

Design process and cross-culture perceptual study of ceramic tableware

“Kuá Kama” project case study.

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This paper documents the design process, outcomes and evaluation of Kuá Kama, a collaborative project done by Industrial Designers in collaboration with a Chef, aimed to create a collection of special ceramic tableware pieces, according to original food recipes under a contemporary Mexican cuisine concept. Before designing the pieces, the design team experienced the food prepared by the Chef, taking sensorial features such as taste, texture and shape as an inspiration for creating tableware that supported and harmonized with it in an instrumental and aesthetic way. The designed shapes propose new ways of user interaction with food and tableware, so it could result in a pleasurable experience. Beside the food itself, the design drew formal inspiration from pre-Hispanic artifacts for food preparation, as well as graphic elements of ancient motifs to reinforce the identity related with the contemporary Mexican gastronomic concept. After designing and producing the pieces, an interview study regarding their perception and identity was conducted, with participants of three different cultural backgrounds (Mexico, United States and Japan).

Key words: tableware design, Mexican cuisine, collaborative design, aesthetic experience

1. Introduction

The rich tradition of Mexican cuisine, recognized by UNESCO as Intangible Cultural Heritage of Humanity for its ingredients and ancestral techniques, compels us to keep it alive through constant evolution and reinterpretation, while maintaining its identity. This philosophy motivated Chef to create an original gastronomic concept based on Mexican tradition that incorporates subtle elements of some other international cuisines. With the purpose of showcasing the recipes in a book [1], it was necessary to complement the presentation of the food with the support of the special tableware design.

That is how this project started; the name Kuá Kama, which means “Eating Tastily”, was taken from the Totonac language. This phrase pushed even further the idea of reinterpreting the way food is presented and enjoyed, changing the paradigm of serving different foods in one type of dish to a new one in which the tableware adapts to the food’s shape and users’ actions. This aspect offers a new aesthetic for the dish presentation, not just by its appearance, but also by giving a new dimension to the interactive experience of enjoying the food on them.

2. Design Process

2.1 Experiencing food for design

The first step in the collaborative design process consisted of several sessions in which the design team experienced, first-hand, the chef's creations. We observed the preparation process while hearing the explanations about the recipes (techniques, ingredients and anecdotes) and afterwards we tasted the food. In these sessions we went through the complete experience in order to gain a deep understanding of the chef's culinary concept. The taste, looks, smell and textures of the food, in addition to the explanation, built the base of the design inspiration.

This input triggered memories and other associations that were discussed among the team members, so we could find connections to related abstract concepts that would support the designs. The challenge of this creative process was to go from a sensorial input to a new proposal of concrete design. We looked for recognizable references in the food experience to serve as a starting point for the design; the reason for doing this was because we wanted to deliver a design that would be congruent with the food's features, so it would serve as support in both the instrumental and the aesthetic way.

The sessions were recorded in photographs, video and corresponding notes, focusing on capturing the impressions caused by merging flavors, unusual combination of ingredients and the behavior of users while eating these dishes. The food experience, shared by all team members, got us acquainted to the concrete aspects of the gastronomic concept, and set the common ground over which we would propose the ideas for the design.

2.2 Concept generation

As a starting point for the concept generation, we decided that the design should take into consideration two main factors: the food's predominantly instrumental requirements (e.g. dimensions, organization, stability) and the more aesthetic ones (e.g. identity, meaning, impression) to offer a user experience that supports the main concept of contemporary traditional Mexican gastronomy.

Besides the food-experiencing sessions, we revised pre-Hispanic ceramic art pieces, traditional utensils and some materials that expressed the desired properties, according to the Chef's concepts. All these elements were gathered in an image bank, so we all could share the specific references that would drive the inspiration for the new tableware ideas.

The co-creation process of the design among the designers and the chef was reciprocally nurtured through a constant dialogue and insight sharing. According to the background of each team member, we focused the attention on different properties of the observed references; for instance, the Chef associated certain images to flavors and ingredients, while designers focused on shapes, colors and proportions. Sharing this process helped the team achieve a better understanding of the desired concept expression through the combined design of food with tableware.

Certain shapes of iconic pre-Hispanic pieces were chosen and abstracted into original compositions. An example of this process is the shape and dimensions of the *Xipe Tótec*, which was inspired by the *ōllamaliztli* or ancient Mesoamerican ballgame. These pre-Hispanic references were used to support the desired concept of Mexican identity in the design.

