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Research of the Brainstorming support System with Gamification Function

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In 21 century, in the knowledge creation area, the role which groupware plays is becoming large. Especially, The research on the brainstorming support system is studied in CSCW (Computer Supported Cooperative Work) as the creativity supportive tool. In order to realize the ideal brainstorming environment that supports creative activity, new brainstorming support system needs to be developed.

On the other hand, the use of game thinking and game mechanics in non-game contexts to engage users in solving problems, which called gamification, has been widely applied in our life. Gamification is used to improve user engagement, return on investment, data quality, timeliness, and learning. Gamification techniques strive to leverage people's natural desires for competition, achievement, status, self-expression, altruism, and closure. We considered that if gamification could be used for ideation, the structured brainstorming to produce new ideas. So, we designed and created the brainstorming support system with gamification function and evaluate the effect of gamification on the quantity and quality of brainstorming ideas.

The system consists of two main part functions. First of all, the system provides the basic function for gathering the participant's ideas. The other one is gamification function. It includes score, leaderboard, rank, and badge to give participant's feedback when they inputted their new ideas.

In the experiment, we compared the effects using the two separated systems. One is only with basic idea inputting function without gamification function. The other one has all functions including gamification function. The participant used both of the systems for a comparison. One group was formed with three persons, and was experimented by four groups in total. Considering the influence from the brainstorming theme, and sequence, we set two similar themes and changed the theme and sequence in each turn. We also wanted to evaluate the difference between personal competition and group competition. So we set another four groups, which was only calculated their total group scores for a group competition with other groups.

From evaluating the data from the experiment, it suggests that gamification functions had the effect of increasing quantity, fluency, flexibility, and originality of ideas. On the other hand, there was no difference in the effect of increasing quantity, fluency, flexibility, and originality of ideas between personal competition and group competition with gamification.

In a conclusion, gamification functions are helpful for creating more and better ideas in brainstorming.