



Is object imagery central to artistic performance?



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ABSTRACT

The aim of this study was to examine the type of cognitive style of Fine Art students, and assess the weight of cognitive style in artistic production. A three-dimensional model of cognitive style that distinguishes between object imagery, spatial imagery, and verbal processing was used. The sample consisted of 125 Fine Art students (65 women and 60 men). Participants were administered the Object-Spatial Imagery and Verbal Questionnaire (OSIVQ), and two imagery tests. Moreover, undergraduates completed a plastic art assignment that was assessed by an artist and lecturer in drawing, and by a professor in the Psychology of Art. Fine Art undergraduates exhibited object rather than verbal or spatial types of processing. The weight of object imagery type was found to be significant on technical skill and visual impact, which were precisely the variables most related with visual processing in the plastic art assignment. Thus innovative lines of research are proposed.

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1. Introduction

Traditionally, the term cognitive style has referred to the individual's consistent manner of cognitive functioning, particularly in relation to acquiring and processing information (Ausburn & Ausburn, 1978). The construct of cognitive style has attracted interest given its ability to predict behaviour in complex tasks, in real-life situations, as well as in academic and educational performance (e.g., Bernardo, Zhang, & Callueng, 2002; Sadler-Smith & Badger, 1998; Sternberg & Zhang, 2001). Cognitive styles are known to be relatively stable (e.g., Messick, 1976) given that they are not the product of habit, but are shown to develop gradually from life experience (Hayes & Allinson, 1998; Leonard & Straus, 1997; Sternberg, 1997), or taught (López & Martín, 2010), and can be adapted to meet environmental demands (Dunn, Dunn, & Price, 1989; Schmeck, 1988; Zhang & Sternberg, 2005).

1.1. Cognitive style: spatial and object imagery

Paivio (1971) and Richardson (1977) established two cognitive styles: verbal and visual styles. The preference for either visual or verbal information processing was the criterion for classifying subjects as visualizers i.e., individuals who rely primarily on images to undertake cognitive activities, or verbalizers, individuals who rely primarily on verbal strategies. An alternative to the traditional two-dimensional model is the recently developed three-dimensional model of cognitive style proposed by Kozhevnikov, Kosslyn, and Shephard (2005), which is grounded in modern theories of cognitive science that distinguish between object imagery, spatial imagery, and verbal processing.

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Drawing from research in neuroscience which shows that visual areas of the brain are divided into two different streams i.e., the dorsal or spatial, and the ventral or object (Kosslyn & Koenig, 1992; Smith et al., 1995), current theories of cognitive science distinguish between object imagery, spatial imagery, and verbal processing. Moreover, distinct patterns of neural activation by spatial and object visualizers have been found during the processing of spatial and visual information (Motes, Malach, & Kozhevnikov, 2008). The object stream is responsible for processing the visual appearance of objects in terms of color, detail, shape, and size. The spatial is responsible for processing spatial attributes such as location, movement, spatial transformations, and spatial relations (Haxby et al., 1991; Kosslyn & Koenig, 1992; Mazard, Tzourio-Mazoyer, Crivello, Mazoyer, & Mellet, 2004; Motes et al., 2008; Ungerleider & Mishkin, 1982).

The assertion that cognitive styles are to a certain degree dependent on experience has spurred a number of studies examining cognitive styles in a variety of professions. Several studies have hypothesized that visual artists, the focus of the present study, rely on object visualization rather than on spatial visualization; visual artists tend to create holistic, global images that are enduring, spontaneous, and offer a multiplicity of meanings (Blazhenkova & Kozhevnikov, 2006). A study on 3800 participants found that spatial and object processing preferences were independent of each other and without correlation; moreover, preferences in processing style differed according to gender and experience. Thus, men, science majors, and individuals experienced in video-games preferred spatial visualization, whereas women, humanities majors, and individuals experienced in visual arts preferred object visualization (Chabris et al., 2006). Likewise, a study on a sample of college students from an array of non-artistic disciplines, has recently confirmed the moderating role of gender in visual information processing i.e., females are better at activating object visualization (Yoon, Choi, & Oh, 2015). Kozhevnikov, Blazhenkova, and Becker (2010) have found the ability to visualize an object can be related to specialization in the visual arts.

