

Recognizing Female's Sensibility in Assessing Traditional Clothes

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Abstract: This study represents the research of Malay traditional clothing in *Kansei* perspective. The principal objective of this research is to classify female's sensibility in wearing traditional clothes. The analysis of female's emotion is important to identify the actual intentional of female's desire in clothing. This study will be looking into the significance between the *Kansei* and females perception in using traditional clothes. The approach of the study is to investigate the design process from the viewpoint of *Kansei*, which influences the used of traditional clothes among the Malay society. There are two phases of females sensory that are importantly linked when dealing with clothes that are *haptic* sensation value and appearance sensation value. In *haptic* evaluation, common typed of fabrics used in traditional clothing were identified. It is related to the hand sensory in recognizing typed of fabrics used and favors by the females'. Secondly, the appearance evaluation was categories into sensible appearance that relates to females cognition and mental processes in describing the desired clothes. All data were gathered and analyzed using Semantic Differential Methods, Descriptive statistics, Principal Component Analysis and Cluster Analysis. The finding shows that there are four strategies should be applied in Malay traditional clothes known as *Kansei* stimulus - somatic-stimulus, pleasing-stimulus, cognition- stimulus and socio-stimulus. These *Kansei* strategies had played an important role in distinguishing female's physiological sensibility and psychological feelings in desired clothes design domain and loyal to traditional clothes product.

Keywords: *Traditional clothes, haptic, appearance, kansei stimuli*

1. Introduction

Emotion elicited by the consumer products such as clothing influence both decision to purchase a product and the feeling of pleasure or comfort of using it after purchase. As for the designers it is important to design the clothing products that fit the emotion of the users. It is believe that if the products elicit the emotion, it will create the situation where the consumer will constantly used the product and become loyal to those products.

This paper presents an investigation on female's behavior in evaluating the clothes. It will be looking into the significance between the *Kansei* and females perception in using traditional clothes that is *Baju Kurung* and *Baju Kebaya*. Traditional clothes had result a strong female's behavior in preserving their cultural materials. Through this preservation the Malay females could present the aesthetic of Malay culture identity [1]. It is important to evaluate females' sensations in clothing as it is known that females were highly concern about what they wear and what typed of clothes are suitable and desired by them. It is found that there are two area found to be most important in order to understand the females emotion with these clothing. Firstly, the haptic or hand action was the

first tactile sensing that females react when dealing with fabrics for clothes. Secondly, the appearance value that will cover the perceptual values of traditional clothes desire and needed by females. It will be based on perceptible appearance that extracting the proper meaning from individual perceptions associated to the clothes. This analysis of sensory profile tries to describe the mean of clothes perception.

In these study, the main concern was to identify to what extend the females interact or expressed their feelings in traditional clothes and what they desire from these clothes.

2. Materials and Methods

To explore the issues, several surveys as described in the following sections were conducted.

2.1. Samples

The sample consisted of two types of Malaysia traditional clothes that are *Baju Kurung* and *Baju Kebaya*. The collection of these clothes was further discussed on the common fabrics used and the visual appearance of traditional clothes.

In survey 1, fabrics from traditional and new with different tactile properties are selected to represent the current types of fabrics used in Malay traditional clothes of *Baju Kurung* and *Baju Kebaya*. The subject mainly Malay females from Malaysia and their age were range of age 20 years old until 30 years old with amateur and professional experience (specialist) in fabrics are invited to participate in the categorization evaluation. Each of them was given about 17 pieces of fabrics out of 24 fabric samples with different types of textures.

In the second survey, the sensory profile is a tool for describing and quantifying visual perception used in clothing. To study the perceptual dimension of user's preferences, the semantic differential method (SD) is one of the most frequently used methods. It quantitatively deals with how people feel about the clothes with the aim of identifying the exact *Kansei* desire by subjects. The combination of females clothing image sources, clothing styles, identities and lifestyles were develop further in recognizing the paradigm of clothes images. Thirteen categories had been taken from individuals experiences used in traditional clothes, positioning them on the image scale and examining the different space means valued by subject groups. About 190 image words associated to the clothes that convey similar image have been grouped together into each of thirteen categories.

2.2. Data Analysis

In order to understand the females' preferences in fabrics for clothing, the haptic evaluation data were collected from them. About thirty-six image-words and 17 pieces of fabric are used in this phase. To elicit the subject's feeling about the fabrics, they were asked to fill in the questionnaires that extract the image-words in order to describe their perceptions about the samples given. The samples were employed in a subjective evaluation test at this stage to verify the scale for SD test. Each subject was asked to evaluate these 17 pieces of fabrics range from cotton, silks and polyester according to a single adjective pair on 11- point scale.

