants include a diverse range of nationalities, including American, Egyptian, Jordanian, Moroccan, Palestinian, Sudanese, Syrian, and Yemeni. In addition, the sample profession varied, with design professionals remaining the majority with around 43%.

From the survey results, it is determined that over 80% are interested in ancient inspired products, 81% are interested in Japanese design in particular.

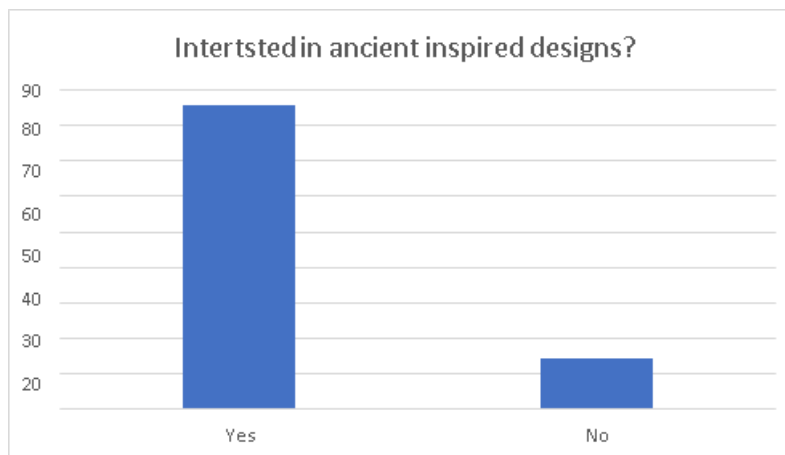


Figure 12 % participants interested in ancient inspired designs

In the seventh question, an image was presented with a variety of Japanese design elements and asked the participants to identify how many of them they recognize.



Figure 13 Variety of Japanese design elements

Surprisingly it is found that the majority were able to identify a large number of elements. 28% were able to identify all of the elements, only 2.4% could not identify more than one element.

In the following question, images were shown of Seigaiha pattern, Chiyogami yuzen, Furoshiki pattern, Japanese monster, cat, Koi fish, Japanese calligraphy and traditional fans and umbrellas [25].

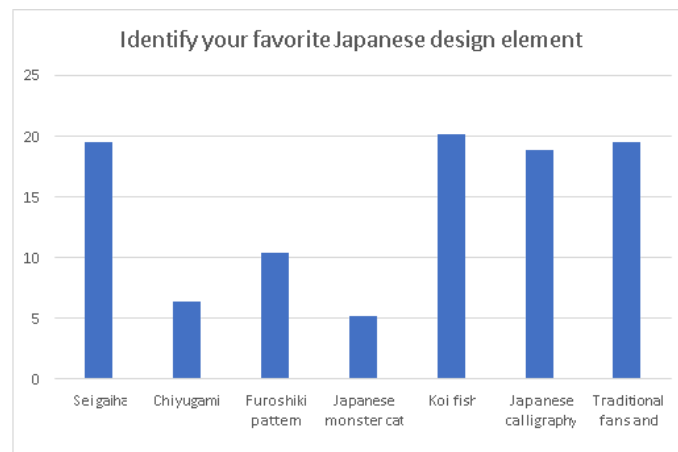


Figure 14 Favourite Japanese design elements

These are some of the famous Japanese elements that are used in a variety of products. The users were asked to mark their favourite Japanese design element. The answers were similar, the most liked item was the koi fish with 31%, Japanese calligraphy, traditional umbrella and seigalhi pattern had similar percentages ranging from 26% to

28%, the least like items were the monster cat and the chiyugami yuzen with 7.1% for each.

