Learning Experience Design as an Orienting Guide for Practice: Insights From Designing for Expertise

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In this paper we consider how learning experience design (LXD) improves designers' capacities to influence learning. We do this by exploring what LXD offers the design of learning environments that help develop learners' expertise. We discuss how LXD (a) attunes designers to different learning affordances than are emphasized in traditional ID; (b) challenges the universal applicability of common ID techniques; and (c) expands designers' views of the outcomes for which they can design. These insights suggest that LXD is useful because it refocuses and reframes designers' work around

flexible design approaches that are often deemphasized in traditional ID.

Introduction

In this paper we examine a central claim of learning experience design (LXD). Uniting the disparate definitions of LXD is the assertion that designers should be informed by more than only the knowledge base upon which instructional design (ID) has traditionally been built. In addition, designers should remix such established techniques with theories, models, or methods drawn from the rich heritage of other experiential design fields, particularly human-computer interaction (HCI) and user experience (UX) design (Schmidt & Huang, 2022). The claim is in doing this, designers will have improved capacity to influence learning in all its forms. Of course, this still provides considerable variation in what learning experience (LX) designers might do day-to-day. To some, LXD resembles HCI with a dominant focus on designing interactions with learning affordances (e.g., Schmidt et al., 2020). To others, it appears quite similar to conventional ID, with some additional techniques to solve particular learning challenges (e.g., Reigeluth & An, 2023). In our view, all such alternatives are acceptable, because at their core they can all offer a differing orientation towards the intersection of design and learning, meaning they can attune designers to different opportunities, challenges, patterns, or values than those highlighted by traditional ID theory and practice (cf. McDonald, 2022).

With this in mind, we also consider Jahnke et al.'s (2022) recent claim that "LXD sits alongside ID ... as a complementary approach to design for learning" (n.p.). In this view, it seems that LXD improves designers' capacities by augmenting ID, without completely replacing it. Yet in a practical sense, what does this mean? Understanding how LXD complements ID seems essential if one is to also understand how LXD improves designers' capacities to influence learning. Thus, Jahnke et al.'s statement provides the focus of our paper. In what ways does LXD complement more conventional ID practice? We explore this issue by examining a specific case of learning design that can act as a paradigmatic example (Flyvbjerg, 2001), the common educational goal of supporting learners along their journey from novice to expert. We focus on what LXD offers designers when they design for expertise and how this contrasts with traditional ID. Doing this will provide insights into how LXD supports designers' attempts to improve learning.

Our exploration of this topic consists of four parts. First, we review typical ID approaches for developing expertise. We then contrast those with additional practices LXD contributes towards the same goal, illustrated with examples of how LXD has influenced the design of a genre of educational simulation at our university. The value of our case is that it clarifies how LXD offers an expansive set of practices for designers to structure learning environments—practices that, while not stressed as often in more traditional ID approaches, can still be used in conjunction with them. LXD (a) attunes designers to different kinds of learning

affordances than are emphasized in traditional ID; (b) challenges the universal applicability of common ID techniques; and (c) expands designers' views of the outcomes for which they should be designing. In this sense, LXD—even with its practical and philosophical diversity—provides an orienting guide for practice, not as "an external storehouse of knowledge, or rule-like system for professionals to apply," but because it offers "an orienting aid that supports practitioners as they refine their personal capacities for perception, discrimination, and judgment" (McDonald, 2022, p. 29). We conclude by discussing how this view of LXD can strengthen designers' practice.

Traditional ID Approaches for Developing Expertise

Traditionally, models of developing expertise have focused on the measurable abilities of accomplished performers: their knowledge and skills, problem-solving abilities, deliberative capacities, and so on (for general reviews see Ericsson et al., 2018). What defines an expert, in these views, is they have acquired more information and skills than the non-expert, and they have developed greater competence at following the rules and processes that govern a given domain. There is an intuitive appeal to this; clearly, experts can do more than novices, do it faster, with a more refined sense of finesse, or all of these at once. Such differences suggest that experts possess something that novices do not, whether that be cognitive capacities, physical prowess, or other abilities that can be defined and quantified.

