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# CULTURE BASED PRODUCT DESIGN

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## ABSTRACT

*This research discusses how products utilize culture codes in order to establish their cultural characteristics and achieve product differentiation. From relevant theories and literature, we have determined the items for analysis, analyzed the cultural model space of products, the locations of the usage of culture codes in products, and discussed their internal aspect, middle (behavioral) aspect, and external (appearance) aspect based on where a product is located This research project examines the construction of cultural based model, architectural model and models evolved from various historic and linguistic analysis of product design for India. The project discusses about various zones of India based on cultural, architecture, customs, traditions, rituals etc in a region and to translate these factor for designing of a product. There is little in-depth research that can assist designers to use culture as a catalyst for designing innovative product within Botswana's context. The designer of this product has utilized the above-mentioned affect codes, identification codes, style codes, and transmission codes to create an entirely new image of alcoholic products.*

***Key words: culture codes, product design, Socio-cultural factors, culture-orientated product design, Botswana***

## I. INTRODUCTION

There is a lack of in-depth research and appropriate methods to assist designers on how culture can be consciously integrated in product design Such a framework is required and needs to go beyond the consideration of the surface manifestations of culture that have been widely accepted in design methodologies and it must address how the core components of culture can be embedded in designing products. This challenges designers to gain a deeper understanding of users' culture but embodying of cultural factors in new products development is not a straight forward subject and it is still an under researched area .

Culture is the foundation on which designers unleash their creativity, and a design that lacks culture is just like a tree without its roots. The word "culture"has a rather broad meaning in contemporary science.

It is the sum of politics, economy, religion, morality, art, literature, customs, and any social capacity or practice

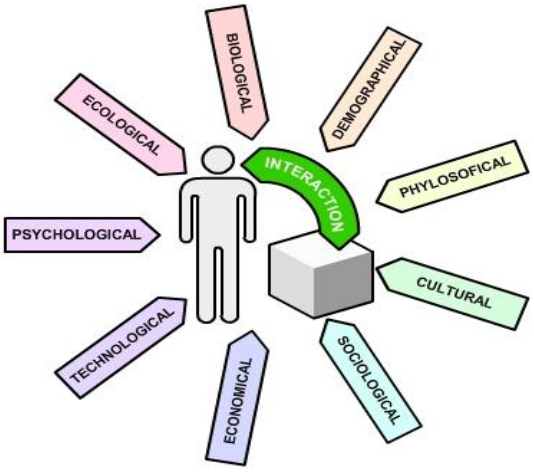


**Fig.1-Product Model**

Culture is not just about individuals; it can include attitude in terms of creativity, education, or living (Cheng-NengKuan ,1998). Culture includes all types of explicit or implicit behaviors, and it is learned or passed on through the use of signs (Kroeber, A.L.). Culture is a set of codes that are shared by people to guide individual behaviors or to achieve group acceptance. Culture allows people to share a set of codes and allows people who use different codes to form different groups (Chen&Starosta, 1998).

"Codes" have the implications of "deciphering"and"interpretation"(Yu-Fu Yang, 1998). "Codes"refer to the "rules"in the coding system (Hung-Bo Li, 2003) and are composed of signs and common practice(John Fiske). "Communication"does not only rely on a single sign but also its combination rules and how it is interpreted by people in a certain group. As all communication tools are placed in a single cultural system, we call these tools the "code system". McDermott (1997) believes that future designs need to return to the humanistic and aesthetic perspectives, and technology cannot be used to lead design as it is just a supplementary tool. Future designs would be an integration of art, culture, and science in order to solve the problems of society and readjust our lifestyle. In the 21st century, where there is a focus on digital technologies, it is more important to have designs that are based on "humanity" and expressed through "culture"; this leads to the so-called "cultural creativity design"(Lin et al.,2005).

Culture represents a set of dynamic, dialectic and coherent body of beliefs and practices that is congruent with a particular historical period. Culture values can be incorporated in the products by providing certain features or design elements representing the value of their society and regions. There is some design which carried out in assisting the designers about integrating cultural factors in the design process. The field of interaction design has broadened its focus to understanding how systems of technology-based product are cultural and architectural situated among groups of people.

