Cultural Design in Relation to Consumer Product Design

Prof. Ahmed Waheed Moustafa

Emeritus Professor, Metal Products and Jewelry Department, Faculty of Applied Arts, Helwan University, ahmedwms@hotmail.com

Abstract:

Designers now are creating products and services to appeal to diverse cultural backgrounds, moving away from traditional global markets and focusing on inclusive and trans-cultural marketplaces. This shift is influenced by the inclusion of "cultural design" trends in the design culture, which is now seen as a thread that connects various disciplines and fields, such as semiotics, philosophy, engineering, computer science, sociology, psychology, and anthropology. This research into design-based corporations allows for a wider acceptance and user satisfaction of products and services, fostering a more inclusive and trans-cultural approach to business. **Problem Statement:** We have observed over the past decade that consumer products and businesses are affected to different degrees by social, political, or technological concerns. As consumer product designers and developers, our products and services are prime victims of changes in political focus, economic spans, or technological advancements. The disappearance of some products and emergence of others is the result of this. Cultural design concerns the design and implementation of systems that support all the aspects of a given culture. **Study Queries:** To investigate and understand the importance of cultural design in relationship to consumer product design, we aim to answer the following general questions: Why do some products fail in the marketplace in countries with the same demographic? And What role do design researchers have in addressing these market failures? What is the mission of cultural design in consumer product design? **Objective:** This study aims to present an overview of the tools and methods employed to take advantage of consumer and user's "cultural" background at the process of a product design and development. In particular, it reports methods taken from cultural sciences as the baseline of a product development process. The impact of these tools on market success or loss, as well as on user satisfaction, is also summarily highlighted.

1. Introduction

The design of products and services is changing. Today, companies are seeking to cross over the traditional markets and sell objects by conceiving goods that engage new user groups from other cultures. Unlike traditional global design cultures and industrial markets, today's design culture has to consider differences among different cultural groups; therefore, it is now including "cultural design" trends in its thesaurus. The understanding of other cultures leads the design process and product development towards "inclusive and trans-cultural" markets and technologies. Moreover, design at the turn of the twenty-first century is being conceived as a thread that crosses several more or less multi-disciplinary studies and sectors: sociology, psychology, anthropology, cognitive sciences, semiotics, philosophy, engineering, computer science, etc. Defining such meanders of research into design-based corporations grants a wider acceptance and user satisfaction of products and services **(Meyer and Norman 2020)** .

The objective of the work is to review the present state of cultural design in product design. This work gives the general broad aspects of cultural design, and it presents several case studies to demonstrate how cultural design, and cultural sustainability, are achieved through product design by different designers. Some tangible products have cultural meaning in their design that can be abstracted or interpreted to have a language of form. These interpretations are usually focused on sculptural items.

When a functional item is introduced to serve human needs, its meaning will be the meeting point of the functional needs and the appearance derivative of the actual time of human occupation, technological uses, materials, emotional feelings, and aesthetic interests with other cultural considerations like historical context and the socio-cultural contexts associated with the use of a certain item. The meaning and the cultural influences established further development in the relation between form, function, and the designed society. The products and the design of the surface have relations with the cultural habits of the society, and aspects have to be established. **(Otto & Smith, 2020)**

Problem Statement: It has been observed over the past two decade that consumer products and businesses are affected to different degrees by social, political, or technological concerns. As consumer product designers and developers, products and services are prime victims of changes in political focus, economic spans, or technological advancements. The disappearance of some products and emergence of others is the result of this. Cultural design concerns the design and implementation of systems that support all the aspects of a given culture.

Study Queries: To investigate and understand the importance of cultural design in relationship to consumer product design, we aim to answer the following general questions:

a) Why do some products fail in the marketplace in countries with the same demographic?

b) What role do design researchers have in

addressing these market failures?

c) What is the mission of cultural design in consumer product design?

The remainder of this paper introduces discussions in the cross-disciplinary interaction between these two concerns.

Objective: The study aims to present an overview of the tools and methods employed to take advantage of consumer and user's "cultural" background at the process of a product design and development. In particular, it reports methods taken from cultural sciences as the baseline of a product development process. The impact of these tools on market success or loss, as well as on user satisfaction, is also summarily highlighted.

2. Theoretical Background:

2.1. Definition and Importance

Culture is that complex whole which includes conventions, talents, and habits of the people who belong to these groups as well as the social behavior, and any other capabilities acquired by man as a member of society **(Tylor, Edward. 1871)**. Cultures are frequently ascribed to, or derived from, particular places. The diversity of cultures found in different communities is evidence that humans pick up culture via the processes of enculturation and socialization.

Cultural design is "a system that integrates cultural issues into product development, aiming to create tailored solutions with high appeal" **(Plocher et al.2021)**. This approach has gained attention from design researchers and practitioners, as it can result in products that capture the specificities of a given social group, leading to worth-the-price products. The integration of "culture" within design supports the design team in moving beyond creativity and towards social innovation **(Van de Vijver & Leung, 2021)**.