Further, since experts were not always experts, there must be a process by which they achieved their status. Consequently, ID approaches for nurturing expertise usually focus on helping people acquire whatever identified capacities are missing from their current repertoire of knowledge or ability. In Fadde and Sullivan's (2020) review of how ID supports the development of expertise, they summarized the broad consensus of how instructional designers can accomplish this, "deliberate practice that is directed by a coach, targets specific skills to improve performance, provides timely feedback and repetition to refine target skills, and is effortful rather than inherently enjoyable" (p. 53; emphasis removed). These approaches are intentionally interdependent. For example, deliberate practice is improved when a teacher, trainer, or coach scaffolds the learning process by helping learners to set achievable goals (Ericsson, 2008). And while it is important for learners to practice, integrated feedback is equally important, as it provides targeted instructions for improvement (Horn & Masunaga, 2006).

Numerous studies have provided empirical evidence for these design approaches (for a review see Ericsson, 2009). ID researchers have, therefore, systematized them into models for designers to follow, enabling learners to develop their expertise in an efficient manner. Fadde and Sullivan (2020) described some notable examples, including the ExPerT model, based on a procedure for modeling expert performance and developing training based on those models:

> *(1) identifying expert performers and representative tasks that capture the essence of expert performance in natural settings, (2) devising tasks to study under controlled conditions using process methods such as eye-tracking and think-aloud*

> *protocol to identify cognitive mechanisms of expert performance, (3) tracing the developmental history of experts to ascertain when and how they acquired mechanisms of expertise, (4) developing deliberate practice activities based on the representative tasks, and (5) reiteratively assessing training effectiveness and setting new performance goals. (p. 62)*

Another example, the ShadowBox method, relies on "input from experts . . . to create realistic scenarios," which are then used as the basis of a training framework for learners to analyze, explore options, and reflect on their own performance as they compare their ideas/actions to those of recognized experts (p. 63).

Systematic reviews of designing for expertise indicate that common to most of these approaches are ID processes and techniques that are similar to those designers apply when pursuing any other learning goal (for some counterexamples, however, see C. Miller & Hokanson, 2009; Tracey, 2016). For instance, ID processes for developing expertise typically begin by interviewing or observing people to create explicit models of expert performance that include the rules or heuristics experts follow, the conditions of success they rely upon, and so on (Ericsson, 2008). These models are based on observable activities in which experts engage (Clancey, 2006), and knowledge (facts, concepts, etc.) they either directly report they possess, or that observers derive from studying their actions (Hoffman & Lintern, 2006; Schraagen et al., 2006). And most often, designers will also define specific learning goals in advance, towards which all instructional activities and assessments are aligned (Fadde & Sullivan, 2020).

LXD Practices for Designing for Expertise

Since traditional ID approaches have provided these kinds of proven techniques for developing expertise, what more could LXD offer? One answer is found in how LXD nurtures additional dimensions of expertise than those typically cultivated through common ID practices. The careful, scientific foundation of the traditional approaches have clearly been valuable when designing learning environments. However, much of the scholarship grounding such techniques has intentionally bracketed out aspects of expert performance that cannot (or at least cannot easily) be objectively measured (Ericsson, 2009). Yet, based on the work of philosophers like Dreyfus (2014) and Wrathall and Londen (2019), it has become clear that there are at least three other dimensions of expertise that elude our ability to measure in controlled, laboratory-like conditions: (a) expertise cannot be completely defined using rules or procedures; (b) expert performance cannot always be predicted in advance; and (c) there is an important role that affect and emotion play in expert response. At least some LXD practices are compatible with these philosophical views, and thus will be able to support the design of learning environments that are consistent with an expanded perspective on the nature of expertise.

