The Characteristics of Inevitable Sound from Products by the *Kansei* Evaluation

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1. INTRODUCTION

The designed products surrounding us make variety of sound, not only designed to make but also inevitably made. For example, the sound of shutter release of a camera that would make certain image of a product. Recently, material and mechanism of camera changed. As a result, the sound of camera became dried and mild, that could make shooter as less intensive. Like this those sounds can be considered as a factor that consists products' impression. Sound-scape is a field of design that can evaluate the relationship between human and sound as an environment. In this basic research, we focused on the *Kansei* evaluation of the inevitable sound from CD player.

EXPERIMENTAL

For the samples of experiment, we selected five CD player with front loading tray. Firstly, we defined the sound is consist with six components (fig-1). Using the experimental design method, five samples and six parts, we could make 25 arrangement of experimental sample with those parts. 15 panel ranging 20 to 23 school students was selected for this experiment, For the *Kansei* evaluation, we selected eight pairs of evaluation words distributed from the known research. Also we added eight more pares of words that could be related to the product's image. Totally, 16 pairs of evaluation words was applied for evaluate 25 different combination of sounds.

RESULT AND DISCUSSION

Firstly, we applied the ANOVA for the analysis of evaluation those 16 pairs and 25 combinations, W found there was a significant difference between the sounds of closing. On the other hand, the sound start-closing and ends-closing are insignificant in the evaluation. Smoothness, sense of weight, cheep-classy and firm – un -firm are significant throughout the components.

There was three pairs of words for value, such as [like / dislike], [good / bad], [comfortable / uncomfortable]. Using those evaluations as a dependent variable, we applied multiple regression analysis to determine the effects of *kansei*. For the sense of comfortable / uncomfortable, the classy feeling is most important. Sense of unity came next and richness and smoothness were also important. For the sense of like / dislike, the feeling of delicate and silence are most important. For the sense of good / bad, sense of classy and feeling of delicate was major source followed by Smoothness and sense of silence. With this analysis, the major senses related to value are confirmed. Then we tried to check out the proportion of effects throughout the composted sounds. Result of conjoint analysis showed that the sound while sliding out the CD-tray is most effective sound. From the result of ANOVA, the sound sliding in the CD-tray was generally most significant for 16 evaluation words. However, the result of conjoint analysis showed that, the sound while sliding out the CD tray was more effective for the evaluation of valuable sense. Following the sliding out sound, the sound of sliding in and start sliding was significant. With result, a part of design factor of sound-scape for CD player was known. Additionally, we measured the frequency characters of those sample sounds. Try to clear the relations between the result of *kansei* evaluation and the effective physical value of sound. From these samples, the sound tray slides in was most clearly measured. With tee result, the alteration of sound characters such as strength of sound had negative effect for [good / bad]. This result clearly shows the valuable evaluation such as sense of smoothness, silence or classy is effected by that continuity of physical value.
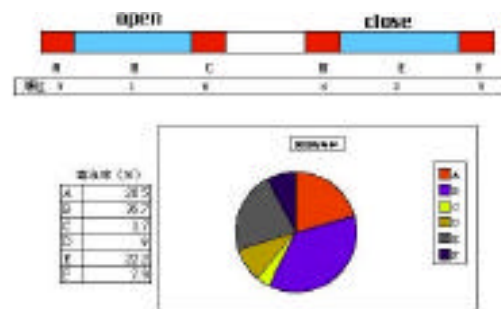

Figure 1 Components of sound and result of conjoint analysis

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