User requirements are significantly influenced by their cultural background, which can lead to the development of successful products. Culture encompasses users' values, beliefs, and normative conduct, and includes "unspoken rules" or "mental elements" within organizational studies. For example, Western companies faced issues in Asian countries due to disregarding cultural habits and room layouts. Apple Corporation, despite its global success, may not have been successful in Arab Gulf countries due to restrictions on services and content, as well as citizens' refusal of certain layouts **(Abdul A. J. 2018)**.

2.2. Key Concepts and Principles

Cultural empathy is the understanding and respect for diverse cultural backgrounds of potential users of new products, particularly those in personal and social care. It is crucial to recognize the importance of understanding the values and lifestyle of potential customers, as their experiences and preferences are shaped by culture. Cultural relativity is the principle that solutions should help people lead a healthy, independent, and enjoyable life within their personal and local values and lifespan **(Khan, 2021)**. Product design should be tailored to different cultural contexts of daily use activity. These systems should be compatible with daily routines, safety and health states, and should be friendly for "silver citizens" and adaptable to different levels of ICT skills. Inclusivity is crucial for long-term use and motivation for a

diverse range of people. Cultural design should build on best practices and accommodate behavioral, technological, and economic changes as we age. Stories show the progression from abandoning participatory cultures to adapted technology actively supporting local cultural preferences **(Liu and Lu2020)**.

3. Cultural Understanding in Product Design

The term "cultural design" refers to the extent to which a product has been designed to cater to the cultural ways of a certain group characterized by their shared knowledge, values, preferences, and practices. The term most often comes up in the context of design for consumer product design and development, where experts are often faced with the challenge of developing suitable and appropriate products for their intended use context **(Deana Brown, et al. 2014)**. Cultural design ensures products are not only functional and generic but also culturally meaningful, as they are increasingly used across different cultural contexts. Multinational corporations are increasingly localizing their designs, making it crucial for interfaces and devices to convey cultural meanings and cater to diverse communities. Cultural products should have global appeal but also fit within the end user's context **(Ahluwalia, 2008)**.

However, Factors constituting the nature of culture with regard to product design, figure (1) are a) Uncertainty avoidance (Hatred to the unknown and preferences for structure and rules), Manhood and Femininity (reward and success vs compassion and corporation), Long-term perspective (Progressiveness and change vs Conservatism), Indulgence (satisfaction of desires vs restraint of needs), Individualism (Individual Choices vs entrepreneurship), Power Distance (Stiff Structure vs Hierarchical Order).

Within the product development literature, while relatively rare, there are a few design attributes that work as antecedents to the development of culturally sensitive products. Culturally sensitive products incorporate modern designs, modern technology, eco-friendly materials, and human-responsive interactive materials. It has also been described that user-centred design processes might help in the identification of such principles, provided they leverage computer-aided techniques. The idea of being user-centered means understanding user demand and making design changes that enhance product demand by incorporating cultural design. If a product is designed keeping in mind cultural factors from different perspectives, it will surely achieve success **(Wijesooriya & Brambilla, 2021)**.

Contemporary consumer product design methodologies often focus on visuals and Western cultural contexts, with local design development in a country like Egypt often focusing on appearance, fashion, and style elements as they ae known to gain customer attention.. These designs often target specific customer groups, ignoring the meaning of visual, haptic, tactile, and aesthetic elements. This results in many designs being culturally unbounded. Studies have highlighted the importance of understanding consumer segments and identifying common denominators to define market segments. Factors influencing consumer behavior and product appearance, as well as relationships between design methodologies and cultural analysis data, are also

explored. **(Cross, 2021)** .

Figure (1) Factors affecting culture manifestation

Product appeal today is largely based on aesthetics and cultural symbols rather than their utility. To create products with appropriate function, form, and appearance, designers must understand and share the characteristics of the target population. Failure to do so can lead to unsuccessful designs. Successful products today apply cultural values to their form and appearance. Market size is often attributed to products tailored to specific cultural requirements. Contemporary design often captures culturally-based opportunities by investigating cultural differences and finding creative solutions in new market segments. **(Heitmann et al.2020).**

3.1. Cultural Sensitivity and Appropriateness
Thus, design education curricula should prepare future designers to introduce cultural design into the design process to create culturally appropriate products that are sensitive to the consumer's culture, or subculture, and encourages innovation, appropriateness, and reflects a culture-centered design perspective. Appropriate design leads to products that are socioculturally palatable, comfortable and satisfying to its users and provides insight concerning sociocultural preferences that contribute to the enhancement of both the everyday and aesthetic quality of commodity products **(Pontis and Van2020)**.

In the United States, design firms are hiring fewer black designers, resulting in limited product design assistance for black consumers. This lack of representation in the design industry may be due to the absence of a significant percentage of black design professionals. Additionally, companies solely serving ethnic populations are also limited. Designers should be responsible for cultural competence, as a growing number of people in the underclass live in a shared social environment. However, design curricula often relegate these branches to electives, limiting their impact. **(Costanza-Chock, 2020)** .

