Learning Experience Design in the Light of Design Knowledge and Philosophy

Gray, C. M. & Boling, E.

Design Knowledge

Design Philosophy

Instructional Design Practice

Learning Experience Design

Instructional design has been dominated by a philosophy focused on efficiency, effectiveness, and appeal. Learning Experience Design (LXD), emerging recently, offers a different set of values with the potential to enhance and evolve the practice of design for teaching and learning. Using the concepts of knowledge and philosophy from the literature on design theory, we challenge the notion that LXD is a discrete new field separate from instructional design and instead identify LXD as an alternate philosophy of design. We conclude with the opportunity to recognize additional philosophies in the field and consider the impacts of philosophy on knowledge-building practices.

Introduction

Almost since its founding, instructional design (ID) has maintained a focus on a handful of core principles, typically described in contemporary scholarship as efficiency, effectiveness, and learner engagement (Merrill, 2013) . This focus on outputs (i.e., efficiency and effectiveness relating primarily to the designer's goals for the learner and goals for learner engagement) maintains connections to the behaviorist roots of ID as a discipline (cf. McDonald et al., 2005)—which, if left unexamined, may see the work that instructional designers have seen as their core contribution to education increasingly migrate to other design fields such as User Experience (UX) design or Service Design that are typically more human-centered, socially-conscious, and able to address design problems nimbly from multiple perspectives and philosophies. Learning Experience Design (LXD) represents one potential way of approaching ID work which has been underexplored, particularly in relation to extant ID practices and scholarship.

In the last two decades, scholars have increasingly critiqued the views of instruction and learning experiences that focus primarily on efficiency, effectiveness, and learner engagement, expanding the space for instructional designers to consider knowledge the learners bring with them into the learning situation (Svihla et al., 2022), forms of instruction in which depth of learning is prioritized over efficiency (Hmelo-Silver et al., 2007), cultural

considerations that relate to learning experiences (Thomas & Columbus, 2009; Young, 2008), and considering the learning experience itself as a central issue (Parrish, 2008, 2009). At first glance, these expansions of focus may appear to be relatively consistent with the values of efficiency, effectiveness, and engagement. However, as we will seek to articulate in this essay, an appreciative shift from understanding design activity as primarily characterized by learning outcomes to understanding design activity as primarily motivated by the quality of *what is experienced by a learner is powerful*—and we argue that this shift is a difference in philosophical stance. We build on our prior work as design and ID scholars, where we have examined relevant issues relating to the complexity of instructional design practice that typically goes well beyond rote repetition of a process model or even merely an adaptation of the model. There are several key claims that underpin our argument, briefly summarized here. Because ID displays the core properties of design practice (Boling & Smith, 2018), we can interrogate it using design studies and design theory. Empirical evidence demonstrates that designers make extensive use of professional judgments to make sense of a design situation and rely on values or goals extending beyond efficiency, effectiveness, or engagement when making design judgements (Gray et al., 2015). Designers' tacit beliefs and values, their core judgements, shape the design space and outcomes of design in important ways (Boling et al., 2017). These core judgements can be shown to differ across fields of practice. For example, different facets of design complexity appear to be salient when viewing the same artifact through a different evaluative lens. Specifically, Boling and Gray (2021) demonstrate that the same materials, evaluated through the lenses of traditional ID on the one hand and User Experience (UX) lens on the other—appear dramatically different with regard to efficacy, the role of the learner, and the ways in which constraints are activated by designers. Finally, LX designers rely on many sources of knowledge, including ID, HCI and others, and this brings along challenges that impact how they do so (Gray, 2020).

In this essay we address two areas essential to any practice of design and discuss how each of the concepts of design knowledge and design philosophy relate to Instructional Design or Learning Experience Design. First, we first introduce the twin conceptual strands of design theory—design knowledge and design philosophy—demonstrating how they emerge in the practice of design in general and how they relate to one another. Second, through these twin strands of design theory, we then examine LXD in relation to several other design traditions, considering what position(s) or tradition(s) it draws from. Finally, we use this line of argumentation to question whether LXD is emerging as a distinct practice or field, or whether it is in the process of incorporating strands of knowledge into a distinct philosophical position within the field of learning design.

