Evaluating designer's *Kansei* evolution by drawing analysis

LEVY Pierre*, LEE Seunghee*, YAMANAKA Toshimasa*
**University of Tsukuba, Comprehensive Human Sciences Graduate School*

The global objective is to propose an approach in *Kansei* Information for product design evaluation. We propose here to develop a method to follow designer's *Kansei* during the whole process of product design and to present a pilot experiment.

1. Problematic

During the design process, the product is evolving, as well as designers' feelings toward their on-process creation. Nevertheless, designer's *Kansei* is highly used during the ideation process, whereas following steps are based on *Chisei* and can constraint, or even go against *Kansei*'s propositions made during the ideation.
When a company understands the importance of *Kansei*, and wishes to input a maximum of it into the final product, it is important to be able to evaluate the evolution of *Kansei* input during the design process, and thus to be able to correct the design when required. We propose hereby a method for evaluating designers' *Kansei* evolution during the design process.

2. Method

Instead of trying to evaluate directly designers' feeling involved into the project, we propose to evaluate the evolution of designers' feeling concerning the project (as an overview). It would provide same information, but it is easier to measure. Thus, we organize experiment to evaluate designers' feeling concerning the project, and intend to measure the possible evolution during the going on of the project.
Regularly, designers involved in the process are asked to draw. The aim of this interview is to evaluate the feeling of each designer toward the project [1]. The experiment conditions are constant: same place (preferably a familiar one), mood infusion techniques are used to stabilize the subject's mood [2]…
The experimental protocol is as follow: designers are asked to draw image icons for a fixed time (no limitation on the drawing tools). Drawings are done one five different blank papers, aiming at answering the five following sentences:

- プロジェクトの総体的な感情に関するイメージアイコン
  (Global feeling concerning the project by image icons)
- プロジェクトの総体的な感情に関するカラーパネル
  (Global feeling concerning the project by color panel)
- プロジェクトの予測に関するイメージアイコン
  (Expectations concerning the project by image icons)
- プロジェクトの予測に関するカラーパネル
  (Expectations concerning the project by color panel)
- 今の感情
  (Today's feeling)

The results are evaluated by both quantitative and subjective techniques. Quantitative techniques are statistical analyses on the numerical data output from the drawings. Subjective techniques are realized by expert people (psychologist and designers) and mainly based on categorization of the drawing. Quantitative and subjective techniques are finally compared, expecting to find highly correlative results. This would allow us to propose a quantitative method to evaluate designer's *Kansei* evolution in the design process.

3. Results

8 subjects had been interviewed 4 times on a four-month project, providing a total of 154 drawings.

Figure 1: Examples of drawings

Among a non-exhaustive 14 quantitative tool list, we decided to start using the Physical Quantity Analysis for Similarity of Patterns, since it was a relevant one used in previous works by Lee [3]. All the drawings were analyzed, giving 162 information per drawing. Thanks to this information, the drawings were divided into 7 clusters. Expert people created groups according to the feeling they thought the drawings were expressing. Finally correlation analysis was done between the subjective (expert) groups and the quantitative clusters (7!=5040 comparisons) for each expert. The highest correlation coefficient obtained was surprisingly low: 0.3.

4. Conclusion

It is obvious that the correlation is too low to consider this tool as relevant in this study. The 13 other tools have to be tested the same way in order to find at least a relevant one for the purpose of this paper.
Once some tools will be selected, we will be able to use the entitlement of the groups done by the expert (based on their feeling) to give a meaning to the clusters calculated by statistic analysis. Then the target will be reach: a tool capable to analyze objectively the evolution of the designer's *Kansei* during a project.

5. Main references

1. S.H. Lee and A. Harada. A Mutual Supported Design Approach by Objective and Subjective Evaluation of Kansei Information. in 3rd Asian Design Conference. 1998. Taipei, China.
2. E. Eich, et al., Cognition and Emotion, ed. M. Marschark. 2000, Oxford, England: Oxford University Press. 259.
3 S.H. Lee, T. Kato and A. Harada. *Kansei* Evaluation of Subjective Image by Iconic Abstraction. In 2nd Asia Design Conference International Symposium on Design Sciences, 1997 (Best paper).

Emails: levy@kansei.tsukuba.ac.jp; lee@kansei.tsukuba.ac.jp; tyam@kansei.tsukuba.ac.jp