

COMMUNICATION DURING DESIGN INFORMATION PHASE: A REFLECTION ON CROSS-CULTURAL TOOLS

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ABSTRACT

In our globalized environment, and particularly in the context of industrial design activities in international companies or research institutions, it is increasingly frequent to take part in diverse scenarios involving at least two different cultural contexts. Therefore, it becomes an essential point during the initiation of the design process to achieve an optimal transmission of *design information* in order to increase the added value of the project through the implementation of accurate cultural layers. However, issues pertaining to communication may arise throughout the process if there is an inadequacy in cultural understanding. Hence, it is crucial to address the significance of cross-cultural tools to be used in communication of the design information in its initial phase. Two case studies are referred to openly discuss the matter. Both cases correspond to research projects that were conducted at the Kansei Design division, Toyota Motor Europe (KD-TME). Both projects generated specific tools as a practical output for strategists and designers to use as a way to produce inspirational materials or define a target user, with a more grounded and sensible cultural base.

Keywords: *design information, communication, cross-cultural, values, early-phase*

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1. INTRODUCTION

At Toyota Motor Europe (TME), the awareness of cross-cultural scenarios is taken seriously, not only due to the fact of being a European branch of a Japanese company, but also because of the company's Kansei Design (KD) team has steadily increased its diversity in having multiple nationalities among members. In this sense, the company is continuously striving for the improvement of its communication tools both internally and externally. The purpose of this paper is to reflect on the necessity of cross-cultural tools that accurately communicate several levels of design information between working teams or between designers and users; with two clear objectives: 1. To increase the quality of the conveyed information with the added value of experience-based layers and 2. Avoiding the potential misunderstandings due to cultural differences in both ends either designers or users.

2. LITERATURE REVIEW

In this section we cover three topics: diverse levels of design information, notions of culture and values from the point of view of existing models or frameworks as well as different positions concerning cultural and functional diversity in work teams.

2.1. Design Information

According to Bouchard et al., (2009) design is seen as a problem in which the initial problem space is transformed gradually into the solution space, through diverse iterative stages of information, generation, evaluation and materialisation (fig.1). The initial stage of information is essential: it has a strong impact on creativity (Bouchard et al., 2009), which enables a greater level of problem solving. It is at this initial point of the process that sources of inspiration acts as a role as an essential base for idea generation (Eckert et al., 1999); and because inspirational materials are intrinsically related to personal life and context, culture and values that have a solid effect in subsequent parts of the design process. According to their position along a scale of abstraction/concreteness, we can classify design information in three different categories (Bouchard et al., 2009) namely, Low level (colour, shapes, and textures), Middle level (sector names, patterns) and High level (values, semantic descriptors, styles).

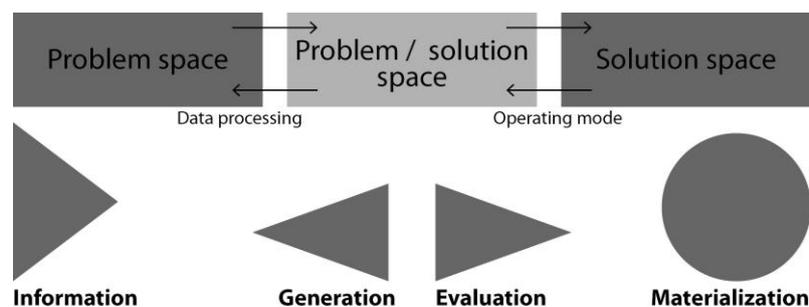


Figure 1: Early design process (adapted from Bouchard, 2009)

2.2. Culture

The effort of reaching for a single definition of culture is challenging. Spencer (2012) compiles several definitions of culture and three specific definitions is referred to:

“[Culture] is the collective programming of the mind which distinguishes the members of one group or category of people from another” (Hofstede, 1994). “...The set of attitudes, values, beliefs, and behaviours shared by a group of people, but different for each individual, communicated from one generation to the next” (Matsumoto, 1996). “Culture is a fuzzy set of basic assumptions and values, orientations to life, beliefs, policies, procedures and behavioural conventions that are shared by a group of people, and that influence; although may not determine a member’s behaviour and his/her personal interpretations of the ‘meaning’ of other people’s behaviour” (Spencer, 2008).

These definitions bring essential points when cross-cultural information is analysed where the *sense of differentiation* amongst groups, the role of *individuality* as part of a collective concept, which is strongly related to *experience* as well as the generational aspect of *transferring* the elements, which reinforces a notion of *intuitiveness* in culture. The *interpretation of behaviours*, a relevant factor that might be related to *stereotypes* and *biasness* when referring to other cultures or even to our own is also a duly important point.