As we explore LXD practices that align with these dimensions of expertise, we illustrate each by describing how they have been implemented in a specific learning environment: a type of educational simulation called a playable case study (PCS). Modeled on what is known as

alternate reality gaming (Bonsignore et al., 2013), a PCS supports students' cultivation of various forms of professional expertise (e.g., cybersecurity, technical writing) as they interact with fictional professionals and perform authentic job tasks (Balzotti et al., 2022; Giboney et al., 2021). The simulations implement numerous features that are compatible with the expanded view of expertise described above. The PCS design team also included instructional designers along with designers from other fields like HCI and UX design; together they negotiated a joint practice grounded in the flexible and human-centered traditions found in the LXD literature, along with others more commonly found in ID, HCI, and UX (all of which strongly influence the development of LXD; see Schmidt & Huang, 2022). Both reasons suggest the value this case has for understanding how LXD can support designers as they structure effective learning environments.

We do not claim, however, that traditional means of nurturing expertise are less important than the examples we present. Instead, we are interested in how LXD can expand the possibilities designers have, enabling them to address more aspects of learners' expertise than are addressed through other means. Neither do we claim it is impossible for creative designers to use common ID approaches for the ends we describe. Since instructional design is an imaginative enterprise (cf. Nelson & Stolterman, 2012), we acknowledge that motivated and skilled designers can achieve their goals using nearly any approach, even if certain approaches require more work to do so than others. Our focus, instead, is on how LXD practices might promote, or otherwise legitimize, the pursuit of an expanded view of expertise, where traditional ID may overlook or deemphasize such aims.

LXD Focuses on Different Learning Affordances than Traditional ID

LXD practices for nurturing expertise when it cannot be defined using formal rules helps illustrate how LXD attunes designers to different kinds of learning affordances than are emphasized in traditional ID. This becomes evident when one recognizes that common ID techniques for developing expertise rely on the presumption that experts are very skillful in internalizing the rules and mental models governing a domain, and by so doing, are able to unconsciously retrieve information, process it, and solve situational problems quickly (Jonassen, 2000). But even though a novice may very intentionally apply rules to make decisions or solve problems, this does not imply that experts use the same rules, only faster or better. As Wrathall (2014) stated, "agents who possess different levels of skill are, in a very real sense, engaged in different kinds of activities" (p. 4). Some aspects of expertise just cannot be defined in rule-like ways. As White (2020) described, "it is not that the expert is simply unaware of the rules underlying her decision process. Instead, through vast experience, the expert has great situational understanding that is not grounded in (and is not reducible to) rules" (p. 225). Instead of rule-following, information processing, or other forms of deliberate reasoning, what seems to actually happen is experts experience situational "solicitations," or "attractors," that "draw" out of them an appropriate response, when cognitively they may have barely had time to register what is happening in at all (Wrathall & Londen, 2019, p. 659; see also Dreyfus, 2014).

It is the case that the existing ID knowledge base does include some strategies to hone learners' abilities in identifying situational attractors and mimicking an expert's response,

regardless of whether they know the formal rule structure being applied. One is to present learners with numerous examples of skillful action so they can become more sensitive to important cues. Another is for learners to experience simulated environments (either live or recorded) where they observe/interact with models of both skillful and non-skilled performance (see reviews of research on both strategies in Fadde & Sullivan, 2020). Prior research has also provided IDs with guidance on designing visual interfaces to present examples, often from a cognitive perspective to reduce cognitive load (Mayer & Moreno, 2003), or pull learners' attention towards a relevant section of the display (Betrancourt, 2005).

LXD offers more than is available through these kinds of practices, however. Some LXD practices address different interface affordances than those highlighted by typical ID processes; these are important for helping people learn to respond to situations in contextually sensitive ways *without* applying formal decision-making processes. Often, such affordances are related to LXD's sensitivity to the sociocultural nature of learning (Jahnke et al., 2022; Schmidt & Huang, 2022). Of course, sociocultural views are not unheard of in traditional ID, but they do tend to be subordinated to the perspective that learners' individual cognition is the ultimate foundation of learning, which sociocultural factors in turn augment or support (McDonald & Yanchar, 2020). But LXD draws from traditions, like HCI, that center the sociocultural (Gray, 2020), opening the possibility of treating learning as a fundamentally different phenomenon than a change that happens within an individual's mind. Because of this, LXD practices can attune designers to aspects within a learning environment that are highly relevant to learning's sociocultural dimensions, but that are often deemphasized by ID practices that are foremost concerned with optimizing instruction to align with learners' cognitive processing mechanisms. Such dimensions are crucial when a primary goal is to help learners become capable of intuitively responding to situational saliences without making conscious decisions about what rules to apply. This is because they affect how "aspects of the world will show up in . . . ways" that are relevant for learners to become immersed in a community of practice to the point of allowing for intuitive response (Yanchar & Francis, 2022, p. 201).

