

What's the Difference Between Learning Experience Design and Instructional Design?

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DOI:10.59668/515.12897

Instructional Design

Learning Experience Design

Augmented Reality

Instruction

Learner-centered Paradigm



Some proponents of learning experience design (LXD) have set it apart as an alternative to instructional design (ID). This article explores the similarities and differences between LXD and ID and whether the two are really in conflict. It begins by defining learning experience (LX). Then it contrasts LX with what instruction should be like. Next, it focuses on defining LXD and contrasting it with ID. It explores some issues that influence the view of LXD as an evolution of ID or as a new discipline or field. Finally, it offers some suggestions for advancing knowledge in this important area.

Introduction

Some proponents of learning experience design (LXD) set it apart as an alternative to instructional design (ID; e.g., Floor, 2023). Perhaps this is because, given its behaviorist roots and its origins over a half century ago, ID has focused on designs for the teacher-centered paradigm of instruction, which unfortunately has an enduring prevalence in schools and universities. The teacher-centered paradigm served society well during the industrial age, when manual labor was the predominant form of work, and we needed an educational system focused on sorting out the future laborers from the future professionals and managers (Reigeluth & Karnopp, 2013). But now, in the post-industrial age, when knowledge work is becoming predominant, we need to educate far more people to far higher levels, and teacher-centered instruction is ill-suited for that (Reigeluth & Karnopp, 2013). Hence, we strongly support the further development of alternatives to the teacher-centered paradigm like LXD. But does that make LXD incompatible with ID?

This article explores the similarities and differences between LXD and ID and whether or not the two are really in conflict. It begins by defining “learning experience” (LX) and contrasting it with “instruction.” Then it focuses on defining LXD and contrasting it with ID. Finally, it offers some suggestions for advancing knowledge in this important area.

What is a Learning Experience?

To explore the differences between learning experience (LX) and instruction, we first explore what is a LX. LXD.org (2022) defines it simply as “any situation you encounter that takes a certain amount of time and that leaves some kind of impression” (n.p.). Jahnke and colleagues (2022) elaborate a bit on this by defining it as “any interaction, course, program, or other experience in which learning takes place” (n.p.), but they go on to conclude that “there is as yet no common or shared understanding of how learning experience (LX) or LXD should be defined (Tawfik et al., 2021)” (n.p.). Clark (2022) defines LX as “experiences designed to change us, specifically our long-term memories” (p. 7). Similarly, Jahnke and colleagues (2020) state:

Some [e.g., Schatz, 2019, p. 90] have argued that learning experience consists of the following:

- *Sense – Reactions to sensory stimuli within or around an experience*
- *Feel – Emotions and their intensity in response to an experience*
- *Think – Mental engagement, e.g., problem-solving or creative thinking*
- *Act – Personal identity and behaviors; a desire to engage or act*
- *Relate – Experiences that provoke a social identity; co-experiences. (n.p.)*

We propose that, from a design perspective, the definition of LX is far less important than guidance as to what an LX should be like. Whatever definition is used, there are good LXs and bad ones. Designers want to know what good ones are like, and there is some guidance in the LX literature about that, which we describe next. Unfortunately, much of it is offered as “universal” guidance, overlooking the fact that to be good, LXs need to be different in some ways in different situations, depending on the nature of a) the learner, b) what is to be learned, c) the learning environment, d) the constraints of the design and development process for the LX, and e) any institutional requirements (Honebein & Reigeluth, 2021; Reigeluth & Carr-Chellman, 2009).

Gallego (2021) identifies four ingredients of a “memorable” LX. First is breaking the script. This is basically the notion of creating cognitive dissonance. Scripts are things we expect to happen when we go somewhere or do something, like going to a restaurant or a museum. “Breaking the script with a powerful disruptive idea increases the possibility of creating a peak and therefore, a memory” (n.p.).

