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Can't Fix This? Innovation, Social Change, and Solutionism in Design Thinking

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Abstract

Design thinking is commonly presented as a solution-oriented approach to innovation. It aims to solve so-called "wicked problems," with various textbooks and toolkits promising to equip their readers with the skills needed to do so. By rendering design thinking as a magic bullet for problem-solving towards innovation and social change, some of its proponents fall back on a solutionist position. This is despite a growing body of research highlighting critical approaches to design thinking. Drawing on, and adding to, such literature, this article examines how innovation and social change are concretely conceptualised in design thinking guides. Using a cultural media studies approach, the article first contrasts design thinking literature with critical design research, emphasizing the notion of (technological) solutionism. It then zooms in on a purposively selected case: a design thinking textbook aimed at tertiary students. Based on an interpretative analysis of this example, it discusses what understandings of innovation and social change are encouraged in the envisioned design thinking. In linking the reviewed literature and observations from the case study, the analysis highlights two main arguments: First, complex interrelations between innovation and social change are causally simplified in outlining design thinking, thereby fostering techno-fix approaches and mindsets: Readers are encouraged to not merely select but in fact construct solvable "problems," in turn avoiding confrontations with substantive issues that cannot be fixed through the envisioned design thinking. Second, innovation is conflated with corporate activities and normative questions of innovation, (in-)equality, privilege, and social change are neglected, in turn suggesting a misleading symbiosis between economic and societal interests.

Keywords

design thinking; inequality; innovation; social change; solutionism; techno-fix; technological solutionism

1. Introduction

Design thinking is widely hailed as a panacea for innovation (Brenner & Uebernickel, 2016; Brown & Wyatt, 2010; van Reine, 2017). Proponents of design thinking commonly describe it as a steerable process and an attainable set of skills alike: an effective, solution-oriented approach to innovation by design (Wylant, 2008), which aims to achieve social change (Brown, 2009). As a skill set, it is nowadays trained in corporate, governmental, and various academic settings alike (Razzouk & Shute, 2012), meaning to equip employees or students with the skills needed to solve the "wicked problems" societies are increasingly facing (Buchanan, 1992; Rittel & Webber, 1974). Within design thinking literature, there is consequentially also a vast body of textbooks, toolkits, and process guides promising to instruct their readers in "harnessing the power of design thinking" (Liedtka & Ogilvie, 2011, p. 34). This article examines how innovation and social change are framed in such design thinking guides, focusing on their use in higher education.

On the one hand, its proponents are known for their enthusiasm and "belief" in design thinking (Greenwood et al., 2019). On the other hand, researchers in critical design studies, innovation studies, as well as science and technology studies (STS) have long cautioned that innovation and social change occur neither linearly, nor are they easily predictable. Notably, those emphasising the social construction of technology have warned against mindsets of (technological) solutionism (Dobbins, 2009; Morozov, 2013). Techno-fix approaches (Selinger & Whyte, 2012) foster technology developments that are not well attuned to societal needs and users' interests. There is moreover a growing body of critical literature on the limits and implications of design thinking specifically, inter alia from researchers concerned with critical design and critical making (Jakobsone, 2017; Kimbell, 2011, 2012; Murray, 2020; Newton & Pak, 2015; Service Design Network, 2019). And yet, design thinking proponents, and their guides and toolkits, appear to largely ignore such critical perspectives.

To scrutinise how such a broadly observed mismatch between design thinking guides and the complex interrelations between innovation and social change concretely manifests itself, my article starts from two questions: How are innovation and social change communicated, also relationally, in textbooks and guidelines on design thinking? And stemming from this, what are the implications for the understanding of, and approaches to, innovation encouraged in such contexts? To address these issues, this article adopts a cultural media studies approach. First, I will contrast design thinking literature with concerns of (technological) solutionism and critical design research. Second, I will analyse the design thinking textbook *Design Thinking for Student Projects* (Morgan & Jaspersen, 2022), which is mainly aimed at tertiary students.

