Generating Design Knowledge Without Doing Design: The Design Researcher as Curator

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Abstract. In this study, we explore different types of engagement in research within the Design Science Research paradigm. We also identify and elaborate on a new form of engagement where the researcher, acting as a curator, accomplishes design science research projects that rely on accounts of design by practitioners. We define a set of requirements that curators should follow when conducting their research. To illustrate the approach, we present an illustrative project in which changes in the design function in systems engineering are investigated, using accounts of practice shared on a blogging platform. The unique form of engagement discussed in this paper enables researchers to rapidly generalize design knowledge emerging from practice.

Keywords: Design Science Research, Research Engagement, Curator.

1 Introduction

Researchers tend to gravitate toward research communities, which in turn tend to converge around research paradigms, defining specific ways of thinking about research problems, practices, and achievements [39]. As researchers immerse themselves in a community, they become aware of what makes their role in that community distinctive.

One recognized characteristic of the Design Science Research (DSR) community is that its members engage with research objects as *players*, whereas researchers in more traditional communities engage as *observers* [19]. While observers independently and objectively analyze, describe, and explain reality, players subjectively change reality through design. In the early days of DSR, this raised the debate of whether DSR researchers were operating "within the compass of science" or not [58]. Given the current legitimacy of DSR, we consider this debate as already set [47].

The player metaphor highlights changing reality as an essential characteristic of DSR. However, it also reveals some limitations: there is no single game or playfield; both are highly diverse and contextualized [48]. A widely recognized problem in DSR is how to accumulate design knowledge, given that it spans so many unique areas, interests, viewpoints, and types of design artifacts [9, 54]. No less important, design science also concerns practitioners. A significant amount of knowledge and experience

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exists in the minds of practitioners, containing valuable lessons, but remains inaccessible to DSR due to its tacit nature. And yet, there are outlets where designers document some knowledge, albeit in an unstructured, narrative way (e.g., professional blogging sites), making that knowledge explicit, yet also making it difficult to process from a DSR standpoint. We propose a curating approach to structure, systematise, and summarise this design knowledge. Curating thus makes this formerly tacit knowledge more easily accessible for other designers, including design researchers.

The paper is structured as follows. First, we review the literature and identify different modes of engagement in DSR, including some variations of the player metaphor. Then, we discuss the proposed new metaphor and elaborate on its main characteristics. We also provide an illustrative project of engaging in DSR as a curator. Finally, we compare modes of engagement and provide some points for discussion about this new type of engagement.

2 The Player and Other Forms of Engagement

In this section, we further extend our metaphorical or analogical examination of the different roles a DSR researcher can take, which we began with the player-versus-observer distinction in the Introduction. Such metaphors allow analysis and reflection on the range of distinct roles a DSR researcher can take on over the course of a DSR project, the characteristic tasks each role entails, and the corresponding contributions each role can make to human knowledge and to achieving practical impacts.

One characteristic that clearly separates the player from the observer is the utilization of abductive thinking [30]. Abduction is a key ingredient in design. It relies neither on extensive analysis nor systematic application of rules to make an informed design argument [19]. Instead, it entangles trial and error, intuitive insights, and the emergence of creative ideas [13]. This is what makes the player an agent of change. However, abduction can appear as a "methodological hodgepodge" [12]. It needs to be integrated into the research in a way that preserves rigor. This is often accomplished through the adoption of methodologies that control the boundaries within which players use abductive thinking [13]. As such, players have been observed to exhibit ritualistic behaviors [3].

Players operate in a two-dimensional field, which combines the "science of design" with "designing with science" [12]. This duality led to the emergence of two camps [11]: the artifact camp, which emphasizes designing with science, and the design theory camp, which emphasizes the science of design. The artifact camp takes a pragmatic approach, highlighting that the essential contribution of DSR is the design of innovative artifacts. The design theory camp stresses that the essential contribution of DSR has a theoretical nature, advancing science in a normative sense, with clear progress pathways [2]. Thus, the designed artifacts are merely vehicles for exhibiting progress in design theory [32]. Despite the considerable differences, it is acknowledged that the two camps are complementary [31]: the player should simultaneously deliver concrete and abstract contributions. Likewise, in football, attackers play defense and vice versa.