The participants were asked to evaluate by using THV method. It was graded as stiffness, smoothness, fullness, crisp, anti-drape, discord feeling, flexibility and soft. The range of *Kansei* attributes was selected to be representative of fabric's properties and the hand gestures were observed on how the participant reacts to the fabrics. Factor analysis was used for analyzing the correlation structure of *Kansei*.

In visual appearance survey, female scores for visual appearance were input separately to internal preference mapping analysis. This method of analysis is related to Principal Component Analysis (PCA). The female's preference matrix is resolved into a set orthogonal preference dimension represented both samples and users. The

categorization result was transformed into qualitative scorings for each consists of 1 until 5, indicating the preferences of very, slightly and neutral. Second, the semantic differential test was applied to measure female preferences and image perception. SD methods were used in order to identify specifically the overall images of the traditional clothes chosen based on their experience.

3. Results and Discussions

3.1. Perceptual experience in clothing

Perceptual experience is mostly unconscious process of an interpretation of information through action. Perception depends upon stimuli and also upon human action desire, interest and attention which meet a specific selection from various external stimuli and experience are integrated with the sensory data. The goal to study human perception is to understand the features of user's perception, the perceptual abilities, and intentionality, and to provide users' perception with the condition of satisfaction. The major factor in perceptual involve the learning and experiences.

In traditional clothes, the perceptual can be described as visual perception. Visual perceptions are characteristically identified and describe females' intentional states such as belief and desires. These stimuli get selected depends on two major factors in addition to the nature of stimulus itself: (1) females' previous experience as its affects their expectations and (2) their needs, desires and interest. Searle [2] emphasizes that visual experience is directed at or of objects and intention states of belief and desire. In clothing, it is believe that the perceptual is required to combine sensory information with experience. With these elements the users' be able to detect the direct or indirect information about the clothes.

3.2. Factors affecting female experience

Clothes were closely relates everyday interaction with users. It is seen as an object that highly influence and benefit users, physically, emotionally, identity, personality, status and culturally. Variations in clothing choices are subtle indicators of how different types of societies are actually experienced and sensitive to the clothes they wear. Through this understanding it is hope that the studies of specific emotions and pleasure in product use, e.g. clothes, will derive satisfaction and pleasure.

Through out the research, it has been found that both traditional clothes of *Baju Kurung* and *Baju Kebaya* were being used as a part of representing cultural identity of the Malay people. About 105 females being interviewed and 85.3% of them clarified that these clothes were part of preserving cultural identity for young and old Malay generation.

3.3. Survey 1-Assessment on hand values

In this survey, there are two types of traditional clothes involved that are *Baju Kurung* and *Baju Kebaya*. As it appears to be almost daily wear by the Malay females, a greatly consideration should be judges that causes deviation and the accuracy prediction on females feeling in daily clothing through *Kansei*. The visual and tactile properties of the compartment strongly contribute to the first overall quality judgment in clothing as it known react as our second skin. Clothing purchase involves many parameters, one of, which is the costumer's desire to evaluate for themselves; Rhea [3]. It is found that the main aspects of females approach in finding the best fabrics or outfit were mainly based on their visual properties and their basic hand response.

Haptic or touch has historically been considered a highly significant sense (Berkeley 1910; 1710) [4]. Tactile feedback deals with the devices that interact with the nerve endings in the skin, which indicate heat, pressure, and

texture. In order to gain a perception of the object materials qualities the primary hand value (HV), which is a quantified, feel parameter calculated based on the determination of the human senses mechanical properties that react naturally when connected to certain products or object. A response from the hand value will ensure the desired materials that are proper for clothing.

17 fabrics extracted and evaluated based on the tactile perspective (Figure 1). The participants were asked to evaluate the fabrics through total hand value (THV). It was graded as stiffness, smoothness, fullness, crisp, anti-drape, discord feeling, flexibility and soft. The range of *Kansei* attributes was selected to be representative of fabric's properties and the hand gestures were observed on how the participant reacts to the fabrics.