While design thinking has been more frequently discussed as a topic for innovation studies and as an approach in science and technology education (Panke, 2019), this article aims to contribute to the debate from a critical media studies and communications perspective. By analysing a textbook, I hope to facilitate a broader debate on the didactic media used to communicate design thinking principles and to instruct students. The article examines how innovation is didactically communicated, in design thinking in particular, though also potentially beyond. With design thinking being increasingly used in media, journalism, and humanities as well as social science disciplines more broadly (Burdick & Willis, 2011; Parker, 2014), the educational implications of this growth should be reflected upon too. I scrutinise how complex relations between design, innovation, and social change are framed as inter alia dependent on organisational, corporate contexts, and market success. Based on this analysis, I discuss what implications this may have for the approaches and mindsets encouraged through design thinking, especially considering its use in tertiary education across a broad variety of disciplines.

While acknowledging practical reasons for reducing complexities in such textbooks, the article problematizes a conflation of innovation with corporate economic activities. The analysis highlights two main arguments: First, complex interrelations between innovation and social change are causally simplified, in turn encouraging techno-fix approaches and mindsets among students. Second, normative questions of innovation and social change are neglected: also by blending out civic grassroots innovation, while at the same time suggesting a misleading symbiosis of economic and societal interests. Before proceeding, it should be stressed that this article does not mean to disregard the manifold important, critical works on innovation, design, and design thinking alike: Instead, it starts from the observation that much of this work is largely neglected in more practical, educational media on design thinking, in turn also underemphasising the critical thinking potentially invested in design. With this, I hope to contribute to a broader conversation about the implications of neglecting innovation risks and tensions in didactic media on design thinking—for teaching practices and for students' learning.

2. Design Thinking, Innovation, and Social Change

Design thinking and related approaches can be traced back to the 1950s–1970s. Arnold's (1959/2016) *Creative Engineering* and Archer's (1965) essay series *Systematic Method for Designers* explored how "thinking like a designer" could also support other practitioners in tackling societal issues. Rittel and Webber (1974) are widely credited for bringing the notion of "wicked problems" to the forefront, prominently returning in Buchanan's 1992 article "Wicked Problems in Design Thinking" (see also Peters, 2017). The term meant to highlight that societies are facing issues which are increasingly difficult to solve, as they are determined by multiple, interdependent factors. Such problems are intricately entangled, with related needs and interests contradicting each other and thus hampering possible solutions. In addition, not all factors may be equally well-known or understood.

Cross (1982) argued that "designerly ways of knowing" were not only beneficial to designers but should be encouraged in other disciplines and educational contexts too; the author emphasised their relevance beyond primarily design-oriented fields such as engineering or architecture. Rowe's 1987 book *Design Thinking* further promoted the term and its use(fulness) in fields other than those commonly associated with design. Hence, in its original understanding, design thinking referred to cognitive strategies and practical approaches adapted from the design field (Rowe, 1987). In studying such approaches, design researchers were aiming to shed light on processes of creativity and problem-solving, and to develop foundations for instructing others in systematically developing relevant skills (Cross, 2011/2023a). However, in the mid-2000s and notably the 2010s, writings on design thinking shifted further (or split) towards the application and practical uses of design thinking—notably as a method for inspiring innovation and guiding solution-oriented approaches to problems (Cross, 2023b; Brown, 2008). Here, design thinking was mainly considered as a process aimed at solving problems by favouring practical solutions over understanding the roots of such problems, and as a skill-set to be acquired. The latter also facilitated its uptake in higher education institutions, as design thinking became seen as an expertise to be taught too.

Design thinking as an approach for non-designers was thus not only taken up in corporate settings but found a place in higher education curricula as well. Design thinking classes are nowadays routinely offered at universities worldwide (McLaughlin et al., 2022; Wrigley & Straker, 2017). This trend indeed goes far beyond what one might consider "the usual suspects" in terms of disciplines, with design thinking not only being

taught in economics departments but also in, for example, the (digital) humanities (Burdick & Willis, 2011). Miller (2017) even suggested that design thinking may be "the new liberal arts" (p. 167). This is also related to design thinking literature emphasising its proximity to human-centred design (Baker & Moukhliss, 2020), notably encouraging methods such as empathy, interviews, and observations. Design thinking literature heavily links respective processes and skills to innovation (Brenner & Uebernickel, 2016). Such innovation is often treated as a catalyst for social change (van Reine, 2017), allegedly enabling educators to teach "innovation as a learning process" (Beckman & Barry, 2007).