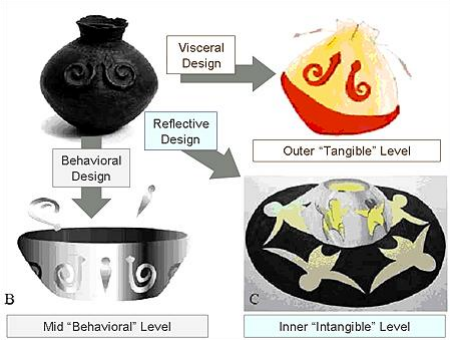


**Fig.2- Different based culture**

"Culture codes"are the result of analyzing culture through a generalized semiology. The results include all the rules and features of all forms of expression other than language. The culture codes in design especially focus on the meaning and stories behind signs

In this study, we mainly discuss how to utilize culture codes to establish cultural characteristics and achieve product differentiation Association are the focus of our study. Viewing themselves as the "culture promoters of Shin-Yi Township,"Shin-Yi Hsiang Farmers'Association is actively involved in the development of plum products. They have also utilized many local cultural elements in product design, achieving great popularity among consumers. Consumption is no longer just an economic behavior but a differentiated form of code consumption. How to use culture codes to express one's features has

become an important topic.

## II. CULTURAL MODEL AND ORIENTATION OF PRODUCTS:

"Cultural identification"is aimed at creating cultural qualities in a product to achieve differentiation, and the point is to understand and utilize a culture that is relevant to the product and to give the product an appropriate cultural presentation so it will have certain meanings among its users. The development of "product culture model"proposed by Ming-Chyuan Ho et al. contains three axes: time, space, and cultural differences. Considering market characteristics, product orientation can either be "creating new culture "or" conforming to existing culture"which lead to 12 different kinds of product culture patterns

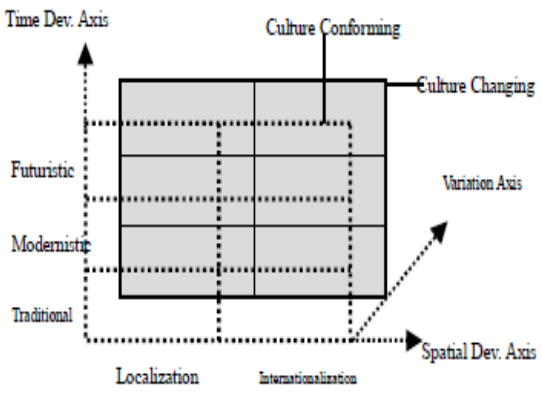


**Fig 3 Product Based culture model**

The establishment of this product's cultural pattern helps clarifying the meaning of the product; this not only satisfies the commercialized and socialized product demand but also helps designers find the appropriate cultural strategies and models for their products. Moreover, we can understand a product's cultural background through its maker, designer, and user

## III. THE CHARACTERISTICS OF THE DESIGN OF CULTURAL PRODUCTS:-

The framework of cultural product design proposed by Leong (2003) is shown as the inverted triangle in this that contains external, middle, and inner cultural spaces. Based on this framework,.added the design factorsthat should be considered in product design, which is "the design attribute of cultural products". In other words, they include (1) external or shape-related aspects –including color, texture, and shape; (2) middle or behavioral aspects –including functions, usage, and convenience; (3) inner or psychological aspects: including special meanings,

These elements are described in fig 4 (A) (B)