Some literature suggests that DSR researchers should change their role metaphors throughout the design process, acting as players when building artifacts, but becoming observers when evaluating them [25]. This articulation seems empowering, especially when considering the design theory camp: as a player, the researcher can deviate from the status quo and argue for novel, radical, and inspired outcomes; and as an observer, the researcher can reinforce the conjectural aspect of the contributions. However, such empowerment can be illusory, as this "heroic" researcher [59] will be entangled in paradigmatic debates, conflicting discourses, and different norms and assumptions about the research. Additionally, from the pragmatic camp, the researcher may become entangled in two very different research projects rather than just one, where the second project focuses on naturalistic evaluation. Not acting as an observer allows the researcher to engage with other forms of evaluation, such as artificial and formative evaluations [60].

Researchers can also engage in DSR as *collaborators* [55]. This type of engagement is found in research strategies that place the researcher in solving specific problems encountered by clients, such as Action Design Research (ADR) [56]. In this type of engagement, the researcher faces a conflict of interest between pursuing local outcomes, which may satisfy the client but not the research community, and pursuing broader contributions, which could satisfy the research community but may encounter friction from the client [36, 55]. This type of engagement may shift the research from well-defined to more casuistic projects, with constant opportunistic decisions and micro evaluations made by the client [55]. This reduces intellectual control over the research [46] and increases the risk of not delivering sound research contributions [29].

Noting the challenges with collaboration, Mullarkey and Hevner [46], citing McKay and Marshall [43], suggested a future type of engagement that would divide the design into two parallel processes, one that encapsulates practice and another that caters to research. The authors characterized this type of engagement as *consulting*.

3 A New Type of Engagement: The Researcher as a Curator

Vom Brocke et al. [61] pointed out that DSR projects can be accomplished by building on "design processes that are not conducted as part of the DSR project itself but at another place and time." In this study, we focus on **DSR projects that rely on accounts of design by practitioners**. Considering this context, we propose a new form of engagement that we designate as *curator*. The Cambridge Dictionary defines curator as "a person who organizes […] and arranges a showing […] of objects of interest"[1]. Applying this definition to our context, the "showing" is an artifact designed by the researcher to characterize design products, processes, as well as options and decisions documented by practitioners. In our context, the "organizing and arranging" aspect of curation also reflects the researcher's capacity to explore the boundaries of such characterizations, asking and answering new questions, and adding new perspectives [53]. These relationships can be more accurately expressed using Nonaka's [50] theory of

[1] https://dictionary.cambridge.org/dictionary/english/curator.

knowledge creation: the curator *externalizes* design artifacts by reflecting on tacit design knowledge and artifacts *socialized* by practitioners.

Externalization must be conducted within the scope of the DSR paradigm. However, socialization does not. In this study, we focus on **DSR projects that utilize blogging platforms for socialization**.

In relation to the knowledge creation cycle, the curator assumes several responsibilities: 1) distinguish between their design generalization and the targeted design practices, leaving the latter to others; 2) exert boundary control over generalization, which requires aligning it with the knowledge base and the problem environment, assuring both rigor and relevance; and 3) apply abductive logic to the generalization, integrating ideas arising from both practice and research. In Figure 1, we link these responsibilities to the DSR framework by Hevner et al. [34].

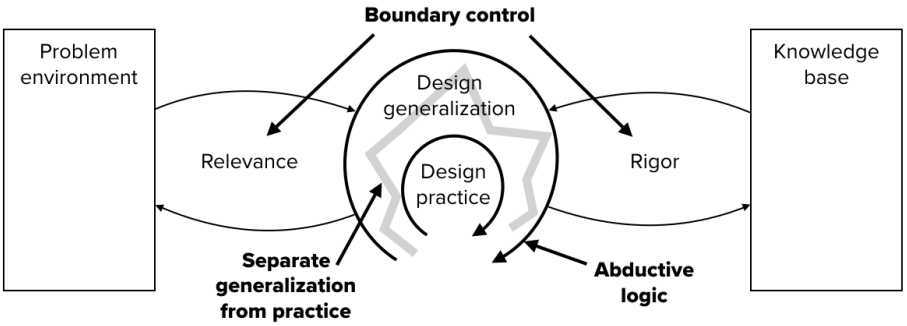

Fig. 1. The curator's responsibilities.

