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# Effect of the Correlational Attributes on Mere Exposure in Concept Formation

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This study examined the effect that correlational attributes that promote concept formation gives to mere exposure effect for prototypes.

Using the mere exposure (*e.g.*, Zajonc, 1968) and the concept formation paradigms (*e.g.*, Barsalou *et al.*, 1999), Matsuda and Kusumi (2002, 2003) elucidated three points concerning. First, it was found out that concept formation with repeated exposure builds a prototype and is based on specific events. Second, prototypical stimuli that integrate the dimensions of each individual case are preferred if the value of that dimension is weighted. Third, the prototype of the concept exists independently of exact exemplars.

In those studies, Matsuda and Kusumi used the same combination of values for each dimension in their experiment's study phase. However, given the importance of correlational attributes in concept formation (McRae *et al.*, 1999; Wattenmaker, 1993), the investigation of this effect is warranted. In order to examine whether the correlational attributes increase the mere exposure effect or not, in this study, the unit of repetitive presentation was changed from an image unit to a dimension unit.

## Method

**Design** A 3 (typicality of stimuli: high, medium, low) × 4 (exposure frequency: 0, 1, 3, 5 times) factorial design with two within-subject variables was used.

**Participants** Fifty Japanese university students.

**Material** Pictures of unfamiliar fish based on Barsalou *et al.* (1999). The pictures were classified into types A and B. All the stimuli consisted of 10 dimensions (D1~D10). All the stimuli shared D7~D10. The shared dimensions determined the typicality of the independent variables. Highly typical stimuli shared D3~D10, medium ones shared D5~D10, and low ones shared D7~D10. Non-shared dimensions had an original value. The between-category distracters were filler stimuli constituted of both types A and B.

**Procedure** The participants studied the pictures of unfamiliar fish, which consisted of 10 dimensions, 0, 1, 3, or 5 times, and formed a concept based on classifying the fish into one of two groups (A or B). Each stimulus was displayed for 7 sec with a response time of 2 sec, a feedback time of 1 sec, and an interstimulus interval (ISI) of 1 sec. After an interval of 5 min, the participants judged typicality, familiarity, likeability, prettiness, and nostalgia incited by each picture using a nine-point scale, and reported whether they recognized the items as new or old (*i.e.*, whether or not they had been previously presented).

## Results and Discussion

**Typicality and Recognition Judgments** In judgments about typicality and recognition, main effects of 'stimuli typicality' and 'exposure frequency' were significant but no significant interactions were obtained. The results suggest that a

prototype constituted of characteristics of each individual exemplar was generated. It seems that conceptual structure fits the prototype model better than the exemplar model (Figures 1A, 1B).

**Familiarity and Liking Judgments** In these judgments, the main effects of 'stimuli typicality', 'exposure frequency' as well as the interaction effects were not significant. This result suggests the intervention of correlational attributes in both criteria (Figures 1C, 1D).

## Conclusion

First, the exact memory of an exemplar is necessary to incite a feeling of knowing for prototypes. That is to say, the prototype model alone does not express the concept; instead, the concept is represented by individual exemplars surrounding the prototype. Second, liking occurs by familiarity and feeling of knowing towards typical individuals.

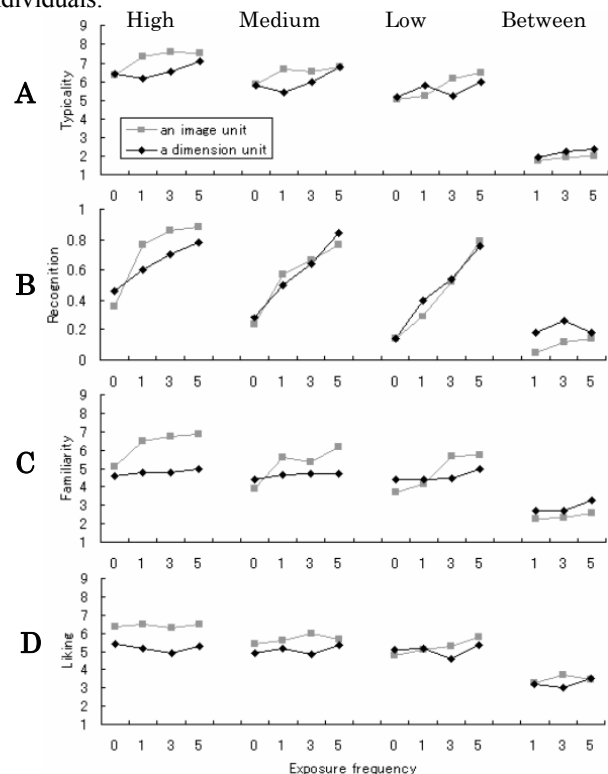


Figure 1 Judgments scores

## References

Matsuda, K. & Kusumi, T. (2002). The mere exposure effect in concept formation. Poster presented at 43rd ANNUAL MEETING of the PSYCHONOMIC SOCIETY, Kansas City.