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# 論文要旨

## THESIS SUMMARY

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申請学位 (専攻分野)：	博士	(工学)
Academic Degree Requested	Doctor of	(Engineering)
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### 要旨 (英文 800 語程度)

Thesis Summary (approx.800 English Words)

The requirement of creativity and working collaboratively in future jobs are arising. The concern on the connection between creativity and affective experience has proceeded from the individual level to the group level. This dissertation aims to investigate the relationship between affective experience and creative group work, particularly in a high educational learning context. This dissertation discusses the connection between affective states and creative performance, and the effect of creative work on affective state. Beside the important of finding the best affective state for creativity, we also need to consider of how to motivate people to think creatively, to do creative processes patiently, and to collaborate with parties willingly. Because innovation requires time and persistence. Motivation is the keys for long life creativity, while impression and memorable learning will be the fuel for motivation.

This dissertation included three studies conducted in creative group projects. The first examined how the affective aspects of group members correlated with the creative group performance of tasks. This empirical research collected data over the course of five class meetings during which the participating students accomplished the performance of seven tasks and shared their perceptions with regard to the affective state. The first study confirmed that affective state, especially the state of arousal, was positively related to the performance of divergent tasks. The results implied that medium-high arousal was the optimal state in which to accomplish divergent tasks in a group. A comfortable atmosphere may not be a prerequisite for the devising of fabulous, novel ideas if the group members are actively engaged and if they strive to share their thoughts. This insight may be used by teachers or managers to maintain a creative atmosphere in the classroom or the workplace. This study also revealed the need for leadership in creative group work. Although the result did not demonstrate a significant relationship between the emergent leader's function of managing group emotion and group performance, the emergence of leadership nevertheless facilitates the association of ideas in a creative group task.

The second study investigated how the ordering of divergent and convergent tasks during the creative process influences changes in the affective experience. Groups of students were each assigned to classes with different pairings of divergent and convergent tasks: either

convergent tasks in a series, a divergent task followed by a convergent task, a convergent task followed by a divergent task, or two divergent tasks performed in a series. The subjects' affective states were measured before and after each task, and valence and arousal levels were compared to derive changes in affect. The results presented two factors that may influence the affective experience in a group creative activity: the task type and the task order. The study results confirmed notion that divergent tasks swing affect to a positive level. This concept was shown not only in an ideation-like task (e.g., brainstorming), but also in prototyping tasks. Moreover, arousal emerged as one of the affective elements that increased by divergent thinking in group works. The changes in arousal were more evident than in valence. Meanwhile, this study showed less affect change in convergent tasks. The first task influenced affective experience more than the second task in most of the classes. This finding might indicate that the first process in a sequential creative task is the most potent time to awaken affective experience. It gives us a high opportunity to set affect to what extent we plan to. Nevertheless, divergent thinking has more flexibility to enhance the affective experience.

Following up on the second study, the third study investigated how the type and order of creative tasks may influence the affective states and group work satisfaction of people engaged in creative group work. Groups of participants performed two kinds of conventional creative tasks of divergent and convergent in two different orders. The affective states and group work satisfaction were measured repeatedly after each of the two tasks, thus the absolute score of affective experiences after task were compared between conditions. The results show that the convergent task produced a more positive effect on the affective state and group work satisfaction than did the divergent task. The second task induced a higher valence than the first task. The results of this study may imply that when designing creative group tasks in practice, we should pay attention to the order of the different tasks that will be conducted continuously. This study provides a better understanding of the design of creative group tasks to yield better affective experiences.

To conclude, in the study on affective experience and creative activities, creative group work differed from individual creative effort in relation to affects. The psychological state of arousal involved more in the group work. The different types of tasks and the orders should be considered in executing the creative processes in a group. This formulation can be the underpinning for further research related to affect and group creativity.

備考：論文要旨は、和文 2000 字と英文 300 語を 1 部ずつ提出するか、もしくは英文 800 語を 1 部提出してください。

Note: Thesis Summary should be submitted in either a copy of 2000 Japanese Characters and 300 Words (English) or 1 copy of 800 Words (English).

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