Before detailing this type of engagement, we first outline and address a few preliminary questions about its nature and purpose.

Is curation the same as observation? Curation is a particular form of playing, not of observing. The curator investigates targeted design practices; however, with some distance, considering time and place, and self-determination in relating the generalization to the targeted practices.

Is curation the same as design archaeology? Design archaeology uses artifacts and material signs from the past to reconstruct prescriptive knowledge [17]. Curation also involves a shift in time, but with a more contemporary focus, seeking to identify and characterize new and emerging trends from practice. As curation becomes more closely tied to practice, it tends to take on a more ethnographic nature. Finally, curation adds a layer of abductive thinking on top of these approaches, making it significantly different.

Is curation the same as a literature review? There are some similarities, but also some differences. We find similarities with grey literature reviews, as data is acquired from diverse and heterogeneous materials that exist beyond research literature [1]. This includes, in particular, professional outlets where practitioners discuss design and related topics. Guidelines developed to control the quality of grey literature reviews can and should be applied by the curator. However, a key distinction is that the curator employs a type of reasoning that aligns with DSR, focusing on artifact design, abductive thinking, and prescriptive knowledge [12].

Is curation the same as a meta-analysis or meta-design? Meta-studies build on the scientific studies of others. Curation builds on the thoughts of practitioners; they lie in a grey area, available outside the traditional academic processes [1]. Curation also lies in a grey area not yet covered by DSR.

What kind of problems can be addressed? Curation does not apply to solving concrete problems faced by specific organizations—that is the domain of ADR. It can also be challenging to design utterly unique artifacts—that is the domain of the designing—and not curating— player. Curation applies to widespread classes of design problems and artifacts, about which emergent design practices proliferate, but generalizations remain elusive. This includes, for example, new information systems architectures (e.g., microservices, event-based architectures, choreography) and development approaches (e.g., DevOps, BizDevOps, BizOps, DevSecOps, and MLOps) [8, 10].

What is the potential value brought by curation? The literature highlights that the DSR domain is characterized by a wide range of problems researched in various environments and contexts, resulting in concrete artifact instantiations rather than abstract contributions [15]. This makes it challenging to accumulate knowledge through refinement [54]. Curation may transform less abstract and more specific knowledge into more abstract and more general knowledge [31]. This can be accomplished at an accelerated pace by relying on communities of practice, a strategy that has similarities with crowdsourcing. Finally, considering that IS is characterized by constantly evolving technologies, processes, and tools, tapping into grey literature allows researchers to focus on new, emergent technology-driven problems.

4 Detailed Curation Approach

We now elaborate on the curation concept, outlining a set of steps and associated requirements for conducting curation. This characterization provides logical reasoning; it is not intended to prescribe a procedure.

4.1 Data sourcing

The curator needs to identify relevant data sources. Research on grey literature assigns different levels of credibility to various sources, with more credibility attributed to controlled outlets, such as books, moderate credibility assigned to blog posts, and less credibility assigned to uncontrolled outlets like social media [27]. Our primary focus is on professional blogging platforms with moderate credibility, where practitioners independently communicate to an unknown audience that primarily consists of other practitioners. Sources focused on marketing and consulting services should be avoided, as their content is not as independent. We also suggest focusing on long-form posts, rather than short exchanges (such as Reddit). Long-form posts provide space for structuration and rationalization, making it easier to extract knowledge and assess credibility. A good example is the Medium.com platform, which embraces the following motto: “write

about what they're working on, what's keeping them up at night, what they've lived through, and what they've learned that the rest of us might want to know too."[2]

Posts differ structurally from scientific content. They can be structured around episodes, intents, problems, and how-to assertions, enriched with "war stories," anecdotal evidence, metaphors, and practical examples. Therefore, data selection requires flexibility from the curator. Only a fraction of data may end up having assigned symbolic meaning by the curator.