Against this backdrop, it is unsurprising that a broad range of textbooks, toolkits, and process guides for design thinking have emerged over the last 10-odd years (Liedtka, 2011; Peters et al., 2021). Process guides like the Stanford *Introduction to Design Thinking* and other "how to" sources have been highly influential in instructing teaching on design thinking (Panke, 2019). Yet, surprisingly little attention has been paid to how such guidelines concretely frame the envisioned practices, and how they thereby arguably co-shape participants' views on matters of design, innovation, and social change. While this article will only make a modest start at addressing this gap by focusing on one example, I hope to stimulate further research on this issue. In addition, I aim to emphasise and add to critical discourses in design research by highlighting insights and concerns that appear still neglected in textbooks and guides on design thinking.

3. Technological Solutionism and Innovation by Design

While it is safe to say that innovation is an ambiguous and diversely defined concept, not only depending on what discipline one asks, it is predominantly defined in relation to novelty/new-ness, creativity, and change: For example, as "inventiveness put to use" (Yock et al., 2011) and as "successful implementation of creative ideas" (Amabile, 1996, p. 1). "Success," here and elsewhere, tends to be put on a level with market acceptance and economic profit (Morozov, 2013), inter alia ignoring variants of civic and grassroots innovation. This is despite civic innovation having been described as a key domain for "grassroots innovation movements" which "arise in reaction to perceived social injustices and environmental problems often arising in conventional innovation models" (Smith et al., 2014, p. 115). The argument also highlights that the kind of innovation examples selected and presented in inter alia didactic sources promote certain motivations and values driving such innovation.

And yet, not only are science and technology corporations and institutes and perhaps public-private partnerships considered the linchpin for innovation, but technological innovation is in turn also still frequently depicted as a main driver of social change: a line of argumentation that has been described as "technological determinism" (see also Wyatt, 2007). Definitions of innovation guided by technological determinism are still very much around—despite various authors tirelessly stressing the multiple, complex factors shaping how society and technology co-evolve (Dafoe, 2015). At the same time, innovation scholars have long stressed the need to move beyond technocentric perspectives and consider civic innovation as a relevant practice too (Meissner & Kotsemir, 2016; Smith et al., 2024). Analysing, among other things, how the understanding of innovation changed over time, Meissner and Kotsemir (2016) show that its conceptualisation as a process and as a culture, especially, rather than as a mere tangible outcome, has been influential in innovation studies. In turn, strictly sequential understandings of innovation processes were abandoned, in favour of more complex open innovation paradigms, increasingly considering users' agency in the acceptance and domestication of new products, services, and technologies. In design and design

thinking, this point is notably reflected in an emphasis on users' perspectives, participatory approaches, and the relevance of empathy and testing (Köppen & Meinel, 2014).

Providing an overview of earlier work on generations of innovation process models, Meissner and Kotsemir (2016) also show that a view of innovation as a technological breakthrough dominated up to the mid-20th century. A technology's acceptance was largely seen as a demand issue and resulted in a "push" approach to technological product development. Later innovation models considered complexities such as organisations' broader innovation culture as well as interactions and interdependencies between e.g., universities, corporations, and governmental organisations, also resulting in "quadruple/quintuple helix frameworks of innovation" (Carayannis et al., 2018). Another question, also underlying this article, is hence: If innovation scholars have largely moved beyond techno-solutionism for decades, why and how does such techno-centric thinking still factor into didactic practices when it comes to design thinking? This might be considered puzzling as also STS and related disciplines have stressed that the establishment and popularisation of emerging technologies is not simply a matter of their functional superiority. In arguing for the social construction of technology authors notably opposed technological determinism, that is the—either tacit or explicit—assumption that technology is the main driver of social change (Pinch & Bijker, 1984). Instead, as critical historians and media archaeologists have pointed out too, technology's acceptance or disappearance is contingent on social factors that are difficult, in some cases impossible, to control. Despite, or exactly because of such contingencies and power relations affecting innovation cycles, technological solutionism and techno-fixes have been extremely persistent and are still thriving today (Dobbins, 2009; Morozov, 2013).