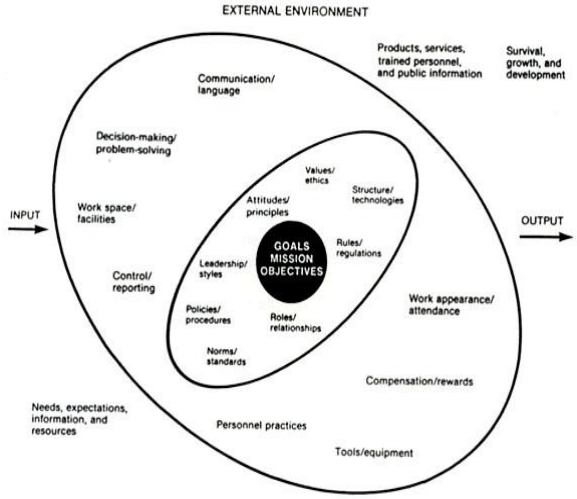


**Fig 4 (A) The design attribute of cultural products**

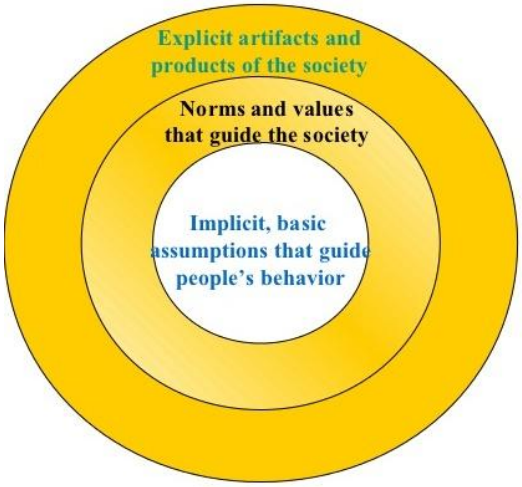


**Fig 4 (B) The design attribute of cultural products**

## IV. CONCEPT OF PRODUCT SEMANTICS

Looking at the theories proposed by semiologists such as Pierce and Saussure, the "codes" are defined by the former as a media-induced transmission that starts from nothing, and all the perspectives and results arejust a way for codes to be interpreted. The latter defined codes in terms of "signifiers" and "signified,"and pointed out that it is not just a physical manifestation but also a psychological experience or impression that turn codes into meaningful entities. Nevertheless, both of them have stated that the function of codes is to express meanings. Moreover, based on Pierce's research, Morris proposed that the function of codes are rooted in "surface features,""evaluation,"and"conditions/orders"; he divided codes into the three aspects of patterns, semantics, and usage.codes are generated from certain images, words, and rules. By looking at the evolution of images, they can be divided into: the items that images represent (patterns), how images are interpreted (semantics), and how images are used (usage). The relationships between these components are expressed

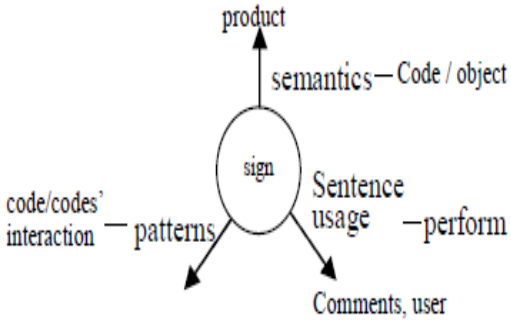


**Fig.5 The interaction among patterns, semantics and usage.**

## V. ASPECTS IN CULTURE CODES

After reconsidering the meaning of codes through the perspectives of communication and semiology and post-structuralism, Yang proposed that "culture codes"are not only limited to the research of material codes (sound and images) and the smallest elements of meanings (morphemes). Yang also studied how these morphemes are combined and the "locations"of the combined "sentences" in a culture. Based on this, culture codes are divided into the aspects of strategy, meaning, and techniques in table 6 (A) and fig . 6 (B)

| | | |
|---|---|---|
| Culture Codes Strategy Aspect | Discusses its location (perspective) and function in a culture. | Story themes and depiction of strategies |
| | Rules of strategic combination | Plots and connecting the plots |
| | Strategic element: the smallest strategic unit in a culture. | Story elements |
| Culture Codes Meaning Aspect | Discusses its location (perspective) and function in a culture. | sentence usage |
| | Rules of combining meanings | grammar |
| | Elements of meaning: the smallest unit of expressing meaning | semantics |
| Culture Codes Technical Aspect | Discusses its location (perspective) and function in a culture. | aesthetic of symbols |
| | Rules of combining | Aesthetic of style |
| | Perception elements of media | aesthetic of media |