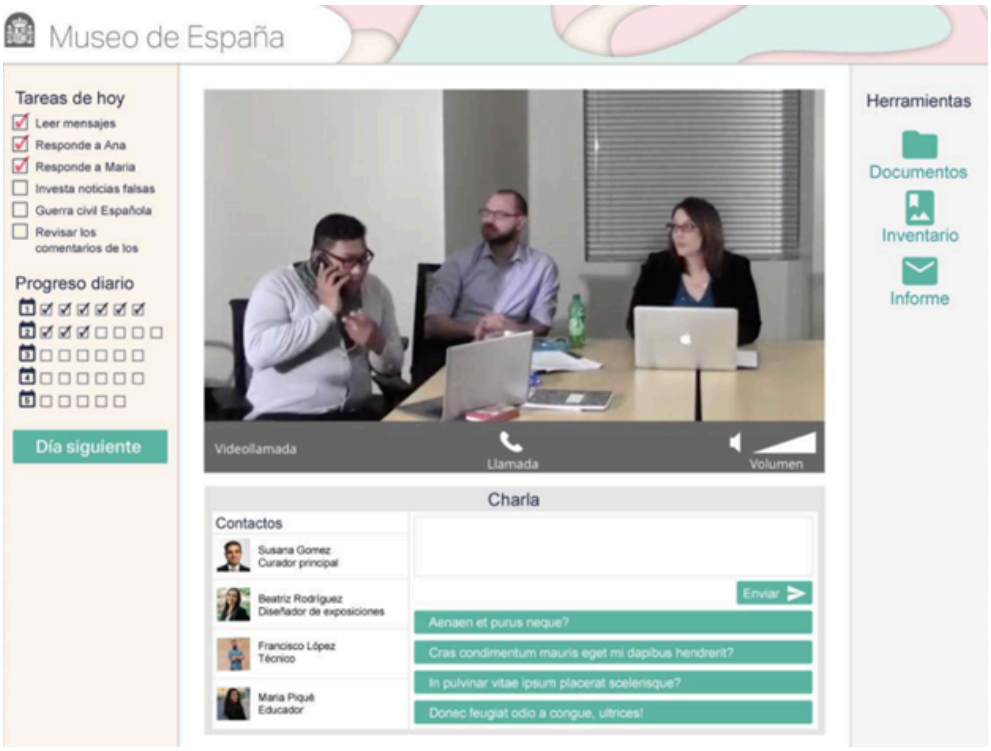
Two examples help illustrate. First, Kimmons (2020) summarized research demonstrating the role that color plays in establishing the meaning of a learning experience. In addition to more cognitive factors, like its ability to draw attention to certain elements within an interface, color is also part of an experience's referential structure, where what one element means is at least partly defined by its relationship to other elements. Thus, whether something within an interface matters to a learner, along with how it matters, can be influenced by the colors associated with it. Designers can use both the cognitive *and* referential affordances of color to help people understand relevant situational details associated with expert response. The cognitive can focus learners' attention towards a situational factor that may not be immediately evident, while the relational encourages learners' positive attitude towards expert performance. Second, Jahnke et al. (2020) discussed how pedagogical usability includes more than evaluating interfaces for individual psychological factors like their cognitive load, or the simplicity of their controls. In addition, an interface is most pedagogically sound when interface elements lend themselves towards the "socio-technical" aspects of learning—like the tacit messages an interface communicates about the importance of a topic, or learners' abilities to succeed—because

such affordances impact how nearly everything else within the learning experience is interpreted.