The concept generation process was based on the exchange of ideas through dialogue and was also supported by sketches done by both designers and the Chef. This communication process allowed the team to come up with concrete ideas based on the shared points of view of all participants.



Figure 1 Some of the studied pre-Hispanic pieces (National Anthropology Museum, Mexico City)

2.3 Prototyping

After the first ideas were generated, we soon produced clay prototypes at real scale. After they were dry and resistant enough, we simulate the interaction with actual food. The results of this empirical test revealed new and unexpected ways in which food could be served and enjoyed. The subtle surface changes, the balance and arrangement of the food over the plates, everything had to be taken into consideration to propose shapes that allowed actions in the users that would enrich the sensorial experience of eating. Through this process of trial and error, we interacted with real, palpable objects, achieving a more objective evaluation and discussing ways of improving, in an easier and more productive way than just using verbal or graphical (sketches) ways of communication. After this experimentation, we could improve the prototypes, while also generating new shapes. The real-scaled prototypes helped us to actually experiment and notice in ourselves the behaviors we had during our interaction with the ensemble of tableware with food. After all, the intention of the design was to invite the users to explore new ways of enjoying the originally-created recipes.

Due to the production process of the prototypes, based on slabs, the pieces lacked continuous surfaces. This fact implied difficulties when conceiving the shape of each piece that had to be produced in the slip-casting process. The problem was solved by placing a piece of elastic fabric against the slab-built prototype, developing naturally smooth and curved surfaces over the formerly flat shapes. The continuous and smooth transition in-between surfaces resulted in shapes that were compatible with the slip-casting production process; and at the same time, they had a more contemporary look, without leaving the original pre-Hispanic inspiration. This experimentation with the elastic fabric was of utter importance, because the shapes acquired a unifying style that reinforced the design collection. This process was registered in photographs and served as reference to build refined new prototypes in a second stage.



Figure 2 Variety of concept prototypes built with clay.

2.4 Glazes

During a refining process of the design, we started thinking about the finishing of the pieces. Settling with glazes and according to the concept, we decided that the colors had to harmonize with the food while making it stand out. The aesthetic intentions were to convey a solid, stable and sober image that was defined as a “petrous” feeling, in reference to those pre-Hispanic utensils made of volcanic stone. After considering some options, we selected four glazes: cobalt blue, pistachio, gray and transparent.

To emphasize the identity aspect of this project, once again we looked back into traditional patterns with pre-Hispanic heritage, such as the geometric woven patterns from Chiapas and Oaxaca or the animal abstract icons of Hidalgo, among others found in publications [2] [3] [4]. All these images were transformed into vectors and then cut on vinyl stickers, ready to be used in the decoration process.



Fig 3 Examples of traditional Mexican motifs

2.5 Production

We manufactured models in clay and in hard materials such as MDF board and plastic body filler; from which, plaster cast block molds were produced. Once the slip was prepared, mixed and sifted, it was poured into the molds. After the piece was formed with a uniform wall thickness of 4 mm, the remaining liquid slip was poured out of the cast. We waited for the piece to dry and harden enough to open the mold and took it out. It was left like that to dry for one day and had a cook in an electric oven. Once these were hard, we proceeded to the decorating stage, placing vinyl stickers with the negative shapes of the graphic patterns on them. Glaze was applied with spraying gun and left to dry for an hour. The vinyl sticker was then carefully removed, unmasking the patterns. These pieces were placed once more in the oven, for the last fire at a temperature of 1240°C. After this, the final pieces were carefully inspected: if some had any flaw, like a crack or uneven glaze, we repeated the whole process once again.



Figure 4 Pieces before the first cook and after glaze layer

3. Design Results

3.1 Quetzalcóatl

Designed as a set of two plates with complementing curves, these pieces create a smooth and rhythmic ensemble. The concave piece has a strong resemblance with the *metate* (mealing stone). This tool, made of stone, has been used since pre-Hispanic times; even nowadays, it is a basic tool for traditional Mexican food. Its characteristic shape is easily recognized and associated to the local gastronomic culture. The piece with the convex curve has nine receptacles, in which meatballs can be placed. To enjoy them, the user has to pick them one by one, allowing a new way of presenting and enjoying the food. The name comes from the Aztec deity Quetzalcóatl, “The Feathered Snake”, symbol of Heavens-Earth duality.