In a study by **Riyanto et al. (2024)** consumer product design issue has been discussed, they have viewed consumers as members of a culture and discussed the effect of culture on product design. It has been claimed that if designers do not understand culture, then consumer product codes will probably be inappropriate for the culture. Design for other cultures, or for different subgroups within a culture, places new demands on design knowledge and on the conceptual organization of design knowledge.

4. Cultural Factors Guiding Consumer Behavior
Historical evidence on the diffusion of consumer goods is crucial for understanding consumer demand and diffusion processes in new societies. This issue is important from both theoretical and practical perspectives. Most investigations focus on historical and sociological conclusions, rather than statistical ones. The mode of diffusion may be based on research on innovation diffusion, but it may not always exist. Even if it does, the diffusion characteristics of consumer products may differ from those of other innovations. **(Rand & Stummer, 2021)** As shown in figure (2) the factors affecting cultural product design may include; appealing shapes and semantics; customer needs, wants and preferences; functionality awareness and ease of learning; Standard of living and Affordable Cost Culture preferences, Ethnicity, Traditions; Lifestyle and Socioeconomic Status; Endurance, Permanence and lifecycle.

From our examination of how foreign items gain or lose popularity in different countries, we can create a general typology of our consumer behavior findings. There are eight different possible outcomes regarding the popularity of the foreign product:

1. The item is initially popular but remains so after a number of years;
2. As in (1), but the time until the popularity begins to decline is very short;
3. As in (1), but a number of years after the popularity begins to decline, it recovers and even

grows stronger;

4. The item is initially popular but proves to be extremely short-lived;
5. the item is never popular;
6. The item undergoes sequentially fluctuating popularity within a very short period. The popularity cycles may continue to the present, or they may have ceased;
7. The item is not at all popular at the present time, but may be so in the future;
8. The item is unchangingly not popular.

It should be noted however, that it is possible that in some countries the item will experience one of these reactions, and in other countries will experience another **(Rosário and Raimundo2021)** .

4.1. Socioeconomic Status and Cultural Preferences

Socioeconomic class limits influence commercial designs for products and services for low-SES groups. Low-income demands in music, packaging, and restaurant branding may be lower than adolescent or older age nourishing behavior and green food preferences **(Ahluwalia, Rohini, 2008)** .

Socioeconomic status (SES) significantly impacts cultural preferences and adoption of material goods compared to consumer products. Low-SES individuals tend to adopt a less-standardized combination of tastes and materials, while upper-class individuals follow a more standardized approach. Higher SES preferences drive consumer product purchase. However, narratives about adopting consumer products for individuals often overlook factors like cultural background, personal relationships, social aspects, and personal comfort feelings. **Ishii & Eisen, (2020)** study suggests that the social side of emotional consumer product attachment is under-recognized, with higher-income individuals being more likely to adopt higher-quality products that serve business partners' social relationships**.**
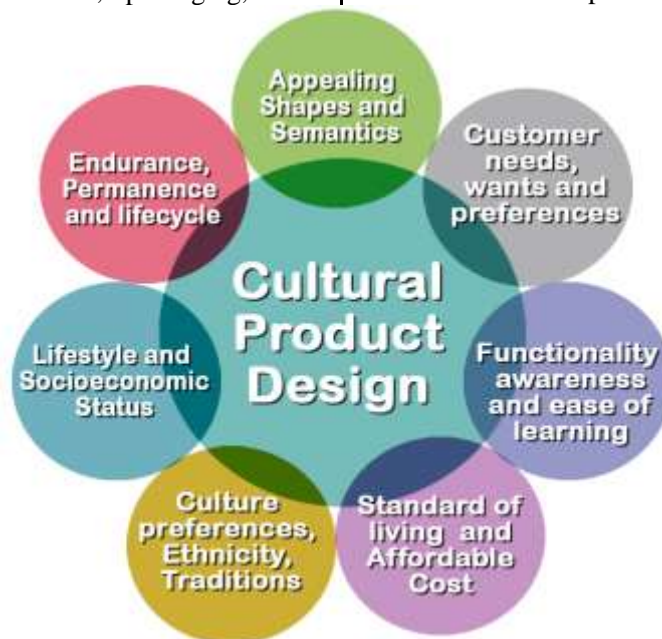

Figure (2) Factors affecting Cultural Product Design

5. Methods for Cultural Design Research

Cultural research methods provide the opportunity to thoroughly understand the cultures of users. Most are qualitative, allowing broad and flexible exploration of a culture. Based on the gathered insights from these methods, the design strategy, concept generation, and concept testing phases follow **(Moisander et al., 2020).**

Understanding users, their needs, and cultural characteristics is challenging. While qualitative methods have been successful in gathering data on beliefs and behavior, integrating multiple research methods is suggested as it provides additional information on beliefs not revealed by qualitative research alone. A study on product development suggests a wider range of methods is necessary. However, the cost and time for training may discourage corporations or design teams from using lesser-known methods, so decision criteria should be evaluated when making these choices. **(Van de Vijver & Leung, 2021).**