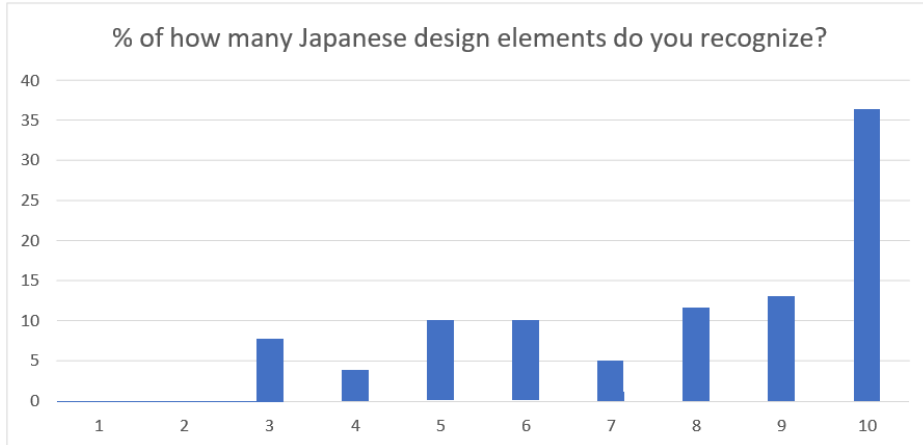


Figure 15 Awareness of Japanese design elements

The next three questions, were aimed to learn the consumer's view of some Japanese inspired furniture. An image showing a Japanese inspired chair and the Hasu table were shown. They were asked if they would consider buying such products. The answers showed positive feedback, only 21.4% said they would not be interested in buying the chair, while 7.1% only disliked the Hasu table. The research also wanted to investigate if users are interested in the minimalistic approach of the Japanese design; almost 60% replied with yes, while 28.6% said maybe and 11.9% said no.

5 Discussion

The survey results suggest that the popularity of Japanese design among the middle-east youngsters in Saudi Arabia is high, with only 2.4% of respondents not being aware of it. This indicates a potential market opportunity for Japanese-inspired products in the region. The rise of Japanese products in the local market and trends popularized by influencers may have contributed to the increased awareness of Japanese design in addition to history education in design curriculum in Higher Education sector. The survey also identified specific design elements and patterns that were particularly liked by respondents, such as koi fish, which could be useful for designers looking to incorporate Japanese design elements into new products. Additionally, the survey results suggest that keeping designs somewhat minimalistic, as influenced by Zen Buddhism, may be a successful approach.

The literature review provides a rich background on the Japanese aesthetic and its evolution, which could be useful for designers looking to create Japanese-inspired products. The fusion of traditional and modern design elements, emphasis on sustainability

and resourcefulness, and the influence of Zen Buddhism are all significant aspects of the Japanese aesthetic that could be incorporated into new product designs. The combination of the literature review and survey results suggests that Japanese-inspired products have the potential to be successful in the market, particularly among the middle-east youngsters in Saudi Arabia. By incorporating specific design elements and patterns that are popular among this demographic, and keeping designs somewhat minimalist, designers could create products that appeal to this market.

Furthermore, by understanding the history and evolution of the Japanese aesthetic, designers can create products that not only appeal to the modern market but also pay homage to the traditional Japanese design elements. This approach could create a sense of authenticity and uniqueness that could differentiate Japanese-inspired products from other designs in the market.

6 Conclusion

This paper has explored the evolution of Japanese design and its different aspects, highlighting how it has transformed over time to remain relevant and serve its purpose. Despite the shift from older, extensively expressive designs to present minimalist ones, the basic principles of Japanese design have been preserved. As a result, Japanese design is not only relevant but acknowledged as one of the most important contemporary arts of product design. Product producers are aware of the diversity of design aesthetics present in the market and have become not only followers but also innovators of their design aesthetic. The user perspective insight, including their likes and awareness, can influence the current design market, as demonstrated in the survey results.

In conclusion, this research shows how Japanese designs have evolved and remain relevant to the contemporary market, with a focus on the user niche. This paper's primary aim was to provide insights that can be applied in the design market, hoping to make a difference and invite innovations. By understanding the evolution of Japanese design and incorporating its basic principles, designers can create products that are not only aesthetically pleasing but also serve their intended purpose.

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