

Fine-tuning to teach design thinking to design students

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Actas de Diseño (2023, abril),
Vol. 43, pp. 238-245. ISSN 1850-2032.
Fecha de recepción: julio 2019
Fecha de aceptación: febrero 2021
Versión final: abril 2023

Abstract: Design thinking has been widely promoted as an approach to innovation, and nowadays, design methods are part of the lexicon of professionals in several industries. This paper situates design thinking education in such a context and discusses issues and challenges to be tackled by design educators. The analysis is concentrated on aspects such as the diffusion based on the d.school model to the detriment of broader design thinking models; the attitude of design practitioners and scholars toward design thinking; the awareness of the designer's role in a design thinking context; and perspectives regarding teaching design thinking in design schools.

Keywords: Design thinking – design education – design thinking model – business design – design education ladder.

[Resúmenes en español y portugués en la página 244]

Introduction

Design methods have been disseminated and developed in multiple domains in the last two decades, reaching different industries with a new label: design thinking. Corporations and organizations have been keen on adopting design thinking practices as a new approach to innovation, expecting to achieve a competitive advantage in their businesses. Such a comprehensive adoption made design thinking well-known, and people from different backgrounds, by experiencing its creative problem-solving model, became design thinkers.

Common sense might suggest designers are the best design thinkers; however, this is a fallacy. Even sharing principles and methods, design thinking differs from design disciplines mainly because of its interdisciplinary origin. Brown (IDEO, n.d.), design thinking's leading evangelist, defines it as "a human-centered approach to innovation that draws from the designer's toolkit to integrate the needs of people, the possibilities of technology, and the requirements for business success." To accomplish such goals, design thinking should be developed by multidisciplinary teams, even without the participation of a design practitioner.

Design thinking is already a fundamental course in business and management schools worldwide. Due to its innovative appeal, distinct domains such as engineering and health sciences also introduce design thinking courses to forge creative problem-solving skills in their students (Wrigley et al., 2018). Nonetheless, regarding design disciplines, the educational approach is different. In graduate and undergraduate design programs, design thinking has been taught in courses related to design methods, design management, or innovation. Although it seems appropriate on a conceptual basis, such a situation tends to bias the way future designers understand design thinking because it deprives them of an interdisciplinary perspective.

Due to its fast diffusion, design thinking is often misunderstood, and design professionals have concerns about

its general approach to design practices. Kolko (2018) states that designers worry about how design thinking has been oversimplified to reach a broader audience and sell consultancy work. Such a superficial diffusion leads to the inappropriate application of design methods and, naturally, undermines its results. The outcomes of design thinking practices are a regular topic in terms of criticism. Scholars such as Kupp, Anderson, & Reckhenrich (2017) point out that a possible reason for eventual failures lies in the lack of understanding of business realities.

Indeed, the way design thinking models have been taught to designers and design thinkers plays a crucial role in the current situation. Even a novice can quickly note that the information available about design thinking is confusing and offers different versions. One of the main issues is related to design thinking models. This paper discusses how design thinking models are diffused contemporarily and taught in design schools. Also, as design thinking provides a new context for design practices, we examine the attitude of design scholars toward such a new reality. Finally, we propose that design educators adjust the teaching strategy so students can experience broader design thinking models and work within multidisciplinary teams.

Different design thinking models

Often defined as an approach to innovation, design thinking is a method, process, or system to solve ill-defined problems—also known as wicked problems (Buchanan, 1992). Supported by a multidisciplinary team, design thinking may tackle wicked problems such as those prevailing in businesses or society (education, health care, urban development, etc.). Despite the absence of a sound theoretical background regarding design thinking, since the 90s, some models have been created. For the sake of this essay, we define a model as a scheme aiming to represent the dynamics of the design thinking processes.

In this sense, a design thinking model is developed based on principles that guide its practices.

Brown (2008) proposed one of the first design thinking models building upon IDEO's expertise, and nowadays, it is known as a Human-Centered Design (HCD) model. It organizes design thinking practices into three phases: inspiration, ideation, and implementation. The model is presented in a publication available online in several languages: 'The Field Guide to Human-Centered Design' (IDEO, 2015). Relying on IDEO's innovation practices through design, this model is viewed as consistent and comprehensive support of innovation in several industries, including social innovation initiatives (Brown & Wyatt, 2010; Kershaw et al., 2016).

