Role of Formal Aesthetic Education in the Relationship between Golden Proportion and Perception of the Beauty of Artistic Stimuli

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Abstract

The authors put to the test the hypothesis that paintings with golden ratio rectangles will be more beautiful than paintings with other types of rectangles. More specifically, they hypothesized that that preference will be higher among participants with artistic education than "naïve" participants. Two experiments were carried out based on Mondrian paintings. The first experiment compared the golden section to the proportion of 1/6 (24 naïve participants and 25 art participants), and the second the golden section to the proportion to 1/2 (33 naïve participants and 15 art participants). The results are in line with the authors' expectations, but some of them are difficult to fit with their hypotheses.

Introduction

The introduction is written in a simple and linear way. It ends by stating the experimental objective of the study also based on a previous article of the same authors. Although the cited studies are undoubtedly interesting for the study, we found very few references from recent decades. This lack of "current" references can be summarized in two lines. There are some studies related to the golden section that the manuscript should not ignore. For example, Chris McManus has several articles quite related to the current study (McManus, 1980; McManus and Weatherby, 1997; McManus, Cook and Hunt, 2010) and others authors (Höge, 1995; Green, 1995). From these articles you can find sentences like: "*After an historical and experimental review it was concluded that the golden section phenomenon, particularly as delineated by Fechner, was probably unreliable and mainly artifactual*" (McManus, 1908); "*the golden section manifests principally as a population phenomenon, and that individual preferences reveal much variability, so that the golden section may well not actually be the "most liked" but rather the "least disliked"- the lowest common denominator of a range of different preference functions*" (McManus and Weatherby, 1997), "*The present results provide little or no support for the special status of the Golden Section*" (McManus et al, 2010).

On the other hand, this kind of studies are framed in the field of empirical aesthetics that have grown quite a lot in the last decades with several manuals, (Shimamura & Palmer, 2011; Tinio & Smith, 2014; Nadal & Vartanian, 2019; and others) conferences, specials issues in scientific journals, and others. All these studies

and activities have contributed with coherent cognitive and neurocognitive models that could make sense of the study in the manuscript. In my opinion, the authors should frame the current study in more general models of aesthetic cognition, since they adopt the perspective that beauty is in the object, a viewpoint discredited nowadays in the field of empirical aesthetics.

On the other hand, I am not able to understand the Figure 1, neither the top panel nor the bottom panel. In the top panel, I do not know which the (a) segment is, nor the (b) one. In the bottom panel, the authors mention a rectangle that I am not able to see. There are no legends in the figures.

Method

An a priori power analysis to determine the sample size should be calculated, in Experiment 1 and Experiment 2. The authors could have taken the effect size from the previous study as a reference. Furthermore, the sample sizes of the groups and the experiments are not balanced: 24 naïve group Exp. 1, 25 art group Exp. 1, 33 naïve group Exp. 2, and 15 art group Exp. 2.

According to the APA 7 Manual (Chapter 5), avoid using "males" and "females" as nouns. Instead use "men" and "women" as more appropriate words.

I think that the use of capital letters (bold and underlined) to highlight some concepts in the Procedure section is not appropriate, giving the impression of an inappropriate style for a scientific article. In general, the style should be improved, especially avoiding unnecessary words in the middle of long sentences.

The description of the Data Analysis in the Experiment 1 is a bit confusing "*Proportions were analysed by a 2 (Group, Naïve vs. Expert) x 2 (Trial Type, GR-1/6 vs. C) analysis of variance (ANOVA) involving Group (Naïve and Expert)*". I do not know what "involving Group" means in that sentence. In any case, I think that it would be much appropriate to use linear mixed effects models (Gelman & Hill, 2006; Snijders & Bosker, 2012), including participant and stimulus as random effects in order to control the variability of these two factors. The same is applicable to the analysis of the data in the Experiment 2.

Results

The sentence in the page 14 "*As these two stimuli were identical and the position of the pseudo-golden stimulus was counterbalanced across trials, this difference can only be attributed to a spurious variability in responding*" is a strange explanation for some results that are difficult to explain. On the one hand, why donot you attribute the same explanation to the other results? These results could come from the sample size (not calculated a priori) or from a type of analysis that does not exclude the variability of participants and stimuli from the results. The description of the results needs to be improved. On the other hand, the authors

mix the simple presentation of results with the discussion about them with respect to other sources of information.

Discussion

The comments in the introduction are applicable to this section too. The authors do not discuss their results with results from other studies (McManus, 1980; McManus and Weatherby, 1997; McManus, Cook and Hunt, 2010; Höge, 1995; Green, 1995). Moreover, they do not frame their research in any of the cognitive models of aesthetic appreciation that have emerged in recent decades (Chatterjee, 2011; Leder, Belke, Oeberst, & Augustin, 2004; Leder & Nadal, 2014, …). These models could give meaning to the objective of the research.

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