DATA HANDLING FOR CONSUMER PERSONALITY SEGMENTATION

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INTRODUCTION

- Personality traits can be used to classify consumers into groups and explain underlying principles of consumption patterns and product preference[1].

- The "Big-5" is one of personality trait theories used to describe personality in a five-dimension[2].

-Application of Big 5 factors for segmentation should be used with caution because the factors are computed from numerous items.

OBJECTIVE

- To suggest the most appropriate data handling for personality classification by comparing data handling methods using a) the original vs computed variables, b) standardized vs un-standardized scores, and c) two clustering methods.

MATERIALS AND METHODS

Respondents: 976 respondents

Questionnaire: Big Five Inventory on 5-pt scale [3]

Data preparation: The responses (44 variables-FFV) were averaged within each personality category and presented as five-factor scores (FFS). Scores were standardized for additional analysis.

Data analysis: (1) Ward's clustering methods using SAS® (2) K-means clustering methods using XLSTAT and (3) PCA using Unscrambler®.

RESULTS AND DISCUSSION

Clster analysis results generated from standardized and unstandardized variables

-Participants were classified in the same group whether the data were standardized or un-standardized. (Fig. 1 and 2).

A comparison of clustering methods for personality segmentation

-K-means clustering methods tended to discriminate personality patterns better

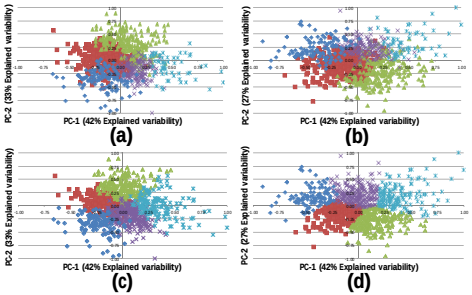

Fig. 1. The PC plots of 5-personality items (FFS): (a) standardized and (b) unstandardized data by Ward's clustering method; (c) standardized and (d) unstandardized data by k-means clustering method

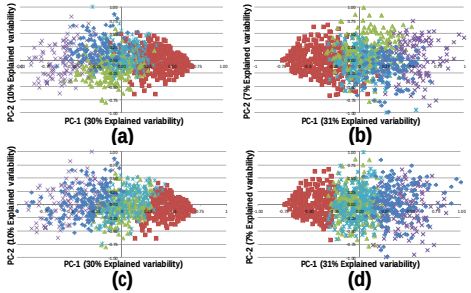

Fig. 2. The PC plots of 44-personality items (FFV): (a) standardized and (b) unstandardized data by Ward's clustering method; (c) standardized and (d) unstandardized data by k-means clustering method

A comparison of cluster analysis results generated from FFV and FFS

-Both clustering methods provided similar results for classifying FFS (Fig. 3 and 4).

-Utilizing FFV for personality classification provided a personality group differing from the other groups for both clustering methods (Figs. 5 and 6).

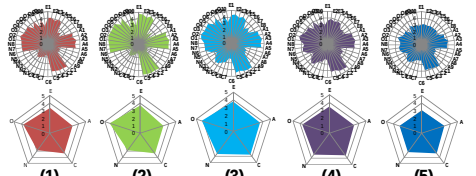

Fig. 3. Personality patterns of 5-personality items (FFS) classified by Ward's clustering method

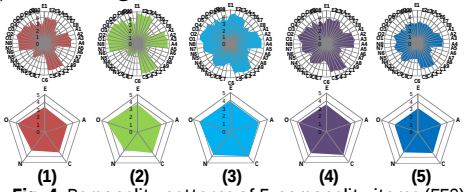

Fig. 4. Personality patterns of 5-personality items (FFS) classified by k-means clustering method

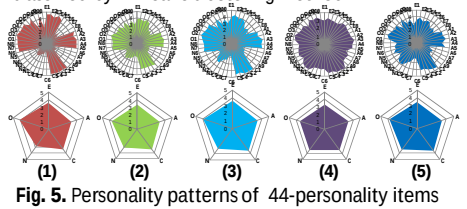

Fig. 5. Personality patterns of 44-personality items (FFV) classified by ward's clustering method

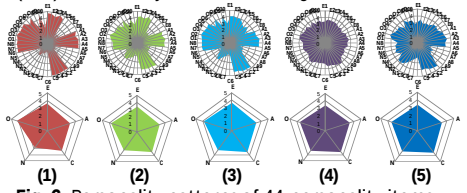

Fig. 6. Personality patterns of 44-personality items (FFV) classified by k-means clustering method

CONCLUSIONS

- Data standardization is not necessary for data set

-The 44 personality items were widely distributed throughout the map and easier to separate respondents into groups.

- The K-means clustering method appeared to provide a slightly better classification than Ward's clustering method but that may be due to the large data set. Overall, the methods were similar.

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