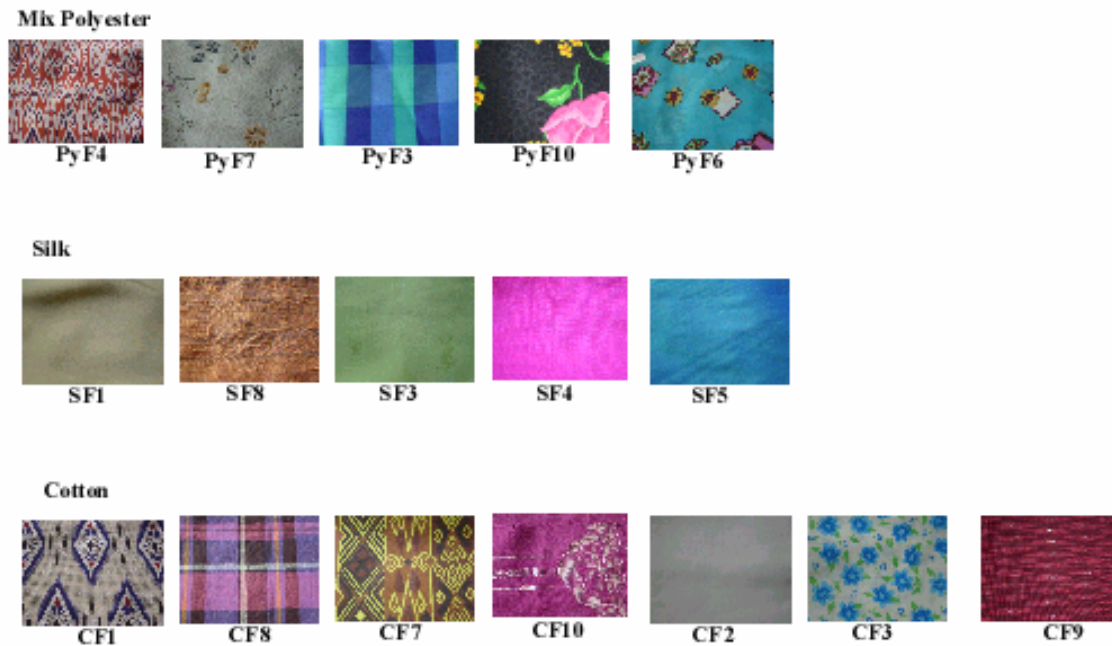


Fig.1. 17 samples extracted and used in the evaluation

For the specialist, the first factor axis is related to the fabrics' textures and can be explained by such adjectives as flexible (-0.802), smoothness (-0.791), discord feeling (-0.860), weight (0.921), thickness (0.836), soft (0.527), force to compress (0.668) and crisp (0.645), which can be defined as hedonic factor.

The second axis indicates the adjectives as fullness (0.771), depression (0.732), tensile (0.915), lumpy (0.726), gloss (0.385) and stiffness (0.758). The third axis can be defined as activity as the image words of warmth (0.779) and anti-drape (0.612) appear in this factor. These three main factors represent the main visual criteria selected in fabrics by specialist. The highest percentage of variance could be justified in Factor 1 with the values of 37.6%. This evaluation results a clear perception by specialist in justifying proper fabrics properties to be used in traditional clothes.

The amateur users' perception can be simplified down into three factors. The factor exist can be defined as with the specialist factors of hedonic, tangible factor and activity factor. The first factor can be defined as soft, gloss, thickness, smoothness, anti-drape, flexible, crisp, discord feeling and fullness are typical for appraisal axis. The second axis signifies the visual impressions of flexibility in which the fabrics were hold. It expressed the adjectives as stiffness force to compress, depression, tensile and weight. The adjectives of lumpy and warmth appear in the third factor of activity axis.

The specialists and amateurs show similar semantic structure in Factor 1. However, their interpretations appear differently in Factor 2 and Factor 3 in terms of their construction. The components show that the amateurs users' Factor 1 (hedonic factor) tend to focus on the existing appearance of the fabrics but the specialist were more sensitive on the perceptible factors. The findings occurred as, specialist were keen about the fabrics images and more detail in assessing fabrics for clothing such as smoothness and also appearances for the end product. The amateurs were identified as an observer.

From the above qualitative description, the fabrics are then split into four main groups by using cluster analysis that resulted: (A) typical touch fabrics, (B) fabrics with flat surface, (C) silk-like fabrics and (D) mix-embossed fabrics. Figure 2 by specialist, Figure 3 by amateur, explained the fabric preferences in four categories with different selection by the specialists and amateurs. The high value of fabric occurs from amateur, were the typical-touch fabrics and the most choices by amateurs' users were the fabrics with flat surface. By this estimation, THV in fabrics desired by females easily to understand and being focus as predicted zone- **smooth zone** (average, good and excellence scores) and **stiffness zone** (poor and fair). These two zones were the summarized prediction of quantified fabrics properties for clothing. Figure 4 and Figure 5 showed the exact factor level with positive value of hand evaluation for fabrics in smooth zone.

