Problem-solving Strategies that Distinguish Creative Artists

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Creativity in Visual Art

Artistic creativity is of considerable general interest, yet it has not often been studied by psychologists and remains a mysterious phenomenon. For instance, it is unclear how to rigorously characterize the psychological processes leading to creative artistic products, or the relation (if any) between such processes and the creativity of the final product.

One distinctive characteristic of highly creative artists may be that they have more effective problem solving strategies for creating original drawings than do their less creative peers. Such strategies have been explored to some extent in visual artists. Getzels and Csikszentmihalyi (1976) observed 31 college student artists creating original drawings. They found that artists who engaged in "problem finding" behaviors (e.g., handling more objects before drawing or including more abstract elements) produced more original drawings. They viewed problem finding processes as distinct from problem solving processes. However, this claim is controversial, as is the meaning of problem finding generally (Dudek and Côté, 1994).

The present study views the artistic process as goal-directed problem solving (Newell & Simon, 1972). In solving the problem of creating a satisfying drawing, an artist's subgoals can unfold in either a straightforward, pre-planned way, or in a more opportunistic way (Suwa, Gero, & Purcell, 1999). The purpose of the study is to examine artistic creation from a problem solving perspective and to examine closely the strategies that distinguish artists who produce very creative work from those who produce less creative work. The hypothesis is that more opportunistic strategies in the process of creation will be associated with higher level of final product quality and creativity.

Method

Twenty-four college student artists were videotaped as they individually created three drawings. In each session, the artist was given 30 still-life objects, paper, and drawing media, and asked to take about an hour to create an original drawing that used the objects and was pleasing to them. Artists were allowed to draw in any style they liked.

The 72 drawings were later reliably rated by artists and non-artists for Quality, Originality, and Technical skill. Videos from 10 sessions leading to drawings rated high on these criteria and 10 rated low on the criteria were coded and analyzed. The coding system recorded, for the entire session, the times when artists handled objects, selected drawing media, drew objects or other visible or imaginary elements, paused, erased, and/or revised. Each session was divided into five equal time intervals for analysis.

Results and Discussion

Several process measures distinguished the two groups. Artists in sessions leading to high-rated drawings handled and rejected more objects before drawing began, $t(18) = 2.05$ and 2.34, $p=.05$ and $p<.05$, respectively. After drawing began, high-rated artists spent more time selecting media, $F(1,18)=12.7$, $p<.01$, spent more time drawing abstract elements, $F(1,18)=14.6$, $p<.01$, and drew such elements more as the session progressed (from 4% of the time at the outset to 43% of the time near the end). Thus, high-rated artists began by drawing visible objects, but transformed or added to them as their conception of the drawing evolved.

Most strikingly, artists in sessions leading to high-rated drawings revised and erased much more than did artists in sessions of low-rated drawings, $F(1,18)=18.5$, $p<.01$, which interacted with time, $F(1,18)=18.46$, $p=.06$ (see Figure 1). These results suggest that artists whose drawings are later judged as creative use highly opportunistic problem solving strategies in creating drawings. How artists use their domain knowledge in the process of solving artistic problems, and the generality of applying opportunistic problem solving across domains, will be addressed in future research.
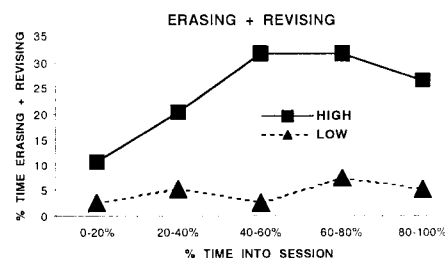

Figure 1: Erasing and revising.

Acknowledgments

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