PCS designs help illustrate these kinds of sociocultural affordances. For example, West's (2019) design case of a museum experience PCS (Figure 1) described the work of creating a visual interface with "museum inspired branding and . . . controls" (p. 18), to encourage students to suspend disbelief in the simulation's artificiality, and thereby pay more attention to the subtle details of simulated interactions within the narrative. It also encouraged students to adopt the identity of a professional who was already a member of the community of practice, not as a student completing an assignment in a classroom. Designing this interface required careful attention to the "affordances represented by icons, colors, and shapes" (West, 2019, pp. 18–19), as well as many other elements including video and sound design. The intent was that these affordances would qualitatively change the way students interacted with simulated characters and tasks, so they became sensitive to important situational cues based on the consequences they experienced, without being formally instructed in a set of rules and principles (cf. Bonsignore et al., 2013). The design approaches to accomplish this could properly be considered LXD practices, since the team intentionally drew on HCI, UX, and graphic design techniques alongside others more commonly found in ID. Using these, the team was able to address socio-technical factors associated with usable interfaces, in conjunction with factors more typically addressed in ID theory, to support the broad learning purpose the interface was aiming towards.

Figure 1

Draft PCS Interface Design. From West, D. (2019). Spanish civil war museum exhibit: Five-day playable case study (PCS). Master's project manuscript, Department of Instructional Psychology and Technology, Brigham Young University, Provo, Utah. Retrieved from https://scholarsarchive.byu.edu/ipt_projects/18. (CC BY-NC-ND 3.0)



LXD Challenges the Universal Applicability of Common ID Techniques

LXD practices for nurturing expertise when it cannot be predicted in advance helps illustrate how LXD can challenge the universal applicability of common ID approaches, showing how they may not be useful or helpful in some contexts. One of the presumptions of the expanded view of expertise presented here is there are situations where an expert's response is not necessarily based on widely accepted definitions of skillful performance (Dreyfus, 2017). Experts may differ on what a proper response is, or even the same expert may perform differently at different times. Consider an author writing her latest masterpiece; at least in part, her expertise may lie in how unique her book is when compared to her contemporaries, or with what she wrote previously. It may also be that an expert reinvents the domain of expertise, so that previously "marginal" practices that were once viewed as deficient become the new standard (Dreyfus, 2017, p. 44; see also Wrathall & Londen, 2019). In cases such as these, as Ericsson (2006) pointed out, "it is rarely possible to identify and study scientifically the key factors that allowed these people to produce [their] achievements" (p. 13). While some scholars attempt to study these forms of expertise through proxy measurements (Ericsson & Smith, 1991), it is likely such proxies only operationalize aspects of expertise that are easy to articulate and model. This means they will omit some aspects of true expert performance.

Given the widespread acceptance in ID that design begins by setting precise, measurable objectives for student learning, not being able to always specify in advance what constitutes an expert response can present difficulties for designs meant to develop expertise. How can designers write measurable performance objectives if some of the standards they hope to achieve are unknown before they begin? While some researchers have attempted to provide alternatives that address this challenge (Gibbons et al., 1995; McCreary, 2022), these have not achieved widespread adoption, as evidenced by how frequently designers are still directed to write specific objectives in popular guides to instructional design (e.g., Curry et al., 2021; Dick et al., 2022; Dirksen, 2016).

LXD practices offer another alternative to the traditional technique of writing specific learning objectives. As described by Chang and Kuwata (2020), this consists of redefining the "learning problem" away from being a matter of "what do learners need to know and do," towards "how do we support learners in negotiating [their own] meaning" from a learning experience. Implied in this statement is that, at times, it may be acceptable for designers to *not* direct their efforts towards a specific, predefined set of knowledge or skills. Some experiences may be valuable even if we cannot state in advance what learning will occur, and perhaps even if there is variability between what students achieve. The alternative to predefined learning objectives is not necessarily chaos; LXD proposes that it is possible to design for a broad, directional aim (e.g., an experience to cultivate management expertise) without demarcating exactly what that means (such as, students will be able to explain the six factors of management success). Given the field's current interest in LXD, perhaps this attempt to challenge the universal value of predefined learning objectives will have more lasting effects than earlier efforts.

