

Educating the mindful designer: exploring mindfulness practices in design education

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Mindfulness has become a phenomenon of interest in the design research community due to its positive effects on a broad range of human qualities and experiences relevant to the field. However, research intersecting mindfulness and design education is still in its early stages, leaving unanswered questions about the nature of this relationship and its potential integration into design education. We addressed this gap through a theory-based analysis of relevant literature. First, we synthesize the transferable applications of mindfulness into design educational practices within a four-dimensional framework: 1) mindfulness-based pedagogical tools; 2) enhanced reflective practices; 3) enhanced creative experiences; and 4) cultivating design competencies. Next, critically reflecting on the framework, we discuss implications and opportunities for further research. This manuscript aims to support the development of practice-based methods and tools in the design pedagogy field and to assist researchers in navigating and developing this promising research path.

Keywords: *mindfulness; design education; reflective practice; framework*

1 Introduction

The global crises the world has gone through have challenged our significant institutions. Design educational practices and the institutions that house them are not immune to the pandemic's long-term and ongoing impact on all of us. And yet, the multiple challenges this global crisis has brought have also revealed a silver lining of potential research opportunities to explore. In this context, an essential question within the educational community arises: What are the specific competencies that designers need to meet the challenges of a multifaceted, unpredictable, and interconnected future, and what are the pedagogical approaches that design educators need to cultivate these competencies? Probably more than ever, a more empathic and reflective mind is what we need most to navigate the array of collective challenges that lie ahead.



This paper explores and discusses how mindfulness may become a valuable tool to enhance our educational systems. We argue for a holistic integration of mindfulness into design education to support designers and educators in their learning experiences and pedagogical practices.

1.1 A broader domain for design education

In recent years, mindfulness has joined the quest to illuminate answers to the abovementioned questions and become a phenomenon of interest within the research community. Kabat-Zinn (1994), one of the pioneers in adapting mindfulness into the secular world, defines mindfulness as “paying attention in a particular way: on purpose, in the present moment, and nonjudgmentally” (p. 4). The reasons for this growing interest are the positive effects that mindfulness has on a broad range of human experiences and qualities relevant to design education. For example, mindfulness enhances aspects of creativity (Baas et al., 2014; Ding et al., 2014), increases empathy (Trent et al., 2016), facilitates cognitive flexibility (Zeidan et al., 2010) and problem-solving (Ostafin & Kassman, 2012).

Researchers studying the intersection between mindfulness and learning suggest positive benefits when mindfulness is embedded within educational contexts (Bush, 2011). According to Henning and colleagues (2018), mindfulness has been integrated into these contexts “as a means of accessing information about oneself and others, to develop awareness of internal connections and how this impact on the external environment, and to promote creativity, wellbeing, and compassion” (p. 27). Furthermore, Yeganeh and Kolb (2009) suggest that “in order to be more aware of their learning processes, learners must find unique ways to engage in routines of momentary awareness” (pp. 17–18).

Particularly in design, researchers adopted multiple perspectives and investigated how mindfulness could benefit design practices and learning environments. For example, by enhancing designers’ educational experiences (Rojas et al., 2015; Udall, 1996), well-being (Andrahennadi, 2019), reflective practices (Rojas, 2013), sensory (Altay, 2021), and creative experiences (Altay & Porter, 2021). Together, these studies provide important insights into the nature of mindfulness when embedded in educational environments and closely interacting with designers and their practices. By exploring the phenomenon through multiple perspectives, the researchers have created applications based on mindfulness and initial knowledge frameworks that inspire educators and researchers.

However, the research initiatives are scattered and still in their early stages, hindering the development of more holistic pedagogical tools educators need to integrate mindfulness into their educational environments. Two main knowledge gaps can be observed. First, the multi-faceted nature of mindfulness calls for an integrated knowledge framework of its attributes and applications in design education and creative practices. Second, a map of research opportunities and challenges is needed to assist educators and researchers in navigating and developing this promising research path.

To address these gaps, we explore two main research questions:

1. What are the transferable applications of mindfulness into design educational practices?
2. What are the opportunities and challenges for integrating mindfulness into design educational environments?

1.2 Aim and structure of the manuscript

This manuscript aims to contribute to the development of sound practice-based methods and tools in the design pedagogy field by: a) providing a synthesis of transferable applications of mindfulness into design educational practices; and b) identifying opportunities and challenges for integrating mindfulness into design educational environments.