One issue to consider is that authors can retract posts. The collected data is volatile and must be downloaded and stored by the curator.

4.2 Analysis

The targeted type of data consists of reflections on artifacts, design decisions, and contextual elements, including, for example, success and failure in organizational contexts, as well as emerging trends. The selection should focus on soundness, novelty, insightfulness, and interestingness. In a context of moderate credibility, the curator must carefully assess the soundness of arguments, considering contextual elements, such as the quality of writing and the value of examples and stories [37]. Curation is not concerned with confirmation. A novel concept is therefore more relevant than familiar ones. Insightfulness is essential for determining the "actability" of a concept in the practice community [35]. Interestingness is key to the curator's role, as the researcher does not aim to build a comprehensive representation of all concepts in the selected data, but instead to choose specific concepts that raise interesting "so what" questions [7]. This criterion is particularly relevant when the purpose is to challenge current assumptions [5]. Specifically, in DSR, this criterion provides a heuristic for realizing design novelty [22].

The data analysis has a qualitative focus, a standard procedure in which coding plays a significant role [44]. However, there is a stronger emphasis on finding emerging and unexpected concepts and patterns.

4.3 Generalization

Curation aims to elevate concepts from the practical level to the more abstract and generalized level. This can be achieved by design, producing conceptual artifacts such as typologies, concept maps, and conceptual frameworks [6]. Following the DSR paradigm, multiple design cycles can be involved in generalization [53]: from an embryonic cycle, where novel concepts are distinguished, to a growth cycle that explores emerging features, and culminating in a maturity cycle where the conceptual artifact is consolidated and refined, organizes thinking, and conveys purposefulness [6].

Evaluation is an integral component of the design cycle, and several evaluation actions can be integrated into the cycles mentioned above. Given the conceptual progression, a hierarchy of goals can be considered for the evaluations, ranging from more utilitarian at the embryonic cycle to more subjective and perceptual at the mature cycle

[2] https://medium.com/about.

[33]. Criteria such as innovation and evolution can be considered for evaluations at the maturity cycle. Innovation is particularly well-suited for curation, as it enables a comparison between the knowledge emerging from practice, the knowledge incorporated into the finalized conceptual artifact, and the existing knowledge base.

4.4 Abductive logic

Abductive logic is essential to design, bringing intuition, creativity, and thinking outside the box into the cycles of elevating concepts from the practical to the abstract [13]. The concept helps distinguish curation from the grey literature reviews on which it builds. It blends well with curatorial processes developed in research methodology [52], extending beyond selection and structuration to ask new questions and promote new answers. This way, the curator builds an open conceptual artifact, which invites users to make their own interpretations. Concepts brought from the grey literature provide examples and suggest images, rather than justifications. The artifact helps allocate attention in a controlled way [21].

4.5 Boundary control

Curation involves ample freedom in selecting and organizing design concepts, but also constant care in crafting a narrative that simultaneously builds on rigor and relevance to deliver generalization. The tacit design knowledge extracted from the grey literature is broken down, reassembled, and recreated as it goes through the cycles of elevating concepts from the practical to the abstract. The adoption of existing (kernel) theories to support this process helps clarify the path toward generalization and legitimize the curator's choices and the artifact design [30].

5 Illustrative Project

Design is an essential component of systems engineering, supporting the analysis of the as-is situation and the design of an improved to-be system [4]. Traditional systems engineering models incorporate design tasks into several stages of the Software Development Life Cycle (SDLC), e.g., preliminary design and detailed design [20]. However, the Agile movement [26] significantly changed the situation, advocating for more flexible, dynamic, adaptable, and lightweight approaches with a stronger connection to users and emerging needs [57]. This evolution led to what is commonly referred to as Agile Design [18]. Another significant evolution involved DevOps, which introduced a set of operational practices supported by technology, significantly reducing development time and altering the relationship between developers and users [57]. Various practices stemming from DevOps are changing the design function (as opposed to a task), leading to new approaches such as Emergent Design and DesignOps [38, 62]. However, the pace of change is accelerating because generative AI is transforming both the DevOps landscape [14, 45] and the design landscape [41, 42].