This paper presents a framework for corporations and design teams to improve consumer products' acceptance in diverse markets. It proposes a cultural design application at various stages of product development, including concept generation, selection, design refinement, and manufactured product testing. The framework is developed using cross-cultural research and design literature to suggest methodologies and tools **(Costa2023).** The paper presents cultural design as part of a general model for incorporating the right design research methods and tools at each stage of product development. The approach is based on notes from communities all-around the world added to other design researcher's resources when available**.**

5.1. Ethnographic Research

Ethnographic methods, originating from anthropology, are gaining interest in market research, particularly in consumer product design research. Traditional methods struggle to produce new product concepts due to the design freedom that technology has expanded. Ethnographic methods help bridge the gap between visual appearance and design, as technology has expanded design freedom. As Henry Ford once said, "if Henry Ford had asked people what they wanted, they probably would have said, 'a faster horse'." **(Keränen & Prior, 2020).**

Tribal marketing is aimed at people who are part of a

group and marketing attempts to appeal to a sense of identity or belonging, rather than simply appealing to an individual as an individual. Indeed, tribal marketing is a major departure from conventional marketing because marketers seek to create something that goes beyond the borders of the conventional brand or product. Unfortunately, researching such groups can be problematic because members are protected and exclusive. Traditional market research methods have their limitations when dealing with tribal groups. Traditional research only analyses opinions and attitudes, and restricts opportunities for the generation of ideas. The examination of the cultural elements of a group, including values, metaphors and shared symbols, is also of primary importance **(Jeong et al.2020)** .

Ethnographic studies are a popular method for cultural research in product development, focusing on observing and recording users' lives and experiences to understand their simple and ordinary practices. These practices, which may be difficult for general users to answer accurately through questionnaires or direct interviews, can be crucial data for developing cultural products. The steps are:

1. Identifying a target user group,
2. Meeting with potential representative users,
3. Selecting several representative users for a particular user group, and
4. Observing the users.

In a globalized world, understanding non-Western culture requires active embedding and interpretation, where researchers and users are embedded in the same cultural context for a long time **(Bye, K. et al.2019).** This process shows the more natural behavior of users, allowing for a balance between mundane and strategically relevant insights. This approach encourages users to articulate ideas and behaviors that do not arise unintentionally and disclose their intimate sensations and passions, eliciting poignant and dramatic information. However, active embedding and interpretation in ethnographic studies can be a double-edged sword. As the data becomes richer, the fundamental question of observer influence or bias does not appear. This makes it difficult to ensure that the empathy of a researcher can transcend the imagination **(Reynolds & Beresford, 2020)..** Long-term studies and data archives make interpretations even more difficult. The complexity of interrelationships between datasets across different contexts and classification of these datasets makes interpretations even more challenging. Therefore, it is timely to provide designers with effective tools to model the interactions of designers with research outputs **(Müller, 2021).**

Ethnographic studies aim to improve product development by understanding the spatial and temporal interactions between users, products, and cultural behaviors. Data from these studies is analyzed to generate insights for designers. To fully understand the complex interaction between user and product, detailed data of users' actions is necessary. This allows designers to empathize with users and understand their true needs more specifically than through laboratory user studies and direct interviews **(Marche et al., 2020).**

Ethnography is a qualitative approach. Observations occur while the user interacts with a product, at a particular place, and at a particular moment. Observational data give insights into local practice, current context, current usage patterns, local meanings, and presented language. From such situatedness, the team understands the cultural context. The objective of the ethnographic studies is to reveal what brings the product to the market. These experiences make a person buy, respect, love, support, believe, feel loyal, and dedicated to a product. This includes both positive and negative aspects of the product. The collection of impressions means to reveal systems of integrity, logical systems of cultural coherencies, and the cultural key motives for behaviour, such as attitudes, intentions, and feelings, in short, as a form of the state of the culture Ethnography is a qualitative approach that involves observing user interactions with a product at a specific place and moment. This data provides insights into local practices, usage patterns, and language, helping to understand the cultural context. The objective of ethnographic studies is to reveal what brings a product to the market, including positive and negative aspects **(Andreassen et al., 2020)..** The collection of impressions helps reveal systems of integrity, cultural coherencies, and key motives for behavior. The selection of people is crucial, based on exploration of national, regional, and local groups and procedural homogenization. Field research can take place in different countries, and data collection involves observation, activity analysis, interviews, and constitutions. The final result is a corporate culture, which details the lifestyle of a given regional border and represents the integrative vocation of the given ethnicity. Cultural anthropology is a profound micro-sociology **(Ahluwalia, 2008).**

