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Can the Intervention of SCAMPER Bring about Changes of Neural Activation While Taking Creativity Tasks?

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Abstract : Substitution, combination, modification, putting to other uses, elimination, and rearrangement (SCAMPER) has been regarded as an effective technique that provides a structured way to help people to produce creative ideas and solutions. Although some neuroscience studies regarding creativity training have been conducted, no study has focused on SCAMPER. This study therefore aimed at examining whether the learning of SCAMPER through video tutorials would result in alternations of neural activation. Thirty college students were randomly assigned to the experimental group or the control group. The experimental group was requested to watch SCAMPER videos, whereas the control group was asked to watch natural-scene videos which were regarded as neutral stimulating materials. Each participant was brain scanned in a Functional magnetic resonance imaging (fMRI) machine while undertaking a creativity test before and after watching the videos. Furthermore, a two-way ANOVA was used to analyze the interaction between groups (the experimental group; the control group) and tasks (C task; M task; X task). The results revealed that the left precuneus significantly activated in the interaction of groups and tasks, as well as in the main effect of group. Furthermore, compared with the control group, the experimental group had greater activation in the default mode network (left precuneus and left inferior parietal cortex) and the motor network (left postcentral gyrus and left supplementary area). The findings suggest that the SCAMPER training may facilitate creativity through the stimulation of the default mode network and the motor network.

Keywords : creativity, default mode network, neural activation, SCAMPER
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