

# Mood Change Caused by ‘Active Art’ that Encourages Touching and Grasping Movements

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**Abstract:** The objectives of this study are to practice and evaluate a program that can be brought about through touching and grasping, with a focus on the psychological effect of ‘Active Art’. For the purposes of this study, ‘Active Art’ is defined as art works and art creations that encourage the movement to touch. The work program with ‘Active Art’ we created is ‘Let’s draw fireworks!’, by touching an electronic panel and squeezing a rubber air pump to create art works which can then be printed on postcards. The work brings about a desire to do more, and induces movement of touching, grasping and squeezing. I analysed ratings of the subjects’ mood by using a shortened version of POMS. The POMS measure of mood after ‘Let’s draw fireworks!’ stimulation revealed a reduction of ‘Tension – Anxiety’, ‘Depression – Dejection’, ‘Anger – Hostility’, ‘Fatigue’, and ‘Confusion’, and a maintenance of ‘Vigor’. Subjects’ mood after the program was confirmed to have improved significantly in comparison with their mood before the program.

**Keywords:** Active Art, Touching, Grasping, Mood, POMS

## 1. INTRODUCTION

Art galleries and museums are increasingly offering participatory art appreciation and art workshops where visitors can touch or create art themselves. It is thought that touching and creating art in addition to visually appreciating it can further stimulate people’s sensibility.

‘Active Art’ which encourages touching the art and participating in creation of art, stimulates sensibility by inducing self-expression. In this study, we define art works that encourage touching

and grasping art as 'Active Art'.

As a qualitative evaluation based on encouraging active movements such as participation in creation and visual effects by appreciating art works, we have studied how mood is affected by picture appreciation and painting activities and confirmed their effectiveness [Note 1,2]. The POMS measure of mood after appreciation of photographic images stimulation revealed a reduction of 'Tension – Anxiety', 'Depression – Dejection', 'Anger – Hostility', 'Vigor', 'Fatigue', and 'Confusion'. On the other hand, painting activities stimulation increased 'Vigor'. Subjects' mood after painting activities stimulation, compared with that before appreciation of photographic images stimulation, exhibited a continued reduction of 'Tension – Anxiety', 'Depression – Dejection', 'Anger – Hostility', 'Fatigue', and 'Confusion'.

Focusing on tactile perception, grasping and squeezing, the present study used the Profile of Mood States (POMS) to analyze the effect of the 'Let's draw fireworks!' program based on 'Active Art', which encourages movement such as touching a computer touch panel or squeezing a rubber air pump. POMS is a psychological evaluation approach with high reliability for measuring states of temporary mood and emotion and has been widely used to evaluate mood change in expression techniques and stress examination [Note 3-7]. Thus, it is appropriate for this study's measurement and analysis of mood change from specific stimulations. The program aims to improve patients' quality of life (QOL) during palliative care by both improving mood and maintaining physical function (rehabilitation) through touching and grasping.

## **2. OBJECTIVES**

This study evaluates changes in mood caused by operating the 'Let's draw fireworks!', a program based on 'Active Art', which stimulates actions such as touching a computer touch panel or grasping and squeezing a rubber air pump, with a focus on touching and grasping actions. Differences in mood between before and after the actions are compared by using a shortened version of POMS.

## **3. EVALUATION OF MOOD AFFECTED BY THE 'LET'S DRAW FIREWORKS!' PROGRAM BASED ON 'ACTIVE ART'**

### **3.1. Dates, Place, Subjects, and Investigation methods**

The experiment was conducted on August 2, 2013. in Laboratory B234 of the Building of the School of Art and Design, University of Tsukuba. The space was about 25 m<sup>2</sup> and quiet. The only equipment in the room was the 'Let's draw fireworks!' system. Subjects were 14 university students (male: 8, female: 6) between the ages of 19 and 43.