Design Knowledge

Design knowledge refers to the multiple forms of knowledge—encompassing experiences, precedent artifacts, theories, methods, and patterns, among others—that designers leverage or otherwise rely upon to inform their design work (Höök & Löwgren, 2012; Nelson & Stolterman, 2012). It is important to note that these forms of knowledge, and the ways in which they combine, differ in important ways from traditional scientific understandings of knowledge (primarily focused on generalizable truths), and from humanistic notions of creative production (focused in part on individual expression). This results in positioning

design knowing as a “third way” that is fully defined neither by science nor by the humanities (Archer, 1979).

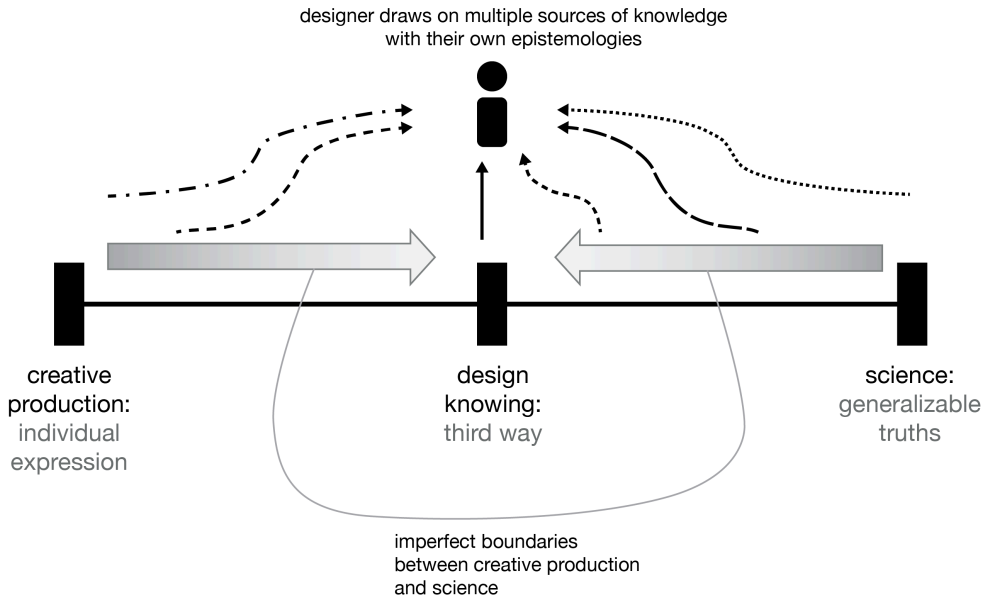
We will first outline different types of knowledge that represent differing epistemic positions, demonstrating the epistemological diversity that confronts and enables designers in their work. Then we acknowledge how disciplinary framings impact the collection and uptake of knowledge and how design disciplines are rapidly evolving alongside their respective knowledge bases. Finally, we point towards different interpretations and utilization of design knowledge in specific settings, describing how knowledge is activated in design practices.

Design Knowledge as Epistemically Diverse

To represent the epistemic diversity of design knowledge, we can ask: What sources or types of knowledge have relevance as *design knowledge*? Löwgren, Höök, and colleagues have identified multiple different types of knowledge that are used in design activity that are instructive here as a point of departure (Höök & Löwgren, 2012; Löwgren, 2013). First, Löwgren builds upon Nelson and Stolterman’s continuum of the “real” and the “true,” describing knowledge at each boundary: scientific and generalizable theory as an instance of the “true” and specific artifacts that have been created or exist as an instance of the “real.” All of the types of knowledge in between these two end states are then described as a zone of *intermediate-level knowledge*, which may include knowledge that is closer to the real (e.g., annotated portfolios, collections of precedent artifacts), closer to the true (e.g., laws or scientifically-guided principles), or somewhere in between (e.g., methods, heuristics, best practices, patterns). As a concrete example, a designer who avoids certain color combinations because individuals with color blindness will not be able to distinguish them is drawing from scientific knowledge established through empirical study. That same designer may employ so-called “warm” colors to convey a visual sense of energy, drawing on a widely agreed-upon construct among creative professionals.

