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論 文 要 旨

THESIS SUMMARY

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要旨（英文 800 語程度）
Thesis Summary（approx.800 English Words ）

Waste management has been concerned as one of social and environmental problems. Recycling bins are the most common and fundamental tools used to collect the waste. When the effective promotion, provision, and availability of appropriate recycling bins are achieved, it can significantly increase the participation levels in a recycling program and support its success. Preferred color, slot shape, slot position and arrangements of recycling bins are found by pairwise comparison method. The most preferred colors of recycling bins are red for combustible waste, black for incombustible waste, blue for can and white for pet bottles, respectively. The most preferred slot shapes are rectangle for combustible and incombustible, two circles for PET bottle and can, respectively. People preferred combustible waste container on the left side and incombustible waste container in the next position. Recyclable wastes (PET bottle and can) containers on the right side are also preferred. Appropriate design and arrangement of recycling bins might be able to encourage users to separate wastes psychologically. The highly preferred colors were consistent with frequently used colors in slot frame for combustible and incombustible waste bins, and body colors for PET bottle bins. In addition, there was a statistically significant correlation between color preferences and color usage rates. It is proposed that color used in certain item is so impressive that it affects color preference. Design preferences toward different red-colored recycling bins supports this hypothesis. In the case of insert slot shape, good agreements were also found between frequently used slot shapes and highly preferred shapes. Larger and angular shapes were preferred for combustible and incombustible waste bins. On the other hand, rounded shapes were popular for PET bottle/can bins. A significant correlation was also found for insert slot position between position preferences and slot position rates. According to significant correlation between design preferences and design usage rate in real recycling bins, this study proposes that design preference toward recycling bins is affected by

past perceptions of recycling bin designs.

The results from web-questionnaires suggest the botheration of bring waste to the recycling bin will increase with physical distance, the results from the on-site experiments didn't show significant difference of collected waste with the botheration. The small difference between physical distances may generate non-negligible botheration change. In addition, the setting location on the walking path can eliminate the botheration and the effect of only impressive color (color used in insert slot) was too weak to improve waste separation. To encourage waste sorting using designed recycling bins, combination of modified design items is necessary. This study found that the effect of recycling bin setting conditions, which were single setting or commingled setting, were larger than those of design effect. Commingled setting decreased recycling contamination significantly but gave no effect on cap removal. In addition, this study found that design effect depended on setting condition of recycling bin. When the PET bottle bin was set together with other recycling bins, signage and all-in-one design significantly promoted cap removal action. Lower recycling contamination of all-in-one design bins is contrast to higher perceptive preference toward separated design. On the other hand, signage gave no significant effect on recycling contamination under “together” setting condition. However, it gave significant effect on recycling contamination under “alone” setting when large size wording in the front of recycling bins is considered as signage. Inside-visible design gave no significant effect on both cap removal and recycling contamination regardless of setting condition. The effect of past experience on human behavior are limited during the firework events, From the successful experience of Kanazawa and Kamakura firework events, the suitable recycling bins are required to designed with large capacity to manage the large amount of waste generated in a short time. In addition, proper setting location (on the walking pass) based on the surrounding environmental can effective improve the human behavior (waste collection). The volunteer around the recycling bins strongly effect on the waste separation behavior. Based on the theory of planned theory, individual in Japanese culture pay more attention to expectation from significant others in order to maintain good harmony with others.

In our daily life, to encourage waste sorting using designed recycling bins, combination of modified design items is necessary and intensive usage of designed recycling bins for frequent perception opportunities recommended to support sufficient design preference. In addition, use the design associate with the waste

items is also recommended. In the specific situation, to encourage the waste sorting using designed recycling bins. design items should be reconsidered according the surrounding environment. The setting location of recycling bin is important in the two social environments (daily life and firework events). Proper setting location based on the surrounding environmental can effective improve the human behavior (waste collection).

備考 ： 論文要旨は、和文 2000 字と英文 300 語を 1 部ずつ提出するか、もしくは英文 800 語を 1 部提出してください。
Note : Thesis Summary should be submitted in either a copy of 2000 Japanese Characters and 300 Words (English) or 1copy of 800 Words (English).

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