**Table 6: Three Aspects in Culture Codes**

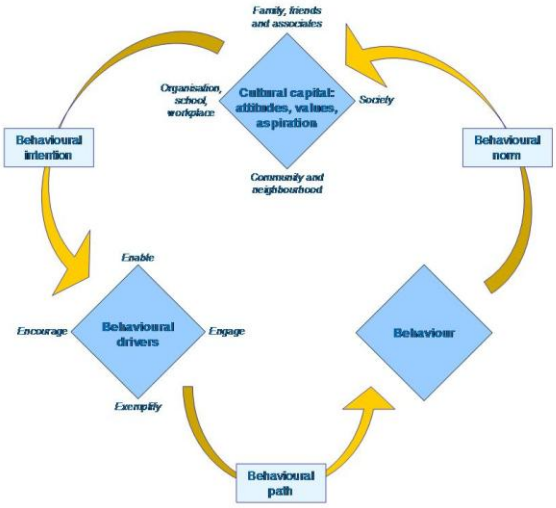


**Fig 6 : Three Aspects in Culture Codes**

## VI. CODES

Codes are categorized differently in different domains. Barthes summarized five types of literary codes: plot codes, interpretation codes, meaning codes, symbolization codes, and culture codes. In his study of how codes are used in design within our daily routine, Lin Ming-huang viewed “codes”as the smallest unit of design that

determines the characteristics of signs. He also divided codes into functional codes, affect codes, and transmission codes to correspond with It is of great importance to understand existing cultural values of the organization before any effective adaption or customization of quality practices is possible (Naor et al. 2008; Zu et al. 2010). Further, parallels have been drawn between organizational culture and operations management where Nahm et al. (2004) claim that people's beliefs indirectly influences existing practices and therefore also manufacturing performance These are easily observable, but as an outsider you will only understand *how* organization behaves but you rarely can understand the underlying logic of *why* it behaves the way it does, and therefore it is hard to analyze an organizational culture only based on this level. On the second level of organizational culture, there are the cultural values of the organization. Values are communicative and people of anorganization are aware of these, such as company philosophy, norms and justifications. On the third level of organizational culture, one can find the basic assumptions. These assumptions are lying so deep that the involved people cannot imagine what the alternative would be. It can therefore be hard to observe and ask straight questions about these assumptions, since people might not even understand the question. Liker and Hoseus (2008) discuss that it is not necessary for people to think in exactly the same way, but it is important that there are shared core values and that everyone agrees about how to carry out work.

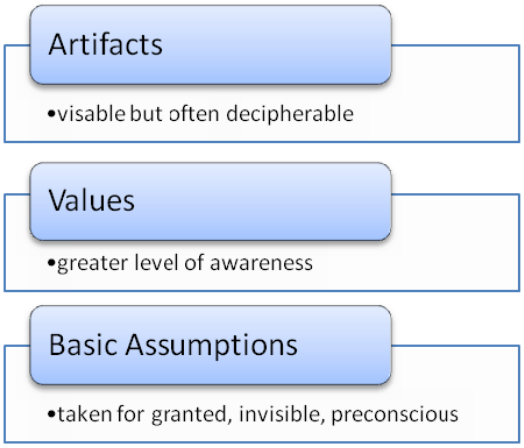


**Fig.7-cultured codes in diff.model**

## VII. ANALYSIS OF CULTURE CODES

This study is aimed at discussing how products utilize culture codes in order to establish their cultural characteristics and achieve productdifferentiation. The findings are compiled based on theories discussed earlier:
1. Product culture models have the three axes of time, space, and cultural variations that form 12 spaces, which determine the locations where culture codes are used in products. Each space can be further divided in order for us to analyze whether a product is a new culture produced by a user, corporate culture, or a designer
2. Based on the locations of products, we can discuss the three aspects that promote a product: Based on Fig. 3, which depicts the "culture product design attribute"proposed by Leong and Fig. 5, which depicts "observations on common products,"we can see that the three aspects established by these two correspond to each other. By

making reference to the "three aspects of culture codes"in Table 1 and "codes in different domains"in Table 2, we can make the following initial summary:

| Cultural Space | Product Features | Three-aspect | Code |
|---|---|---|---|
| Inner Aspect | Represents: ＊Social culture—Context of interpretation (spirit of the era, group relationship, individual affect, etc.) | Meaning | Affect Codes Transmission Codes Identification Codes |
| Middle (behavior) Aspect | Practical Functions ＊Physical—individual structure and context (necessity, operation, safety, etc.) | | Function Codes Transmission Codes |
| External (behavior) Aspect | Aesthetic Functions ＊ Psychological—relationship operation context (shape quality, material usage, etc.) | Technical Aspect | Aesthetic Codes Transmission Codes Style Codes Hue Codes |