2.3. Expression of culture through values

As pointed by Gentner et al. (2016), even if there are diverse definitions of culture that is based on different theoretical backgrounds, multiple models were identified and grounded in values for the description and comparison of cultural dimensions. Cross-cultural literature includes several conceptual frameworks conducted by Kluckhohn and Strodtbeck, Hall, Hofstede, Trompenaars and Schwartz. In this section, an emphasis on the models proposed by Hofstede and Schwartz is made since these models have been used globally in cross-cultural studies.

2.3.1. Hofstede’s Cultural Dimensions

Hofstede studied work-related values, mostly through an extensive study conducted with participants from 40 countries who worked at IBM (Hofstede, 1980). A theory featuring several dimensions along which cultures that revealed differences was developed. Four initial dimensions were extracted: Individualism-Collectivism, Power distance, Uncertainty avoidance and Masculinity-Femininity. Later, two additional dimensions were added to the list which are Long term orientation and Indulgence.

2.3.2. Schwartz Value Survey

As a contribution to enrich cultural dimensions proposed by Hofstede, Schwartz conducted a large-scale survey (Schwartz et al., 1990). The survey consists of value grouping according to ten dimensions: *universalism*, *benevolence*, *tradition*, *conformity*, *security*, *power*, *achievement*, *hedonism*, *stimulation* and *self-direction*. However, it is significant to highlight that even though

in a globalised world where it seems to portray that everyone is playing in the same field, although in real terms 'culture is incredibly reluctant to merge' (Braun, 2009). Moreover, as pointed out by Braun, using value based frameworks in concept development does not exempt generalisation issues.

2.4. Multicultural & Multifunctional teams

Nowadays, having multi-cultural members with multi-functional backgrounds in industrial design oriented teams is a norm (Dahlin, 2015) rather than a homogeneous culture with individuals sharing the same nationality as well as organisational affiliation (Gentner, 2014). Focusing on national or cultural diversity, Haas and Nüesch (2013) investigated the effects of national diversity in teams and outlined two contrasting theories on the subject:

- From a positive perspective (task oriented), the built up on the information and decision-making theory (Gruenfeld et al., 1996), it is argued that having cultural diversity increases team performance because teams have more access to greater varieties of task relevant knowledge and expertise.
- On a less positive view (relations oriented), based on social identity theory (Tajfel and Turner, 1979), scholars argue that higher national diversity and cultural identification can lead to social differentiations and in-group/out-group distinctions (Gibsons and Gibbs, 2006), which could be the source of conflict and therefore decrease of team performance due to poor communication.

These perspectives represent a *diversity paradox*, where diversity can lead to either attaining higher quality decisions and greater creative innovation or trigger tensions and conflicts simultaneously (Garcia-Prieto et al., 2002). Since a person's dominant function influences thought patterns and behaviours, it was noted also that differences in terms of functional points of view amongst team members can generate "*functional walls*" (Bunderson & Sutcliffe, 2002); in that sense perhaps we could even talk about "*cultural walls*". Nonetheless, this situation seems to be unavoidable to some extent, given the fact that growing cultural diversity continues to be the current status quo of many companies and academic institutions.

3. PROBLEM AND RESEARCH QUESTION

Cultural diversity and values have an impact in the information phase in the initial stage of the design processes. The problem is limited into two axes: communication problems in multicultural teams due to in/out group differentiation or presence of conflicts; and perception problems in cross-cultural users due to reliance on stereotype based information. Given the fact that values continue to be the most accurate markers to analyse and discuss a culture (Schein, 1984), the question would be *how to increase the value of design information while minimising communication problems through the use of cross-cultural tools during the initial phase?*

Since this paper intends to be a qualitative reflection rather than a quantitative analysis, the following hypothesis is suggested to be discussed with the two selected case studies. The hypothesis is: *The addition of context and experience based information layers to value based cross-cultural tools will improve the communication of a design information during the initial stage of the design process.*

4. CASE STUDY

4.1. Value Perception Research

This study was conducted to better understand elements such as the perception of cultural values in order to intentionally use them as tools to define a strategic identity (Gentner et al., 2016). The first part of this research (Gentner et al., presented at KEER 2016) consisted of the analysis of East Asian values perceived from a European stand point. The second part is introduced in this paper which covers the Japanese perception of European values in three different countries, based upon the methodology used during the first part.