Figure 1

Designers Use Multiple Sources of Knowledge Drawn From Science and Creative Production, but Also From the Intermediate Zone Between These, Using Their Judgment to Select What They Will Use. Knowledge From Different Sources is Epistemologically Different.



All of the forms of knowledge referenced previously *could* have an impact on design situations, but their configuration and potential for utility can vary based on disciplinary and philosophical positioning. Knowledge types also do not make decisions for the designer—instead, each designer employs their professional judgment to consider different forms of knowledge that appear to be salient in a given situation. The designer also has a repertoire of knowledge that informs these judgments which is *inseparable from the designer themself;* this repertoire not only includes objective and shared knowledge that might originate from a discipline or subset of practice, but also their own lived experiences that aid them in understanding a given design situation (Gray, 2016; Schön, 1990). Finally, engagement with knowledge connects the designer to broader ways of being—a praxis known as *ontological designing* which outlines and reifies the creation of new potential futures in ways that are always value-laden; as Willis (2006) articulates, "we design our world, while our world acts back on us and designs us" (p. 70).

Design Knowledge as Related to Discipline

Epistemological pluralism is a characteristic quality of numerous emerging design fields that operate at the intersection of multiple ways of knowing and disciplinary perspectives (Blevis et al., 2014; Varner et al., 2020). Design knowledge types can be viewed through a mono-disciplinary lens (i.e., a discipline may value and support certain knowledge-building practices distinctive to that discipline) or a trans-disciplinary lens (i.e., a discipline might value certain knowledge-building practices from different sources and to differing degrees). Importantly, design knowledge can be seen as related to discipline, or even primarily created by one or more disciplines, but the ways that knowledge is used in design work often disregards these original boundaries.

Additionally, design knowledge and its uptake in education and practice is not static. Over the past two decades, the education of designers has increasingly become an inter- and trans-disciplinary effort across many fields of design and is complicated by rapid shifts in design practitioner roles within organizations and society. As one example of this rapid evolution of design work, Kou and Gray investigated the knowledge creation and utilization practices of UX designers on Stack Exchange (a professional question and answer forum) and Reddit (a general-purpose social media platform). They found that there were not only marked shifts in the kinds of knowledge that were relevant to UX practitioners over a ten year period, but also an incredible diversity of types of knowledge (Gray & Kou, 2017; Kou et al., 2018; Kou & Gray, 2019). This led to the conclusion that a modern design discipline such as UX is no longer able to be singularly defined or "owned" by a single perspective or philosophy, but rather emerges as a *community of volatile practice* (Kou et al., 2018), and this evolutionary and volatile nature of design work has substantial implications for collection and use of design knowledge.

This diversity of knowledge types used by practitioners to inform their work also resonates with what Faiola (2007) described a range of sources of knowledge relevant to HCI education, indicating the role of four interconnected strands of knowledge that should inform the competencies of designers: social, design, business, and computing. In the practice of UX design, this range of knowledge types indicates a landscape where different practitioners may become more or less expert in differing combinations of these strands that reflect an appreciative positioning and framing of their design work. For instance, one could imagine a technically-focused practice of UX design (e.g., a UX Engineer) that is appreciatively framed by the desire for innovation in types of gestural input. This framing is dominated by computing competence with relatively little focus on the other three strands Faiola describes. In contrast, a UX practitioner that takes on a Product Manager role may draw equally on all four perspectives, with the business strand providing a primary appreciative frame to organize their work.

Design Knowledge Activated in Design Practices

These differing forms of knowledge are deployed in design practices that are organized in relation to one or more disciplinary perspectives. At a high level, all of these practices can be understood as *design*, but a deeper inspection of individual or local design work can also indicate design work as springing both from individual designers and interactive collaborations. Viewed as an individual enterprise, a designer engages their repertoire of knowledge and disciplinary expertise to address and frame a design situation, with the goal of creating intentional change. Nelson and Stolterman (2012) refer to this designer's *knowledge set* as the connection between their ability to think and know and their engagement with external entities that are collective in nature. Viewed as a collective and collaborative activity, designers work with others from other disciplinary perspectives (often in cross-functional teams) to achieve their aims, using diverse forms of knowledge to inform their work.