**Table 2 Product Attributes**

Within the organization there will exist different subcultures. An organizational culture is the articulated culture for the whole company, and even though it is meant to be equal all over the business it most likely differs between different departments and units (Liker & Hoseus 2008). Schein (1984) argues that if an organization has a structure with functional, divisional or geographical subgroups, the organization will exist of multiple cultures.

## VIII. STRUCTURE OF THE UNIT AND ITS QUALITY MANAGEMENT

The unit consists of 43 direct productive employees and 19 people working in the office. A simplified structure of the unit can be seen in Figure 8 below. There is a unit manager who is responsible for the unit's overall activities. The coaches are responsible for different production areas as well as for a team within this area consisting of both employees working administrative in the office as well as operators on shop floor. The engineering and development function is working with technical development of the production, e.g. machine and material improvement. The quality team focuses on quality control and makes sure that products that leave the plant meet set standards and expectations. There is quality control after each production step as well as an extensive application test on the finished product. The unit manager, coaches, quality team and the engineering and development department are referred to as "office employees" or "management team" in the following text, while the operators are sometimes referred to as "shop floor employees".

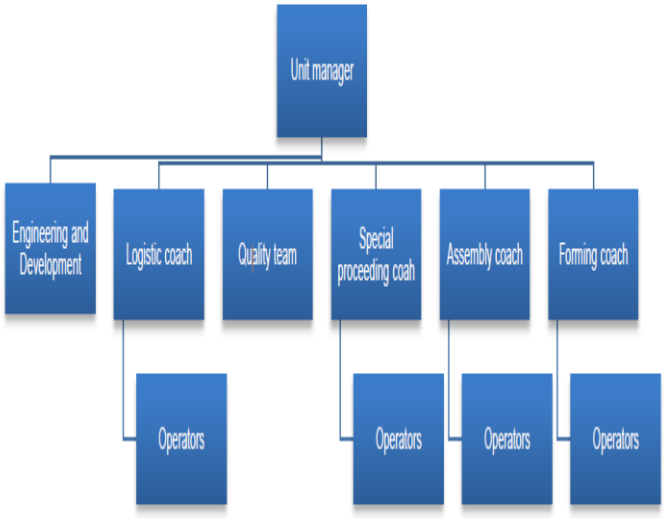


**Fig.8-Simplified structure of the unit**

During the last years, there has been a venture to implement Lean production at Hilti including the plant and unit under study. The initial projects were focused on logistical flow and the introduction of Kanban cards. Quality management was not considered within the scope of Lean at that time. A new course of action, which is called Lean@Hilti, has recentlybeen initiated. It is controlled by a centralized business unit which works explicitly to develop the core values and strategy for implementation and execution. The practical implementation is however performed together with Lean experts at each plant. The four steps in this practical implementation are 1) disturbance-free, 2) flow, 3) rhythm and 4) pull, which can be seen in the Hilti Lean house displayed in Figure 8. The Lean expert in P1 is in charge of the actual Lean projects that are carried out at the plant and is the one who plan and lead the execution of the four steps. According to the Lean expert it is important to have stable processes when implementing Lean and therefore quality management can be seen as a tool of Leanand