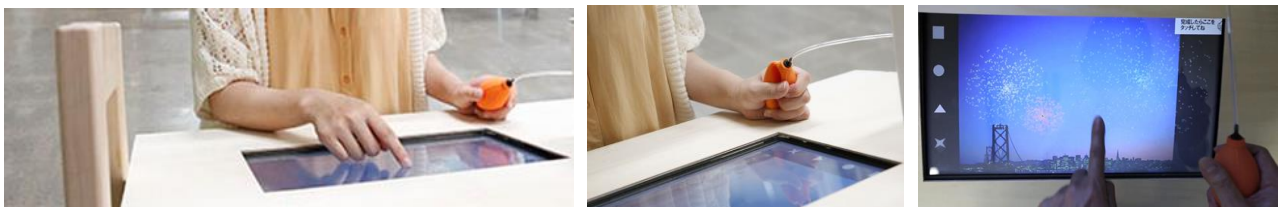
After operating the 'Let's draw fireworks!' program for 10 minutes, participants' mood before and after the activity were examined by using a shortened version of POMS. The results on T scores were obtained by gender and age group from the gross score based on six scales, i.e., 'Tension – Anxiety', 'Depression – Dejection', 'Anger – Hostility', 'Vigor', 'Fatigue', and 'Confusion' for 30 evaluation items in the shortened version of POMS.

### **3.2. Details of program**

Using a 15.6 inch desktop touch screen monitor for the computer touch panel screen, seven types of work screens were displayed in sequence by touching the screen: operating instructions,

selection of background, selection of firework pattern, creation of fireworks, and printing. A monitor embedded on the top (inclination of 15°) of a table with a width of 700 mm, depth of 500 mm, and height of 700 mm was set up to allow operation by a person seated on a chair that was 45 cm from the floor. On the creation screen, a firework appears and spreads at a position designated for its placement by the operator touching the screen before squeezing the rubber air pump. When a still image is displayed indicating completion of the work, that image can be printed out to create a picture postcard by selecting the “create a picture postcard” icon, and the screen returns to the first screen. If the operator selects the “do not print” icon, the screen directly returns to the first screen of the program. It is an interactive creative program capable of creating a landscape with fireworks by operations such as touching and grasping (Fig. 1, 2).

Seven participants were randomly assigned a task to create two sheets of picture postcards within 10 minutes and the other seven participants were assigned a task in which they did not create postcards. The time required for the experiment was approximately 15 minutes per person.



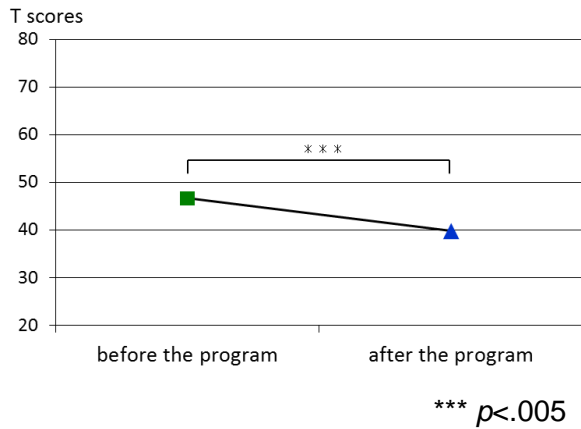
**Figure 1:** ‘Let’s draw fireworks!’ program