Solutionism is inextricably linked to technological determinism. In defining technology as a main driver of social change, tackling societal issues and achieving the desired change can consequentially only be approached through technological innovation. This is not to say that there are no technological solutions to certain issues: For example, vaccines are considered a techno-fix in the best sense of the word, as they de facto provide a technological solution to a problem. At the same time, once a vaccine is developed, much work is still to be done to ensure the sufficient vaccination of a population (Gordijn & Have, 2022). Having said that, ideologies of solutionism and techno-fix approaches have facilitated an emphasis on steering social change through technological innovation and product development more broadly. I introduce (technological) solutionism as a key concept here, as I will argue further below that by falling back on solutionism, design thinking guides encourage approaches and mindsets considering technology and saleable commodities as the lynchpin of social change. Dobbins (2009) also warns of a "solution-driven design" that "risks applying the 'magic bullet' model to solve problems, reaching for the answer before the questions have been fully asked" (p. 182). Building on Dobbins, Morozov (2013) criticises that—rather than genuinely considering wicked problems—the "problem-solving" dominant in design (thinking) merely masquerades market-driven innovation as activities addressing a societally relevant issue. While Morozov's work notably targets design as a field saturated with solutionism, he acknowledges merely a few of the more critical strands in design research. However, the concerns examined above have been taken up in critical design studies and critical making research too, as I discuss in Section 4.

4. Critical Design and Maker Culture

As indicated in Section 3, there are certainly various critical voices to be found in design research and design thinking literature alike. Yet, these do seem to largely disappear when one looks at toolkits, guidelines, and how-to textbooks. Among others, authors encouraging a more critical engagement with design thinking are Kimbell (2012, 2011), Jakobsone (2017), Ozkaramanli and Desmet (2016), Rodgers et al. (2017), and Loewe (2019). Insightful critical work on design thinking can also be found in literature at the intersection of critical making and design (DiSalvo, 2014; Ratto, 2011; Service Design Network, 2019). Such authors remind us that design is as such more complex than often implied in design thinking. This also relates back to authors such as Dorst (2011), emphasising that designers tend to invest substantial critical thinking into their work, notably highlighting the need to acknowledge historical, geographic, and situational complexities of design practices. Similarly, Manzini (2015) discusses the implications of spreading design approaches among disciplines that are not traditionally considered as design(ers). The author notably considers innovation as "social innovation," also exploring designers' role in supporting participatory design practices and co-design.

Most authors concerned with a lack of criticality in design thinking argue for (re-) introducing speculation, provocation, and situatedness as well as an acknowledgement of normativities and uncertainties in design thinking. In "Rethinking Design Thinking," Kimbell (2011) discusses three main issues: the dualism of thinking and doing assumed in design thinking; widespread ignorance towards diversity in design practices and context; and an emphasis on the designer's agency in design. Later arguing for a practice theory approach in design (thinking), the author moreover calls for "moving away from a disembodied, ahistorical design thinking to a situated, contingent set of practices carried by professional designers and those who engage with designs, which recognizes the materiality of designed things and how they come to matter" (Kimbell, 2012, p. 131). Similarly, Jakobsone (2017) and DiSalvo (2014) stress the normativity and politics of design, emphasising designers' responsibility to engage with future impacts and the desirability of their creations. In terms of normativity, design thinking has notably faced criticism for its neocolonial tones (Janzer & Weinstein, 2014; Murray, 2020) and a neglect and/or simplification of gender and diversity issues (Christensen et al., 2021). For example, Tunstall (2013) observed that the "values of design thinking draw from a progressive narrative of global salvation that ignores non-Western ways of thinking rooted in craft practices that predate yet live alongside modern manufacturing techniques" (p. 236; see also Arora, 2019, and Arora et al., 2023). Ozkaramanli and Desmet (2016) argue that designers may notably intervene in such normative debates by focusing on provocation and critical reflection through design(ing). They highlight the notion of "personal dilemmas," also referring back to Kimbell's (2012) emphasis on situatedness and the relevance of standpoint theory for design. Building on Ozkaramanli and Desmet's (2016) work, Loewe (2019) also highlights the relevance of critical debates and "provocation by design."