Given that these changes emerge from practice, as researchers, we are still trying to understand what is going on with the design function [8, 49, 51]. This illustrative case focuses on characterizing the design transformation path based on the practitioner's viewpoint. As noted by Siau et al. [57], different eras require different abstractions, so we aim to create an abstraction that characterizes design in the evolving systems engineering landscape.

Data sourcing: The selected data source was Medium.com. It was chosen because it is a prominent platform with approximately 100 million users[3]. The platform has extensive coverage of technology (the third most popular category) and features longer articles,[4] which helps to appraise credibility. A variety of initial searches on Medium were conducted to identify the most effective keywords for data collection, resulting in the categories and keywords listed in Table 1. These searches and associated categories ultimately shaped the artifact design. Considering data volatility, the selected writings were downloaded in PDF to ensure they would not be lost.

Table 1. Selection of keywords.

Categories		Keywords	Comments
1	Agile	agile/scrum/lean design, agile design thinking	Provided a plethora of results, although with views not as recent as the keywords below.
2	DevOps and xOps	DevOps design, xOps design	No relevant results, as design discussions were focused on systems architecture instead of product design.
3	Ops	DevOps product design, DevOps 2.0 design, DesignOps, ProductOps, DevOps design thinking, DevOps product thinking	More recent views on the topic. The keyword "xOps design" returned results related to systems and architecture design, which were not used in this study.
4	Product design	Product design, product thinking, platform engineering, platform engineering design	Significant number of results with high recency.
5	Evolving role	Product design future/evolving role/new realities/evolution/relevance/trends	Only writings published in 2025 were considered. Most writings about the future provide diagnostics of the current situation of product design.

The selected type of data considered writings by individuals self-characterized as designers, product owners, digital consultants, and engineers (IT, software architects, developers, DevOps, etc.). The sourced data for this project consisted of about 92.766 words.

Analysis: The results from the keyword searches listed in Table 1 were screened based on two criteria: consideration of the design function, even if not the primary concern of the writing, and interestingness. Data chunks were extracted from the writings,

[3] https://thesmallbusinessblog.com/medium-statistics.
[4] https://mediumcourse.com/what-is-medium.

and key concepts were identified, following the same approach as in qualitative data analysis [44]. The selected concepts focused on specific design practices (e.g., adaptive feature delivery and stream-aligned teams), as well as reflections on what works, what does not work, and what could work.

Although no frequency analysis was conducted, multiple occurrences of the same concepts were considered indicative of current trends.

Generalization: The primary goal of the project was to achieve a generalizable understanding of the transformation path of the design function. The process was organized into two cycles. The first cycle involved structuring the identified concepts around the categories in Table 1. The second step applied process theory [16] to explain and characterize changes in the design function from an organizational perspective.

Figure 2 illustrates the adopted conceptual structure based on process theory. A defining event signifies a change, which is further elucidated by a set of drivers and patterns. Drivers identify the leading causes of change. The nature of change is characterized by social and sociotechnical patterns, which examine how people and technology interact within the context of the defining event.

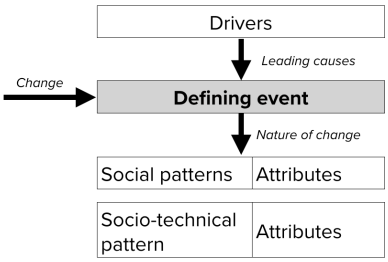

Fig. 2. Adopted characterization of the process of change

The artifact that resulted from applying this conceptual structure is presented in Figure 3. It characterizes changes in the design function that result from four defining events: Agile adaptation, DevOps adaptation, platform alignment, and coexistence with AI.