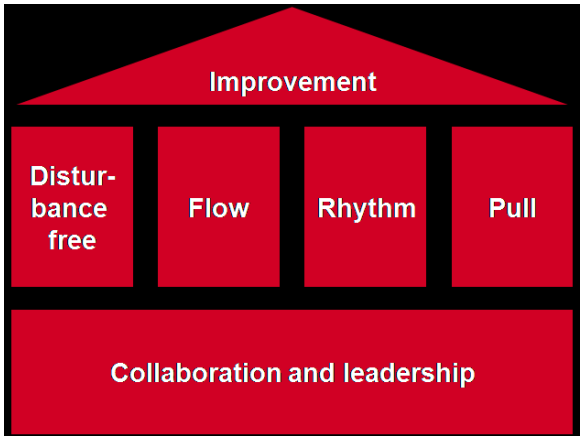


**Fig.9(A) -Quality Model**

One way of working with continuous improvement at the plant is by using so called CIP (Continuous Improvement Project), which is part of the Lean@Hilti initiative. They are used to gradually improve the work within the unit. There are different ways of performing a CIP, the one most widely used at the unit is the Speedy Quality Circle (SQC), see Figure 9. The CIPs let all employees be part of the development, and the scope of the projects are of various sizes. When a problem has been detected, an action group is formed, which then works together to solve the issue. The detected problems in the plant can be brought up by both operators and coaches. Since the CIP is part of the centralized Lean initiative, they are all arranged according to a Hilti standard, with defined project steps. Notice boards in the production show the status of these CIP's, illustrating the progress of the projects.

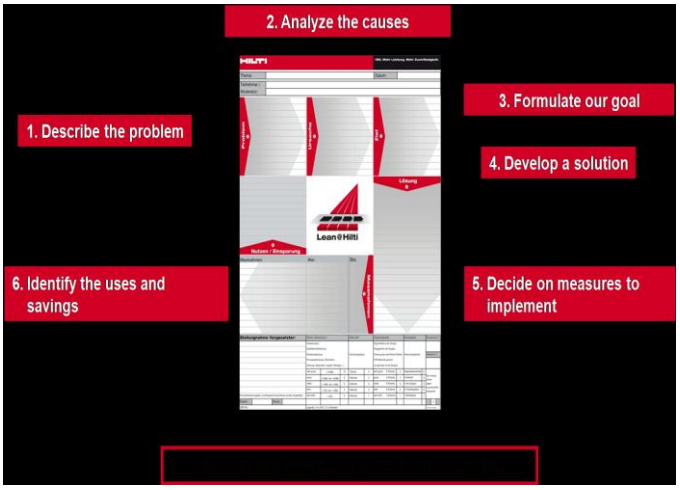


**Fig.9(B) -Quality Model**

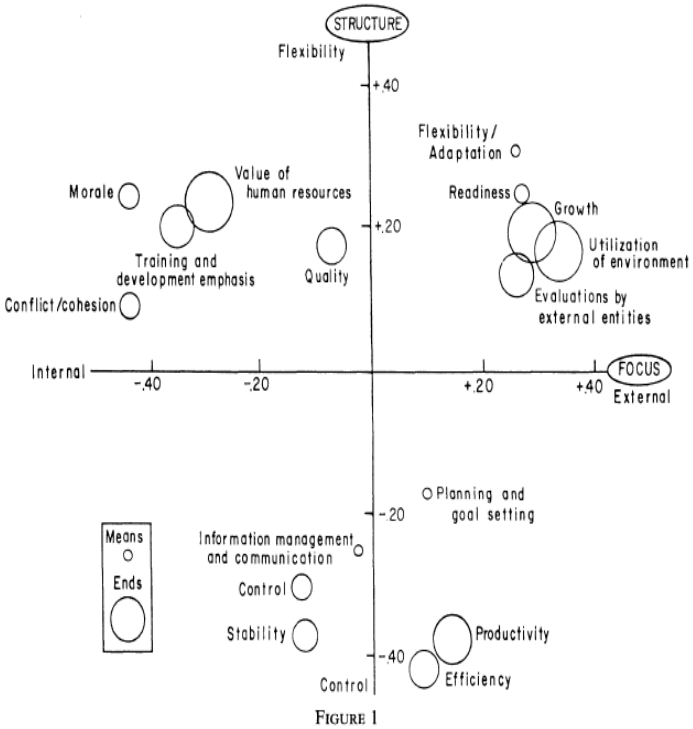


FIGURE 1

## IX. CONCLUSION

The aim of this study was basically to tie up the links between culture and objects. This was tried to be done through investigating the culture that is shaping the objects; and also looking at the clusters of artifacts that could be said to be forming a material culture to be read to reveal the hints of the invisible background forces represented by these objection evidence.

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