

main factors; 'luxuries feel' and 'sharpness', whereas 'stylishness' and 'lightness' were the main factors for the Thais.

Figure 2 shows the PCA scores of each adjective on the first and second principal component diagram. The horizontal axis describes the first principal component and the vertical axis the second principal component. We can easily find the common and/or different points of features between the two nations. For example, the distance between the two adjectives such as 'appealing' and 'fine-quality' is very close in both nationalities, but about 'bright' and 'strong', close among the Japanese, far among the Thais.

4. CONCLUSION AND FUTURE WORKS

The visual impression structure for front grills was surveyed by the SD method and analyzed by the PCA, and the results were compared between Japanese and Thais. We grasped that the structure has common and different points in the two nations. Also, some effects of the morphological feature to visual impression were found, for instance, the vertical length of a grill would affect 'stylishness'. After the survey, we designed new front grill for the Thais using computer graphics (CGs) based on these results in cooperation with a manufacturer and presented it at an exhibition of automobile parts in Bangkok. It received a high evaluation rate by Thai visitors.

We are still analyzing the SD data by gender, age, and a lifestyle of respondents. New results related to these attributes of consumers will be clear in near future. When the analysis is done, many front grill designs using CGs should be created to confirm the effect of each morphological feature. The results from the study will be useful for manufacturers to propose more attractive products that match the preferences of local consumers.

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