An Idea Generation Support Groupware with

Brain Writing Functions

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In this thesis, we propose our research to support idea generation with computer system. Creative thinking process of human is located the most upward in problem solving process. Creative thinking process is divided into a process to generate fragments of ideas, called divergent thinking, and a process to arrange ideas, called convergent thinking.

To support creativity, there are many of methods for it. Among them, brainstorming is one of famous methods. In brainstorming, there are four rules which are 1) Don't criticize, 2) free, 3) quantity breeds quality, 4) combination and improvement. But, it has problems such that one loud member would hold the leadership so that the other members could hardly put their own ideas or depend on the loud leader.

There is a improved method of brainstorming, that is brain writing developed in Germany. It is also called "silent brainstorming", as the name says, participants write their ideas on sheets and go ahead by passing along with them. Because the members must generate three ideas within each five minutes, they have the equal chance of idea generation. Because other members' ideas are written on the sheets on their hands, they can stimulate their own creativity. But, this method has problems such that the number of ideas are limited within three, or they can refer to other members' ideas only on the sheets.

In this research, we've solved the problems of brainstorming and brain writing and added

some functions for computer system. Our tool has functions below:
- Display of the number of ideas
- An environment in which members can refer to the other's ideas freely
- Personal workspace

The function of display of ideas can display not only the number of the member's own ideas, but also that of the other's ideas. In the environment in which members can refer to the other's ideas freely, all members' idea are displayed as soon as it is entered. Members can refer to ideas that have overflown from the screen by using a scrollbar. Because we're afraid of occurring of criticism from a communication form such as the chat system, we designed the tool to display ideas as cards. In the personal workspace, the user promote his association by place ideas which're selected from all displayed ideas as expected to be evocative.

We adopted client/server architecture and developed our tool in Java. And then we evaluated the tool by comparing the number of generated ideas by using it in actual divergent thinking with one by brainstorming, and by brain writing. We examined progress of association from examinees' idea generation processes and also examined contents of ideas to check usability of each added function. Further we questioned examinees about usability of the tool. As a result, we became sure that the implemented tool had solved problems of brainstorming and brain writing, and added functions support creative processes efficiently.

In this thesis, we described the group creativity support tool that solved problems of conventional creative methods and promote divergent thinking with added functions. And then, we conducted experiments to evaluate the tool and proved it to be useful. As future works, we list further inspection of our tool's usability and integration with some convergent thinking tool.