The most cited design thinking model was developed by d.school - Hasso Plattner Institute of Design at Stanford University. The hexagram-shaped model has become a staple of design thinking and summarizes the suggested process into five steps or phases: empathize, define, ideate, prototype, and test. Some online publications present the model: 'An introduction to Design Thinking | Process Guide' (d.school & Hasso Plattner Institute of Design at Stanford, n.d.) and 'Design Project Guide' (d.school & Hasso Plattner Institute of Design at Stanford, 2016). The model focuses on the front end of a design thinking endeavor, i.e., the phases that analyze and define the problem and the creative process to develop and assess the solution. Compared to IDEO, the d.school model has a less comprehensive scope because it does not touch implementation issues. This is a critical aspect often forgotten in design thinking education.

Over the years, practitioners, scholars, and companies have proposed other models to refer to design thinking practices. Based on the design thinking expertise obtained while working in several industries, Liedtka & Ogilvie (2011) introduced a model that organizes its phases into four questions: "What is? What if? What wows? What works?" Stickdorn & Schneider (2014), two service design experts, proposed a specific model for the service design thinking process that encompasses: exploration, creation, reflection, and implementation stages. Across two decades, IBM has used design thinking and developed a model based on three key actions: observe, reflect, and make (IBM Corporation, 2017). While running the Design Works lab at Rotman School of Management at Toronto University, Fraser (2009) developed the business design model encompassing three gears: empathy & deep human understanding, concept visualization, and strategic business design.

A dive into design thinking models helps to understand their different approaches. IDEO, service design, and business design models cover the whole process, from discovering the problem to implementing a design solution within a corporation or business. Conversely, d.school, Liedtka & Ogilvie, and IBM models tend to be inserted into New Product Development (NPD) endeavors and focus on the creative process aiming for an innovative solution. Although design thinking models have different scopes, we consider these approaches as an indicator of design thinking's comprehensiveness and versatility that, ultimately, enables its adoption in various industries.

The context of different models should matter when introducing the scope of design thinking to students and non-designers; however, it is rarely considered. In both academic and professional environments, professors, instructors, consultants, and facilitators generalize the d.school model as an example of design thinking. Kolko (2018) highlighted that such a context leads to a trivialization of design thinking with empathy and prototype being sold as leverage to innovation. Thereby, essential aspects of design thinking practices, such as the implementation stage, are left apart. In this sense, the criticism to design thinking due to its lack of outcomes makes sense. For example, in some corporations, simply adopting the d.school model without inserting it in an NPD context may yield meaningless design thinking outcomes.

Teaching design thinking in design programs

In general, design thinking needs to be adequately addressed in design schools. To teach design thinking to design students, some challenges must be tackled. The most relevant is related to the scope of the different design thinking models. Apart from failing to define the essential topics to teach, often professors and lecturers fall short of situating design disciplines and design thinking in the contemporary context. One of the reasons might be that the role of a designer and a design thinker is still blurred, and even the literature lacks proper definitions. But they are fundamentally different professionals in terms of background. For instance, design thinkers may major in health sciences, and by training, they can develop skills to work appropriately in design thinking without a previous major in design.

The lack of awareness about design thinking fundamentals among design school faculty members is worrisome. To illustrate how the context of design disciplines and design thinking have been ill-addressed in design education, we propose a look at a Brazilian case. In 2018, undergraduate design students in Brazil took the National Exam for the Assessment of Student Performance (ENADE is its acronym in the Portuguese language). This compulsory exam for senior design students is held every three years (INEP & MEC, n.d.). Following, we highlight a question of the assessment for the design area that ignores the differences between a designer and a design thinker.

(...) Question 10

Innovation guided by design has come to complement the market's view that, in order to innovate, one must focus on the development or integration of new technologies and on opening and/or servicing new markets: besides these technological and marketing factors, Design Thinking consultancy innovates primarily by endowing products, services or relationships with new meanings. Since 'things must have a form to be seen, but must make sense to be understood and used' (Krippendorff, 1989), design is, by nature, a discipline that deals with meanings. By challenging patterns of thought, behavior, and feeling, 'Design Thinkers' [emphasis added] produce solutions that generate new

meanings and activate diverse elements—cognitive, emotional, and sensory—that are involved in the human experience. (Vianna, Vianna, Adler, Lucena, & Russo, 2011, p. 16) [Instead of back translating the above quotation, we transcribed the same paragraph available in the book's English version, page 14]

From the above text, assess the following statements.