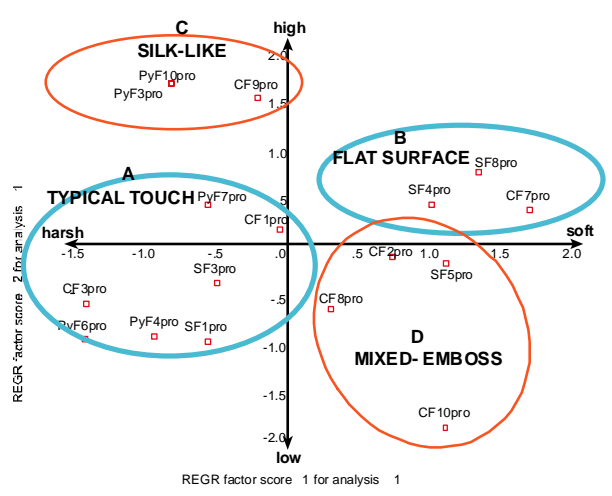


Fig.2. Regression factor scores 1-2 position by the specialist

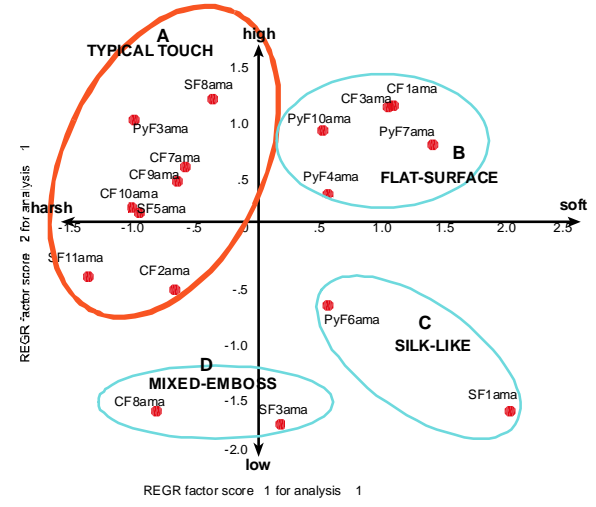


Fig.3. Regression factor scores 1-2 position by the amateur

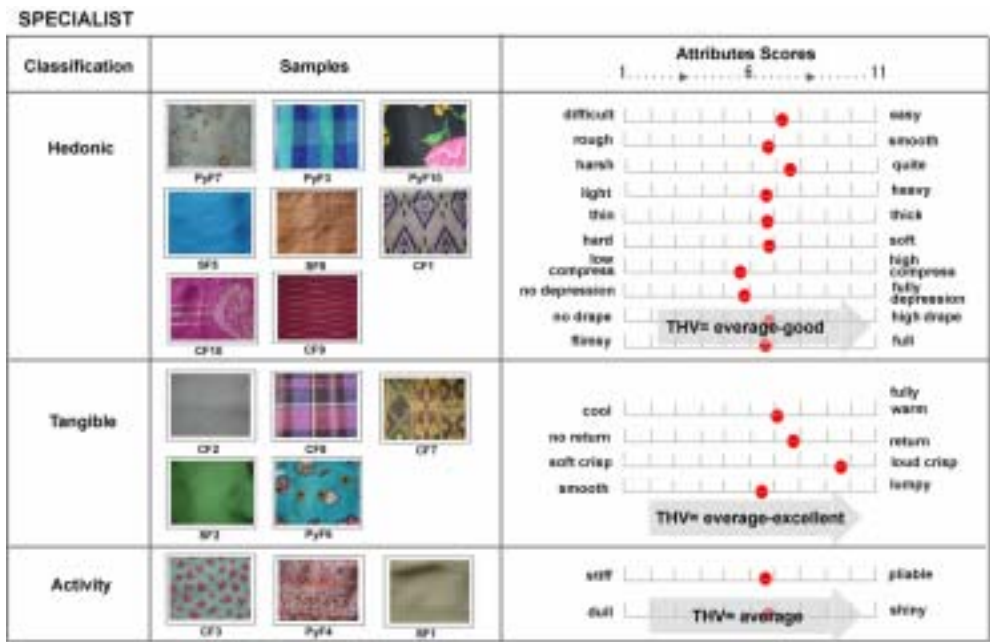


Fig. 4. The THV from haptic values by specialists

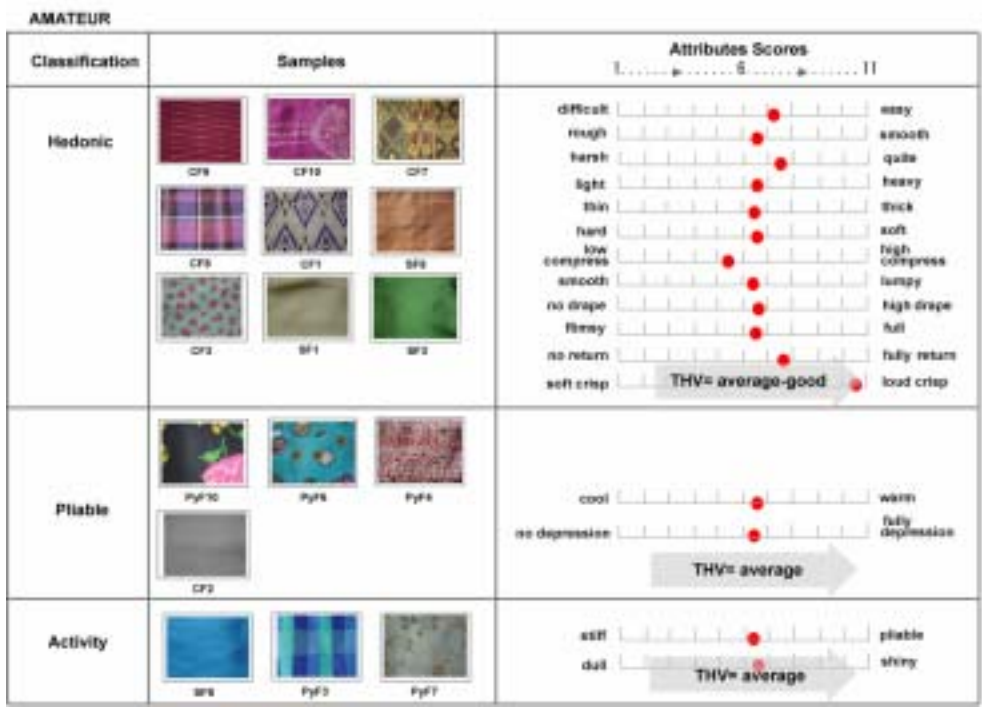


Fig. 5. The THV from haptic values by amateurs

3.4. Survey 2-Visual appearance assessments

The second area that should be focuses on is the appearance of clothing. This study was intended to reveal female’s perceptions of traditional clothing images in visual and sensory recognition. These perceptions enhanced females to make their own analysis or emotional response to identify the clothes images that ideal for their appearance. Visual appearance in clothing mainly involved with the visual perception which refers to the information acquired from the object via *Kansei* recognition. These criteria are mainly focused on females’ physiological capacities during the evaluation.

The combination of females clothing image sources, clothing styles, identities and lifestyles were develop

further in recognizing the paradigm of clothes images. About 190 image words associated to the clothes that convey similar image have been grouped together into each of thirteen categories. Thirteen categories had been taken from individuals experiences used in traditional clothes, positioning them on the image scale and examining the different space means valued by subject groups.

