

**A Computer Model of Creativity Based on
Perceptual Activity Theory**

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Abstract

Perception and mental imagery are often thought of as processes that generate internal representations, but proponents of perceptual activity theory say they are better thought of as guided exploratory activities. The omission of internal representations in the perceptual activity account has led some to see it as computationally implausible. This thesis clarifies perceptual activity theory from a computational perspective, and tests its viability using a computer model called PABLO. The computer model operates in the Letter Spirit domain, which is a framework for creating stylistic variations on the lowercase letters of the Roman alphabet. PABLO is unlike other computer models of perception and mental imagery because it does not use data-structures to represent percepts and mental images. Mental contents are instead modelled in terms of the exploratory activity in which perceptual activity theory says they consist. PABLO also models the flexibility of imagery, and simulates how it can be harnessed and exploited by the system to generate a creative product. PABLO is a first attempt at an implementation of perceptual activity theory, but the results suggest that the theory is computationally viable, and that it has advantages over other theories of mental imagery in the context of creativity.

Statement of Originality

This work has not been submitted for a degree or diploma to any university. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made in the thesis itself.

Signed: _____

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