I. The designer [emphasis added] problematizes the sensorial aspects in order to think about people's experiences and well-being.

II. The designer [emphasis added] works in a linear process, tracking, controlling, and managing each project interaction.

III. The designer [emphasis added] analyzes the problems from different perspectives in collaborative work with multidisciplinary teams.

A - I, only.

B - II, only.

C - I e III, only. [Correct answer according to the ENADE]

D - II e III, only.

E - I, II e III.

(INEP & MEC, 2018, p. 18)

The question above was created by a group of design faculties invited by the Brazilian Ministry of Education to prepare the national assessment for the design area. It refers to a book about Design Thinking (Vianna et al., 2011) issued by MJV Technology & Innovation, a Brazilian design thinking consultancy, and available online in five languages. By citing a paragraph of the book that refers to design thinkers, the question aims to assess how the students understand design thinking processes and practices. However, when presenting options for answering, it turns out that the question does not refer to a design thinker but a designer! One may say that even with this apparent nonsense, students' tacit knowledge allows answering the question correctly. However, such an issue seems to be not a mere case of a misplaced word but an example of how the scopes of design thinking and design disciplines are hazy, even for Brazilian design scholars. This may be an isolated case, but to a certain extent, it also denotes how design schools struggle to incorporate design thinking into their curricula. This scenario must be tackled because, despite over-exposition and superficial adoption, design thinking has shifted design to C-levels (Kolko, 2018; Vinh, 2018). Currently, its lexicon is adopted by a range of professionals in different industries. In such circumstances, design practitioners tend to be highly appreciated in design thinking initiatives because of their creative skills and awareness of the design methods. In addition, designers may play a critical role in innovation teams if they understand design thinking interdisciplinary scope and are trained to go beyond creative phases.

In general, design practitioners and educators tend to overestimate their knowledge about design thinking.

Somewhat skeptical, designers also tend to believe a major in design enables work as a design thinker. However, they lack awareness that design thinking was developed by a body of experts from distinct areas, particularly business and technology, which drew on design methods to develop an approach to innovation. Unfortunately, since design professionals cannot visualize design practices in the complexity of the current context, they—and some scholars—still claim that design thinking is a single extension of design disciplines. Others suggest it is a trend that will fade away. But the IBM case contrasts with such arguments; the company has adopted design thinking for over two decades and developed its model to guide innovation routines. Recently, it issued a report, 'The Total Economic Impact of IBM's Design Thinking Practice' (Forrester, 2018), that presents consistent data about design thinking impact and outcome.

Since their foundation a century ago in Germany, design disciplines have been evolving and embedding a multidisciplinary perspective. In the last decades, new design approaches have arisen alongside the diffusion of design thinking. For instance, the strategic design (Brown, 2005; Jevnaker, 2000), the design management (Mozota, 2003), the design-driven innovation (Verganti, 2009), and the service design (Stickdorn & Schneider, 2014). All these approaches came to light when the design field expanded from the tangible world and encompassed a systemic approach to its practices. In this context, the link between business and innovation emerged spontaneously, and we dare to suggest that design thinking was an interdisciplinary approach that took on a life of its own. However, as these new directions overlap concepts, the significant challenge for scholars and design schools is to situate design thinking contemporarily.

In fact, the current circumstances of design thinking practices are even more challenging to understand. Approaches similar to design thinking are emerging from business, systems engineering, and information technology. Lean startup (Ries, 2011), agile development (Beck et al., 2001), and design sprint (Knapp et al., 2016) share several concepts and methods, particularly regarding iteration and prototyping. In the case of the design sprint, its six phases (understand, define, sketch, decide, prototype, and validate) are based on design thinking's famous model (d.school). To understand their differences, we might define design thinking as a mindset and design sprint as a method to pursue fast innovation.

