

Cognitive styles and student progression in architectural design education

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Individuals can be classified in terms of having a particular cognitive style or preference in the way in which they perceive or process information. This paper investigates how students with particular cognitive styles, as measured by Riding's Cognitive Styles Analysis, perform in design project work at particular stages of Architectural Education. It suggests that contrary to assumptions found in the literature, those with a preference for thinking in a holistic, global manner, perform less well than their peers in the early stages of their education, but tend to improve as they progress through their education.

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Keywords: design education, perception, psychology of design, cognitive style, design cognition

The term 'cognitive style' refers to inbuilt and relatively fixed preferences in organising and representing information that can lead to individual differences (Messick, 1984; Riding and Cheema, 1991; Curry, 1993; Jonassen and Grabowski, 1993; Riding and Rayner, 1998). Messick (1984) defined cognitive style as 'characteristic self-consistencies in information processing that develop in congenial ways around underlying personality trends' (p. 61). Although commonly associated with 'learning styles', the term 'cognitive style' affords a narrower definition as it refers to an individual's preferred way of thinking, organising and representing information within the mind (Riding and Rayner, 1998). This may lead to the adoption of particular ways of learning but may equally well impact upon problem solving or work place activities. Cognitive styles generally form a bipolar continuum whereby an individual is classified as having a cognitive style that falls somewhere between two polar extremes. Hudson (1966) argued that cognitive style represents a bias, or preference between two opposing mental abilities that could be used in a particular information processing situation.

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www.elsevier.com/locate/destud
0142-694X \$ - see front matter *Design Studies* 27 (2006) 167–181
doi:10.1016/j.destud.2005.07.001
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Many researchers have attempted to develop models of cognitive style, proposing numerous labels and constructs which might be used to describe an individual's characteristics. Riding and Cheema (1991), Riding and Rayner (1998), Jonassen and Grabowski (1993), Hayes and Allinson (1994) and Roberts (2004) provide overviews of the many models proposed. Many of these theories show little empirical evidence of validity and reliability of measurement and are often confused and unclear in their definition (Curry, 1991). This has led to researchers proposing models which allow us to rationalise our understanding of learning and cognitive styles. They argue that many of the proposed style dimensions refer to similar underlying cognitive processes and that each style represents a particular manifestation of a super-ordinate cognitive style. Allinson and Hayes (1996) argue that cognitive style forms a bipolar dimension between a tendency for an individual to think analytically and a tendency for an individual to think intuitively. Schmeck (1988) argues that the dimension runs between global thinking and analytic thinking, with an ideal situation being represented by a synthesis of the two (a 'versatile' cognitive style). Riding and Cheema (1991) suggest a dimension that differentiates between a preference for organising information as wholes (labelled 'wholist') or to break down that information into smaller parts (labelled 'analytic'). Riding and Cheema also propose a second dimension that refers to whether an individual has a tendency to represent information mentally in words (labelled 'verbaliser') or in pictures (labelled 'imager'), but this second dimension is beyond the scope of this paper.

There seems a certain degree of consistency between the proposed 'super-ordinate' style dimensions. Those individuals with a global, holist or intuitive cognitive style are likely to show intuition and a tendency to see a whole picture rather than to break something into parts in order to intellectually process it. Those with atomistic, serialistic, analytic cognitive style will tend to break things down into parts and often process information in a sequential manner.

Much of architectural education is concerned with developing students in order for them to become well rounded, competent and imaginative designers of buildings and the spaces between them. The central pedagogic vehicle for architectural education is project-based learning: students are expected to make proposals for the development of a piece of architecture, in response to a given brief. Unlike education in some other disciplines, design project work does not seek a single correct answer; rather the student is invited to make propositions which are often speculative and exploratory in nature. The student's responses are likely

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