3.2 Átl

This piece was the result of merging the function of a tray and a dipping dish in one shape. It offers a curved surface in which the food can be placed, in the opposite side it has a small basin, to contain dipping sauces, resulting in an innovative integrated solution. The base of this piece was inspired in the surfaces generated when covering the basic prototype with the elastic fabric, resulting in streamlined shapes and flowing curves that give a new look to the pre-Hispanic pieces. The name comes from the Aztec deity Átl, “The God of Water”.

3.3 Butaque

Based on the shape of the pre-Hispanic inspired graceful chair designed by Clara Porset, this plate is composed of a tripod support, which is characteristic of Mesoamerican pottery, and a curved surface where the appetizer is placed. In contrast with the other plates, Butaque is intended to be used individually, one plate for each guest. Metaphorically speaking, the food will be taking a rest in this *butaque*, while waiting to be enjoyed.

3.4 Opochtli

The main concept behind this three-piece set was the three-dimensional abstraction of a Totonac graphic representation of waves. These pieces were some of the few designed specifically for a particular recipe (Ceviche trilogy), so the important points to consider were the ease of serving and the dynamism that could be achieved by creating modular pieces. The name comes from the Aztec deity Opochtli, “The Left-Handed God of Fishing”.

3.5 Xipe Tótec

The concept for this two-piece set was twofold: for the big plate, it was the abstraction of the circle used in the ancient game of ball played by the pre-Hispanic cultures. The small bowl was inspired by a ceremonial container. The small cone-shaped plate piles on the big and extended one, enabling to serve one small amount of food with a heightened presence that enhances the ceremonial aspect of eating. The name comes from the Aztec deity Xipe Tótec, “The Lord of the Flayed One”, god of rejuvenation and spring.

3.6 Tapilíní

This piece’s most salient feature is the Totonac pattern of oceanic inspiration that covers the entire horizontal surface on which the food is served. This geometrical pattern, that evokes the movement of waves, playfully harmonizes with the rounded shapes of the seafood elements placed on this plate. The accompanying sauces flow over the unglazed areas of the pattern, integrating the food’s shape to the plates in a surprising way. A continuous and subtle curved surface conform its double-wall structure.

4. User Perception

4.1 Feedback

Once the final four sets were delivered to the chef, we ask our surrounding peers and colleagues for opinion about the designs. Due to the positive feedback we received, we decided to produce a second group of selected pieces for trade. We had the opportunity to participate in the fifth edition of “Lonja Mercantil”, a popular design fair event that happens twice a year and takes place in historical locations in Mexico City. We could notice how well the pieces were evaluated and draw the attention of the people passing by. Because of the characteristic shapes of the pieces, some people were surprised to realize that the pieces were intended to be used with food, but after we explained the concepts, they had a good impression of the designs. During these interaction with the visitors to the design fair we received valuable and interesting feedback, especially the fact that many people commented they perceived a strong Japanese influence in the designs. We considered making a wider study to understand this issue from a comparative perspective.

4.2 User Perception Survey

The designs of these ceramic pieces were intended to harmonize with and support the concept of contemporary Mexican cuisine. They drew inspiration from pre-Hispanic shapes of ceramic pieces and utensils as well as from graphic elements found in traditional patterns from different regions of Mexico.

How did a design, based on Mexican culture references since its inception, was associated with faraway cultures, like the Japanese one? How will the Aesthetic Experience in Design from members of different societies be influenced by it? Where the design would be better embraced?

We came up with an interview survey to clarify these points. We decided to ask people from Mexico, Japan and the United States, to compare perspectives of people from different cultural backgrounds, including the one in which the Kuá Kama project was developed (Mexico), the one with which similarities were found (Japan) and a third one that offered a neutral point of view (United States). This study was possible due to the current geographical location of the three members of the design team, so thirty people (ten from each country) were asked to participate in the study, first by observing pictures of the pieces of Kuá Kama and then answering a questionnaire. It consisted of six questions; the first five were answered while observing four pictures of the ceramic dishware pieces (each one in color-printed in cards of 148 mm × 210 mm):