By drawing on insights from critical design research, STS, practice theory, feminist theory, and postcolonial critique, these authors also revisit concerns of technological determinism and solutionism outlined in the previous section. At the same time, they do not entirely "give up on" design thinking as a potentially valuable approach. Ratto (Service Design Network, 2019), too, acknowledges design thinking as a tool to potentially spark creativity, yet suggests that more critical (making) approaches should be incorporated as "an antidote to design thinking." Among the works emphasising the importance of critical thinking in design thinking, two arguments related to tech-determinism and solutionism appear notably striking—and have been succinctly summarised by Matthews et al. (2023, p. 12): "In our experience, design thinking, in the applied sense of a

set of tools to address wicked problems, tends to underspecify what design actually does and exaggerate what it will accomplish." Design thinking thus should stay clear from promoting design as a "just do it" mode, which underemphasises and under-stimulates the intellectual work that goes into design (see also Kimbell, 2011, p. 289). A main issue hence lies in some design thinking proponents overstating what it enables participants to do, with critics calling for practitioners and educators to refrain from overinflated, simplistic promises of social impact through design. Such concerns are clearly articulated in a growing body of critical literature on design thinking. However, they do appear to be still marginalised in design thinking literature more generally and in practice-oriented design thinking guidelines specifically. To shed light on how such tensions concretely play out, my analysis will scrutinise how innovation and social change are conceptualised in one design thinking textbook. Section 5 will therefore first address why the textbook has been selected, and how it has been analysed.

5. Approach

This article takes a cultural media studies approach and interpretatively analyses one example of design thinking guides: a textbook aimed at tertiary students. Sterne (1999) emphasises that the analysis of texts and artefacts is a key component of cultural (media) studies. This will also be the case in this article: I will analyse parts of the book *Design Thinking for Student Projects*, by Morgan and Jaspersen (2022), focusing on the chapters "Innovation" (pp. 24–60) and "Design Thinking" (pp. 62–88). While the close reading of individual texts or compiled corpora is methodologically central to cultural media studies, Sterne further highlights that these texts and media are mostly "a means to an end." Their analysis should be ultimately about attention to power and a commitment to politics. In this sense, analysing such cases can and should contribute to "a richer understanding of the political character of cultural and social life" (Sterne, 1999, p. 262). This article likewise aims to analyse a design thinking text(book) and medium, presenting a case-based analysis.

A single case study approach comes with advantages and limitations. Alasuutari (1996) suggests that:

> Instead of assuming that any corner of social reality leads to the traces of some universals to be pointed out in the final analysis, in cultural studies a case study is understood to reveal a local and historically specific cultural or "bounded" system. (p. 371)

While such an approach may invite criticism as enabling merely "exceptionalist" insights, case study approaches are in turn known to facilitate "a high level of explanatory richness" (Brydges & Sjöholm, 2019, p. 124). Despite a single case study not allowing for generalisable conclusions, this approach can still bring out societal implications of design thinking as it is promoted and practised in higher education. Yin (2009) and Stake (2000) both emphasise that the main aim of a case study is not to assert generalisability, but to function as (potentially preliminary and always interconnected) step/s in building theory and directing future research. Hellström (2008) likewise argues that a main value of case studies lies in possibilities for transferability, by triggering and contributing to knowledge building in conversation with others (Hellström, 2008). In this sense, my article draws on previous criticism of design thinking, while likewise aiming to shed further light on how such issues are concretely expressed in (didactic) design thinking media—in this case: a textbook. This rather humble contribution to the field can thus yet contribute to the debate on criticality in design thinking more broadly, especially with regard to its role in higher education. To acknowledge my own

positionality in this field, I have participated in and hosted design sprints and similar events (see Richterich, 2019), also in the context of higher education, and have researched civic innovation practices (Richterich, 2020). As a university educator based at a European humanities and social sciences faculty, I have taught design thinking and (co-)hosted design sprints, mostly open only to students, though occasionally also for a more general public. My experience, and sometimes unease, within these settings has also inspired this article.

Among the textbooks and guidelines on design thinking, I decided to focus on *Design Thinking for Student Projects* (Morgan & Jaspersen, 2022) for three main reasons. First, I followed a purposive selection approach, aiming to select an "information-rich" case that can speak to "issues of central importance to the purpose of the research" (Patton, 1990, p. 169). I pursued what Patton (1990) describes as "theory-based/operational construct sampling" (p. 177). This means that I selected the textbook as the main case, because of its "potential manifestation or representation of important theoretical constructs" (Patton, 1990, p. 177), that is: design thinking in relation to innovation and social change. Second, I have focused on a publication aimed at students in higher education, as the implications of this seemed particularly notable. While one will not be surprised to see innovation conflated with market success in corporate contexts, it seems worthwhile to discuss what this would mean for tertiary students' understanding and approaches (even when these may be placed in inter alia economics departments). Third, while I could have selected several examples, I instead decided to close-read one case of design thinking guidelines in order to present a detailed discussion rather than an overview. This has been done since the above literature review broadly indicates that innovation and social change are key concepts in design thinking literature. Starting from this insight, I aim to shed light on *how* they are being made sense of, and linked to each other, in detail. The two chapters then have been picked as they were most fitting in terms of speaking to the notion of innovation and change, while likewise making a close-reading doable within the scope of this article. Close-reading as the detailed, interpretative reflection on texts originates mostly from literary studies; however, it has been taken up in media studies too, e.g., to analyse games, weblogs, or metadata (Bizzocchi & Tanenbaum, 2011; Cohan, 2017; Eriksson, 2016).