Second is revelations. This is the notion of an epiphany – an aha! or eureka! moment – in which “the ‘status quo’ of a deep personal belief changes dramatically” (n.p.). According to Gallego, this can only happen through experience, not through explanation, though we are not so sure about that.

Playing with senses is third. Gallego proposes that LX designers should use more than sight and sound to “generate a peak” in the LX.

Fourth is moments of exposure. This fourth ingredient has learners present their project or idea to an audience. There could also be “micro exposure moments” that are on a smaller scale.

In addition, Floor (2023) identifies five characteristics of a “great” LX:

1. Leads to a valuable and meaningful outcome
2. Has a lasting positive impact on the learner and their surroundings
3. Is human-centered and empathic
4. Uses the right technology
5. Is a creative, simple, and original solution to a serious problem.

Also, Clark (2022) argues that we should not be lulled into the “Disneyfication of learning” as entertainment, pointing out that “many learning experiences are designed to impress or dazzle but end up as eye-candy, edu-tainment or enter-trainment” (p. 7).

Abbott (2020) states, “... core LXD principles are defined across the literature as:

- Human-focused (encompassing personalization, emotion, and experience),
- Enjoyable and/or playful,
- Goal-oriented,
- Situated and relevant to learner’s desires,
- Taking place in supported environments and/or platforms.” (n.p.)

Please note that what Abbott refers to as LXD principles are really LX principles, because they propose what the LX should be like, rather than what LXD (i.e., the process for designing the LX) should be like.

In addition, as indicated by Jahnke and colleagues (2020), David Kolb, a pioneer in experiential learning, “developed a four-step learning cycle with a) concrete learning, b) reflective observation, c) abstract conceptualization, and d) active experimentation. Effective learning manifests when the learner progresses through the entire cycle” (Jahnke et al., 2020, n.p.). Thus, Kolb (1984) identifies what a good LX is like by describing a cycle of activities in which a learner should engage during an LX.

This is not an exhaustive review of recommendations about what a good LX should be like, but it is enough to reveal that there are many different perspectives on what makes a good LX, and Schmidt and colleagues (2020) conclude that there are presently inadequate guidelines for the design of LXs. Furthermore, we propose that, while there are likely some universal qualities, not all good LXs consist of all those qualities mentioned above, and, more importantly, a good LX will be very different in important ways for different situations (e.g., for different kinds of learning goals and different kinds of learners).

So, what might be some universal or fairly common qualities of a good LX? All four of Gallego’s (2021) ingredients of a memorable LX seem important for some kinds of learning experiences, but not all. Floor’s (2023) five characteristics of a great LX seem to us to be fairly close to universal, but we are not sure an LX should always have a lasting positive impact on the learner’s surroundings or always be an original solution to a serious problem. We agree with Clark (2022) that a good LX should not be too focused on entertainment, but how much is too much? We think all of Abbott’s (2020) principles are close to universal, except for “enjoyable and/or playful,” because Floor (2023) pointed out that “Sometimes the biggest lessons are learned from sad experiences” (p. 9). Finally, we find Kolb’s four-step learning cycle a bit too restrictive – great for some situations but not for others. So where does this leave us?

Based on this limited review of the LX literature, it seems that a good LX:

1. is learner-centered (focused on the learner, including the learner's needs and interests, and on the process that the learner goes through) (Abbott, 2020; Floor, 2023),
2. is goal-oriented (oriented toward a desired learning outcome that is valuable and meaningful) (Abbott, 2020; Floor, 2023),
3. creates cognitive dissonance and epiphany that has a lasting positive impact on the learner (Clark, 2022; Floor, 2023; Gallego, 2021),
4. uses the right technology to create an appropriately supported learning environment (Abbott, 2020; Floor, 2023),
5. is usually a creative solution to an important learning challenge (Floor, 2023),
6. harnesses emotion and enjoyment but does not focus too much on entertainment (Abbott, 2020; Clark, 2022; Jahnke et al., 2020),
7. is a multi-sensory experience situated in a context that is meaningful to the learner (Abbott, 2020; Gallego, 2021),
8. usually engages the learner in Kolb's (1984) four activities: concrete action, reflection on action, abstract conceptualization, and active experimentation.