4.1.1. Participants

The study succeeded to recruit participants from Germany, France and England as well as Japanese residents in those countries; these countries were selected because they concentrate the largest Japanese communities amongst Europe. Ten participants per category were selected from each country. In the case of Japanese citizens, the requirement was for them to be living in the country for at least a year and to have a specific level of cultural knowledge.

4.1.2. Stimuli and protocol

Individual interviews were conducted with all participants in the three countries. Interviews and the stimuli were conducted and presented in the participant's language. Two types of cards were used during the stimuli which are category cards that are printed in A6 format as well as value cards that are printed individually in small sizes (fig.2).

- Category cards: represents various aspects of culture of each country, extracted from literature and feedback from a previous pilot study. A total of 18 cards were created, covering the following categories which are *architectural landmarks, cultural landmarks, natural landscapes, arts, movies, work life, housing, social life, nature, food, fashion, brands, objects, celebrities, sports, traditions, politics* and *streets*.
- Values cards: generated by combining dimensions from different authors, selected according to the following criteria with no duplicated values in terms of meaning, values should be self-explanatory and easy to understand and finally, values should be suitable to describe the countries' culture.

Sessions have lasted around one hour per person, recorded with participants' consent. Each interview consisted of the following parts:

- Introduction: Greetings and introduction of the purpose and process of the study. Presentation of category cards with a discussion about related memories or personal experiences. During this part cards remain visible.
- Part 1: Country Culture Description: value cards were divided in three sets and are presented individually. The interviewer asked the participant to use them to evaluate the country's culture through a 5-point scale arranged on the table. Once all cards are placed along the scale the participant was asked to explain their evaluation.
- Part 2: Country Culture Comparison: in this section, the participant is asked to assess if some of the values fit particularly any of the four countries, arranged in individual boards – the country investigated, the two other countries of the study and own country.



Figure 2: Category and Value cards during interviews with Japanese participants

The data is analysed along with the results from the previous study in order to compare value perception across countries from both European and Asian perspective.

4.2. The Ethnographic Cards

This project was developed as a continuation of a previous project covering the transposition of European Experience Framework Boards (EFB) into a Japanese context (Vilaplana, 2016), as a tool for brand identity definition. The EFB consist of several boards with mainly visual and semantic stimuli where each board depicts experiences selected based on the 5 Factor Personality Model (Esquivel et al., 2016)

4.2.1. Background and purpose

The investigation was conducted as part of a collaborative PhD project between the University of Tsukuba and KD-TME. Its main objective was to analyse the level of understanding towards EFB in Japanese context. The study consisted of semantic analysis, quantitative comparison between EU and JP participants in terms of content coherence and deep semi-structured interviews (conducted in Japan). The results showed not only common differences and similitudes between EU and JP perception of the boards, but gave us some insights on which experience notions could be perceived as Universal, and which ones could be either European or Japanese.

As the data from all interviews were analysed further, it was clear that context and daily-life individual elements elicited stronger associations than preconceived cultural notions. This is found when participants were asked what ‘harmony’ means in Japan, for example, participants were inclined to relate it with simpler experiences (e.g., *people strolling in the park during autumn surrounded by colourful leaves*) rather than just stereotypical ones (e.g., *monks in a temple in Kyoto*).