6. Analysis and Discussion

6.1. The Textbook

Design Thinking for Student Projects (Morgan & Jaspersen, 2022) is written by two university educators, with a focus on innovation management and organisation studies. Morgan previously worked for a multinational technology corporation, inter alia as "chief innovation officer." The book starts from the premise that universities should support their students in developing "employability skills" such as problem-solving, change management, and commercial awareness. According to the authors, a key value of design thinking lies in further supporting universities in "helping their students gain these skills through team-based projects, utilising innovation to solve real-world problems" (preface). The book targets and addresses students as main readers, stating to be "suitable for undergraduates and postgraduates across all disciplines" (preface). At the same time, it includes (online) resources for educators aiming to use design thinking and related approaches in their teaching.

The book chapters cover topics such as "Innovation," "Design Thinking," "Loving the Problem," "Commercial Awareness and Value," and "Pitching Innovation and Wow Factor." Each chapter combines thematic

introductions of key issues, with practical instructions as well as input from educators and industry professionals. Chapters 2 and 3, titled "Innovation" and "Design Thinking," were chosen for an interpretative analysis, as these shed light on how the two notions are conceptualised in relation to each other. Rather than analysing the chapters separately, they will be jointly discussed in Sections 6.2 and 6.3. The main aim of Chapter 2 is described as equipping students with the knowledge to engage in innovation themselves. Subsequently, Chapter 3 presents design thinking as a process and practice. Both chapters are divided into different sub-sections: thematic parts, for example defining key terms and explaining their relevance; "exercises" and "reflection points," inviting students to link what they have just read to prior knowledge; and short "expert" interviews with representatives from industry and higher education.

6.2. "Innovation Is Whatever the Client Says It Is"

Chapter 2 starts by defining innovation. This is done notably in relation to organisations and economic activities. Drawing on Morgan's experience in corporate contexts, it is stated that "innovation is whatever the client says it is" (p. 27). Here, the authors stress that understanding a client's idea of innovation is crucial for success in corporate contexts, and proceed by outlining a more general understanding of innovation, notably highlighting links between creativity, entrepreneurship, and innovation. Organisations, that is companies and corporations, are presented as main entities engaging in innovation, while civic innovation is left out. Consequently, innovation is also defined as an activity that is, and should be, tied to value creation (p. 27). Examples of innovation are only broadly mentioned, referring repeatedly to the iPhone or companies that are framed as key innovators, such as Apple or Alphabet/Google. As a key learning point, the authors summarise that "innovation is the application of new ideas, or existing ideas in a new context, which results in change that delivers value" (p. 56). While the textbook mentions that value does not necessarily need to be monetary, the latter is emphasised in examples mentioned throughout the chapters. Moreover, despite potentially different understandings of *value* being indeed mentioned, these are not discussed as normative tensions in innovation.

This observation relates back to issues concerning normativity in design and innovation practices, also raised by Jakobsone (2017) and DiSalvo (2014), as well as Smith et al. (2014) with regard to civic grassroots innovation. On the one hand, this occurs in privileging economic value as a benchmark for innovation; on the other hand, this is related to value conflicts in design and innovation being ignored. By blending out civic innovation examples and repeatedly yet broadly asserting major technology companies as key innovators, the textbook neglects examples that could represent "a vision for innovation processes more inclusive towards local communities in terms of knowledge, processes and outcomes" (Smith et al., 2014, p. 114). While innovation of "questionable value" (Morgan & Jaspersen, 2022, p. 29) is raised as a potential problem, students barely receive input on how to deal with normative issues in design thinking. Such critical material might (and should) be added by educators in situ, but this cannot be taken for granted and will vary depending on the disciplinary institutional context too. Reinforcing this point, the examples used to illustrate best practices in design thinking, in Chapter 3, also highlight cases such as adventure-themed MRI scanners for children—thereby implying a misleading symbiosis of economic interests and common good values such as effective healthcare.