These close-to-universal qualities of a good LX are admittedly very general and therefore of limited value to a LX designer. For example, "is usually a creative solution to an important learning challenge" tells the designer little about what the LX should be like. Nevertheless, we offer these qualities in the hopes of helping LX researchers to take another step forward in the quest to offer better guidance about what a good LX should be like.

In addition to some close-to-universal qualities, it is clear that what makes a good LX differs greatly from one situation (e.g., one learning goal or one learner) to another. It is beyond the scope of this article to review the literature regarding situational principles for the design of LXs, but there seems to be consensus (e.g., Schmidt et al., 2020) that much research is needed to develop design theory for LXs that specifies different designs for different situations (Honebein & Reigeluth, 2020b, 2021). Design-based research (Collins et al., 2004; Reigeluth & An, 2009; Reigeluth & Frick, 1999) is well suited for this task.

LX Versus Instruction

With this understanding of what a good LX is, we turn to the question, is a good LX different from good instruction? The answer depends to a large extent on your definition of instruction. It is well recognized that the alternative to teacher-centered instruction is learner-centered instruction (Reigeluth, 1994, 1999; Reigeluth & Karnopp, 2013), and we therefore support the definition of instruction as anything that is intentionally done to foster learning (Reigeluth, 1999). Learning, which is done by the learner, is different from instruction, which is done by an agent other than the learner to help the learner learn. A LX is not learning itself, so it is not a learning strategy, it is an instructional strategy, and instruction seems to be the most common term for categorizing it as something that helps people learn. We now turn to the question, how does good instruction compare to the above criteria for a good LX?

Given this definition of instruction, are LX and instruction both learner-centered? We have just established that some instruction is teacher-centered, not learner-centered. But LX is not the only kind of learner-centered instruction. For example, Montessori instruction (Montessori, 1917, 1964) is personalized, hands-on, learning by doing but does not have some of the characteristics identified by LX researchers that we described in the previous section, such as a) creates cognitive dissonance and epiphany that has a lasting positive impact on the learner and b) harnesses emotion and enjoyment but does not focus too much on entertainment. The same is true for Dewey's experiential learning (Dewey, 1916, 1938). Yet another kind of learner-centered instruction is tutorials that are personalized, competency-based and self-directed. Therefore, LX is one kind of learner-centered instruction, which in turn is one kind of instruction

(with teacher-centered instruction as another kind). So, some good instruction meets this criterion – namely, other kinds of learner-centered instruction – but good teacher-centered instruction does not.

As an aside, we believe there are a few situations where teacher-centered instruction is preferable to learner-centered instruction, and there is, consequently, such a thing as good teacher-centered instruction. Also, it is important to keep in mind that much work has been done over the past few decades to promote learner-centered instruction (e.g., An, 2012; An & Reigeluth, 2011; APA Task Force on Psychology in Education, 1993; McCombs & Whisler, 1997; Reigeluth et al., 2017; Reigeluth & An, 2021; Weimer, 2002). Hence, one might question the extent to which LX researchers are using new terms to describe old ideas.

The second criterion is goal-oriented. Like a good LX, good instruction of all kinds is also goal-oriented. The learning goals may be set by the owner of the instruction (e.g., school, college, corporation) or by the instructor, or they may be chosen by the learner – in instruction as well as in an LX, though teacher-centered instruction seldom (but not never) gives the learner option to choose. So, there is essentially no difference here.