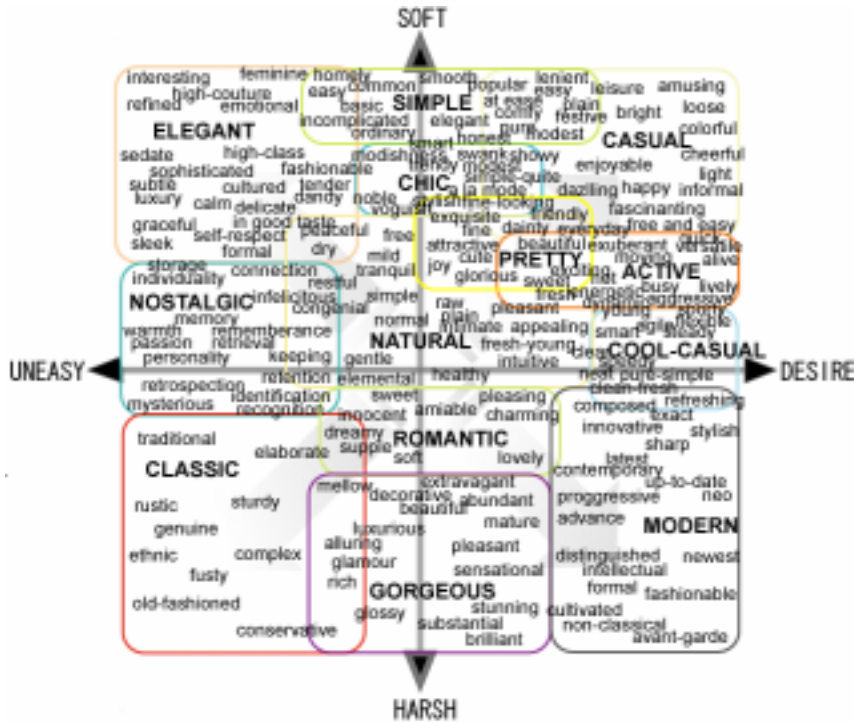


Fig.6. The allocation of traditional clothes image keywords

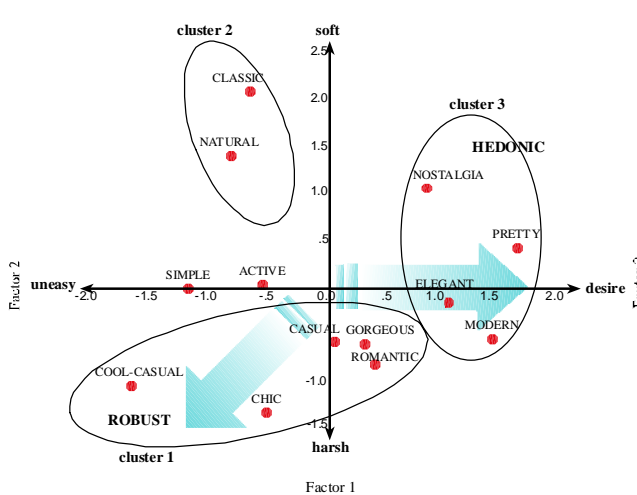


Fig.7. F1 and F2 for the cluster response by students

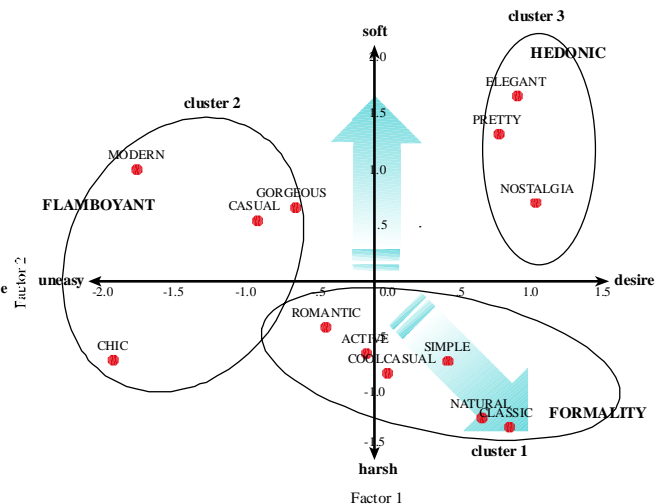


Fig.8. F1 and F2 for the cluster response by office worker

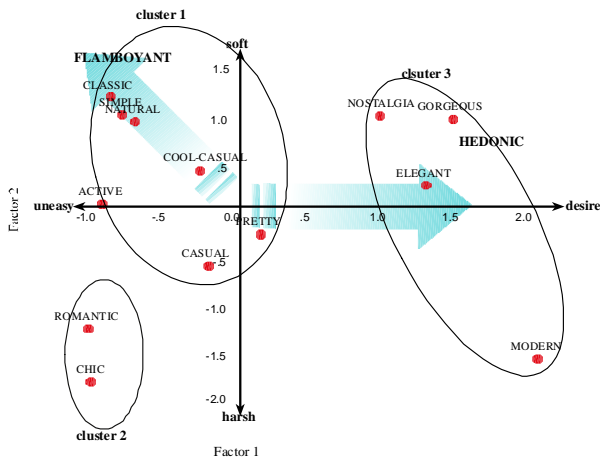


Fig.9. F1 and F2 for the cluster response by housewife

Figure 7, Figure 8 and Figure 9, explains the neology reflect each groups preferences in cluster analysis. Ward's Method had been used to indicate the image clusters from each group. In the above figures showed that the large cluster directions were computed into the overall representation of the variables.

Students vectors were largely scattered in the robust domain compared with other domain. They express pretty, elegant, modern and nostalgia as desire domain in their traditional clothes. The office workers vectors could be described as formality domain as it is located in the desire and harsh vector. The second and third clusters were allocated at the flamboyant and hedonic domain. These cluster grouped clearly mapping the actual image of traditional clothes desired by them. Different from housewives vector which largely indicate the flamboyant domain explicit the image desired by them. These groups closely present a significant need in hedonic domain expressed in Cluster 3.

3.5. Expressing traditional clothing through sensory parameters.

In general, the overall females stimulation experienced with traditional clothes could understand and clarify clearly in many dimension of research. For example, the visible appearance of clothing such as soft look, hardness and looseness are on a scale of resistance of the clothes appearance. All these aspect relates to human perceptible sensation.

