

# Affective Service Design Considered Informational Assimilation of Layout Factors

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**Abstract.** While the changes in the focus and characters of service design have been complicated, its qualities regarding intuitively preferred factors, have not been investigated enough. This study shows how design factors affect user's intuitive preference and what make a user's attention focused on informational assimilation. Through the experiment, the layout factors and its values are verified. It was investigated (1) which layout factors arouse a user's attention, (2) how much users were satisfied with the verified factors. The results show that (1) elaborate images are the most important layout factor among five considerable factors, to arouse user's attentions, (2) the elaborate figures affect significantly all affective evaluation values, which were proved its relationship between user's attentions and the evaluation values through previous study; preference, aesthetic, and pleasure.

**Keywords:** affective, empathy, and design.

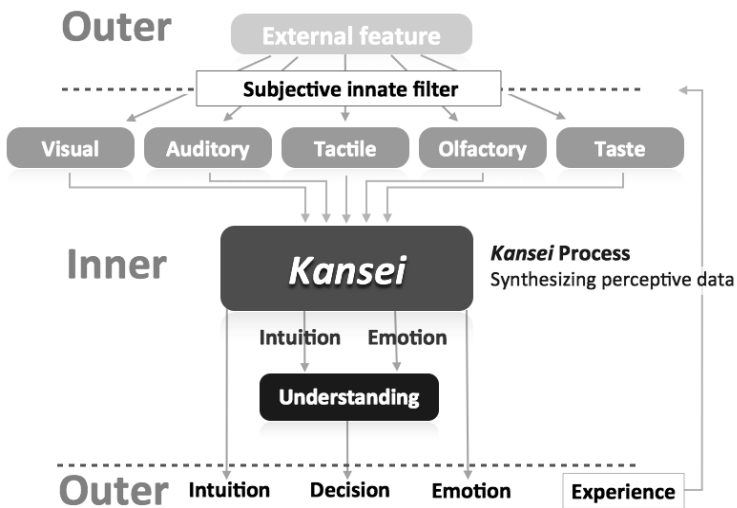
## 1 Introduction

According to Johnson et al. [1], new service development comprises four major phases: design, analysis, development, and full launch. Although the new service development process cycle might represent a progression of planning, analysis, and activity execution, the process is iterative and nonlinear in nature [2]. Instantly, the design stage involves formulation of new services objectives, strategies, idea generation, screening, and concept development and testing. However, the design stage does not involve its general process, such as in hospitals. Doctors make a diagnosis; nurses support doctors' works; and patients follow their directions." Typical top-down process is. Patients are not the beneficiaries of medical services. This study purpose an approach to human-centered service design considered "the user".

As one of the essential components in the new service development process, service design focuses on the operational basics of the development work. It involves understanding and planning the interaction of a variety of physical, electronic, and human elements [3]. On the hand, other definitions include "the idea to design high quality into the service system from the outset, and to consider and respond to

customer expectations in designing each element of the service [4]”, the concretization of the service concept in drawing flowcharts [5], and “the work of specifying an idea about a new service in drawings and specifications [6]”. This study adopt both of considerations, understanding and planning the interaction of a variety of inset and the idea from the outset.

The purpose of this study is twofold. First, it shows affective layout factors arouse of people attentions. Second, it presents a conceptual framework for information based layout design. *Kansei* can contribute to understand how the present study approach to the purpose of the first stage. By the definition of *Kansei* [Fig. 1], [7], *Kansei* postulates individual as a subjective innate filter considering the variety of subjectivity. By subjective innate filter, inner and outer separated. When human captors (eyes, hear, nose...) receive a stimulus as an external feature from outer, the sensor data gathered in *Kansei* (repository). *Kansei* (repository) contains full data acquired by subjective innate filter (human sensors); the information synthesizes through in the brain *Kansei* process); and comes out as reaction such as emotion or intuition (*Kansei* information). Decision is a result of ‘understanding.’ In other words, data in *Kansei* (as repository) is assimilated (*Kansei* process), and is sent to understanding process (as *Kansei* information). *Kansei* presents as two types of outcome: emotion or intuition as *Kansei* information per se; decision as a result of understanding. Hence, individual’s subjective perspectives can be investigated by understanding their *Kansei* information.