This approach of setting a directional aim but not defining every learning objective students will achieve has been used in the design of PCS environments. Basic to the PCS design is that it is valuable for students to experience failure in the simulated tasks they complete, even though different students will experience failure in different ways, and what they learn from failure is not specified in advance. As Arrington and Tawfik (2022) noted, under certain conditions learning from failure "can be just as beneficial if not more beneficial than the traditional [success-oriented] methods" (p. 67). Of course, failure can also be overwhelming and discouraging, so the learning experience should be scaffolded such that failure promotes change and further development instead of becoming an unhelpful struggle. LXD practices are meant to provide this structure. McDonald et al. (2021) described how the PCS team accomplished this in one simulation focused on municipal infrastructure management. By applying UX techniques for immersive learning, the team defined features like types of failure students could experience, the level of challenge different kinds of failure represented, narrative elements to communicate failure, and how the simulation would respond when students failed in different ways. Taken together, all of these features created a flexible experience where the possibility of failure existed but was not predetermined, and where if students did fail it was not a condition from which they could not recover. The space structured by all of these interactions provided more opportunities for students to learn something personally meaningful for their individual path towards expert performance than could have been provided by attempting to define all of those possible outcomes in advance.

LXD Expands Designers' Views of Learning Outcomes

LXD practices for nurturing the affective and emotional dimensions of expertise helps illustrate how LXD expands designers' views of the types of outcomes for which they can legitimately design. Whereas many traditional approaches for developing expertise assume it is primarily a cognitive or a skill-based state, just as important is the emotional dimension of expertise, described by Wrathall (2019) as a kind of "taste" (p. 25) that experts develop. Experts feel there are right, better, more appropriate, or more valuable ways of participating in the domain of their expertise when compared to alternatives. They come to value what experts in that domain should value (see also the related notions of deliberated offhand judgment, compositional judgment, and connoisseurship in Nelson & Stolterman, 2012). Beyond this, as noted earlier, even in routine choices it appears that experts often "feel . . . the affordances of a situation" rather than consciously notice and deliberate about options (White, 2020, p. 227). They respond so as to "relieve . . . the feeling of tension" experienced when their circumstances are not in equilibrium, more than to satisfy any cognitive criteria of success (Wrathall & Londen, 2019, p. 659). These affective dimensions affect experts' actions as much as their more measurable knowledge or skills; yet even with the possibility of studying experts' taste through surveys or interviews, researchers' ability is limited to precisely measure how taste affects performance. Consequently, such aspects are typically set aside in scientific studies of expertise.

Consistent with this, typical ID processes seem to primarily focus on the cognitive and psychomotor aspects of expertise (Fadde & Sullivan, 2020). Of course, instructional designers have long been aware of the affective domain and have explored how to address it in learning environments (Honebein & Honebein, 2015; Martin, 1989; Price, 1998). But often the approaches they adopt seem to be an add-on to their emphasis on cognitive and skill-based dimensions (M. Miller, 2010; Pierre & Oughton, 2007). In contrast, LXD often centers the affective dimension, thus opening possibilities for designers to better attend to such aspects of experts' performance. Central to LXD is an emphasis on the emotional aspects of experience, and how designers should be sensitive to experiential elements that affect people's emotion (Jahnke et al., 2022; Oprean & Balakrishnan, 2020). Much of the current LXD discourse focuses on whether learning experiences are enjoyable and pleasurable. But it also appears possible to encourage the emotions associated with expert performance, where performers are oriented towards what are the better, preferred, or somehow correct ways of participating in a domain (Park & Lim, 2019). Indeed, such aims already seem legitimized in some of the design traditions from which LXD has drawn insights (see So, 2019; Yilmaz & Seifert, 2011).