5.2. Cultural Probes

Cultural probes are used to get information on cultural experiences and values. Instead of asking the users only to give their requirements and needs, just as the participants in a focus group, users are selected systematically to collect information about their likes, dislikes, customs, habits, and play. They are asked to complete diaries of marked places, events, people, everyday objects, rituals, clothes, etc., to be selected by the user. The leaders are used as a source for the user to express songs, paintings, stories, etc. Types of diaries and methods depend on the culture targeted and the background of the user. It sounds like an interview, but in these selective interviews, it is conceivable to supplement the abstract questions with material and meaningful objects. These are tailored according to the background of the company and the user **(Spath, D. et al. 2010).**

We argue that cultural design research should start with a profound exploration of aspects that strongly interact with different human techniques and skills, social organizations, with respect to current meanings of life and to the present use values themselves. These experiences give us information about the skills and competence of users, as well as constituting a preferred or alternative solution. We can also see how, with creativity, relevant properties embedded in the product can give direction and identity to the user's lifestyle. These tools intend to broaden our experience

from abstract concepts down to concrete life forms, skills, and morality that are the foundation of modern and diverse societies even in the process of globalization. Cultural design, therefore, presents itself as a multifaceted multi-step modelling process to explore social and individual phenomena as well as product-implied cooperative organizational cultures. RPM has to be used as a complementary tool to traditional market surveys **(Rau, 2020).**

Cultural probes are a creative method for a cultural approach to getting an impression of the cultural background of so-called normal and non-normal people. In their private surroundings, participants are activated to make small investigations of a provoking personal theme about their opinions and, for example, about their thinking and feelings. They get to explore the context that shapes their everyday life and cultural experiences. The main aim behind cultural probes is to create an enjoyable research tool to gather a rich variety of individual experiences, thoughts, and insights from the participants in an interactive way. The design brief of the probes is based on a specific theme of the project and influences the activities of the probes. Various media, materials, and tools can be part of the cultural probes. Typical cultural probes are diaries, either one for every day or one for every activity, almost always linked to a written narrative **(Rodríguez et al.2020).** Probes also often contain cameras or Polaroid cameras to challenge the participants about certain issues or to get a photograph of environments. The camera should be disposable to stay with the participants and should preferably have the possibility to take two pictures of the same shot. Other tools and objects used are CDs, keyrings, walkers, drawing materials, games, questionnaires, aerial views, etc.

Cultural probes are an ideal methodology for several reasons. They can accumulate qualitative measurements from a large number of respondents. The probes are relatively open-ended, so they tap into the public mind of their respondents. Finally, they engage the user and give them a feeling of ownership, which is maintained because the user is allowed to express themselves. It works particularly well if the study specifies a target audience with unique but related experiences. The concept of probes is highly flexible. It can be adjusted and customized to target specific users. This is a beneficial quality because products can be tailored to meet individual needs. The cultural probes leave the participants with a strong sense of ownership and a feeling of genuine contribution to the research process. Information gathered from cultural probes is highly qualitative yet presents opportunities for the designer to uncover deep human insights **(Alvstad, C., et al 2011).** With this depth of understanding about one's users, the designer can develop design metaphors and designs that capture the "user perspective." With this knowledge of the user perspective, we can design for attitudes, emotions, and behaviors rather than for mere functionality, and there is no other way to acquire. They allow the designer to get an all-round outside view of a project **(Auernhammer and Roth2021).**

6. Tools for Cultural Design Integration

To discuss methods and tools for integrating cultural design into product development, we should first emphasize the importance of translating cultural insights from research into practical design decisions. Personas are fictional design tools that create profiles of user types with different needs, identities, and desires. These help design teams empathize with users and refine their designs to match their varied needs. Cultural personas are influenced by the representation of cultures, and cultural mapping visualizes the relationships between culture, behaviors, structure, and artefacts in a cultural system. These tools help designers gain insight into the cultural context within a target domain and make appropriate choices for product experiences and interactions that are attuned to the target user groups and meaningful within the context of use **(Desmet & Fokkinga, 2020).**

Culture can be a valuable reference for products, allowing them to express specific cultural values. However, this requires sharing knowledge between buyers and users. Without a clear understanding of cultural signs, the design and cultural content of a product become irrelevant. A grammar for interpreting cultural signs could bridge this interpretative distance. However, most people are inarticulate, leaving intuition, ritual, or ingrained cultural habits as the main interpretative mechanism. To create a meaningful framework for culturally sensitive design, key values or habits must be represented. Understanding interface and usage habits and meanings is crucial for appropriate localization of interactive digital products **(Mehmet Cem Odacioğlu, 2017).**

6.1. Persona Development

Persona development is a crucial method in product development that involves creating a consistent image of the target group. Personas are fictional characters with specific characteristics, such as name, age, goals, and cultural background, based on user research. These characters are created based on field visits and interviews, summarizing user features and demographics. These personas are then used to design products that focus on the well-being, behavior, and use cases of the defined target group. Personas support cultural design by providing a concrete image of a specific user, structuring aspects from interviews or field visits, and increasing the possibilities for developing user-centered products throughout the development process. **(Ceschin and Gaziulusoy, 2016).**