Chapter 3 starts by introducing design thinking as a "human-centred approach to innovation," citing Tim Brown from the IDEO consulting and design corporation. It differentiates between the typical five stages

"empathise, define, ideate, prototype, test" (p. 67), mentioning that this is not necessarily a linear and likely an iterative process. The authors propose design thinking and innovation management as complementary processes. The former is presented as a means for overcoming setbacks in innovation processes. While acknowledging that innovation projects "rarely proceed in a straight line," it is suggested that students "can use Design Thinking and other techniques to fix them" (p. 69). Emphasis is put on the need to "love the problem," warning students to not hastily proceed by looking for solutions.

Despite seemingly trying to avoid solution-centric approaches, solutionism appears to be re-introduced in two ways. First, the chapters encourage students to approach societal problems by design and through innovation. Thereby, they also put emphasis on issues that appear "fixable," or can at least be presented as "fixable" on the surface. This avoids a more substantive confrontation with issues that cannot be fixed, neither by a design thinking process nor through corporate innovation. Second, the approach encourages an engagement with "problems" that are constructed rather than encountered: Instead of putting emphasis on potentially broad and unsolvable societal challenges, students are encouraged to frame their observations as problems that can and should be solved. As Morozov (2013) warns too, such framing of economic activities as "problem-solving," encourages techno-fix mindsets that are problematic, because they neglect issues that are indeed too "wicked," too complex and challenging, to be simply solved, and blur the lines between actual societal issues and social needs constructed to sell products.

This observation can further be illustrated by the emphasis on an understanding of innovation as an economic necessity and "arms race": citing, for example, an IBM representative stating that "innovation is vital because your competitors are doing it" and "you either innovate or die" (p. 29). Apart from competitors, social change is identified as a key factor necessitating innovation, as the latter "helps organisations respond to changes in the environment" (p. 29). At the same time, the link between innovation and change is deterministically presented as a causal relationship, e.g., stating that innovation "results in change that delivers value" (p. 56). By outlining possibilities for managing innovation, it is presented as steerable too. The authors draw on notions of "pull" and "push" innovation, i.e., the idea that societal needs might either call for and trigger new ideas vis-à-vis organisations looking for ways to identify or even construct needs that their products could feed into. Building on innovation management as a strategy to "deliver innovation activities by design" (p. 37), they also suggest products and notably technologies as drivers of "transformative innovation" and social change, referring, without providing much detail, to for example the iPhone as a technology considered to have transformed communication or Netflix as a service transforming viewing practices. To guide innovation, according to the authors, students need to consider key "innovation enablers," that is "tools, leadership, people, funding, culture, and process" (p. 53). Here, the authors put forward ideas of innovation as a process that can be steered in certain directions (Dobbins, 2009), by managing key factors and by drawing on design thinking as an approach to guide this process. While open innovation is addressed, a three-phase model of an innovation management process is introduced (p. 40) and used throughout the book—starting from "idea generation" and a "pull" vs. "push" paradigm.

6.3. It Is Complicated

Chapters 2 and 3 present design thinking as a relevant educational subject and as effective in directing innovation. To make this argument, complex connections between societal needs and social change as well as economic interests and societal issues are simplified. Two points appear striking in this context: First,

innovation and social change are largely discussed in terms of a causal relationship, that is innovation being key in steering social change. This is also done to pave the way for presenting design thinking as an important component of "innovation management." While such a simplification may be partly explained considering the textbook format, it does raise questions about its educational implications. Notably, it risks fostering techno-fix approaches and mindsets among students, also by encouraging them to favour "fixable" challenges and to tackle economic interests disguised as societal issues. Consequentially, students likely move on to solving the "problem" before its deeper roots have been fully understood (Dobbins, 2009). Second, the textbook avoids a confrontation with normative issues, a broader tendency observed by design thinking critics (Kimbell, 2012; Ozkaramanli & Desmet, 2016). By glossing over tensions between economic and societal interests, it also discourages students from considering responsibilities and risks in their own innovation practices. This is also facilitated by cherry-picking examples implying a convergence of commercial and societal interests, returning repeatedly to the case of adventure game-themed medical scanners for children. At the same time, examples illustrating the risks of innovation and tensions between public and corporate interests are hardly discussed. In implying and emphasising that technology and innovation mean to benefit the common good (see also Tunstall, 2013), this suggests a misleading, symbiosis between economic and societal aims. Little is moreover said about the implications and limitations of the adventure-themed MRI scanner as a key example, for example in terms of uptake in hospitals and inequalities in access to such a redesigned scanner room.