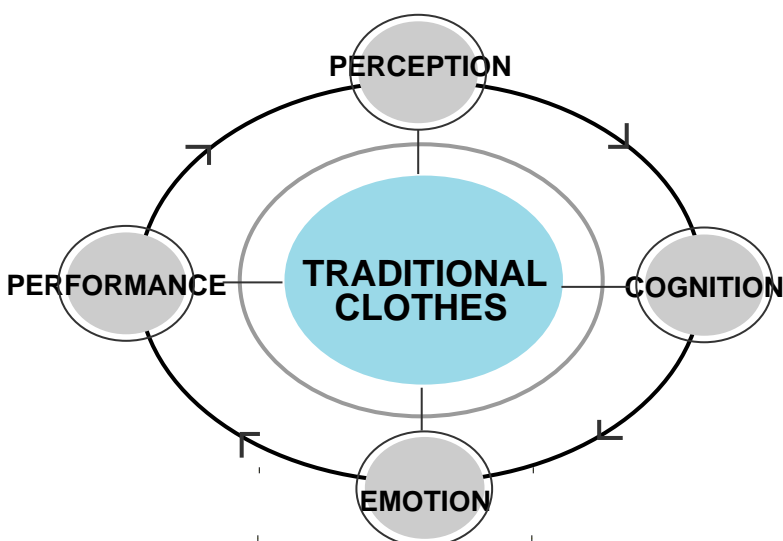


Fig.10 Females reaction in sensory parameters

The fact, that each female *Kansei* can be influenced by senses physically or psychologically. Based on the female cognitive model, *Kansei* has attempted to elicit satisfying and pleasing sense of product for user. In these aspect, perceptible, senses and action are interwoven will provide users' perception with the conditions of satisfaction. Females' recognition in sensory parameters found in traditional clothes perception could be formed into these actions (Figure 10).

Figure 10 explained the foundation of female's stimulation of emotion during wearing traditional clothes. They were found highly influenced with two situations that are wearing experience been described as epitome of Malay clothes gained from history experience of material culture from Malay society. Next, the sensory recognition strongly influenced the female's emotion. These results the female's sensory stimulation in explaining the exact females' attitudes to clothes sensory and the physical and physiological element that distributed in females sensory in traditional clothing. Through these stimulation explained clearly the females' sensory exploration towards the actual needs and concerns in traditional clothes.

3.6. Typologies of traditional clothes in females sensory

Factors affecting the acceptance of traditional clothes may be divided into conscious and unconsciousness situation. The primary factor associated with the female is age. The students unconscious observation basically based on their direct feeling of clothing that give comfort to their physical approach. The levels of adults group of housewife and office worker tend to observe rationally and put some refinements in terms of clothes optimization to their physical, psychological and physiological needs. The psychological element of expectation, based on appearance of the traditional clothes has a strong influence of the level of clothes acceptance.

In these interpretations, the traditional clothes could be conclude into four female *Kansei* classifications; **somatic-stimulus, pleasing-stimulus, cognition stimulus and social stimulus.**

- **The somatic or physiological stimulus** affect female emotion and body acceptance are of particular feeling to the clothes design. An important factor to consider is the 'comfort image' the clothes intended to convey. It involves the somesthetic sensation or touch response on the surface of skin. It is derived from senses such as tactile properties. The traditional clothes should represent hedonic that expressed soft, light, easy to move, easy care and comfortable to wear.

- **In cognition-stimulus**, the psychological elements of expectation were based on emotional reaction of the clothes through knowledge and experienced. The clothes should represent the strong 'image' of personality, nostalgic era and could communicate about the culture. At the same time, traditional clothes perform a wide variety of important social functions.

- **Pleasing-stimulus** is a value that clothes embodies, such as clothes have the right materials, forms or structure, and convey a sense or aesthetic value in it.

- **Social-stimulus** may be explaining as pleasure gained from interaction with others. This pleasure can also come from a product that represents a social grouping, for example, a particular style of clothing that gives images of social identity. It is part of enjoyment derived from relationships, social status and identity. These four categories should cogitate constantly in order to accomplish better performance in traditional clothes.

3.7. Females sensibility stimulation

In Figure 11 explained the females *Kansei* stimulation developed in traditional clothes experience. This model is based on female's stimulation through emotional reaction. The models are indicative way to understand and built up an accurate picture of female's needs and what they can receive from traditional clothes.