This manuscript consists of four interconnected sections. The first section provides a background on mindfulness, its definitions, and types of practice. The second section offers a theory-based analysis of relevant literature on mindfulness and design education, which results in the development of a theoretical framework. Based on this theoretical study, the last sections discuss the implications for practice as well as the opportunities and challenges for further research.

2 Understanding mindfulness

Mindfulness is a specific state or property of the conscious mind and a meditative practice. On the one hand, as a state, mindfulness means paying attention in a certain way to the contents of our experience (Kabat-Zinn, 1994, 2013). This particular way refers to a pre-symbolic or impartial watchfulness state that is not bound to words or images but to direct experience (Gunaratana, 2011, pp. 131–133). In other words, not thinking about our present-moment experience but instead experiencing it fully (Metzinger, 1999), without categorizing its content as pleasant or unpleasant (Goldstein, 2016).

However, mindfulness is a complex phenomenon whose definition differs according to the discipline (Hart et al., 2013). Terzimehić and colleagues (2019) classify mindfulness definitions into three categories: Buddhism, therapeutic practices, and psychological concepts. Due to their practical and secular nature, the definitions adopted in the design field are primarily drawn from therapeutic practices (defined above) (Kabat-Zinn, 1994, 2013) and psychological concepts. This last category distinguishes between three main definitions: 1) an operationalized definition that focuses on self-regulation and orientation of experience (Bishop et al., 2004); 2) a definition that contemplates mindfulness traits and states of awareness and perception that can be reached (Brown & Ryan, 2003); and 3) a cognitive definition that links mindfulness with creativity as an active process of searching for novelty and as the opposite of automatic modes of thinking (mindlessness) (Langer, 1989, 2000).

On the other hand, as a meditative practice, mindfulness meditation is known as Vipassana or insight meditation. It is defined as a method to systematically approach the contents of consciousness (Easwaran, 2007) and is rooted in the ancient tradition of Theravada Buddhism (Hart, 1987). The common objective of these practices is to use direct experimental methods to experience the true nature and workings of the mind (Goldstein, 2016; Yates et al., 2017). Even though mindfulness meditation has gained worldwide popularity, numerous techniques and related contemplative practices are available.

2.1 Types of mindfulness practices

Researchers categorize mindfulness practices as formal and informal (Bernárdez et al., 2014). Formal mindfulness refers to structural practices that aim to develop attention and awareness through a series of predetermined exercises, for instance, the Mindfulness-Based Stress Reduction program (Kabat-Zinn, 2003). In contrast, informal mindfulness is less structured and aims to cultivate mindful

attitudes during practitioners' daily activities, for example, by approaching creative activities with a reflective and mindful approach (Altay & Porter, 2021).

3 Framework

This research investigates the relationship between mindfulness practices, design education, and related design practices. The conceptual framework is built on a theoretical analysis of relevant literature in this research intersection. In the following sections, we summarize the methodological approach and the results of our analysis.

3.1 Methodology

We adopted Charmaz's (2014) constructivist grounded theory approach to conduct our analysis. This approach recognizes the researcher's co-constructive role throughout the analytical process, emphasizing conceptual construction over description, abductive logic, and theory development. As a result of this analysis, an integration framework depicting the transferable application of mindfulness into design educational practices emerged.

3.2 Mindful design education: An integration framework

This mindful design education framework is constructed around four research areas or components: Mindfulness-based pedagogical tools, enhanced reflective practices, enhanced creative experiences, and cultivating design competencies, as shown in Figure 1 below.



Figure 1. Mindful Design Education Framework by Iberbuden (2023).

Each component of the framework comprises the transferable applications of mindfulness, the integration strategies, and the available knowledge in that research area from a design pedagogy perspective. A holistic integration of mindfulness into design educational practices can be found at the center of the framework. Below, we provide a summary of each component of the framework.

3.3 Mindfulness-based pedagogical tools

The first component focuses on mindfulness applications that facilitate the development of pedagogical tools. Within this component, educators can tailor the tools according to their pedagogical needs, thus offering a variety of integration strategies. For example, Yeganeh and Kolb (2009) build on Kolb's experiential learning cycle (Kolb, 1984) and develop tools for mindful learning to support learners' educational experiences. Similarly, Barbezat and Bush (2013) developed a series of pedagogical approaches that educators can implement in multidisciplinary classrooms.

