An inquiry into the learning-style and knowledge-building preferences of interior architecture students

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This study explores the learning-style and knowledge-building preferences of interior architecture students using Felder–Soloman's Index of Learning Styles. Considering the learning and knowledge-building skills of students in design education, this study concludes that the instructor should not only be a conveyor of knowledge but also a facilitator. The findings indicate that design students' preferred learning styles are as follows, in descending order: Sensing/Intuitive, Visual/Verbal, Active/Reflective and Sequential/Global. In the two-way analysis, where the student's design studio grade was the dependent variable, significant effects were obtained for each scale. Furthermore, double interactions were highly significant between the Active/Reflective and Sensing/Intuitive scales and between the Active/Reflective and Sequential/Global scales.
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W e are living in a time where the world is constantly changing and evolving. In traditional design education, design knowledge was taught to students in a scheduled studio space for long blocks of time several periods a week. Students were encouraged to work in the studio and receive critiques from the instructor at several phases of the design process. With the emergence of digital technology, the design studio has changed from a studio-based learning environment to a technology-enhanced active learning space. Unfortunately, however, design education itself has not kept up with the changes in technology and in many cases does not enhance students' learning and the knowledge-building skills beyond predetermined, standardized boundaries. Recent studies have shown that the use of technology in the design studio supports interaction, active learning and social engagement, which are reflected in students' development of design knowledge (Cho, Cho, & Kozinets, in press; Karakaya & Demirkan, 2015; Mor & Mogilevsky, 2013). Bearing in mind that design education needs to change to reflect this new learning style, design instructors must be forward thinking about how to educate, train and inspire the coming generation.

Considering the learning and knowledge-building skills of students in design education, the instructor should not only be a conveyor of knowledge but also a facilitator, encouraging students to develop their academic and artistic skills.

The design process is comprised of strategies to determine a solution(s) to a problem. Therefore, the design process should ensure that the correct problem is being solved. In the design process, information processing and decision making is very intensive in the conceptual design phase, as a consequence of generating and evaluating alternative ideas. An epistemological and method-ological approach guides the designer to capture, describe, prioritise, act and evaluate alternative design solutions (Demirkan, 2015). Therefore, it is important that methods and knowledge are linked in designers' cognitive stra-tegies. During the design process, the designer constructs a conceptual model of an artifact by abstracting knowledge from previous experiences and infor-mation stored in his or her memory. These conceptual representations are linked both with external forms of knowledge, as sketches or architectural drawings, and with internal representations of the model, as visual imagery. Studies have shown that people have different ways of receiving and process-ing information (Litzinger, Lee, Wise, & Felder, 2007; Smith & Kolb, 1996), and previous researches confirm that this also applies to students going through the design process (Carmel-Gilfilen, 2012; Demirkan & Demirbas, 2008; Kvan & Yunyan, 2005). Incorporating learning styles in design-studio instruction may make learning easier and lead to better student performance.

This study investigates the learning-style and knowledge-building preferences of today's interior architecture students in the design studio. The findings are expected to provide a better understanding of how to expand the design studio as a high-performing and technology-rich learning space.

1 Previous studies related to learning styles in design education

Learning in design is an internal process that is different for each student. A student's preferred method for receiving information in any learning envi-ronment is his or her learning style. As evident from the literature, various learning-style models are employed in design education. The most common models are the Myers-Briggs Type Indicator (MBTI) (Durling, Cross, & Johnson, 1996; Russ & Weber, 1995), Kolb's Learning Style Inventory (K-LSI) (Carmel-Gilfilen, 2012; Demirbas & Demirkan, 2003, 2007; Demirkan & Demirbas, 2008; Kvan & Yunyan, 2005; Newland, Powell, & Creed, 1987; Tucker, 2007, 2009) and Felder—Soloman's Index of Learning Styles (ILS) (Demirkan & Demirbas, 2010; Felder & Spurlin, 2005; Mostafa & Mostafa, 2010). One of the main motivations behind such models is to iden-tify characteristics of preferred learning styles. Once identified, learning