The PCS genre provides a suggestive possibility for learning designs that help people develop their dispositional tastes within a domain, meaning their sense of what are the more- or less-preferred ways of acting. Neupane et al. (2021) reported the design of one PCS meant to help students cultivate professional dispositions exhibited by cybersecurity experts, including their commitment to adhere to professional codes of ethics. The goal was not only for students to take the correct actions, but also to be moved by relevant situations, feeling even in a minor way the professional pride experts have when making a correct

choice, or, if they erred, that they had an obligation to modify their behavior to align with disciplinary standards.

To do this, the simulation introduced a dilemma: if a trusted colleague told them it was okay, would students violate a service agreement with a company and hack a computer system that was out of scope? (Figure 2) Using UX principles developed in the genre of alternate reality gaming to design compelling narratives (Bonsignore et al., 2013; McDonald et al., 2019), the simulation attempted to create emotional dissonance for the students, where, as Dreyfus (2014) put it, they would have to "[wrestle] with the question of a choice . . . [feel] responsible for [it], and thus emotionally involved in . . . the result of [their] choice" (p. 32). According to Dreyfus, this kind of wrestling is crucial for helping novices move towards developing full expertise. In the case of this PCS, if students were caught they were required to write an email that admitted their fault and what they proposed to do in response (Figure 3). Early evaluations of the dilemma were promising in helping students begin developing their ethical sense (although a complete evaluation would, of course, require sufficient time to situate the PCS's outcomes in students' complete trajectory from novice to expert). This was evidenced by results like a student who, after breaking scope, wrote to the simulated human resources department, "I realize this was out of scope and that criminal prosecution may take place, but I take full responsibility" (Neupane et al., 2021, p. 187).

Figure 2

Ethical Dilemma Message. From Neupane, A., Gedris, K., McDonald, J. K., Hansen, D. L., & Balzotti, J. (2021). Balancing competing goods: Design challenges associated with complex learning. In B. Hokanson, M. Exter, A. Grincewicz, M. Schmidt, & A. A. Tawfik (Eds.), Learning: Design, engagement and definition (pp. 181–190). Springer. https://doi.org/10.1007/978-3-030-85078-4_14

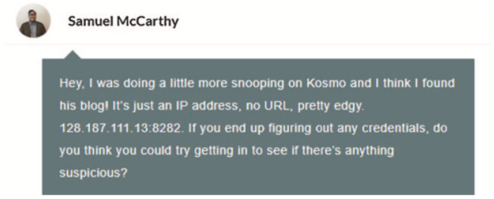
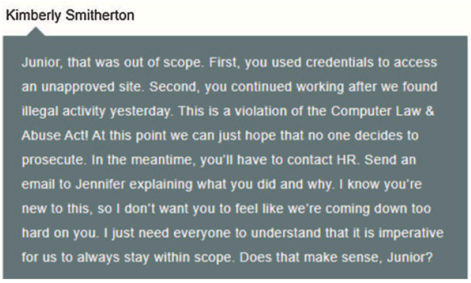


Figure 3

Ethical Dilemma Response. From Neupane, A., Gedris, K., McDonald, J. K., Hansen, D. L., & Balzotti, J. (2021). Balancing competing goods: Design challenges associated with complex learning. In B. Hokanson, M. Exter, A. Grincewicz, M. Schmidt, & A. A. Tawfik (Eds.), Learning: Design, engagement and definition (pp. 181–190). Springer Nature Switzerland AG. https://doi.org/10.1007/978-3-030-85078-4_14