Abductive logic: This artifact helps understand the design function from a historical perspective. However, it also affords more interesting narratives, e.g., concerning levels of maturity and organizational enactment, where Agile adaptation is seen as a prerequisite for DevOps adaptation, which is a prerequisite for platform alignment, and a prerequisite for coexisting with AI (in a way that resolves the identity crisis, i.e., the realization of how designers can coexist with AI). For instance, sharing requires tight communication, and infrastructure standardization requires automation and high-performance workflows.

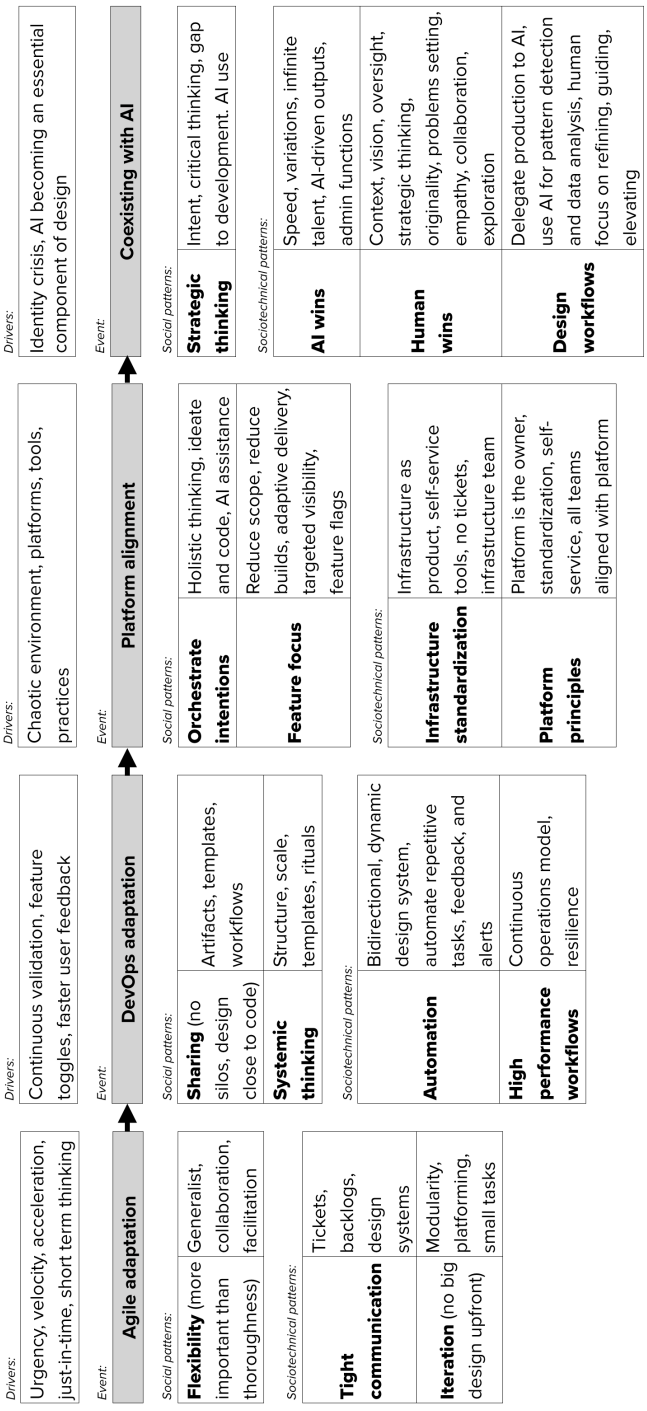

Fig. 3. Conceptual artifact characterizing changes in the design function, based on process theory.

The separation between social and sociotechnical patterns highlights how designers and organizations, on the one hand, and designers and technology, on the other hand, operate within the context of each event. The Agile adaptation involves flexibility, tight communication, and iteration; the DevOps adaptation involves sharing, systemic thinking, automation, and high-performance workflows; and so forth. For each one of these concepts, sub-concepts are identified that further explain the involved behaviors. Due to a lack of space, these sub-concepts are not detailed.