Design thinking is broadly promoted as an approach relevant to higher education, by presenting social change as steerable through innovation and by promoting design thinking as a driver of innovation in turn. In doing so, socio-technical complexities and normative concerns, for example, considerations regarding social inequalities, are neglected. Thereby, such an approach neglects insights from critical design thinking and critical making literature, which stresses inter alia the politics of design (DiSalvo, 2014). While the textbook authors hint at some of the complexities, such as normative tensions between societally relevant innovation and corporate interests or non-linear innovation processes, students receive little guidance when it comes to the implications of their engagement with design thinking. In a class setting, such guidance may be provided by educators; however, it can barely be derived from this and other instructive sources—also stressing the need for offering students a variety of sources on design thinking and innovation. Here, the relationship between innovation and social change is largely presented as a causal one. Design thinking, if done the right way, is then—in a solutionist manner—suggested as a pathway to realise social change through innovation.

7. Conclusion

Design thinking is widely framed as an effective strategy for sparking innovation, thereby aiming to steer social change. While a growing body of more critical literature cautions against the risks and shortcomings of solutionist design thinking, such solutionist approaches continue to ooze from corporate contexts into higher education. By zooming in on one textbook as an example, this article made a start at analysing how innovation and social change are concretely conceptualised in design thinking guides aimed at tertiary students. The above analysis highlights two main observations: First, a causal simplification of interrelations between innovation and social change, encouraging techno-fix approaches and mindsets; and second, an avoidance of normative questions, suggesting a misleading symbiosis between economic and societal interests. The latter is reinforced by conflating innovation with corporate activities, with examples broadly highlighting technology corporations, and by neglecting civic grassroots innovation which has been shown

to foreground issues of "poverty, social inclusion and sustainability" (Smith et al., 2014, p. 114). Starting from such an understanding of innovation, design thinking becomes notably promoted as an approach relevant to higher education in presenting innovation as steerable and as a key factor in "managing" social change. This seems particularly momentous since innovation also becomes predominantly located within corporate organisations and their activities, ignoring for example the values and norms driving civic or grassroots innovation. The issues selected in such design thinking are in turn more likely to misleadingly frame economic interests and corporate needs as societal "problems." At the same time, they encourage students to focus on what appears "fixable," discouraging a confrontation with large-scale societal issues and falling back on (technological) solutionism.

Such observations may be less surprising when considering higher education in economics departments as opposed to its increased influence on, for example, teaching in the humanities. Little is known however about how they play out in different educational scenarios, pointing at the necessity for further research into this field too (see also Glen et al., 2015; Retna, 2019; Sauder & Jin, 2016). Considering that design thinking is being increasingly taken up across disciplines, comparative insights into potential disciplinary differences (in terms of practices but also educational implications) are needed. Design thinking emphasises an urgent need to move from talk to action, and to tackle pressing societal issues by becoming involved in design and innovation activities. Textbooks for students then aim to reduce complexity, to allow participants to become involved in design thinking swiftly and efficiently. This need for simplification is understandable from a practical viewpoint. Yet, considering that the world is at a turning point, urgently requiring students to approach innovation in societally and ecologically responsible ways, matters of (in-)equality, discrimination, and privileges should be more widely incorporated in design thinking in education. Therefore, the didactic question of whether and how instructional design thinking literature can emphasise questions of normativity and responsibility of proposed activities appears (practically and as such normatively) rather pressing. Further research, and an increased acknowledgement of existing *critical* research, on design thinking and innovation, is needed: Also to examine how we might mediate between the complexity and normativity of innovation and social change, and reasonable simplification requirements of instructional media in higher education. A guiding question for this could be if and how educators can inspire design thinking practices that neither aim for answers before questions have been fully asked, nor construct problems geared at commercial fixes. Instead, we should allow for the outcome that a problem can't be fixed through (technological) innovation but is yet well worth discussing in a design thinking context.

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Conflict of Interests

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