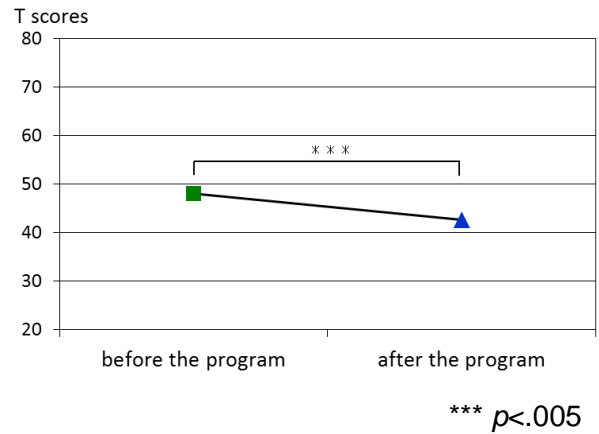
**Figure 2:** In Laboratory B234

### 3.3. Results

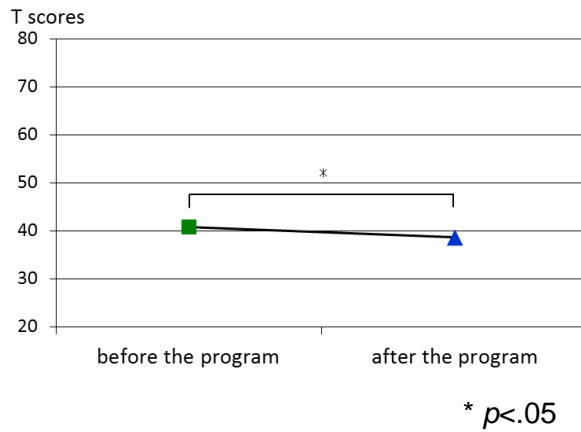
For the T scores based on the six scales of the shortened version of POMS, two-factor two-level analysis of variance was conducted for participants who performed the task creating picture postcards and those who performed the task without creating the postcards, both before and after operating the program. No interaction was observed.