Figure (3) An example of a persona

Persona development involves understanding different subcultures within a community, represented by religious or non-religious groups based on factors like gender, age, or location. Results are primarily based on facts, while observation models are based on opinions, fantasies, and guessing. These methods help capture and represent more aspects of the target

audience. Personas should be considered as a basis for decision-making throughout the product creation process to ensure they don't fade during design decisions. They should also be critically reflected upon and adapted over time as cultural conceptions evolve. **(Bennett & Kahn-Harris, 2020).**

6.2. Cultural Mapping

Cultural mapping is a design research strategy that uses visualization tools to understand complex cultural relationships in product design. It involves charting the interactions between cultural elements, users, and designers, developers, and workflows in the design of new products. Visualizing these relationships helps identify essential cultural dimensions for successful user-product interactions. While individual or one-off snapshots are important, the relationships between cultural elements, users, and design flows provide opportunities for design innovation and identification of design risks **(Pillai, 2022).**

Figure (4) An example of a culture map

Cultural mapping is a method used to develop new product designs by involving in-depth qualitative exercises with people representative of a target culture. This process involves techniques like interviews, ethnographic observation, participatory workshops, and in-situ filming to uncover hidden patterns and connections between cultural elements and users. The workshops are often co-moderated with various stakeholders, user groups, and potential designers to ensure a considered and dialogical approach. Expertise and experience in working with cultural stakeholders are essential, and in-situ engagement often requires cooperation between cultural institutions and intermediaries **(Auernhammer and Roth2021).**. The cultural design process is guided by a commitment to collaboration and social inclusivity, incorporating strategic instruments of cultural mapping to maintain constant dialogue

between cultural stakeholders and design research. **(Grogan, 2020).**

7. Issues in Cultural Design Implementation

But without doubt, the greatest issue of all is that the implications of different strategies with which to invest product concepts with cultural value are unknown. Since this research is but two years old, we are still at the information-gathering stage relative to our actions. Then too, at the farthest reach of what we endeavor, design specifically for cultural differentiation, products whose purpose is to underscore the very important theme that all societies have their own unique and valuable cultures. When differences between cultures are fully comprehended, the world is more unified for those differences are understood and accepted instead of being either ignored or repudiated. If that is achieved, truly we have contributed then in no small measure **(Shavitt & Barnes, 2020).**

There are several considerations as well as problems that might be encountered using the results of the analysis of culture for the design of consumer products. There are concerns about how to obtain deeply cultural insight about what is culturally desired in various societies. The issue of how to even define these analyses is a concern. It is not certain to what extent products are culturally embedded. It is not certain to what degree that is possible. There is the issue of appropriate domains. That an ambition so far has been restricted to consumer products. Also, territory which appears most fertile is how to offer cultural value means a society's established social order is deeply embedded within that society. In the future, we will be exploring culturally specific modes of appropriating value **(Melnyk et al., 2022).**

8. Principles of Incorporating Cultural Design

To understand how to incorporate cultural design principles into product development and design, it is essential to recognize the nature of culture and universal traditions, norms, forms, colours, and expressions common to people worldwide. Various meanings assigned to culture undergird the directions and actions taken by international companies in decision-making and management issues. Culture is a term discussed across many academic disciplines with over 160 different meanings. The concept is such an intricate force within the business world that some analysts argue that corporate strategy cannot be effective without awareness of some specific cultural issues related to particular cultures **(Manovich, 2020).**

The concept of culture gives meaning and order to the practices and behaviours of its participants. A universal body of knowledge shared, practised, and maintained by cultural groups shapes design thinking and enhances people's well-being. Design can utilize these diverse cultural traditions to create imaginative and functional material, spatial, and virtual things that exceed people's everyday expectations and requirements **(Eller, 2020).** Providing goods and services that meet specific cultural needs and that are sustainable, effective, and valuable is beginning to receive global corporate recognition. Large multinational companies from developed countries studying capital globalization, the mobility of labour, and how to increase market shares now realize that a connection between physical human well-being and

culturally fitting products and services exists. As a response, some companies have begun to incorporate cultural values into their products and services **(Walker, 2021)**.

9. Future Trends in Cultural Product Design

In the first half of the next century, consumer product development will face significant challenges and opportunities due to population, demographic change, urbanization, global mobility, and new family structures. Innovations in housing, living, working, and recreational spaces will be required, along with increased global expectations for better home quality and recycling of materials and products. Economic constraints will also impact design in terms of energy efficiency, performance preparedness, and affordability. The influx of double-income professionals will influence product markets, with personal household services like cleaning, cooking, and entertainment influencing other product markets. Dynamic segmentation trends in developed regions, particularly in Asia-Pacific, will result in an increasing number of low-income consumers and two-billion-dollar sectors **(Soliman2021)**.

