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Aesthetic evaluation differences between two interrelated disciplines: A comparative study on architecture and civil engineering students

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Abstract

The study presented in this paper aims to discuss the need and value of interdisciplinary collaboration between architecture and civil engineering students while executing the differences and similarities between their aesthetic evaluations and visual preferences. A research was conducted to evaluate and compare the aesthetic evaluations of architecture and civil engineering students through selected architectural buildings. It is hypothesised that there would be a difference between the two groups' evaluations and descriptions of the visual attributes. Photographs of 6 different buildings were chosen which had different characteristics related with their structure, form and context; and a questionnaire was designed. 35 architecture and 30 civil engineering students were asked to describe the selected buildings. A "Visual Evaluation Test", which included photographs of the selected buildings was used within the questionnaire. Additionally, the participants were asked to rank 6 buildings due to their aesthetic preferences. Data was statistically analysed through semantic differential scales, and "Mann Whitney U Test". Results from the two groups of respondents had some similarities and differences. Despite the two different groups described the settings with similar adjectives, they gave different responses on choosing the buildings as "like" or "dislike". Besides, the two groups' responses to the questions which they ranked the buildings due to their aesthetic preferences differed substantially. In relation with the findings, the educational processes of two disciplines were discussed and some suggestions were given.

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1. Introduction

"Engineers tend to be concerned with physical things in and of themselves. Architects are more directly concerned with the human interface with physical things"

(Frederick, 2007)

It is a permanent belief that civil engineers and architects differ in the way of perceiving the discipline of architecture and the architectural environment. Today, the technological advancements, the rapidly changing

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environment and the dimensional expansion of public structures have demanded interdisciplinary collaborations both during the educational process and within practice in the architectural field. Dealing with complex problems and more expanded scales necessitate the collaboration of different disciplines, almost makes it mandatory. Therefore, understanding and being aware of perceptions of the other team members that work within the same project becomes inevitable.

Hubbard (1996) states that environmental meanings are constructed through codes or “knowledge structures” that are socially transmitted and based on learning and culture. In the literature, the differences in knowledge structures have been studied via comparing experts-nonexperts (Sanoff, 2006a, Hubbard, 1996) and students that are in different stages of architectural education (Wilson, 1996, Erdoğan et.al., 2010). It is believed that, depending on the subjects’ level of learning, the meaning given to architectural appearances can differ (Erdogan et.al., 2010). Architects as design professionals and civil engineers are supposed to hold different codes through which they understand and evaluate the environment due to the differences in their system of knowledge structures that they attained within their educational processes.

The study presented in this paper essentially aims to discuss the need and value of interdisciplinary collaboration between architecture and civil engineering students while executing the differences and similarities between their aesthetic evaluations and visual preferences.

2. Aesthetic evaluation of visual environment

Since Plato’s discussion on the theory of beauty and the theory of art, various theoretical and methodological debate have been done on aesthetic evaluation. According to Kant, all aesthetic judgments focus on pleasure, which is a property of the experiencing subject rather than of the objective world (Dickie, 1962). The philosophers define the notion of aesthetic attitude and maintain that there is identifiable aesthetic attitude and that any object, artificial or natural can become an aesthetic object (Dickie, 1962). However, these definitions mostly have concentrated on theory of beauty and art. After 1970s’, psychologists tried to emphasize the term of aesthetics by empirical and experimental studies.

Cupchik (1986) states that experimental approach to aesthetics can be traced back to Gustav Fecher and the founding of general experimental psychology. Daniel Berlyne (1971), who established the “new experimental aesthetics”, continued Fecher’s theoretical and empirical tradition, originated the study of psychological processes with the attendant emphasis on stimulus-response relationships. Berlyne (1971, 1974) emphasised collecting concrete facts within empirical aesthetics instead of speculative aesthetics. With the publication in 1971 (*Aesthetics and Psychology*), Berlyne characterized new experimental aesthetics by three essential elements such as; evolution of adaptive function, capacity of certain properties of environmental stimuli and collative properties of the stimuli (Galindo and Rodriguez, 2000). Particularly the third element emphasises the collative properties, associated with interrelated attributes of stimuli such as the variations occurring along dimensions, novelty-familiarity, complexity-simplicity, surprise-predictability.

The scientific and academic interest aroused, from the 1970s onwards (Ittelson, 1973, Gibson, 1979), by the study of perception-appraisal processes in the real world context, prepared the ground for the proliferation of studies assessing the aesthetic quality of the visual environment. Kaplan and Kaplan (1977, 1982, 1989) suggest that satisfying our needs from the environment, automatically generate responses of attraction and/or aesthetic preference. Within the scope of their empirical studies, cognitive psychologists Stephen Kaplan and Rachel Kaplan, developed a model of environmental preference that has been concerned with analysing the basic cognitive needs subjects regard to their physical surroundings.

The group of studies referred to by the general term “preference studies”, has as a common denominator the aim of determining the aesthetic value and/or quality of a given environment through the responses provided by non-expert judges (Galindo and Rodriguez, 2000). According to Sanoff (2006a), perceptual responses elicited by visual

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