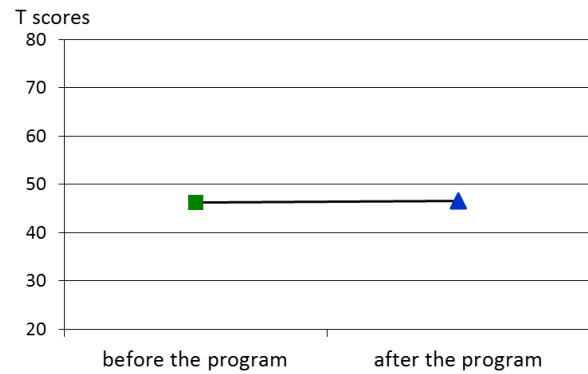
Tension – Anxiety



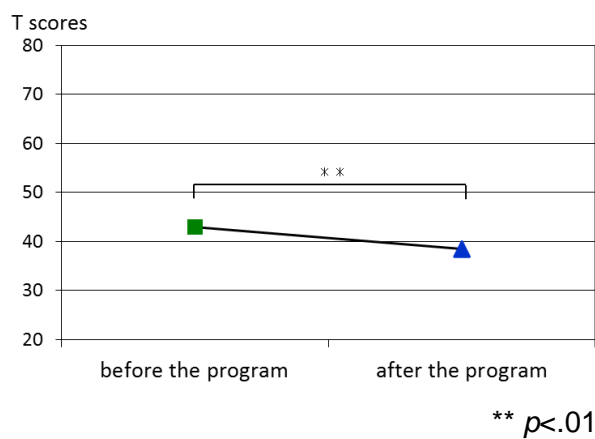
Depression – Dejection



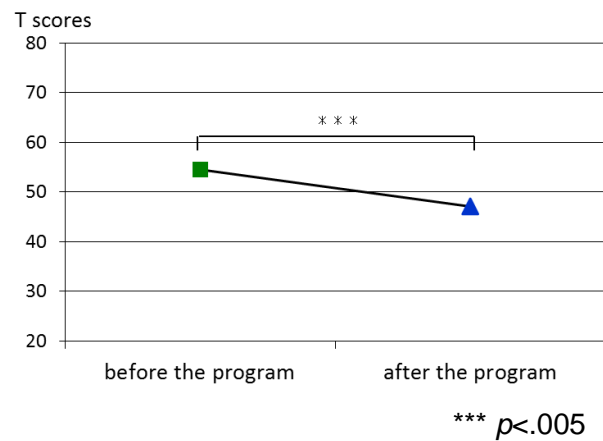
Anger – Hostility



Vigor



Fatigue



Confusion

**Figure 4:** The transition of T scores (POMS) before and after the 'Let's draw fireworks!' program operation

A significant difference was observed for T scores in 'Tension – Anxiety' ( $F(1,12)=17.80, P<.001$ ), 'Depression – Dejection' ( $F(1,12)=13.12, P<.004$ ), 'Anger – Hostility' ( $F(1,12)=6.70, P<.023$ ), 'Fatigue' ( $F(1,23)=9.84, P<.009$ ), and 'Confusion' ( $F(1,12)=11.91, P<.005$ ) scales between participants' states before and after operating the program. T scores in 'Tension – Anxiety', 'Depression – Dejection', 'Anger – Hostility', 'Fatigue', and 'Confusion' after implementation of the 'Let's draw fireworks!' program significantly decreased compared with those before operating the program. A significant difference was not observed in the 'Vigor' scale. In addition, a significant difference was not observed in the T scores of participants whose task involved creating picture postcards and those whose task did not involve creating picture postcards before and after program operation.

The transition of T scores on the six scales of the shortened version of POMS before and after the 'Let's draw fireworks!' program operation is shown in Fig. 4.

### 3.4. Discussion

Considering the results of mood evaluation from operating the 'Let's draw fireworks!' program, using the shortened version of POMS, we performed the following analysis.

T scores in 'Tension – Anxiety', 'Depression – Dejection', 'Anger – Hostility', 'Fatigue', and 'Confusion' scales on the POMS scales significantly decreased by operating the 'Let's draw fireworks!' program using Active Art to stimulate actions of touching a computer panel, grasping and squeezing a rubber air pump. A significant difference was not observed in the 'Vigor' scale. Therefore, these results mean that mood is improved when the 'Vigor' score is maintained and scores in 'Depression – Dejection', 'Anger – Hostility', 'Fatigue', and 'Confusion' are lowered by operating the 'Let's draw fireworks!' program that encourages touching and grasping. This result, it is possible to confirm previous study [Note 1,2].

The absence of any difference between the T scores of participants whose task involved creating picture postcards and those whose task did not involve creating picture postcards before and after program operation demonstrates that operating the 'Let's draw fireworks!' program improves mood regardless of the presence or absence of picture postcards as a work product. The results thus suggest that performing a creative task such as drawing pictures on a screen by stimulating the actions of touching and grasping may correlate with change in mood.

## 4. CONCLUSION

From the study's results, we evaluated mood affected by operating the 'Let's draw fireworks!' program that is based on 'Active Art'. These results mean that mood is improved when the 'Vigor' score is maintained and scores in 'Depression – Dejection', 'Anger – Hostility', 'Fatigue', and 'Confusion' are lowered by operating the 'Let's draw fireworks!' program. In addition, the results suggested that operating the 'Let's draw fireworks!' program improves mood regardless of whether picture postcards are obtained as a work product or not.

As a practical application, operation of an 'Active Art' program associated with mood change and stimulating actions such as touching and grasping may improve the mood of palliative care patients, their family, and medical staff, resulting in improvement in QOL during palliative care. In addition, the movement of touching and grasping are the movement of the basic occupational therapy. An 'Active Art' program is considered useful in maintaining patients' physical function (rehabilitation)

with the stimulation of such actions.

We intend to examine evaluations of patients' mood by implementing the 'Let's draw fireworks!' program in hospitals. The results in this research are effective for proposal to practice in hospitals. Further, we will attempt to clarify the effects of 'Active Art', which is physical function (rehabilitation) by stimulating a positive mood for "want to act more", for QOL improvement in palliative care for children.

## ACKNOWLEDGMENTS

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## BIOGRAPHY

Dr. Yoshioka obtained a Ph.D. in Design Science at the University of Tsukuba in 2011. She was a researcher of the University of Tsukuba in Japan from April 2011 to March 2014, and an associate professor of Meisei University from April 2014. Her research area is Affective Design which is interaction of Design Science with the Science of Art, Cognitive Science, Psychology and Ergonomics. In addition, she holds effective Art Workshops.