Third, some good instruction creates cognitive dissonance and epiphany, but not all good instruction does, particularly when the instruction is focused on lower levels of learning (Bloom et al., 1956), like memorization, which is too often the focus of instruction in schools and universities, perhaps largely because it is easier to teach and test than higher levels of learning that involve analysis, evaluation, and synthesis (Anderson et al., 2021). However, there are some times when memorization is important, and LX is not well suited for such situations, because such learning is best facilitated with drill-and-practice with much repetition, chunking, and mnemonics (Leshin et al., 1992; Reigeluth & An, 2021). In contrast, good instruction (goal-oriented, learner-centered, personalized, competency-based) is well suited to such lower-level learning. Also, some good instruction has a lasting positive impact on the learner, but good instruction is not always lasting. Memory can fade, and skills can decline. So, some good instruction creates epiphany and has a lasting positive impact on the learner, but not all.

Fourth, some LX researchers seem to think that LXs are limited to digital learning experiences, while others think LXs can and should also be designed for non-digital learning environments (Jahnke et al., 2020). We see no reason to avoid using them in non-digital environments, in which case appropriate use of technology is common to both LXs and instruction.

Fifth, not all instruction is a creative solution to an important learning challenge, and perhaps not even all good instruction. We believe that much instruction has not been creative enough, primarily in that it has not motivated the learner sufficiently – that most instruction should be more creative – and that there are some kinds of instruction that need not be very creative to be good instruction. While more-creative solutions are usually preferable to less-creative ones, we propose that not all good instruction has to be highly creative, and, indeed, not all good LXs have to be highly creative. The bottom line: while many kinds of good instruction can benefit from being creative, good LXs may require more creativity because they tend to require more customization to the learner and tend to address higher, more complex levels of learning.

Sixth, like good LXs, good instruction should harness emotion and enjoyment but should not focus too much on entertainment. Unfortunately, much of the instruction we find in schools and universities is not good instruction, primarily regarding its effectiveness and appeal, and could be considerably improved by harnessing emotion and enjoyment (as well as sound instructional strategies). While typical teacher-centered instruction has done poorly by this criterion compared to LXs, good instruction is no different than good LXs in this regard.

Seventh, not all instruction is multi-sensory and situated in a context that is meaningful to the learner. But we believe that all good instruction is. Even memorization, when it is important, benefits from being multi-sensory (e.g., both auditory and visual) (Fleming & Levie, 1978; Paivio, 1971; Schnotz, 2014) and should be situated in a meaningful context that is valued by the learner (Lave & Wenger, 1991). So, no difference here, either.

Finally, in our experience relatively little instruction involves concrete action, reflection on action, abstract conceptualization, and active experimentation, and we would go so far as to say that not all good instruction should

involve all of those, especially instruction for lower levels of learning. However, we believe that good instruction for complex learning should usually involve all of them.

We propose, based on this analysis, that an LX is a kind of instruction, and a very important one, that offers one alternative to the teacher-centered paradigm that unfortunately still dominates much of schooling, higher education, and even corporate training and usually does not qualify as good instruction. Hence, LX is different from some kinds of instruction, but similar in most ways to other kinds of learner-centered instruction. Furthermore, as mentioned earlier, LX is not appropriate for all kinds of learning and learning situations (e.g., Montessori instruction, Dewey's experiential learning, and personalized tutorials). Hence, it is important for LX researchers to clearly state a) the situations in which the LX designs that they propose (typically in the form of LX qualities or features^[1]) are believed to be preferable to other designs, b) the situations for which they are believed to not be preferable to other designs, and c) the situations that call for differences in the way an LX is designed.

So, now we turn to the *design process*. Is a good process different for LX than for instruction?

What Is Learning Experience Design?