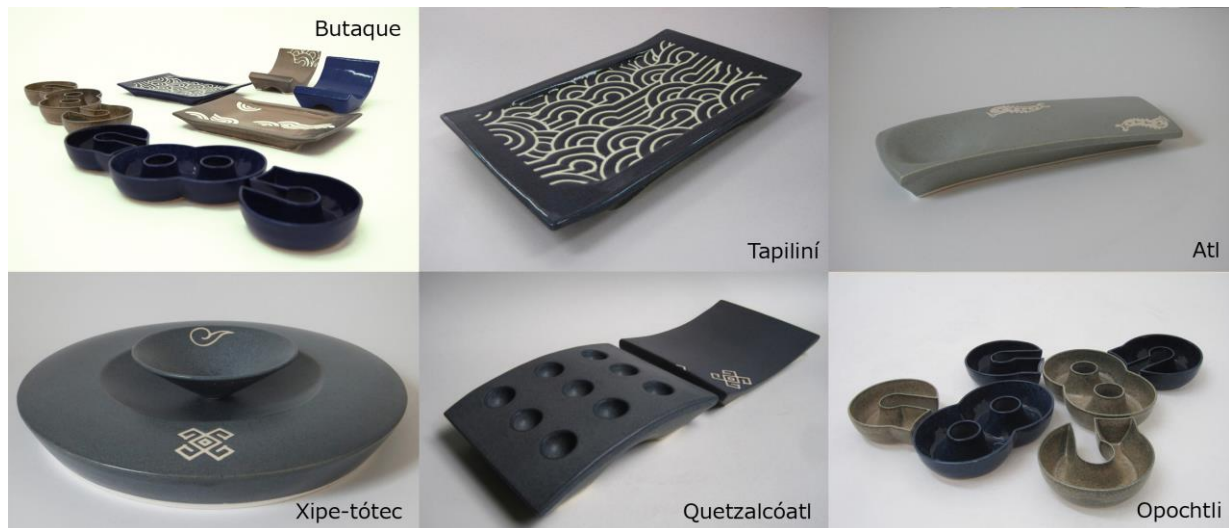


Figure 5 Sample pictures for the 5 first questions

1. What is the first thing that comes to your mind after seeing these images?
2. Which words would you use to describe them?
3. With which type of cuisine would you use these pieces?
4. Where do you think these pieces come from?
5. Which pieces look more Mexican? and why?

After they answered these questions, we showed them two additional photos, now with food on them, and asked them to answer the final question:

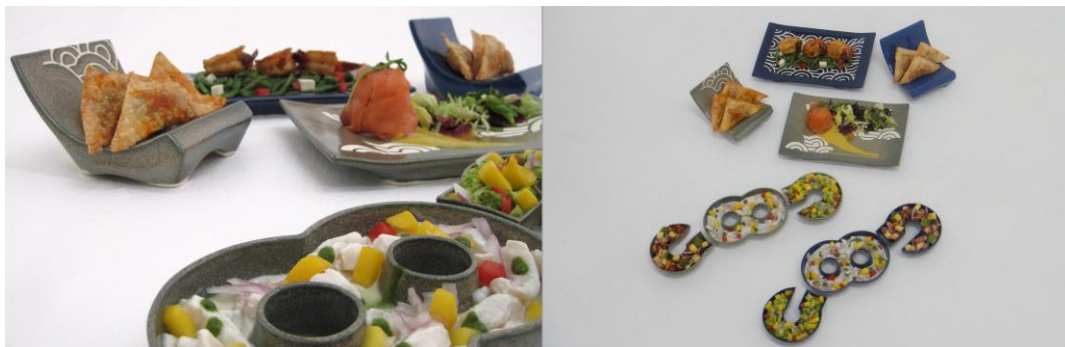


Figure 6 Sample pictures for the last question

6. What is your opinion after seeing the pieces with food?

The picture samples were shown this way in order to avoid a possible bias caused by the food when the questions were focused only on the pieces. All the answers were written by the interviewer, and then captured into a database. The answers were counted by mention, and similar answers were grouped and counted under a common category.

4.1 Results

Table 1. What is the first thing that comes to your mind after seeing these images?
Most mentioned answers (percent from the total mentions)

Mexican		Japanese		American	
Ceramic/Dish	(22%)	Wonder/How to use?	(20%)	Ceramic	(34%)
Japan	(22%)	Beautiful	(13%)	Waves/Wind	(22%)
Sushi	(11%)	All different	(13%)	Collection	(11%)
Mexico beach	(11%)	Japanese Pattern	(7%)	Japan	(11%)
Shapes	(11%)	Craftsman work	(7%)	Where is it from?	(11%)
Adornment	(11%)	Modern adaptation of classic base	(7%)	Cold	(11%)
Others	(12%)	Others	(33%)		

It is observed that in both Mexican and American groups, “Ceramic” as a concrete property of the design was the most mentioned answer, while in Japanese it was about asking “How to use?”. All groups included answers related to Japan, while that ones related to Mexico only were given by Mexican participants.