The text explores future trends in cultural design and consumer product development, based on literature, research, and interviews. It presents a comprehensive categorization of factors, including product complexity and static feature identifiers. The text emphasizes the importance of an integrated approach, using both cultural design and product development models simultaneously, to better utilize information and opportunities during the process of enhancing, diffusing, and abandoning sustainable innovations. The objective taxonomy is used to objectively dissect the categories **(Isaksson & Eckert, 2020)**.

19. Case Studies and Best Practices

How successful consumer products may reflect aspects of national cultures in product design? And what is the relationship between cultural and consumer product design, including the experiences of novelty and other affective responses evoked by cultural design elements? To answer these questions and to identify cultural design specifically, an audit of national cultures and other relevant situation impressions of a consumer product could be undertaken. The document presents selected projects that present best practices, each focusing on specific methodologies or activities implemented with user engagement. Recent research has uncovered how aspects of national cultures can be operationalized to suggest the means by which these uncleaned national cultures can be expressed or communicated symbolically through a commercial design **(Ahluwalia, 2008)**. The design of a product, in relation to a particular target group of potential product consumers, can be a key reason for the success or failure of the product. This is particularly true for consumer products. The relationship that potential consumers sense between a product, the user interface, and the image that the consuming individual wishes to represent regarding his/her own identity, influences the purchasing decision. There has been repeated recognition of this in the history of consumer product design in a number of successful products that create an association with the target market through an image projected by the product's design strategy on its technology, materials, design and brand values that represent style, coolness, and respect. Some examples include the Walkman introduced in 1980 **(Neumann et al.2021)**.

The study also presents case studies on integrating cultural considerations into product development projects, focusing on methods, industry, and background. It provides lessons learned from successful and challenging projects, and offers recommendations for designers working on user-centered methodologies. The case studies demonstrate how cultural design research can inspire design activities in the product development process. They explore how cultural aspects can generate design briefs, inform development, and affect user perceptions or product experience. The case studies present selected methods and practices implemented in an industrial or applied context, showcasing the importance of cultural design in product development **(Morgan & Liker, 2020)**.

This document presents a series of case studies that highlight the importance of cultural considerations in design work. The examples aim to inspire reflection and highlight the local occurrence and implementation techniques of these case studies. The best practice section emphasizes the significance of user engagement in product and service design. Culture is influenced by historical, national, regional, and political factors, and understanding users' cultural background is crucial for designing products. Cultural factors change over time, offering unique fashions in outfits, décor, and electronic products **(Shavitt & Barnes, 2020)**. Knowing consumer trends and satisfiers can lead to innovation in product design and make designers and their companies aware of market trends.

10.1. Case (1) Cultural Design in Products

They conducted case studies with interviews of several products that were designed with considerations of culture to evaluate them and to show the implications of good designs. Emphasizing that such products are simply successful products with culture designed in. The purpose is to advance and confirm specific criteria for cultural design and confirm any commonalities of successful cultural designs. It was found that traditional designs, although not explicitly designed as cultural, are very much designed with considerations of culture in the production of the product and closely match the criteria of cultural design **(Tunstall, 2020)**.

Traditional designs that explicitly consider culture often lack genuine inspiration from culture. A product or service must fulfill its function without contradicting or offending cultural values. Successful designs are genuinely inspired by culture, rather than incorporating culturally inspired decorative elements. Traditionally, function or appropriateness was the priority, regardless of culture. Good designs are often part of people's understanding and practice of culture, even when it is seldom considered. **(Otto & Smith, 2020)**.

10.2. Case (2) Cultural Design in Industry

To discuss the concept of cultural design and its application in product design we should highlight

examples of companies incorporating cultural design into their products, primarily in accessible experiences like travel or food. However, some companies also explore the abstract space of cultural design, providing a more contextually rich understanding. The study highlights the intersection of cultural design and corporate product development and branding practices, distinguishing between strategies that align with good corporate citizenship and cultural design, and those that exploit iconic connections to consumers' heritage solely for market share. Discrepancies can arise between corporate citizenship and strategic inattention to cultural understanding, leading to flawed marketing strategies that prioritize the immediate bottom line **(Dell'Era et al.2020).**

10.3. Case (3) Cultural Design in Product Packaging

This case study examines the impact of culture on product concepts and packaging for the tourism market. As the world becomes smaller due to globalization, cultural differences have become more distinct, and visual cues are increasingly important to signal these differences. Product packaging is a visual cue found in any market, enclosing the product and maintaining its integrity and freshness throughout its life cycle **(Redner, 2020).** A study by **Berg-Weitzel et al. (2001)** questioned whether to adapt product design, communication, and packaging design to local preferences or choose a global solution. Research has shown that it is more effective to adapt advertising to local preferences, as cultural dimensions influence people's perception and acceptance of different advertising forms. This may also apply to packaging design, as it serves as a communication tool. The study's findings on the influence of culture on packaging design's communicative value could help brand owners make decisions on globalization and localization of their brand representatives.