Furthermore, the results of qualitative interviews in a wide array of professions reveal that (a) the visualization process and experience of visual artists in undertaking their creations is unique and differs from information processing in the sciences and humanities in all stages of image processing (generation, inspection, maintenance, and transformation), and (b) the imagery of visual artists can be characterized as pictorial, integrated, and spontaneous. In addition, the results showed that visual artists who rely on the visual processing of objects were able to create abstract representations of abstract visual art, whereas individuals employing visual-spatial processing (scientists) were unable to create these abstract representations of abstract visual art (Blazhenkova & Kozhevnikov, 2010). Although different studies have corroborated these results; we think further research on imagery cognitive style is required to substantiate the theory in other specific areas and in different countries. Bearing in mind that participants were second-year undergraduates at the Faculty of Fine Arts with experience in the visual arts and the findings of previous studies, Hypothesis 1 (H1) conjectured that Fine Arts undergraduates of both genders would prefer the object visualization style in comparison to the spatial visualization or verbal style.

1.2. *Spatial and object imagery and creative achievements*

Current research in psychology has focused on exploring the relationship between creativity and mental imagery in line with the view that imagination is a fundamental pillar for developing creativity (Miller, 2000; Shepard, 1978). Several studies (Allen, 2010; Kay, 1996; Pérez-Fabello & Campos, 2007; Pérez-Fabello, Campos, & Meana, 2014; Shaw & Belmore, 1982; Winner, Casey, DaSilva, & Hayes, 1991) have examined the relationship between an array of imagery tests (ranging from measures of spatial visualization to measures of mental imagery vividness and control) and creative achievement (mainly by assessing prominent members from specific professions, academic achievement in creativity, normally in the field of art) or psychometric measures of creativity. Notwithstanding, the results of these studies have not been as conclusive as research based on the reports of professional artists and scientists that underscored the impact of mental imagery on their professional performance (Blazhenkova & Kozhevnikov, 2009, 2010; Rosenberg, 1987).

In academic spheres, Campos and coworkers (Campos & González, 1994a, 1994b; Campos, González, & Pérez, 1996; Campos, González, & Pérez-Fabello, 2001; Pérez-Fabello, Campos, & Gómez-Juncal, 2007) assessed the relationship between imagery tasks and the academic performance of Fine Art students. Though the influence of different imagery tasks on academic performance was small, the results showed the influence varied according to the type of imagery task under evaluation. The relationship between imagery control and academic performance increased according to the different curricula (drawing, painting, sculpture, and complementary subjects), the greatest relationship being observed in drawing, painting, and sculpture in comparison to the complementary subjects of the history of art, and the psychology of art (Pérez-Fabello et al., 2007). These results suggest that specific types of imagery are related to a given type of activity i.e., there are different types of imagery and a broad spectrum of creativity, thus the need for determining which type of cognitive style is associated to each specific creative field e.g., spatial visualizers have been found to better at mental rotation tasks and visual maze navigation, whereas object visualizers were better at image recognition tasks (Farah, Hammond, Levine, & Calvanio, 1988). Moreover, an individuals' preferences to or self-assessments of object and spatial imagery has been found to correlate highly with measured performance in object and spatial ability, respectively (Blazhenkova & Kozhevnikov, 2009).

Forisha (1983) considers cognitive style to be essential to the imagery creativity relationship. Few studies have assessed cognitive style in relation to an ad hoc product of artistic creativity evaluated by experts. In order to associate cognitive style to creative achievement, Hypothesis 2 (H2) was advanced i.e., the object visualization style of Fine Arts undergraduates from both genders has a significant weight on the resolution of artistic production.

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