Table 2. Which words would you use to describe them?
Most mentioned answers (percent from the total mentions)

Mexican		Japanese		American	
Artistic/ornamental	(12%)	Wonder	(17%)	Smooth	(14%)
Hand-made	(8%)	Calm	(17%)	Ceramic	(14%)
Elegant	(8%)	Beautiful	(8%)	Sleek	(3%)
Beautiful	(8%)	New	(8%)	Crafted	(3%)
Japanese	(4%)	Artistic/ornamental	(8%)	Decorative	(3%)
Archeology	(4%)	Heavy	(4%)	Thick	(3%)
Sober	(4%)	Rhythm	(4%)	Cool	(3%)
Simple	(4%)	Sober	(4%)	Adequate	(3%)
Traditional	(4%)	Japanese	(4%)	Classic	(3%)
Original	(4%)	Past	(4%)	Concise	(3%)
Others	(40%)	Others	(22%)	Others	(48%)

There were some coincident answers between Japanese and Mexican groups, such as “Artistic/ornamental”, “Sober” and “Beautiful”, while American group answers were more object related, concrete answers such as “Ceramic”, “Smooth” and “Thick”.

Table 3. With which type of cuisine would you use these pieces?
Most mentioned answers (percent from the total mentions)

Mexican	Japanese	American
Mexican/Mexican fusion (23%)	Sashimi/sushi (sliced raw fish) (17%)	Sushi (20%)
Japanese (23%)	Fried fish (17%)	Fruit (13%)
Tacos (8%)	Takoyaki (octopus stuffed rounded snack) (4%)	Snacks (13%)
Starters (8%)	Japanese (10%)	Japanese (13%)
Spices (8%)	Soup (7%)	Chinese (7%)
Meat (8%)	Ikebana (7%)	Fish (7%)
Others (22%)	Others (38%)	Others (27%)

The answers related to “Japanese” cuisine were mentioned among the three Nationality groups, but also “Mexican” had a high score in the Mexican group. The Japanese group replied with many different examples of Japanese food, and even not just food, there was also the mention of the Japanese traditional art of flower arrangement “Ikebana”.

Table 4. Where do you think these pieces are from?
Most mentioned answers (percent from the total mentions)

Mexican	Japanese	American
Japan (27%)	Japan (64%)	Japan (32%)
Mexico (27%)	China (27%)	Mexico (16%)
Thailand (19%)	Singapore (9%)	China (10%)
China (9%)		Central America (10%)
Morocco (9%)		Korea (6%)
India (9%)		Southeast Asia (6%)
		Others (20%)

In all groups answers related to “Japan” were mentioned, while that ones related to “Mexico” were given mostly by the Mexican group. “China” was mentioned in the three groups, but to a lesser extent.

Table 5. Which of the pieces look more Mexican? and why?
Most mentioned answers-reason (percent from the total mentions)

Mexican	Japanese	American
Xipe Totec-aztec/shape/pre-Hispanic/traditional (33%)	Any of them (70%)	Xipe Totec-pattern, mystical, mayan, contrasting proportions (56%)
Qutzalcóatl-mayan/shape (23%)	Xipe Totec-pattern, playful, calm, big, stable (20%)	Opochtli-shape, organic, different (22%)
Tapilíní-pattern, shape, color, traditional (23%)	Atl-pattern (10%)	Quetzalcoatl-rhythm, pre-Hispanic structures (11%)
Opochtli-mayan, shape, less modern (21%)		any of them (11%)

In the three groups, the “Xipe-Totec” piece was the most recognized as Mexican, and the reasons mentioned for it included the pre-Hispanic patterns, the shape, and properties such as “calm”, “big”, “stable”, “traditional”, mystical and with contrasting proportions. The reasons given for recognizing other pieces as Mexican were very similar to those given in the case of “Xipe Totec”.