In the context of design activity, the designer and design team may choose to activate many different forms of knowledge based on their goals, understanding of the design situation,

and means of navigating design complexity (Stolterman, 2008). However, it is impossible to predict in advance which types of knowledge will be relevant or how they will be useful, but regardless, the knowledge used in design work will be contextualized by the designer's training, prior knowledge, and philosophy. For instance, in framing an ill-structured and "wicked" design problem, the designer must set constraints upon the design situation (Biskjaer & Halskov, 2014) which may frame the problem in a way that privileges a certain disciplinary perspective (Dorst, 2015) or philosophical position. A messy issue such as disinformation on social media might allow designers to frame the situation in more technical ways that are primarily techno-solutionist in philosophy (e.g., data science), ways that focus on cultures and communities with a philosophy of social good in mind (e.g., anthropology, sociology), or ways that focus on access to specific functionality that could drive different decisions within a utilitarian philosophical perspective (e.g., behavioral economics, usability). Eventually, all of these disciplinary perspectives and related knowledge bases may be employed to understand and act in relation to the design problem, but not all of these perspectives can be addressed by the designer or design team equally—at the same time—in design activity. Instead, the designer chooses, often tacitly rather than consciously, which appreciative frame they want to view the situation through and use their professional judgment to decide how to proceed based on what they learn through that framing (Schön, 1984).

Design Philosophy

As we have already mentioned in the previous section, design philosophy is invoked as we consider different forms and structures of knowledge and how types of design knowledge are activated in design practices. Design philosophy and knowledge are entangled with one another and mutually constitute or inform a designer's base of knowledge, their capacity for professional judgment, and the values that are central to their work.

At a high level, design philosophy distinguishes design activity from other forms of purposeful activity (i.e., science, art, religion); as Nelson and Stolterman (2012) note, "A philosophy of design has a different aim in that it focuses on what distinguishes design from other forms of inquiry and action—for example, to intentionally create change." (p. 217). While design as a philosophy can serve as a useful contrast to other dominant ways of knowing in the sciences or humanities, there are also many differing philosophies within and across design fields. These philosophies often exist in parallel, and some philosophies rise or fall in popularity based on forces such as fashion, geopolitics, social or political values, or technological advances.

All Designers Have Philosophies, and Most Fields Contain Members Who Practice from Differing Philosophies

All design fields have expressed design philosophies that impact what kinds of design goals are seen as relevant, which types of design outcomes are considered most desirable (and why), and what appreciative systems (cf. Schön, 1984; Vickers, 1984) drive the process of

design. These philosophies can permeate a field of practice (as with the “efficiency and effectiveness” philosophy in mainstream instructional design), and often enter the mainstream of society through maxims of design.

Consider these examples from multiple fields of design. Noted industrial designer **Dieter Rams** assembled a set of ten principles that included a summative philosophy: *“Good design is as little design as possible.”* **Harvey Bernard Gantt** was known for his pioneering work at the intersection of urban planning, architecture, and public policy; as a pioneering African American leader at a time of turbulent change in the Southern US, he led efforts to build socially-focused urban spaces with a philosophy of “*designing buildings that encourage community”* (The Gantt Center, n.d.). **Louis Sullivan**, an influential architect that brought architecture into the modern era, became known for his dictum “form follows function.” **Frank Lloyd Wright**, another architect working in the United States in the early 20th century rejected some of the shifts towards modernism at the time which he felt were “harsh,” instead considering how to deeply respect the materials, the site, and the people that would use the space through his design work. As Wright notes in his autobiography, “*No house should ever be on a hill or on anything. It should be of the hill. Belonging to it. Hill and house should live together each the happier for the other*” (1943/2005, p. 168). Modern material ecology designer **Neri Oxman** centers principles of design that can be derived from nature, and she sees her role as *“augment[ing] the relationship between built, natural, and biological environments by employing design principles inspired and engineered by Nature”* (MIT Media Lab, n.d.).