10.4. Case (4) Cultural Design in consumer product design

The study by **Rungtai Lin et al. (2007)** emphasizes the importance of studying culture in technology design. The research focuses on analyzing cultural meaning, operational interface, and the scenario in which cultural objects are used. The study establishes a cultural product design model to guide designers in designing successful cross-cultural products. The potential of incorporating cultural design extends beyond customizing products for cultural markets. The study focuses on a multinational consumer product manufacturer's project to identify cultural design opportunities in personal wireless communication devices. The study used digital ethnography methods and existing literature on anthropometry, cross-cultural product design, and cultural design elements to provide a comprehensive digital picture of the user population. The result was a set of design guidelines for personal wireless communication devices. **(Müller, 2021).**

The digital ethnography study was crucial in revealing cultural insights related to the future design of wireless products. The visual and verbal qualitative data, provided the manufacturer and the design team with a holistic understanding of the users' behaviour in urban environments, the particular medium used for communication, the physical characteristics of the users, the hand and grip areas, the personal use of cultural artefacts including nature themes, and the criticalness of some features in personal communication. The anthropometric data statistics allowed the team to validate and quantify or relate the characteristics to the anthropometric proportions and the interpretation of product design needs. The spectacle-shaped model provided specific geometric data on the different grip chamfers and material thicknesses used in mobile devices for the physical model prototype **(Cao, 2020).**

11. Conclusion

"The world is designed, and yet, the world designs us. We are trapped in a dynamic feedback loop between them to create what we species and the ways in Which us make our artifacts created the species." **(Leyla Acaroglu, 2016).**

In order to understand how to incorporate cultural design principles into product development and design, it is essential to recognize the nature of culture and universal traditions, norms, forms, colors, and expressions common to people worldwide. Various meanings assigned to culture undergird the directions and actions taken by international companies in decision-making and management issues. Culture is a term discussed across many academic disciplines with over 160 different meanings. The concept is such an intricate force within the business world that some analysts argue that corporate strategy cannot be effective without awareness of some specific cultural issues related to particular cultures.

The concept of culture gives meaning and order to the practices and behaviors of its participants. A universal body of knowledge shared, practiced, and maintained by cultural groups shapes design thinking and enhances people's well-being. Design can utilize these diverse cultural traditions to create imaginative and functional material, spatial, and virtual things that exceed people's everyday expectations and requirements. Providing goods and services that meet specific cultural needs and that are sustainable, effective, and valuable is beginning to receive global corporate recognition. Large multinational companies from developed countries studying capital globalization, the mobility of labor, and how to increase market shares now realize that a connection between physical human well-being and culturally fitting products and ser vices exists. As a response, some companies have begun to incorporate cultural values into their products and services.

Since products are being utilized in more and more cultural contexts, cultural design makes sure they are not just broadly used and functional but also have cultural significance.

Contemporary technology, eco-friendly materials, human-responsive interactive materials, and contemporary designs are all components of culturally sensitive products. It has been established that if

designers make use of computer-aided approaches, user-centered design procedures may aid in the identification of such concepts. Understanding user demands and realizing design improvements that improve product response to demand by embracing cultural design are key components of the user-centered concept. A product will undoubtedly be successful if it is built with consideration for cultural aspects from several angles.

In designing consumer products sometimes the designer has to skip the idea of responding to emphasizing images and Western cultural atmospheres and contexts. This should result in a product that paeal –if successful – to a non existant consumer. An example raised before is the local design development frequently concentrates on look, fashion, and style components since these are recognized to attract the attention of consumers. However, the cultural structure, and experience will be all obstacles to accepting such products. These designs frequently ignore the significance of visual, haptic, tactile, and aesthetic qualities in favor of catering to particular consumer groups.

It should be indicated that in order to create market segments, it is critical to comprehend customer categories and find common denominators. Relationships between design approaches and data from cultural analyses, as well as factors impacting customer behavior and product appearance, should also examined.

Nowadays, more people find products appealing for their aesthetics and cultural connotations than for their functionality. The traits of the target market must be understood and communicated by designers in order to produce products with the proper shape, function, and appearance. Not doing so may result in designs that are unsuccessful. Today's successful goods incorporate cultural values into their shape and design. The size of the market is frequently linked to goods made to meet certain cultural needs. Modern design frequently seizes chances based on cultural variations by examining cultural variances and coming up with innovative solutions in untapped markets.

To create culturally appropriate products that are sensitive to the culture or subculture of the consumer and encourage innovation, appropriateness, and a design perspective that is centered around culture, design education curricula should prepare future designers to incorporate cultural design into the design process. Products with appropriate design are socio-culturally palatable, pleasant, and rewarding to their consumers. They also tender information into sociological preferences, which improves the form and aesthetic quality of commodity items. Cultural competency is the responsibility of designers since an increasing proportion of the underclass now shares a social context. But these fields are frequently made elective in design curriculum, which lessens their influence.

There are unique requirements for design knowledge and its conceptual organization when designing for foreign cultures or distinct subgroups within a culture.

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