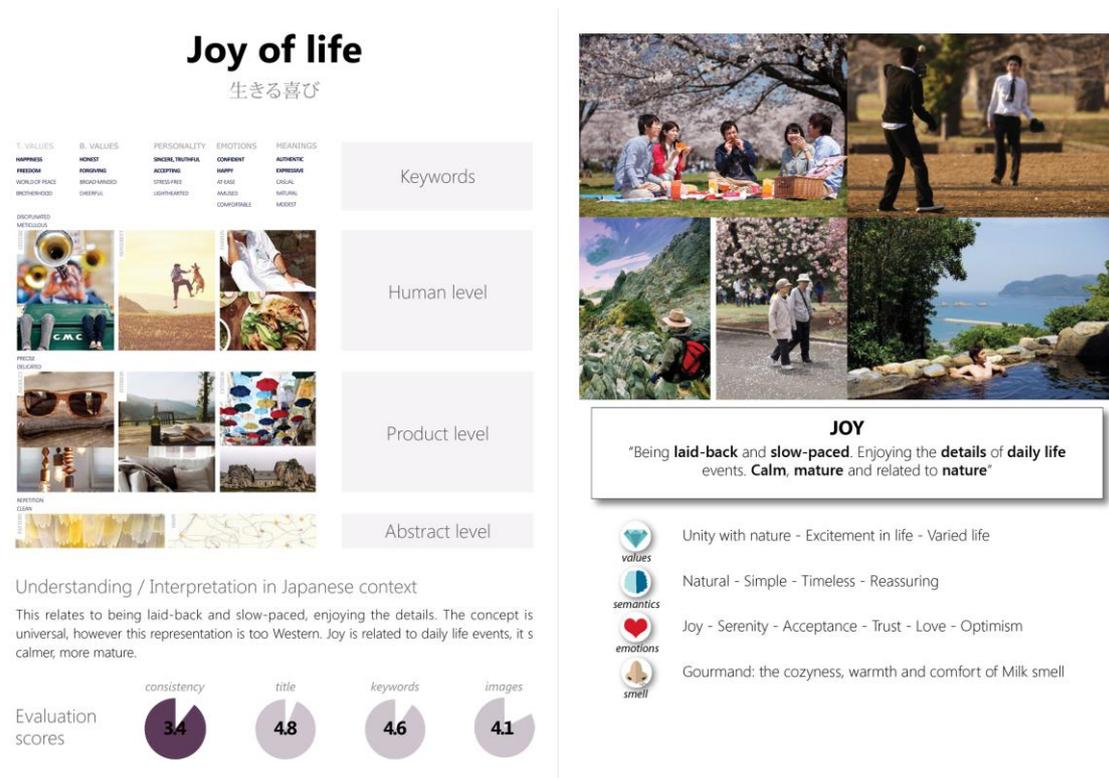


Figure 3: Analysis of an Experience Board (left side) and resulting Ethnographic card (right side)

These findings prompted us to address the role of specific cultural layers in inspirational tools for designers or product planners during the initial phase which will lead to the creation of the Ethnographic Card. The Ethnographic Card is a set of cards depicting experiences and value based information. Therefore, based on the feedback provided during experimentation in JP, each experience was represented visually by more daily-life experiences. In addition, it was paired with associated values, semantics, emotions and smell references, through qualitative exercises with Japanese TME members (fig.3).

5. RESULTS AND DISCUSSION

The projects introduced in the previous section aimed to investigate how different levels of design information (from low to high level of abstraction) could be applied in cross-cultural research, both using their own approach.

5.1. Output

In the case of the *Value Perception research*, it mainly works with high level design information because it is centred in clusters of values and the quantitative analysis comparing their perception from different standpoints. The tool derived from the analysis consists of a group of tables that display the value clusters, main points of comparison, ratings and the most relevant keywords used to describe cultures from the different expert points of view (fig 4).

	Japanese experts point of view	European experts point of view
 <p>Security social order / national security / avoid/dislike uncertainty / clean, neat / cautious, prudent</p>	 <p>"Show interest in things they don't know" "Foreigners living here are the ones not neat" "Not so tight with the rules"</p>	 <p>"Too punctual to like uncertainty" "Cautious with rules" "Cleanness not a priority"</p>
<p>National security being a high priority at the present / Everyone has a place in the community</p>		
 <p>Self-direction freedom / curious / inventive, creative / self-respect / individualist</p>	 <p>"Curious but they still try to keep distance" "Here people put themselves first" "Self-respect is related to being proud and individualist"</p>	 <p>"Not really interested in the outside world" "They have invented many collective sports but they praise individual progress"</p>
<p>The country is quite free / Highly creative, always on the move</p>		

Figure 4: Extract of Japanese/European perception table for English culture

In the case of the Ethnographic Cards, the main intention was to simplify the information presented in the previous EFB and to combine low level abstraction information like pictures and quotes that is related to everyday lifestyle and contextual information with high level information that includes semantics and values in a way that could be easily interpreted and understood (fig.3).

Hence, referring to the question of *how to increase the value of design information while minimizing communication problems through the use of cross-cultural tools during early-phase?* And the hypothesis: *adding context and experience based information layers to value based cross-cultural tools will improve communication of design information during early design process.* Since the results of both study have proven that the use of contextual cues and individual experiences to be essential part of the culture-based design information, it can be concluded that these proposed tools deliver the necessary information about specific cultures that combines diverse levels of abstraction in order to generate a good base to implement accurate cross-cultural communication. Thus, by using this sort of tools, it enables the establishment of a common ground and understanding to minimise reliance on stereotypical or biased information.

5.2. Applications

The output of the study is considered to be quite useful as proposed tools are used to establish stronger and relatively grounded discussions on cultural layers as well as to provide a good source of inspiration while defining target users or to draft the very first ideas on a new project. The direct application of these tools is at the very beginning of the initial design process, right during the fuzzy stage of defining targets and brainstorming concepts. The simple and visual format of these tools allow them to be easily interpreted by strategists and designers alike and they provide more information than the traditional images-only material for inspiration.

