Co-Creation Model for Traditional Artisans in the Current Creative Environment

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ABSTRACT
Our goal was to develop a co-creation model that might empower cognitive fixedness of traditional artisans. First, we studied two prior studies on cognitive modeling; Study (a) demonstrated that abilities to capture and utilize stimuli during extreme levels of cognitive fixedness may lead to unconventional ways of thinking, thus, it requires participatory works. Likewise, Study (b) explained a cognitive modelling of creative knowledge work also requires various actors contribute knowledge facilitated by the participatory support system. Next, a model of Study (b) was adapted by considering experiences from Study (a). This result may serve as the basis for the development of co-creation model. Ultimately, this adapted model hopes to be a co-creation model of creative knowledge work that applicable in design training program for traditional artisans to overcome their cognitive fixedness.

Author Keywords
Creativity; Cognitive Fixedness; Co-Creation; Artisan, Designer; Craft Design Training.

ACM Classification Keywords
J.m. Computer Applications: Miscellaneous

General Terms
Design.

1. INTRODUCTION
Cornock and Edmonds (1970) proposed that the term "art system" should be used, rather than the more common term, "artwork." They believed "art systems" embraced all participating entities, including viewers [2]. This term was their vision of today's interactive digital technology that might promote co-creation or co-creativity experiences.

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1.1 Co-Creation
Co-creation emphasizes the generation of mutual value with other contributor coming "on stage" to be seen as an active and knowledgeable participant for the purpose of attaining value [7]. Co-creation are examples of naturally-maintained activities performed in traditional societies. Traditional creative workers in developing countries, who continue to preserve and use their native creative know-how are likely less considered to be engaged in this particular issue [6]. Whereas, these societies support cultures that rely on collectivity and solidarity in their daily lives. One example of ancient creative co-creation is an old Asian rod puppet show entitled "Wayang Golek." In this show, the story's spontaneous flow relies on viewers' responses and moods. This is a true example of native know-how that involves creative co-creation based on human-to-human interactions. Many other examples are available.

1.2 Traditional Artisans and Cognitive Fixedness
Our recent study demonstrated that artisans' ability to capture and utilize stimuli during extreme levels of cognitive fixedness might lead to unconventional ways of thinking [4, 5]. However, empowering this cognitive fixedness is definitely not a standalone activity. In the case of our previous research, traditional artisans may reach unconventional ideas with role of design trainers in giving clue and direction. This system requires contributors to succeed. Therefore, this study will consider the use of cognitive modelling of creative knowledge work that suggest the important role of contributors [1].

2. AIM
This study aims to develop a co-creation model that might empowering traditional artisans' cognitive fixedness. In the future it might be a ground basis to develop a groupware that can be utilized in design training.

3. METHOD
We studied two prior studies on cognitive modelling:
a. A study on empowering cognitive fixedness [5].
b. A cognitive modelling of creative knowledge work [1].

A model of Study (b) was adapted by considering experiences from Study (a) to develop a co-creation model for traditional artisans.

4. ANALYSIS

4.1 Empowering Cognitive Fixedness (Study (a))

We observed several stages of idea generation during an experiment which artisans generated ideas for new design of traditional wooden sandals (see, Fig. 1). During the first stage, artisans were challenged to generate ideas at extreme levels based on their prior knowledge. We examined their conceptual sketches and verbalized thoughts to obtain stimuli (stimulating keywords). Interestingly, the stimuli, *painful*, *broken,* and *upside-down,* did not match their fundamental knowledge and conceptions of sandals related to criteria, "continuity" and "appropriateness." During the second stage, the artisans redeveloped previous ideas by employing stimulating keywords. Finally, design trainers evaluated transformations that occurred during idea generation. The experiment demonstrated that the ability to capture and utilize stimuli during extreme levels of cognitive fixedness might lead to unconventional ways of thinking.

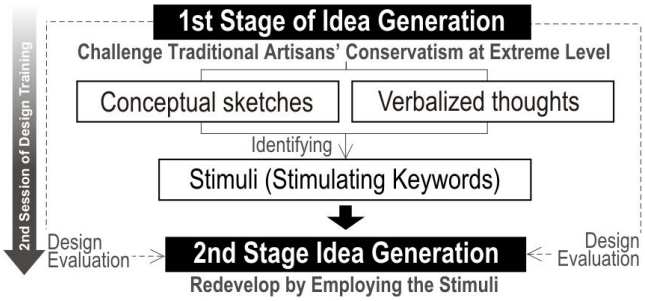

Figure 1. Study (a) Prior study on empowering cognitive fixedness

Artisans' conceptual sketches during the first stage revealed that they had taken a completely different direction. The features of extreme conservatism were complex-decorative. In contrast, the features of extreme unconventionalism were minimum-attribute. However, during the second stage of idea generation, evaluations by design trainers revealed that artisans' conceptual sketches had become increasingly unconventional. They yielded some potential accents that looked promising for realization. The artisans became a bit more flexible in heel size composition, direction, and orientation. In fact, they did not become awkward as they deformed the basic structure of the sandal (see, Fig 2).