Beyond these individual commitments to design, which in some cases have driven whole industries or schools of thought within professions, companies take on design philosophies as well. Whether the now ironic “*Don’t Be Evil*” from Google or the “*Move Fast and Break Things*” by Facebook/Meta, corporate positioning of design activities legitimizes and frames the kinds of design work that are likely to result, while also often ending up with numerous unintended social consequences. From the perspective of style or fashion as a philosophy, we can also see philosophies at work; for example, fashion was central in Apple’s design approach as they became a dominant technology force—from the full on embrace of skeuomorphic design (or digital design elements that resemble their physical counterparts) with the introduction of the iPhone in 2007 to the complete shift towards flat and minimalist design by 2013 with the introduction of iOS7.

Philosophies of Design Have Real Impact on Designers' Practices and Shape the Impact Their Design Work Produces

What all of these philosophies have in common is that they have real consequences in how design work happens, what kinds of design work are valued, and what shape design outcomes and their impacts are likely to take. Whether these philosophies rise to the level of a "school of thought" (like Rams' *functionalist approach*), a "style" (like Wright's *Prairie Style*), or a movement (like Gantt’s *New South City*) or remain at the level of a maxim or motto, most fields have many extant philosophies in play at the same time, with some more dominant than others based on the fashion, socio-cultural, and political climate. These

philosophies can guide which kinds of professional skills are relevant (e.g., Oxman's linking of biology, material science, and design or Gantt's connections between architecture, urban planning, and policy). Design philosophies can also guide which forms of knowledge are relevant or valued (e.g., modernism's commitment to uniformity that often represses or discards local variants, particularly from marginalized or oppressed groups; material- and culture-focused approaches that seek to amplify sites, construction materials, and community norms).

At the level of an individual designer, a design philosophy is what makes that individual's attitude towards design coherent and meaningful. As Nelson and Stolterman (2012) state in the following quote, all designers have a philosophy that informs their action, and the more we are able to externalize and describe our guiding philosophy, the more we are able to reflect on our position, our values, and the ways in which we define success in our outcomes.

> *Becoming a designer does not mean only learning to use and apply 'correct' or even existing schemas produced by design scholars and professionals. It also means constantly engaging in the creation, application, and critique of one's own schemas. It means, as an individual designer, engaging in design scholarship by developing a personal design philosophy that leads to a carefully considered design epistemology to guide design inquiry for wise action. This might sound ambitious, achievable only for experienced design philosophers and thinkers. It is clear, however, that every designer expresses his or her philosophy, epistemology, and scholarship in every design process, even if they are not explicit and externalized. Becoming a designer means that the engagement with practical issues, such as developing hands-on skills and techniques, has to be complemented with the intellectual activities addressed earlier. To become a well-rounded designer means understanding design as a tradition, as a philosophy, with a sense of what constitutes design epistemology and inquiry as well as a concrete practice. (p. 224)*

In a previous study addressing the role of core judgments among instructional designers, we have identified that "...simply acknowledging that practicing instructional designers hold core judgments begs the question of the role of philosophy in our practice" (Boling et al., 2017, p. 211). In our evaluation of extant philosophies of design in relation to LX practice, we can consider the role and character of these core judgments, which we consider more fully in the final section of this essay.

Is LXD a Distinct Discipline or a Philosophy? And Why Does it Matter?

In the previous sections, we have introduced two entangled concepts from the design theory literature: design knowledge and design philosophy. In this section, we will consider the impact of these concepts on the current and future state of ID and LXD practice. First, we will argue that LXD is a distinct philosophy of ID work. Next, we identify opportunities for multiple philosophies of design for learning and education to flourish. And finally, we

conclude by describing the limitations and interactions of philosophies that should be considered as these extensions of ID practice continue to develop in the future.

LXD is a Philosophy of ID Work

Contemporary LXD practice is informed by many different disciplinary perspectives and sources of knowledge—with instructional design and learning theory knowledge playing a central role. In fact, LXD *without* a central focus on learning falls apart as a practice separate from UX design. When considering the relationship of LX to UX practices, for instance, we can identify the same epistemologically pluralistic attitude towards knowledge in each set of professional practices (Gray, 2020). UX designers and LX designers draw broadly on knowledge relating to psychology, visual design, anthropology, ethics, human factors, and computing. Although LX designers draw on a similar diversity of disciplinary knowledge as UX designers, the critical addition for LXD is, in fact, a central focus on learning. *With* this central focus on learning, it is difficult to identify a difference in sources of knowledge regarding learning versus differences in values and judgment regarding the use of that knowledge. Just as UX practice is usefully viewed as a philosophical extension of HCI scholarship (with that philosophy focused on user-centered design), LXD can be defined and discussed as a philosophical extension of instructional design and educational scholarship (with a philosophy focused on learner-centered and experience-centered design).