Discussion and Concluding Thoughts

The three insights of this paper help clarify how "LXD sits alongside ID . . . as a complementary approach to design for learning" (Jahnke et al., 2022). The case we examined suggested that LXD (a) attunes designers to different kinds of learning affordances than are emphasized in traditional ID; (b) challenges the universal applicability of common ID techniques; and (c) expands designers' views of the outcomes for which they should be designing. So, LXD's helpfulness seems to be more than only an instrumental one, in the sense that it provides techniques useful for addressing certain design considerations. In addition, LXD can play a refining and orienting function, by highlighting unfamiliar practices, shifting designers' priorities, and refocusing their efforts. Because of this, we call LXD an orienting guide for practice. By this we mean that it "supports practitioners as they learn how to cope with practice in all its color, vibrancy, and liveliness" (McDonald, 2022, p. 40), particularly in "catalyzing a change in how they experience situations . . . so they come to see and feel things" in new ways (p. 34). While such a purpose could also properly be called a theory of practice, we choose to not use that label here so as to avoid a misperception that we are attempting to "artificially harmonize [LXD] into generalizable laws," or settle into a canonical set of "patterns and regularities" (p. 40) that definitively set it apart from other forms of learning design. Instead, we keep our focus on considering how these LXD affordances—along with others like them—can support practitioners in skillfully navigating the distinct and ever-changing situations they face.

In this view, exactly how one defines LXD, or how one draws the boundaries between it and other fields, becomes less important. While we do not discount the value of understanding issues like where LXD came from and where it is going, if LXD has the affordances we have identified here it can still refocus and reframe designers' work, regardless of its conceptual point of origin, or its distinctness from other design traditions. Thus, LXD need not be theoretically unique in an absolute sense to perform its complementary role alongside other ID practices. This is suggested by the PCS case we used as an example throughout. The PCS design team included classically trained instructional designers, working alongside designers from HCI and UX. All these traditions have historically been involved in improving learning, and so all team members were able to offer strategies and techniques from their fields of origin that were advantageous in shaping PCS designs. In one sense, their practice of LXD was generated *in situ*, as they drew on each other's backgrounds to create a living practice (Osguthorpe & Osguthorpe, 2007), one that was informed by their different disciplines, but also tailored to the unique situations they faced. They had little interest in

disciplinary purity, nor did anyone involved insist that their approach to learning design was inherently more legitimate or rigorous than others. They were seeking a practical grasp on their lived situations, and a productive amalgam of ID, HCI, and UX (in other words, LXD) was what offered them this grasp.

We find a useful message in this for the scholarly conversation around LXD. Even if one can find some learning design approaches in the overall body of ID research that are similar to those practiced in LXD, this does not mean that LXD serves no purpose, or that designers should disregard it and, instead, devote their efforts towards studying the traditional ID knowledge base. The same is true if one compares LXD to other design traditions; LXD can be a valuable addition to design practice even if practitioners of HCI or UX design wonder how it differs from approaches common in their fields. As McDonald and Yanchar (2020) observed, there is value in "design theory [that] continually revisit[s] basic questions about [a] field's core phenomena." Among other reasons, "this continued work can provide an ever-richer set of conceptual alternatives for . . . designers to draw upon as they exercise judgement-in-practice" (p. 645). This vision of continued exploration of a field is not the same as an ignorant regeneration of the same techniques or strategies again and again. Instead, it is one where the inexhaustible nature of learning and design is fully acknowledged. Further exploration—informed by what has come before—is valuable because it can "provide the occasion for new insights and possibilities to be recognized" (Yanchar & Faulconer, 2011, p. 29). In our view, this means that LXD is not merely a rebranding of either conventional ID processes, or HCI/UX strategies. In light of the synthesized perspectives growing out of LXD's union of ID and other design traditions, even when specific LXD techniques can be found in other settings they will often carry a different meaning when applied in the new context of *learning experience design*.

Thus, we conclude by asking readers to consider: for the specific learning challenges you face, would it be beneficial to become attuned to different kinds of affordances that you can draw upon to improve learning? Is it helpful to consider whether traditional ID techniques are applicable to your current situation? Would it be valuable to expand your view of the kinds of learning outcomes towards which you should be aiming? If any of these situations apply, we recommend you study LXD theories, strategies, processes, and techniques, in all their diversity and variability. We encourage you to do so not with the goal of searching for prescriptions to govern your design practice, but to stimulate a change in you—your ability to perceive and act more expansively and flexibly. Doing this can reframe and refocus your practice towards ends that are either neglected or deemphasized in traditional approaches to ID. We therefore concur with other proponents who promote the flexible and human-centered practices of LXD as a useful complement to other approaches more typically seen in the field.

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