Boundary control: The selected topic has an extensive knowledge base related to Agile software development [23, 28, 40]. To accomplish relevance, the novelty of the chosen concepts was continuously checked against that baseline.

In parallel, the artifact also integrates concepts from process theory that provide a coherent narrative about the generalization. This helped accomplish rigor.

In summary, this artifact demonstrates how curation can provide value to both research and practice. From a research perspective, the artifact offers a holistic understanding of how the design function is evolving through the lens of process theory. The first two events, Agile and DevOps adaptations, do not deliver significant novelty, considering that they occurred many years ago. The start of the Agile movement is dated to around 2001 [26], and DevOps to around 2009 [24]. Therefore, there are already ample accounts of these phenomena in the research literature. However, the more recent events, considering platform alignment and coexistence with AI, still lack conceptualization. This illustrative project demonstrates how conceptualizations of emergent phenomena can be presented in dialogue with, as well as in conflict with, prior accounts.

6 Discussion and Conclusion

In Table 2, we compare the different types of engagement discussed in this paper. For the comparison, we use three criteria: type of knowledge, knowledge buildup, and validation.

Regarding the type of knowledge, curation stands out from the other forms of engagement by focusing on abstract, general knowledge that covers a range of viewpoints emerging from practice. This contrasts, in particular, with the player, where knowledge is subjective and in-depth. On the other hand, the player can direct the generation of knowledge, controlling essential factors such as problematization, requirements, constraints, and contextualization, while the curator can only filter it.

Table 2. Comparison between modes of engagement.

Engagement	Type of knowledge	Knowledge buildup	Validation
Observer	Conjectural, regulated	Slow, exclusive	Robust
Player	Subjective, in-depth, directed	Slow, clustered	Flexible
Collaborator	Subjective, uncontrolled	Slow, volatile	Contextual
Consultant	Subjective, filtered	Slow, diffused	Contextual
Curator	Abstract, general, filtered	Fast, recent, extended	Abstract

Considering the knowledge buildup, crowdsourcing enables the curator to generate knowledge more quickly than other types of engagement, while covering an extended range of issues. Also distinctive is that curation can cover recent practices and technologies coming from the front line. This presents a dilemma: on the one hand, there is the risk of spending research effort trying to conceptualize phenomena that may fade rapidly; on the other hand, a slow buildup risks irrelevance in changing times.

Regarding validation, curation emphasizes abstract justifications. Such understanding aligns with the hierarchy of goals defined by Hevner et al. [33], which suggests adapting validation to the level of abstraction in knowledge generation. Example goals include innovation and interestingness. In contrast, if we consider that the knowledge generated by collaboration and consulting is less abstract and more contextual, the validation needs to move down the hierarchy of goals, for example, by considering utilitarian goals such as efficacy and effectiveness.

Beyond the novel curator role, we also contribute a blueprint for the curation process, along with a demonstration to curate design knowledge about recent evolutions of design(ing) through analysis of articles on a professional blogging platform. As this is merely an example, the curating process can encompass other design-relevant topics, various types of data sources (which may have different advantages and disadvantages compared to Medium.com, as outlined above), and alternative analysis and design methods. Future research can further explore the range of feasible curation processes. Exploring the creative nature of curation is also a relevant topic that warrants further investigation.

In conclusion, we make two remarks. The first remark is that a discussion of modes of engagement, using metaphors such as player and curator, contributes to a discussion of the range, possibilities, and configurations afforded by the DSR paradigm. This is accomplished in a manner that is not rigid and proceduralized, but instead indicative of what the community is like [39].

The second remark is that the curation metaphor raises new imaginative ways for design knowledge development while keeping close (albeit somewhat unidirectional) ties between research and practice. Still, there are risks involved. One risk is that curation may not be viewed as a sophisticated endeavor, resulting in uninteresting artifacts that fail to gain traction in both the research and practice communities. A related risk is that curation may be undertaken opportunistically, in pursuit of immediate gains, but lacking long-term theoretical resonance. We also consider the risk of normalizing curation as a form of theory-building, rather than embracing pragmatism, which introduces many preconceptions, constraints, and rules.

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