Among these expanded approaches to design disciplines, design thinking is the one in which a design practitioner can play a crucial role. When designers are also educated as design thinkers, their design expertise and skill set are valuable assets to support multidisciplinary teams tackling wicked problems in different industries. Nevertheless, design educators seem not to realize it. Even acknowledging that it is prudent for some delay in incorporating new approaches such as design thinking in design curricula—and considering the inherently slow pace of educational systems upgrade—we argue that design faculties/lecturers should commit to presenting to the students a more precise figure about the insertion of a designer in the current design thinking context.

Situating aspects of design thinking for design educators

Several studies (Kurokawa, 2013; Chen, Benedicktus, Kim, & Shih, 2018; Schumacher & Mayer, 2018; Matthews & Wrigley, 2017; Mubin, Novoa, & Al Mahmud, 2016; Liedtka, Salzman, & Azer, 2017) have focused on design thinking education for non-design students in college/graduate schools of business, engineering, health sciences, etc. The use of online technologies for design thinking education is a less developed topic; however, Wrigley et al. (2018) offer an essential contribution. The concerns design educators share about design thinking practices may be why a few scholars (Tu, Liu, & Wu, 2018; Melles, Howard, & Thompson-Whiteside, 2012) paid attention to design thinking education in design programs. Considering the wide adoption of design thinking, it should instead be an essential topic in design education studies.

In her book, 'Design Works: How to tackle your toughest innovation challenges through Business Design,' Fraser (2012) describes a meeting she joined in 2005 at the Rotman School of Management at the University of Toronto. It was a gathering including key figures in design thinking history: Roger Martin (former dean at Rotman School of Management), David Kelley (IDEO and d.school founder), and Patrick Whitney (former dean at Institute of Design at Illinois Institute of Technology). Martin stated that the event's goal was "to fuse together the complementary pieces of the puzzles provided by design education and business education in order to create the discipline of business design" (Fraser, 2012, p. 1). This gathering is symbolic because it shows that, from the beginning, discussions about design thinking were developed in a synergic movement between design and management domains. Supported by the expertise in innovation practices from IDEO and other corporations such as P&G, participants of the Rotman's meeting aimed to discuss business design and the development of design thinking. Later, the Rotman School of Management developed the business design model based on its Design Works initiative.

The reason to cite this event is to emphasize that design thinking did not evolve dissociated from design schools and designers. Instead, it was promoted by prominent design and management scholars and practitioners. However, due to its interdisciplinary facet, research on its development did not evolve in design, business, or innovation fields. In doing so, essential aspects of its history have been left aside. Ultimately, such circumstances hindered the development of a consistent theoretical framework needed to build the design thinking discipline. Assuming that design thinking has been oversimplified to reach broad audiences, achievements of more than two decades of practice tend to be overlooked. This is probably why design thinking is currently related to a single model (d.school).

A relevant development of the design thinking model is the business design (Fraser, 2012). As a comprehensive model, unlike the d.school one, it goes beyond the creative activities to achieve innovation and insert business issues from

the start of the iterative problem-solving process. These practices were effective in companies such as P&G which adopted the three business design model's gears—empathy & deep human understanding, concept visualization, and strategic business design—to move the innovation process. Based on an activity system, the business design aims to evidence the points that design concepts may create value for the corporation and, in doing so, it may suggest a business strategy. According to Fraser,

(...) where design has its highest value is in applying design thinking to strategy and business modeling—in designing the sustainable competitive advantage of an enterprise. By embracing design methods and mindsets, an enterprise can not only design new products, services, and experiences, but they can also fundamentally drive the design of economics in support of dramatic new growth strategies. (Fraser, 2007, p. 67)

As a design thinking model, business design may be considered on the same path as IDEO's model (2015) because both aim to develop the entire process, from identifying the problem to implementing the design thinking solution. To a certain extent, the business design model with its third gear—strategic business design—equals IDEO's implementation phase but adds a strategic business perspective to design thinking processes. Indeed, the concern about strategic design lies at the core of the IDEO model. Before Brown (2008) presented this model to innovation, he published an article titled 'Strategy by design' (2005), highlighting design as an essential aspect of developing a business strategy. However, interestingly, IDEO nowadays also promotes its model as an effective method to solve social issues.

