Creativity of Language based Design Generation of Game Graphic

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ABSTRACT

This paper examines the effect of related search word stimuli in the process of design generation. In the process of design generation, words are given as stimuli. Especially through Wonderwheel, service of Google, related search words are given by 5 levels. Google search is based on the collaboration philosophy. People's participation and contribution recreate knowledge and information, so these renewed and related search words update in real time by people used as stimuli. Two problems with related search words are given to participants. After the design concept generation the results are analyzed by the usage of related search words and those of frequency, and creativity. These are the results of the research.

1) It is an important feature that higher levels words were more found in completed and creative ideas than lower levels.
2) It is found that the usage of multi words and conjunction with higher levels and lower levels words are observed in creative results.
3) As a result, in the process of design generation usage of related search words is effective, especially in using of multi words and higher levels words.

I. Introduction

This research aims to improve creativity in design generation by using words, particularly from Google’s related search words, as stimuli. So I investigate the effect through two experiments. After the design generation the results are analyzed by the usage of related search words and those of frequency, and creativity. In section 2, I describe wonderwheel model used as a tool in the experiments which is related to Google’s related search word. Section 3 describe experiments, and section 4 presents analysis method and experimental evaluation of the result.

II. Research method

2.1 Wonderwheel

In the process of design reasoning, words play an important role. Words lend themselves to play in relation to other words like association, and contribute in mind as the flow of consciousness. In the design concept generation the major advantage of using words is that there is no fixation to a specific shape or form possible. Other researchers also recognize the importance of using words to the design and have studied the words based creative concept generation.

Chui and Shu investigated how designers use verbs
as stimuli in a wordnet hierarchy, and resulted that using transitive verbs tended to result successful and complete concepts[1].

Lui et al represented a divergent and convergent idea generation process model and proposed that word stimuli enhance this process[2]

In this research, Google’s related search words are used as stimuli. There is Wonderwheel service in Google which shows the related search words like the form of mindmap. Fig. 1 shows the result and it is easy to search other related search words.

![Fig. 1. Wonderwheel.](image)

III. Experiments

3.1 Description of problems

40 game producer students participate in two experiments. Participants are enrolled in a design course at the time of this experiment. Two problems are given to them. First one is ‘chalk soldier of board world’ and second one is ‘madam player in community Olympic’.

3.2 Description of related search word stimuli sets

Two problems are given with related search words which are searched by 5 levels through Wonderwheel. Fig. 2 and Fig. 3 show the word level hierarchy. In the first problem, word ‘soldier’ and ‘board’ are searched, and in the second problem, the word ‘Olympic’ and ‘madam’ are searched through Wonderwheel. Each problem set consists of 24 stimuli which allow multiple words from different levels but stimuli are not shown in hierarchy. Participants are asked to use stimuli provided if they want. And they also asked to generate their concepts first in words and second in sketches within the allotted time.

![Fig. 2. Hierarchy of related search words](image)

![Fig. 3. Hierarchy of related search word](image)