LXD is a Bellwether for Consideration of Other ID Philosophies

Our argument is that LXD is a means of expressing a design philosophy rather than a new field of design. As a philosophy, LXD patently exists within a field of design which places teaching and learning at its core (versus technology, communication, human spaces, or any other targets of design) and for which the most discernible philosophy—not recognized for what it is—has long been expressed as “efficiency, effectiveness and appeal,” a philosophical perspective open to debate and co-existing alternatives. In such an environment, where the idea of alternate philosophies has not been readily available, it is no surprise that a dawning recognition of available tools and value perspectives (e.g., from UX, HCI, social justice) may lead to the perception that a new field of thought, practice, and research, rather than a new philosophy, is emerging, or must emerge. However, instructional design (rapidly being rebranded as learning, design and technology) is a field of design focused on human learning, as architecture is a field of design focused on human spaces. Differing value priorities within these foci are philosophies rather than separate fields of design, even when these philosophies call for differing—even conflicting—processes, conceptual tools, and vocabularies. To ignore this relationship is to avoid clarifying several issues critical both to LXD and to ID—in the first instance, how is LXD to position itself with respect to UX, and with respect to multiple shifts within ID questioning traditional perspectives and making room for revised, new, and possibly synergistic philosophies. In the second instance, it is past time for ID to examine what is now its core and largely unquestioned philosophy of efficiency, effectiveness, and appeal.

Several advantages accrue in the perspective which sees LXD as a philosophical turn. We can make clear what the various positions are, identify what discussions we are having, and

debate the impacts of value positions between philosophies—for example, using the clarity of each lens, and the differences between them, who is or is not advantaged by pursuing design from one value position or another. We can recognize and place appropriate value on models, methods, and theories and respect common ground productively versus performatively, retaining and taking advantage of decades of knowledge building—the parts that remain relevant across more than one philosophical position (and many do), and remain in productive tension together to the overall betterment and strength of all designers who focus on teaching and learning. We consider LX as one of many philosophies that ID might create or consider as the profession continues to evolve, identifying a set of many active and overlapping philosophies within the ID as a sign of strength rather than of chaos.

Philosophies Have Limitations and Present Opportunities for Synergies

Philosophies of design are inevitable—and the only way that a designer can bring together their values, design knowledge, and work within a given context to create new potential futures. However, all design philosophies have limits in that they represent appreciative systems. Issues that emerge as critical or core in one philosophy may be tertiary or fundamentally at odds with the values of another philosophical approach. This difference in focus and resolution may be compared to different knives in the kitchen: all of them are sharp, but some are more flexible when it matters (like a boning knife) and others have the versatility to play across many different tasks (like a chef's knife).

A diversity of philosophies, all with strengths and weaknesses, implies that a range of practitioners interacting from different philosophical positions could result in stronger design teams and different approaches to design knowledge—in other words, "traditional ID" practice can learn something from LXD practice (which has been largely disconnected from ID orthodoxy) and LXD practitioners can enrich their practice with design knowledge from ID. This interaction of philosophies has the potential to be bidirectional and mutually enriching. As illustrative examples of this knowledge exchange, LXD practice can contribute to the creation and use of design methods, an area of knowledge that has been underexplored in ID scholarship. Similarly, ID scholars and practitioners can provide more process structure that is useful in scaling instructional systems, alongside robust commitments to instructional and learning theory, which could advance LXD practice.

Conclusion

In this essay, we introduced two concepts from the design theory literature—design knowledge and design philosophy—to interrogate the potential relationship between ID and LXD practice. We argued that LXD is a philosophical expression of ID work rather than a distinct field or profession, and using this philosophy as a point of entry, we call for ID scholars and practitioners to consider other philosophies of design that may bring a meaningful and synergetic diversity of approaches—operationalized through differing collections of design knowledge—to bear.

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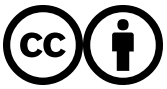

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