In the design thinking domain, due to the omnipresence of the d.school model with its focus on empathetic actions and prototyping to achieve innovation, these two comprehensive design thinking models—IDEO and business design—have received less attention from design thinkers and scholars. We suggest that such broad models are worthwhile and, if widespread, would support delivering relevant outcomes in design thinking initiatives. In design thinking education, regardless of expected results, it is crucial to present other approaches that may collaborate to expand students' perspectives on creative problem-solving.

Concerning the d.school model, it is not the case to blame its predominance. When introducing this model to design students and non-designers, the best approach is to situate the d.school's scope. Despite over-exposition, the model has proven helpful for its front-end focus and human-centered orientation. Also, its ethnographic and hands-on approach seems highly efficient in promoting design thinking practices for a general audience. Indeed, the reason for d.school's successful dissemination may lie precisely in these strategies to boost creative problem-solving from the early stages of the process. As a model for disruptive innovation, it is more compelling than comprehensive models—such as the IDEO one—that also pay attention to complex implementation components.

Some recommended approaches

In her criticism of design thinking, Iskander (2018) presents a provocative point of view of designer's practices; she suggests that when "the designer acts as a gatekeeper for the meanings that are included in the design process, the potential for connections becomes limited not only to what the designer views as significant but also to the relationships she can imagine" (p. 4). Such an assertion makes sense because, in the case of design thinking, we suggest that designers, particularly design educators, tend to personify the role of gatekeepers and turn a blind eye to it as a new domain.

Indeed, the diffusion of innovation initiatives based on design thinking requires a new attitude from design schools and practitioners. Although they may not feel comfortable in such an extended context for the design practices, design thinking has promoted designers to corporate decision levels. Because business people are aware of design thinking, they are inserting design into their corporate strategies, and designers are now required to present a business-oriented profile. Design programs at the undergraduate and graduate levels should encompass this new context to prepare the future generation of designers adequately. Despite the inherent limitations already highlighted in this essay, we claim that the first step is to recognize design thinking as a new discipline that requires more than expertise in design methods.

Design disciplines embed multidisciplinary praxis, but design thinking is interdisciplinary by nature and praxis. It is interesting to note that since design thinking ideas started spreading two decades ago, several areas—particularly business and management ones—have sought to learn designers' methods to pursue innovation. In fact, they were keen to adopt design thinking regardless of a proper understanding of its practices. Such a context may be why design thinking evolved and disseminated quickly to several domains.

This interdisciplinary aspect should be highly considered while developing design thinking courses for design students. The ideal educational context would offer such courses in collaboration with other departments allowing design students to interact with peers from different majors and exchange perspectives about problem-solving. Instead of presenting design thinking as a topic in design methods, strategic design, or design management courses, teaching in an interdisciplinary context would help design students to understand how design thinking operates. Moreover, hands-on workshops or studio courses based on a wicked problem seems more suitable to introduce design students to the role of a design thinker. Ultimately, design thinking must be taught 'outside the design department box.'

Assuming that one of the main issues of design thinking diffusion is its scope, educators should introduce design students to the different design thinking approaches, particularly the contents of its various models. Expanding the knowledge beyond the d.school model and showing other examples would help students to understand the comprehensiveness of design thinking. In this sense, more attention might be paid to business-related models (Fraser, 2012; Liedtka and Ogilvie, 2011), which integrate

innovative design thinking outcomes and strategic operations in businesses and corporations. Conversely, the IDEO's model (2015) might be explored to develop design thinking solutions for social problems. The fundamental aspect of training design students to work with different design thinking models lies in the skills they need in future practice. Depending on which wicked problems are on the table, they will be required to select or customize a design thinking model.

Design practitioners, scholars, and design thinkers admit that one of design thinking's most significant challenges is its definition. As it emerged from an interdisciplinary praxis and is still developing—even after two decades of intensive adoption as an approach to innovation—the design thinking literature has not been able to extract foundational aspects. To date, scholars could not organize the existing models, methods, and processes in a sound theoretical framework. Furthermore, most of the available literature is related to innovation in management and business but lacks studies about a critical issue: the impact of such diffusion on innovation.

