A Direction to Change Craftsmen’ Creative Cognition

The use of highly metaphorical words

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Abstract: Many experts realized that creativity and design training delivery to traditional craftsmen often encounters difficulties in breaking the genuine beliefs of craftsmen. Besides holding a strong conservatism, it appeared the old age was also a factor that contribute to cognitive fixedness [1]. As latest research on capturing in-depth cognitive levels of craftsmen ascertain the cognitive fixedness [2]. Why cognitive fixedness still occurred still during a design training is still unclear. There were number of studies has discovered how rich metaphorical words may enhance creative design solutions [3,4]. However, those studies employed only to college students with young age as the subjects. Therefore, we studied mastercraftsperson with old age to be our participants to understand whether cognitive fixedness can be changed.

1. Introduction

Many experts realized that creativity and design training delivery to traditional craftsmen often encounters difficulties in breaking the genuine beliefs of craftsmen. Besides holding a strong conservatism, it appeared the old age was also a factor that contribute to cognitive fixedness [1]. As latest research on capturing in-depth cognitive levels of craftsmen ascertain the cognitive fixedness [2]. Why cognitive fixedness still occurred still during a design training is still unclear. There were number of studies has discovered how rich metaphorical words may enhance creative design solutions [3,4]. However, those studies employed only to college students with young age as the subjects. Therefore, we studied mastercraftsperson with old age to be our participants to understand whether cognitive fixedness can be changed.

2. Purpose of Research

We aimed to change the cognitive fixedness of craftsmen by employing a highly metaphorical words as a new way of giving direction during concept generation in design training.

3. Research Method and Experimental Design

3.1 Participants

Ten subjects from two craft villages in Indonesia to participate in these experiments. They ranged in age from 43 to 61 years. Each of the ten craftsmen were known as master craftspeople who possess special skills in artistry in bamboo and rattan.

3.2 Procedure

The experiment was a single design task particularly during concept generation to imagine designing an artifact that they were accustomed to. Two directions were employed consecutively, where Direction A (a traditional way) was direction focusing on the imagined-object property without using highly metaphorical words which intended to confirm the presence of craftsmen’ cognitive fixedness. Direction B (a new way) was a direction to observe beyond the imagined object by using highly metaphorical words to change craftsmen’ cognitive fixedness. The procedures comprised as follows:

a. Direction A (a traditional way)

This direction was set up to lead participants having a closer look to the imagined object. Here, design trainer applied a traditional way of creative process by guiding participants to be critical to properties and attributes of the imagined object. The discussion straight to the point of deforming or breaking familiarity of the shape to be unconventional.

Instruction: “Please imagine designing of a new design artifact of fruit container/divider/easy chair”.

b. Direction B (a new way)

Direction B attempted to brought participants looking in the distance of the imagined object using highly metaphorical words. Design trainers carefully selected utterances in the discussion-like situation that continuously distracted their attention from the properties and attributes of the artifact. Thus, to lead to observe the presence of surroundings issues such as companion, users, and scenes.

Instruction: “Please imagine designing of a new design artifact that satisfy the user/users”.

No time limits were imposed on participants during the experiment with Direction A and Direction B. On average, participants took about 7 minutes to verbalize their thoughts. All data were transcribed and sorted based on grammatical rules consisted solely of nouns, adjectives, adverbs, and verbs. We omitted other less relevant explanations. Next, all sorted verbal data were generated using the associative concept dictionary (University of South Florida Free Association Norms database (USF-FAN)[5] to obtain number of associative concepts derived from the two directions.

4. Results

4.1 Direction A.

Under Direction A, participants attempted to break their familiarity to properties and attributes of the object. However, participants, still, attached their creative cognition by simply modifying what they were accustomed to, which were line, shape, form and volume. Followings were Participants’ most frequent verbalized thoughts that expressed over 4 times by all participants (followed by number of associative concepts): joinery(0), export(0), centimeter(1), bamboo(1), rattan(1), quantity(4), profit(5), flip(7), curve(9), frame(10), mass(12), fit(17), container(18), size(25), lift(26), Piece(30), Buy(34), chair(39), box(55), top(65), color(74), small(117).

Their verbalized thoughts tended to place larger focus on product appearance and technical aspects, such as operation (flip, lift, etc.) and shape (box, size, etc.) where those words activated low number of associative concepts (see, Figure 1).
4.2 Direction B.

During the Direction B, Design Trainer was directing an open discussion, such as; When was this used?, When did people look for it?, Who needs this?, Where were they?, What was around?, Who was around?, and so forth. Participants distracted their attention from the properties and attributes of the imagined object as represented non-object property related words. Eight over ten participants’ most frequent verbalized thoughts (over 4 times) that evoked corresponding to highly metaphoric words were as follows (followed by number of associative concepts):

- scenery(3), cheer(5), neighborhood(9), fresh(15), Container(18), morning(28), kid(34), young(39), mother(48), night(55), family(56), day(67), open(70), room(79), space(83), play(95), tree(107), old(112), friend(114), green(125), hard(144), time(186).

Those words shown that participants gave more attention to the presence of issues related to surroundings, such as users (family, mother, etc.), and scene (tree, room, space, etc). Those words activated high number of associative concepts (See, Figure 3).

5. Conclusion

Corresponding to the Direction A (the traditional way), all participants still found to be attached to think the properties and attributes of imagined object. All participants were verbalizing the same issues of imagined object appearances. The number of generated associative concepts obtained were also lower compare to associative concepts generated from Direction B. This confirmed the presence of cognitive fixedness to craftsmen where they were uneasy detach from properties of imagined object.

During the Direction B (the new way), the highly metaphorical feature as the direction has significantly distracted them from the issues of properties and attributes of imagined object, instead of the presence of the issues related to surroundings. Eight over ten participants verbalized several words frequently (expressed over 4 times) which generated higher number of associative concepts. This means a highly metaphorical words used in Direction B (the new way) significantly change their cognitive fixedness.

We still need to find out why two over ten participants were unaffected to the highly metaphorical words as direction to change craftsmen' cognitive fixedness. In the future we will extend our research to develop a proper design training program that may change craftsmen' creative cognition.

References