**Fig. 1.** It shows the definition of *Kansei* and how individuals modify their subjective filter

## 2 Method

To investigate individual's intuitive and emotional responses considered *Kansei* information process, three significant evaluation values were used in the experiment; preference, aesthetic, and pleasure [8]. Regarding the previous study conducted by Kim et al. showed the relationship between well-designed uninominal layouts and the evaluation values (preference, aesthetic, and pleasure). Considering the findings of the previous study as mentioned, it hypothesize that if a uninominal layout shows statistical significances in the all evaluation values, its layout designed well.

### 2.1 Subjects

Fifteen subjects participated in the experiment. The age range of the subjects is from twenty to forty. No subjects have taken part in any kind of a similar experiment.

### 2.2 Stimuli

Forty-eight stimuli were used in the experiment considering five factors of its layout; (1) contents axis (vertical, horizontal) (2) contents positioning (default, modified) (3) font (default, modified) (4) figure (default, modified) (5) information type (three various contents layout). Based on the five factors and the two (or three) levels, forty-eight stimuli were prepared.

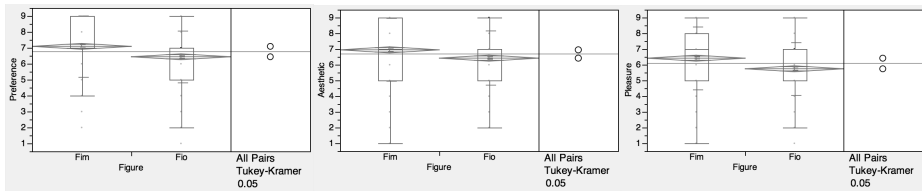
### 2.3 Procedure

The subjects were given directions firstly. And they evaluated on three evaluation factors, preference, aesthetic, and pleasure, with nine scales from strongly disagree to strongly agree. "Don't know" was explained as neutral.

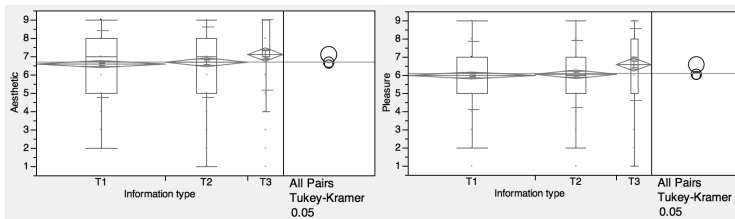
## 3 Analysis and Results

One-way ANOVA was used in the analysis. Independent values were five factors of its layout; (1) contents axis (vertical, horizontal) (2) contents positioning (default, modified) (3) font (default, modified) (4) figure (default, modified) (5) information type (three various contents layout), and dependent values were the three evaluation values; preference, aesthetic, and pleasure. From the results, two factors showed statistical significances in figure and information type.

It shows statistical significances between the figure factors (default, modified) and the three evaluation values (less than .0001\* in preference and pleasure, .0002\* in aesthetic) [Fig. 2]. Also, the information type shows in statistical significances in aesthetic and pleasure values, does not show in preference [Fig. 3], [Table 1]. Aesthetic (p value = .0464\*) and pleasure (p value = .0141\*) evaluation values show statical significances in the information type factor. Fig. 3 shows that T3 was evaluated more aethetical and preferred information than T1 and 2.



**Fig. 2.** “Fim” shows the results of modified figures. “Fio” shows the results of default figures.



**Fig. 3.** “T1” shows the results of the information type 1. “T2” and “T3” shows the same pattern.

**Table 1.** It is the results that did not show statistical significances of the experiment and the p values

Evaluation value	Layout factor	P value
Preference	Contents axis	.2412
	Contents positioning	.3339
	Font	.2944
	Information type	.0530
Aesthetic	Contents axis	.3872
	Contents positioning	.2084
	Font	.3455
Pleasure	Contents axis	.8273
	Contents positioning	.4874
	Font	.3309

## 4 Conclusions

From the results, it shows that (1) elaborate images are the most important layout factor among five considerable factors, to arouse people attentions, (2) the elaborate images affect significantly all intuitive evaluation values (preference, aesthetic, and pleasure). Furthermore, information type shows its influence on aesthetic and pleasure evaluations in layout design. It can be including preference due to its p value. It is not far away .05 [Table 1]. It means, more attractive figure arouse peoples attention, and the attention affect their evaluation in preference, aesthetic, and pleasure. The findings are worthy to understand more effective design factors, which involves its affective consequences.

In this age of globalization and information technology, corporate strategies are more and more challenged to bring production in line with complex demands, which requires a substantial shift from the production of goods to the provision of knowledge-intensive systemic solutions [9]. And this approach to new service design considered informational assimilation could be a showcase how design factors work in its complexity.

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