In the case of the diffusion of design thinking in design programs, Wrigley & Straker's (2017) study offers a valuable contribution through the Education Design Ladder. The scholars define it as "an innovative resource/model that provides a process for the organization and structuring of units for a multidisciplinary Design Thinking program" (Wrigley & Straker, 2017, p. 1). Building on the analysis of 51 design thinking courses offered by 28 international universities, they summarized contents, assessment, and learning modes. Rather than a design thinking pedagogy, the five steps of the Education Design Ladder should be considered as a first guide to developing a design thinking course for design programs at different levels.

- **Step one (foundation level):** This step provides students with knowledge of the history, evolution, and use of Design Thinking. Units illustrate the process of Design Thinking by employing and utilizing its methodologies, philosophies, and reflective practices.
- **Step two (product level):** Units in this step place Design Thinking in the product design context. They provide for the practical application of Design Thinking methods and processes to tangible outcomes in product and service design and delivery.
- **Step three (project level):** This step bridges the link between product-focused Design Thinking and design management. Design Thinking is now applied to factors that influence the broader design context, such as the market situation and branding decisions.
- **Step four (business level):** Step Four elevates Design Thinking to the area of business strategy and incorporates design, business, and technology in the development of new business models and strategic forecasting.
- **Step five (professional level):** The final step removes Design Thinking from a specific context and aims to develop a student's personal and professional skills. It uses Design Thinking to demonstrate the importance of developing the skills to recognize opportunities, and to nurture the process of bringing innovative ideas to fruition. (Wrigley & Straker, 2017, p. 7-8)

Concerning the Education Design Ladder, the authors highlight that it aims to support the creation of courses in multidisciplinary frameworks. In the context of design programs at undergraduate or graduate levels, more than a requirement to develop classes, this educational framework can be understood as a perspective for design students to experience design thinking practices. We suggest a design thinking course to design students reaching at least step four, the business level. In such a condition, their challenge is to interact in a team where individuals from different backgrounds use design methods as lingua franca and are named design thinkers.

The aspects discussed above cannot be considered the definitive strategy to improve the way design thinking is presented to design students. Other factors may also influence its insertion in design education. A significant one is the design industry's maturity level in a specific country or region. In developed economies, design thinking practices are often adopted in corporations because they were primarily fostered by a strategic partnership with design or business programs at universities via executive education. In doing so, the design thinking lexicon is quite usual among professors and students because they regularly engage in such projects.

However, in the context of developing countries, as in most Latin American countries, design thinking education needs a different approach in academia because the design industry is either growing or incipient, and corporate partnerships are scarce. To avoid misconceptions—as described in the case of the Brazilian national exam for design students—design programs must tackle the challenge of teaching design thinking in a circumstance where corporations still embrace design thinking practices. As adverse environments characterize a wicked problem, such a context may be an opportunity for design educators to exercise design thinking.

Conclusion

Although design thinking literature already offers extensive research about its innovation appeal or diffusion to different industries, this essay contributes with an initial discussion about the insertion of design thinking education in design disciplines. In addition to identifying issues that hinder the proper teaching of design thinking for students of design majors, we suggest approaches that may help to overcome them. Our discussion encompassed four topics: design thinking as a new domain, the interdisciplinary nature of design thinking, the different design thinking models, and design thinking education levels based on Wrigley & Straker's (2017) study.

In the current context of design thinking, we have to take the bad with the good. Despite problems with its wide adoption and poor outcomes, we must concede that it has played an essential role in expanding awareness about design in several sectors. Design and design thinking have different extents, as well as designers and design thinkers. However, they are inextricably connected because they share the toolkit and mindset for problem-solving. Based on the design methods and the designer's way of

thinking, design thinking empowers individuals with different backgrounds in creative problem-solving in various industries. Similarly, design thinking empowers designers because it evidences their capacity to deliver innovation at the corporate level.

Although it is still developing as a new discipline, design thinking needs academic attention, particularly in design schools. Considering it has helped to shift the way designers are noticed by society and industry in general, design educators should encompass design thinking as a critical topic in design programs, both at undergraduate and graduate levels. New generations of designers are currently arriving at a job market where design thinking skills are expected, but they might not be able to fulfill this requirement. Particularly in the Latin American context, design faculty members must tackle this situation and foster awareness of design thinking among students. The challenge is to cope with the academic status quo that does not take kindly to design thinking practices and, simultaneously, to promote new perspectives for design students. This is not an impossible task. Fundamentally, design scholars and design programs need some fine-tuning to situate design thinking properly in the context of design disciplines. The four topics covered in this essay may be of great help in this endeavor.