Mindfulness can also be a direct source of well-being in design classrooms (Porter, 2020). For instance, Andrahennadi (2019) develops tools to enhance designers' mental well-being by developing their capacities to cope with stressful or emotionally challenging situations during their educational experiences.

3.4 Enhanced reflective practices

The second component focuses on mindfulness applications that enhance designers' reflective practices (Schön, 1984), adopting two integration strategies: Embedded in designers' activities and through reflective tools.

In the first case, linking mindfulness with reflective practices as gradual and iterative processes can: a) add a deeper level of experience to the practice (Perera, 2015); b) enhance designers' awareness and interconnectedness with the external world (Akama, 2012); and c) enhance designers' awareness during "reflective conversations" when they are engaged in sketching (Spencer, 2010).

In the second case, mindfulness can enhance reflection through systematic practices and tools that aim at developing designers' inner and outer awareness. For example, Rojas' (2013) "enhanced reflective practice" model amalgamates mindfulness practices (self-observation and non-analytical journaling) with the notion of "reflection-in-action" in Schön's (1984) model.

3.5 Enhanced creative experiences

The third component focuses on mindfulness applications that, when integrated throughout the creative process continuum, can enhance designers' creative experiences. In this component, several integration strategies are available.

For example, mindfulness can aid designers in coping with stress and negative emotions, managing their inner critical voice, and enhancing creativity by tapping into their attention mechanism (Henriksen et al., 2022).

Within studio classrooms, Christian (2019) examines how practices like meditation, mindful drawing, and beholding impact students' experiences and creative performance while developing an interior design project. The study shows that these practices positively affect students' sense of being present during the design process, their sense of being connected, and their ability to empathize with stakeholders.

Finally, recent research shows that integrating mindfulness into architectural and interior design settings can enrich designers' multisensory experiences, such as spatial and bodily awareness, sense of touch and sight, or perceived sounds and smells (Altay, 2021).

3.6 Cultivating design competencies

The fourth component focuses on mindfulness applications that can facilitate the cultivation of designers' competencies within learning environments. The term competencies is an umbrella term for the skills, abilities, values, or knowledge designers need to perform their creative practices. This component draws on Cross' (2006) view that designing is a type of intelligence whose design abilities can be recognized, nurtured, and developed. Thus, the focus is not on momentary experiences but on the long-term cultivation and development of competencies related to designers' traits. We identified three relevant design competencies:

The first concerns how mindfulness can cultivate empathic attitudes towards oneself and others when integrated into design environments (Christian, 2019). For example, by developing new thinking patterns that focus on self-acceptance rather than self-criticism (Carson & Langer, 2006), mindfulness can allow designers to immerse themselves in their creative experiences without their "inner critic voice" (Altay & Porter, 2021).

The second competence focuses on developing designers' self-regulatory mechanisms during creative activities. Through practice, mindfulness can help students develop their capacity to deal with stressful or anxious situations (Ceylanli et al., 2020). Moreover, Rojas and colleagues (2012) argue that cultivating equanimous states of mind can be considered a relevant design skill that allows designers to cope with moments of uncertainty during creative practices.

Finally, the last competence deals with the cultivation of interpersonal skills in collaborative contexts. Some attributes of mindfulness can contribute to developing interpersonal relationships (Siegel, 2012). Consequently, researchers have transferred this notion into multidisciplinary environments in which collaborative design skills are essential (Rojas, 2020). Furthermore, research suggests that approaching design activities with a mindful attitude (informal mindfulness practices) can "nurture an ethic of collaboration and shared experience instead of competitiveness and judgment" (Altay & Porter, 2021, p. 12).

4 Discussion and implications for design education

This study explores the mindfulness applications that can be transferred into design educational practices. Through a theory-based analysis of relevant literature, we generated an integrative framework that shows how mindfulness can contribute to the education of mindful designers across four interrelated areas.

One of the main findings suggests that the applications encapsulated in the framework can foster the development of competencies closely related to designers' learning and creative experiences, for example, by targeting designers' attention mechanisms, which are essential for creativity (Csikszentmihalyi, 1997), learning (Dehaene, 2021), developing awareness (Varela et al., 1993), and coping with uncertainty (Tracey & Hutchinson, 2018).