We realized that artisans apparently were motivated to transform their fundamental comprehension when they engaged in extreme levels of conservatism. Ultimately, this experiment demonstrated that, in all likelihood, when artisans' conservatism is pushed to extreme levels, they will become more unconventional during their creative activities.

This design experiment demonstrated that true co-creativity support existed between design trainers and traditional artisans as participants. As mentioned above, co-creativity is not a new issue for traditional people. Ethnographers have stated that native know-how is often collectively referred to as the accumulated cognitive and perceptive experiences of interactions that occur among a group of people [3]. However, contributions is required to create circumstances that challenge cognitive fixedness.

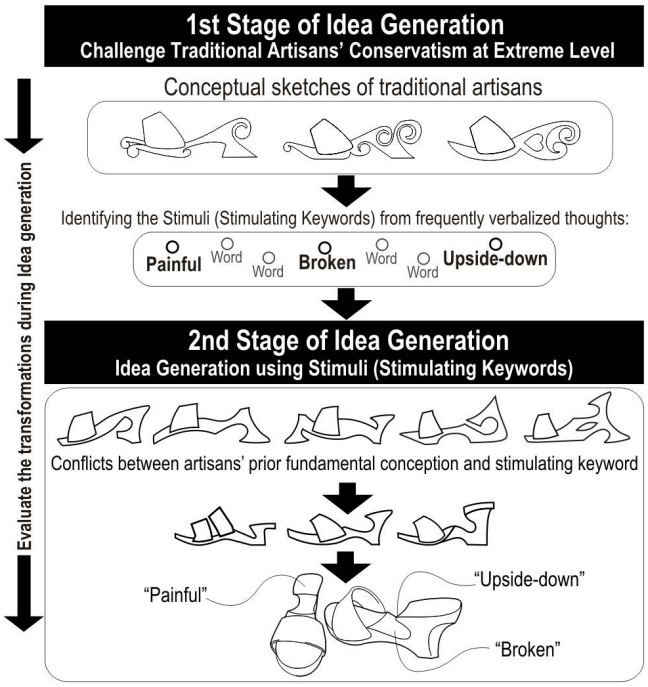

Figure 2. Design Experiments from Study (a)

This study also demonstrated, abilities to capture and utilize stimuli during extreme levels of cognitive fixedness after all requires participatory works. Contributors, such as, designers, users, buyers and others would help to push them to enter extreme levels of their prior knowledge. Therefore, a model is necessary to create circumstances that allow empowering cognitive fixedness happen.

4.2 Cognitive Modelling of Creative Knowledge Work (Study (b))

Candy's model (1999) of cognitive modelling of creative knowledge work describes the model of the main process involved in interactive systems designed to support co-creation It is based on three primary activities that occur during the creative process: problem reframing (constraints and requirements), idea generation (generation and exploration), and evaluation (test). These creative activities combine with a set of Contributors to become essential parts of an interactive system designed to support co-creation. The Contributors are referred to as Knowledge Contributors. They are involved and contributed, directly or indirectly, during the creative process. Knowledge contributors can be divided into three knowledge categories

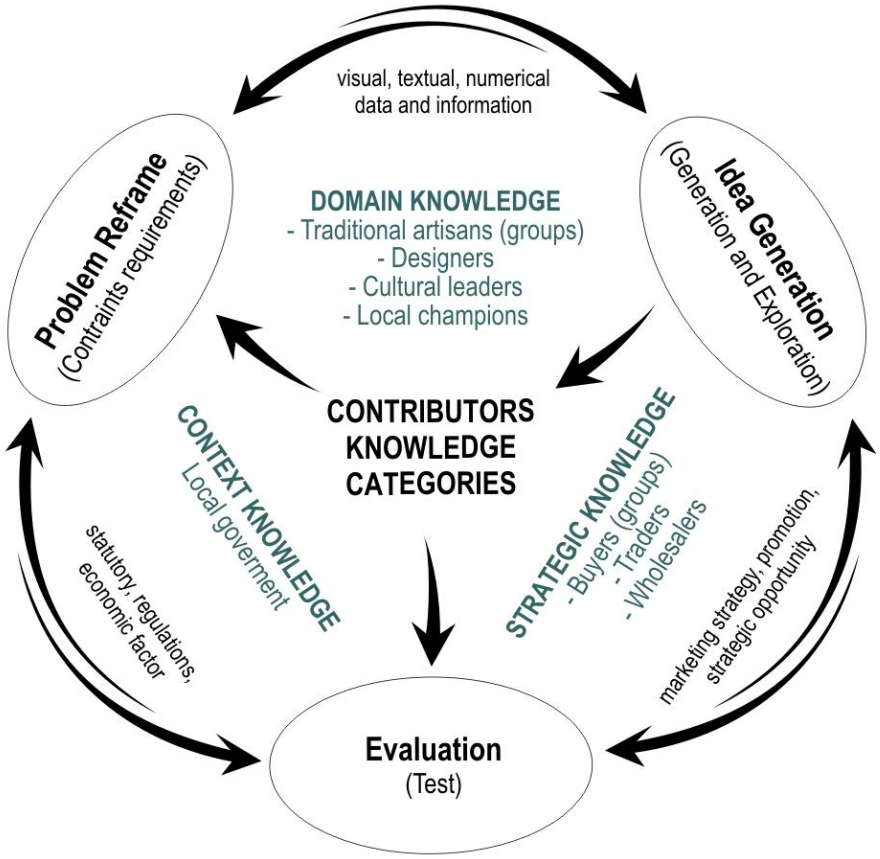

Figure 3. Co-creation model for traditional artisans that empowering cognitive fixedness, (modified from Cognitive Modelling of Creative Knowledge Work for Interaction Design Criteria (Candy, 1999)).