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Resumen: El design thinking ha sido ampliamente promovido como un enfoque a la innovación y, hoy en día los métodos de diseño son parte del léxico de los profesionales de varios sectores. Este ensayo sitúa la educación para el design thinking en ese contexto y analiza los problemas y desafíos que enfrentan los educadores del diseño. El análisis se concentra en aspectos como la difusión basada en el modelo d.school en detrimento de modelos de design thinking más amplios; la actitud de los profesionales del diseño y los académicos del área hacia el design thinking; la concienciación del papel de los diseñadores en un contexto de design thinking; y las perspectivas relacionadas con la enseñanza del design thinking en las escuelas de diseño.

Palabras clave: Design thinking – educación en diseño – modelos de design thinking – business design – design education ladder.

Resumo: O design thinking tem sido amplamente promovido como uma abordagem para a inovação e atualmente os métodos do design são parte do léxico de profissionais de diversos setores. Este artigo situa a educação para o design thinking nesse contexto e discute problemas e desafios enfrentados pelos educadores da área de design. As análises se concentram em aspectos como a difusão baseada no modelo d.school em detrimento de modelos mais completos de design thinking; a atitude de designers e acadêmicos da área em relação ao design thinking, a conscientização do papel dos designers no contexto do design thinking, e as perspectivas relacionadas ao ensino de design thinking em escolas de design.

Palavras chave: Design thinking – educação em design – modelos de design thinking – business design – design education ladder.

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A Sexual Photo and a Dolphin-Shaped Pen: Effect of Visceral State on Hedonic Choice

Actas de Diseño (2023, abril),
Vol. 43, pp. 245-249. ISSN 1850-2032.
Fecha de recepción: julio 2019
Fecha de aceptación: febrero 2021
Versión final: abril 2023

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Abstract: We investigate whether visceral state and temporal distance influenced their choice between a hedonic and a utilitarian product. We hypothesize that consumers are more likely to choose a hedonic product when they are hot (e.g., hungry or sexually driven) than when they are cold (e.g., not hungry or not sexually driven). We further hypothesize that the effect of visceral state on hedonic-utilitarian choice is moderated by temporal distance; hot-cold choice difference disappears when consumers make a choice in the distant future. Our two hypotheses were supported by two experiments. We discuss academic contributions and managerial implications of our findings.

Keywords: Visceral state – hedonic – utilitarian – temporal distance.

[Resúmenes en español y portugués en la página 249]

Introduction

Different from economists who argue that people should base their decisions on their long-term preferences, behavioral decision researchers have discovered that people often behave myopically under the influence of affect, maximizing short-term gratification with insufficient attention to long-term consequences (e.g., Pham 1998). According to Loewenstein (1996), for example, people shape their preference depending on the momentary visceral state and make different choices between when they are in the hot state and when they are in the cold state. Although the impact of visceral state on decision making has been much discussed, whether it determines people's choice between hedonic and utilitarian options have been little discussed. If this is the case, the more important question is when visceral state systematically changes choice and when it does not. In the present work, we draw on the literature on visceral state and temporal distance to examine whether consumer choice between hedonic and utilitarian options depend on visceral state.

Literature review

Choice: Hedonic vs. Utilitarian

Consumers are known to pursue one of the two goals while they make a choice: hedonic goal and utilitarian goal. According to Hirschman and Holbrook (1982), the hedonic goal is the consummatory affective gratification derived from sensory attributes and the utilitarian goal is the instrumental benefit or expectation of consequences linked with non-sensory, functional attributes. A similar distinction can be made for products. Similarly, hedonic products are the products whose consumption is primarily characterized by an affective and sensory experience of aesthetic or sensual pleasure, fantasy, and fun. Alternatively, utilitarian products are the products whose consumption is cognitively driven, instrumental, and goal oriented, and that accomplish a functional or practical task. Since goals and products have been divided into two categories, researchers have examined what determines their choice between hedonic and utilitarian options. In experimental studies, subjects were asked to choose between two pens, one is nicely designed but works poorly and the other is poorly designed but works nicely. In other studies, they were provided with two apartments, one is far from the office but has a scenic view and the