However, design is a complex activity that "must be learned and practiced rather like the playing of a sport or a musical instrument" (Lawson, 2005, p. 14). Similarly, mindfulness is a practice that requires active exploration and experimentation to develop these competencies. Consequently, we identified three main limitation areas that demand important considerations for practice and future research in the field.

4.1 Holistic integration

To achieve holistic integration, educators must allocate time and space for elements of this framework to be organically integrated into the curriculum (Henriksen et al., 2020) rather than as an isolated or unrelated practice (Hassed & Chambers, 2014). However, educators may need to develop appropriate expertise through their individual practices, which will require additional effort from their already demanding schedules and limited resources. Furthermore, these practices are not immune to unintended effects on practitioners. Different practices have varying effects on people and result in individual preferences (Tang & Braver, 2020). Thus, appropriate training is required to deal with situations where students may need assistance navigating their individual experiences. Future research should contemplate the role of educators.

4.2 Complexity of design studios

The design studio model presents a different set of conditions than other disciplines in higher education (Schön, 1985). This model “consists of the learners collaboratively working in small groups, organized around projects of simulated practice” with an experienced designer giving feedback (Hohl, 2019, p. 198). Because the systems of values, practices, and experiences in design studios are closely interconnected, the finding suggests that mindfulness integrations may have a deeper effect than in other disciplines where people work individually without hands-on experience and problem-solving.

However, due to the design studios’ inherent complexity and context-dependent nature, educators may require tailored approaches to adapt this framework to their learning settings. Cross-disciplinary classrooms present particular conditions and challenges (Herr, 2018), which may differ significantly from multicultural or interdisciplinary classrooms. An illustrative example comes from our teaching practice in an international integrated design classroom, where we explored different mindfulness practices before and after the lectures, as shown in Fig. 2 below.



Figure 2. Mindfulness Explorations in Design Studio Settings.

While the majority of students found the practices improved their concentration and reflection capacities, a significant number also reported feeling uneasy practicing in group settings. Furthermore, in this multicultural context, we observed differences between students who had prior experience with contemplative practices and those who were new to them.

Therefore, these findings raise a number of questions: What are the effects of mindfulness applications in design studios from an individual and collective perspective? If different mindfulness techniques produce different effects on practitioners’ experiences and creative abilities (Colzato et al., 2012; Lebuda et al., 2016), how do these techniques affect the specific phases of the design and learning process?

An important issue that remains to be solved is not what mindfulness applications educators can integrate, but how. How can they integrate these applications throughout the learning continuum? Moreover, how can they adapt mindfulness applications to match their educational goals and learning settings? This is an important issue for future research.

4.3 A need for practice-based research

While evidence is increasing that mindfulness applications can benefit design educational practices, a consistent empirical picture is missing (Henriksen et al., 2020, p. 6). Only a small amount of empirical research is fully embedded in design classrooms. Thus, future research should be conducted in natural design settings to explore mindfulness's underlying integration mechanism and the multiple contextual factors at play, particularly in learning settings. Furthermore, long-term and longitudinal studies in these conditions are recommended.

5 Conclusion

With this investigation, we aim to help design educators interested in this research intersection in different ways. First, each component of the framework can be viewed as a potential line of inquiry that researchers can investigate further. Second, the complete framework provides a picture of the current state of research in the field, which educators can use to find inspiration or position their work in. Finally, we regard this framework as an initial state in the unfolding development of theory (Redstrom, 2017), and we invite educators and researchers to expand or adapt the framework according to their needs.

Although multiple factors are at play, the findings from this study suggest a beneficial relationship when mindfulness applications are embedded into design educational practices. However, mindfulness is not a panacea, and educators must be aware of its less positive side. Much of the criticism that mindfulness has attracted relates to misuse in particular contexts that perceive mindfulness only as a "quick fix" to reduce stress and increase efficacy to the detriment of people's well-being (Arthington, 2016; Purser, 2019).

Nevertheless, the findings from this study suggest that the type of experiential knowledge that mindfulness can cultivate, combined with how and where designers learn, can lead to new ways of learning. A mindful way of learning that fosters the education of designers who are more reflective, empathic, and aware of themselves and their creative peers may also lead to new ways of designing.

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