Certainly, the cases presented in this paper highlighted specific cultural combinations that mostly consist of Asian or Japanese and European perspectives given the corporate background in TME. However, the methodology and the output itself are adjustable to any cultural context as the information is displayed in an intuitive way, which is of great importance in starting any cross-cultural process. The tools are also versatile which enables them to be used across the design process that includes the concept & product development as an iterative guide to check the correct implementation of cultural and value layers. Moreover, both tools could equally involve final users in decision making by selecting the material that resonates with their context, their preferences and own individual values.

On a final note, the perspective on cross-cultural tools to improve communication of design information that was derived from research projects is still being developed at an empirical level. This provides ample room for improvement in its application and to properly test the potential improvements of the process. Nevertheless, the main intention with this paper was to highlight the importance of addressing a proper and more honest implementation of culture and value based layers to any cross-cultural project, since these opportunities to work with different cultures are constantly presented in design practice and academic research.

6. REFERENCES

Bouchard, C., Kim, J.E., & Aoussat, A. (2009). Kansei Information Processing in Design. *In Proceedings of IASDR conference*, 3327–3337.

Bunderson, J. S., & Sutcliffe, K.M. (2002). Comparing alternative conceptualizations of functional diversity in management teams: Process and performance effects. *Academy of Management Journal*, 45(5), 875-893.

Dahlin, K.B., Weingart, L.R. & Hinds, P.J. (2005). Team diversity and information use. *Academy of Management Journal*, 48(6), 1107-1123.

Esquivel, D., Bouchard, C. & Favart, C. (2016). Defining Brand Identity through a Kansei-Experience approach. *Proceedings KEER Conference*, University of Linköping, Sweden.

Garcia-Prieto, P., Bellard, E., & Schneider, S. C. (2003). Experiencing diversity, conflict, and emotions in teams. *Applied Psychology: An International Review*, 52(3), 413-440.

Gibson, C. B. and Gibbs, J. L. (2006), Unpacking the concept of virtuality: The effects of geographic dispersion, electronic dependence, dynamic structure, and national diversity on team innovation. *Administrative Science Quarterly*, (51), 451-495.

Gentner, A. (2014). Definition and representation of user experience intentions in the early phase of the industrial design process: a focus on the kansei process. PhD dissertation, *Arts et Métiers ParisTech*.

Gentner, A., Esquivel, D., Badoil, A. & Favart, C. (2016). European perception of East Asian cultures: Research on cultural values from China, Japan, South Korea and Thailand. *Proceedings KEER Conference*. University of Linköping, Sweden.

Gruenfeld, D. H., Mannix, E., Williams, K. Y., and Neale, M. A. (1996). Group composition and decision making: How member familiarity and information distribution affect process and performance. *Organizational Behavior and Human Decision Processes*, 67(1), 1-15.

Hofstede, G. (1980). *Culture's consequences: International differences in work-related values*. Beverly Hills, CA: Sage.

Hofstede, G. (1994). *Cultures and organizations: Software of the mind*. London: Harper Collins Business.

Eckert, C., & Stacey, M. (2000). *Sources of inspiration: a language of design*, *Design studies*, (21), 523-538.

Matsumoto, D. (1996). *Culture and psychology*. Pacific Grove, CA: Brooks/Cole.

Schein, E. (1990). Organizational culture. *American Psychologist* 45(2), 109-119.

Schwartz, S.H., & Bilsky, W. (1990). Toward a theory of the universal content and structure of values: extensions and cross-cultural replications. *Journal of Personality and Social Psychology*, (58), 878-891.

Spencer-Oatey, H. (2008). Culturally speaking. *Culture, Communication and Politeness Theory*. 2nd Ed. London: Continuum.

Spencer-Oatey, H. (2012). What is culture? A compilation of quotations. *Global PAD Core Concepts*. Retrieved March 29, 2016, from <http://go.warwick.ac.uk/globalintercultural>

Tajfel, H., and Turner, J. C. (1979). An integrative theory of intergroup conflict. In S. Worchel, and W. G. Austin (Eds.). *The social psychology of intergroup relations*: 94-109. Monterey, CA: Brooks-Cole.

Vilaplana, A., Esquivel, D., Favart, C. & Yamanaka, T. (2016). Culture, semantics and multi-sensory stimuli: The Experience Framework Boards. *Proceedings KEER Conference*, University of Linköping, Sweden.