Table 6. What is your opinion after seeing the pieces with food?
Most mentioned answers (percent from the total mentions)

Mexican		Japanese		American	
Oriental	(25%)	Fun/enjoy	(20%)	How to use?	(18%)
Mexican	(25%)	Interesting	(15%)	Fusion food	(9%)
Japanese	(25%)	Makes food look delicious	(15%)	Makes sense	(9%)
Surprised	(8%)	Vibrant	(5%)	Better without food	(9%)
Tempting	(8%)	Beautiful	(5%)	Functional	(9%)
Others	(9%)	Others	(40%)	Others	(46%)

In general, there were positive answers towards the ensemble of tableware with the food. It was interesting to observe that many of the reactions were expressed in terms of the anticipation to the aesthetic experience, expressions like “makes food look delicious” reflected the interest and positive reaction caused by the design in collaboration with the food. To find a relationship between the properties of the design and their perceived identity, we extracted the answers to the questions “What is the first thing that comes to your mind after seeing these images?” and “Which words would you use to describe them?” (1 and 2) of the participants that responded “Mexico” and “Japan” (independently from their nationality) to the question “Where do you think these pieces are from? (4)”. We wanted specifically to understand the difference between the impressions of the participants that answered “Japan” and “Mexico”. In this way we could relate descriptors to the identity that was perceived in the design.

Table 7 Answers given in questions 1 and 4 from “Mexico”, “Japan” respondents (percent from the total mentions)

“Mexico”		Repeated in both		“Japan”	
Simple	(2.5%)	Hand-made/Crafted	(14%)	Concise/ Adequate	(2.5%)
Adornment	(2.5%)	Smooth	(10%)	Modern adaptation on a classic base	(2.5%)
Traditional	(2.5%)	Waves/Ocean	(8%)	Colors that don’t bore you	(2.5%)
Sophisticated	(2.5%)	Heavy	(8%)	Irregular forms	(2.5%)
		Elegant	(5%)	Rhythm	(2.5%)
		Beautiful	(5%)	Balance	(2.5%)
		Sober	(5%)	Pure	(2.5%)
		Artistic	(5%)	Silent	(2.5%)
		Decorative	(5%)		
		Thick	(5%)		

It is observed that a considerable number of mentions (70%) were shared among the participants, beside those, we could observe the exclusive properties for the respective identities of “Mexico” and “Japan”.

4.2 Discussion

Despite of their nationality, both groups of participants that perceived the design as Mexican or Japanese, gave similar impression descriptors of the design, so many of their answers were found in both groups. Besides of these repeated answers we could find some exclusive properties for the respective country identities. Even among those which were not textually repeated, we could find some similarities in meaning, such as “Simple” from those who answered “Mexico” and “Concise” and “Silent” from those that answered “Japan”. This kind of similarities and coincidences makes us believe that the design’s perceived properties are shared in both the Japanese and Mexican aesthetic identity.

The results from Table 7 regarding properties related to Mexican identity in design were consistent with those shown in table 5, in the sense that both remark the “traditional” aspect of the pieces. Besides, there were some other reasons to identify the pieces as Mexican, focused in the shape, patterns, size and stability properties.

In order to continue with this study, we propose to increase the number of participants to gather more data that will help us reach a more accurate conclusion.

5. Conclusions

It is possible to shift the paradigm of how people interact with food by focusing on the aesthetic experience offered by improving the food presentation. Just like it happens with fusion cuisine, a complex and interesting result is achieved from the original combination of ingredients; the integrated design of the tableware with the food, it can reach innovative solutions that can break paradigms. The designs of these ceramic plates enhance the eating experience, harmonizing with the aesthetic concept of the prepared food.

This project gave us the opportunity to relate our design activity with other disciplines, such as gastronomy, gaining insight on how to achieve integrated solutions. We found interesting that this project was constructed purely on Mexican inspiration, from its inception throughout the entire process of development, resulting in pieces that proudly reflect their origin, but at the same time are open to interpretation on a global scale. These pieces were designed taking into account some values that can be perceived and identified in different cultural backgrounds, playing an important role in the construe of the aesthetic experience through design. Our perception of identity is also based on this construe, and when two culturally different groups perceived the design as own, it means that they are sharing common values important for each culture.

Could it be said then, that despite the references we can build a common language through design across cultures?

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7. References

- [1] Aguilar, V. H. (2012) *Sazones y andanzas por el Centro Histórico de la Ciudad de México*, Dirección de Publicaciones y Fomento Editorial UNAM, 1st Ed., México, D.F.
- [2] Villaseñor, R. (2007) *Geometrías de la imaginación Querétaro diseño e iconografía*, CONACULTA/INAH, 1st Ed., México, D.F.
- [3] Vázquez, E. (2004) *Diseño e Iconografía de Hidalgo*, CNCA, 1st Ed., México, D.F.
- [4] Villaseñor, R. (2009) *Geometrías de la imaginación Veracruz, diseño e iconografía*, INAH 1st Ed., México, D.F.