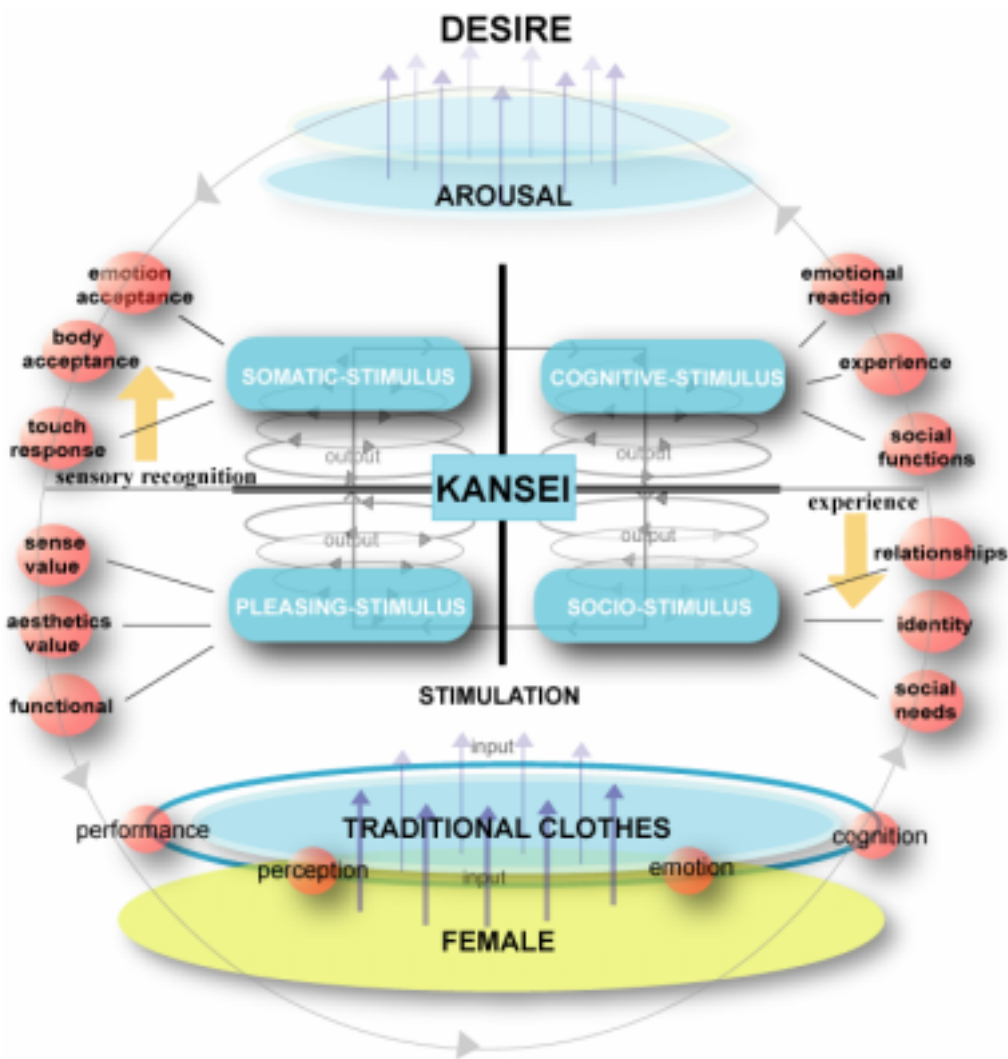


Fig.11 Females *Kansei* model of stimulation in traditional clothes representation

Having these four stimuli can be the foundation towards desired clothes products. In these four stimuli it is found entirely connected to each other in spiral movement that allocated in two *Kansei* space of sensory recognition and experience space. In sensory recognition space the female's sensory signifies as somatic stimulus and cognitive stimulus. It is realized that these space highly related to females emotion and needs during wearing traditional clothes. Whereas in experienced space involved with socio-stimulus and pleasing stimulus. These spaces were realized were related much in usability and functionality of using traditional clothes. These may explained that each stimuli were linked each other in clothes process in achieving desired feeling to the traditional clothes.

It is important role in determining females' intention for the clothes with particular attributes that can contribute to elicit emotions. Results have generated that the theory based of females' behavior could be based on situational, history and environmental experiences. Since the emotion is part of user experience, the designers should be able to adapt it into designs. There are four ways of how the traditional clothes could be designed to be more emotional and fulfill the consumer needs that is elicit emotions, communicative emotions, recognizing emotion explicitly and pleasure emotion.

4. Conclusion

In general, the overall females stimulation experienced with traditional clothes could understand and clarify clearly in many dimension of research. In explaining the relation between females and clothing, there are two important findings should be tackle, which is the hand values and the perception of clothes appearance sensation. In these aspects, perceptible, senses and action or experiences are interwoven that provide users' perception with the conditions of satisfaction during wearing clothes.

The *Kansei* model is based on female's stimulation through emotional reaction. The models are indicative way to understand and built up an accurate picture of female's needs and what they can receive from traditional clothes. As far as *Kansei* model is concerned, other types of traditional clothing from other culture could applied this process in order to understand the behavior of their users. Having these four stimuli can be the foundation towards desired clothes products. The benefit that used of the model provided an easy understanding for those who involved in design process to consider the area of desires, functionality and pleasures that the clothes product can bring. With these applications, the designer could easily identify the problem in traditional clothes and re designed based on the users needs. These females *Kansei* stimulation will approach an understanding of wearing traditional clothes in a pleasure way. It might be assumed that clothes design that relates with a feeling will trigger a continuity and loyalty of using the traditional clothes product for a long term.

Female's sensibility and clothes interaction is a process of forming a bodily and social relationship. This relation emphasized the action between the usability of the clothes within the individual needs and the society. The relationships that females *Kansei* form with traditional clothes can be developed as part of design process. The on going stimulation will approach an understanding in design process and also the mental process in the clothes product. *Kansei*, it is found very communicative to tackle users in emotional way. *Kansei* design has the power of interpreting of user's emotion and feeling to create pleasure with products used. To illustrate the magnitude of interpersonal variations of demand in pleasurable and desired products, the variety factors from physiological and psychological factors should be taken in the future.

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