(actors), *Domain Knowledge, Context Knowledge,* and *Strategic Knowledge.* We realized that actors contributed in these three knowledge may provide circumstances that allowing the unconventional ways of thinking happens. For example, a role to challenge cognitive fixedness of artisans would be ideal through the contribution of the users or buyers. The contributors have capacity and are based on the same desire with artisans to obtain good and desirable artifacts. Thus, the contributors will share their insights to challenge artisans' cognitive fixedness.

Candy's model (1999) indirectly brought a nature of mutual work of creative knowledge work. Knowledge contributors are the actors that co-create in obtaining a result that meets users' preferences. This is a knowledge distribution with common goal of getting a satisfactory result to everyone who participated. Contributor from *Domain Knowledge* is one who competent about local or design knowledge that applies to a particular product area. Contributor from *Context Knowledge* is one who competent about statutory regulations, organizational, macro/micro economics. Furthermore, Contributor from *Strategic Knowledge* is one who competent about "knowledge about knowledge", it includes users characteristic, marketing strategy, cost efficiency, etc.

4. DISCUSSION

We discovered on Study (a) that the obtained stimuli of artisans during extreme levels of cognitive fixedness were much assisted with the direction from design trainers. The stimuli that might lead to unconventional ways of thinking were likely still hidden and unexplored, and were not easily recognized by artisans. According to Candy's model (1999), it describes the creative activities which combined with a set of Contributors to become essential in this interactive system designed to support co-creation. The Contributors are referred to as Knowledge Contributors. They are involved and contributed, directly or indirectly. Knowledge Contributors are Actors. All actors contribute knowledge facilitated by the participatory support system that allows actors to contribute to and co-create during the creative process. Knowledge Contributors can be divided into three knowledge categories (actors) as follows:

Domain knowledge is specialist design knowledge that applies to a particular product area or design field. It may takes the form of visual, textual, numerical data, etc. It comprised of traditional artisans- as- a- group (not as individuals), designers, local champions and cultural leaders. In an example of a design training delivery, the role of domain knowledge of designers may be enhanced by role

of strategic knowledge, such as users and buyers. These actors play important role to lead indirectly to challenge artisans to access extreme levels of cognitive fixedness.

Context knowledge is knowledge that affects the way the domain knowledge is applied, derived from statutory regulations, organisational, macro/micro economics. The actors are local government. It may also provides access to trends and promotion related to strategic opportunities for the local community.

Strategic knowledge, which is knowledge about knowledge and how and when to apply it. It includes marketing strategy, cost eficiency, etc. Strategic knowledge contributes in building and opening new opportunity apart from regular design activities. Users, buyers, traders, wholesalers who possess sufficient knowledge of markets and cost factors may share information during the creative process. In related to our aim to develop a co-creation model that might empowering traditional artisans' cognitive fixedness. Actors from Strategic knowledge; users, buyers, traders, and wholesalers (as the targeted recipient) play important role to lead directly or indirectly to challenge cognitive fixedness. This challenge is a natural role of the actors from strategic knowledge.

These interactions inform every aspect of the culture of participation that is permeated by co-creation and co-creativity (See, Fig. 3). Therefore, the utilization of cognitive fixedness as the basis for the development of a creative support system will not succeed unless significant attention paid to the nature of co-creation. If we take a closer look, development of a new concept is not the work of a few individuals who spend most of their time in intense experimentation.. This type of system must avoid individualism and competition. It must allow all individuals in a group to participate and join in collective generation of ideas. Therefore, to successfully develop a system or application that empower traditional artisans' cognitive fixedness, we suggest that serious consideration be given to the involvement of knowledge contributors. This study showed that cognitive fixedness based on traditional viewpoints may be redirected by natural involvement of knowledge contributors that always in the position to challenge.

Ultimately, to create a system that allow co-creation for traditional artisans to overcome their cognitive fixedness, we propose a co-creation model of creative knowledge work that applicable in a design training. The main characteristic of the co-creation design training is bringing together the three knowledge contributors (artisans, buyers/users and official local government) to contribute their competency in design training.

6. CONCLUSION

A co-creation design training for traditional artisans that addressed to overcome the cognitive fixedness must involve knowledge contributors as both the input to and output of activities. These forms of knowledge are inputs and outputs that will contribute to the success of the program. In the future, it is necessary to extend and develop this research to create a complete framework of a groupware that can be utilized in design training.

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