To explore the differences between learning experience design (LXD) and instructional design (ID), we first explore what LXD is. Jahnke and colleagues (2020) state that LXD is “an intentional design act to present the learner with a process of activities that is designed in a human-centered manner” (n.p.). They go on to say that LXD “relies heavily on the traditions of instructional design and pedagogical methods” (n.p.). And they state that the LXD process should analyze “social and sociocultural aspects of learning, such as sociality, social presence, and social interactivity, as well as how culture influences communication and collaboration” (n.p.). They also state that the design process should encompass “all technical aspects of the learner’s interaction-in-context with a digital technology or service” (n.p.) and should “consider pedagogical aspects of digital learning, such as the interaction with the learning space, learning goals, learning activities, forms of assessment, and learner controls” (n.p.).

According to Niels Floor (2023), LXD is “... the process of creating learning experiences that enable the learner to achieve the desired learning outcome in a human centered and goal oriented way” (p. 54). He goes on to say, “it’s about using design skills to figure out what experience would work best for a person or group of people in a specific situation” (p. 54). Further, he proposes that “ID has a more scientific perspective as an applied science while LXD has a more creative perspective as an applied art” (p. 71). According to Floor (2023), the LX design process typically includes six basic steps: question, research, design, develop, test, and launch.

Clearly, LXD is defined and characterized differently by authors depending on their backgrounds, and there is no common or shared understanding of LXD yet (Schmidt et al., 2020; Tawfik et al., 2021). However, based on our review of the LXD literature, it seems there is consensus that LXD:

1. Is human-centered – the process is centered on the learner (Abbott, 2020; Floor, 2023; Jahnke et al., 2020; Schmidt & Huang, 2021),
2. Is goal-oriented – the process is centered on the goal of designing a powerful LX (Abbott, 2020; Floor, 2023; Schmidt & Huang, 2021),
3. Is multidisciplinary – the process draws from many disciplines (Floor, 2023; Jahnke et al., 2020; Schmidt & Huang, 2022; Vann & Tawfik, 2020),
4. Is theoretically-grounded – the process draws on design theory and descriptive theory or science (Clark, 2022; Jahnke et al., 2020; Schmidt & Huang, 2021),
5. Is a creative, iterative design process (Floor, 2023), and
6. Addresses social and sociocultural aspects of learning (Jahnke et al., 2020).

However, consensus on these aspects of LXD offers little in the way of guidance for designers. Therefore, it is important that LXD researchers develop more guidance for the LXD process (Schmidt et al., 2020).

So how does LXD compare with the ID process?

Learning Experience Design Versus Instructional Design

Some people consider LXD as an evolution of ID, while others view LXD as a new discipline or field distinct or separate from ID. For example, Jahnke et al. (2020) argue that “LXD sits alongside ID and UX as a complementary approach to design for learning” (n.p.). They state that LXD “relies heavily on the traditions of instructional design and pedagogical methods” (n.p.) and is the logical evolution of ID, combining ID and UX in a new form. On the other hand, Clark (2022) states that “LXD is a new discipline” (p. 10), and Floor (2023) argues that LXD and ID are “fundamentally different fields” (p. 67). In this section, we summarize some of the issues that influence the view of LXD as an evolution of ID or a new discipline or field or perhaps even both.

An Applied Science Versus an Applied Art?

Floor (2023) argues that “ID has a more scientific perspective as an applied science, while LXD has a more creative perspective as an applied art” (p. 71). Further, he states:

ID comes from the field of education and is intended to be used in the field of learning, generally within fairly large institutions. Emphasis is placed on measurable results... LXD comes from the field of design, which is most often practiced by independent professionals or small firms. In all disciplines of design, a high value is placed on creativity and looking at a problem in a new way. (p. 72)

This raises an important question: What is meant by the terms: science, design, and art? These three are different disciplines with different goals and different methods of advancement (Boling & Smith, 2018). Science is descriptive, with the goal of describing “what is” (physical, biological, chemical, social). The primary methods for its advancement are development of descriptive theory (mostly about causes and effects, often probabilistic) and experimental research focused on validity. Design is creative, with the goal of identifying better means for creating “what should be.” The primary methods for its advancement include development of design-theory (Reigeluth, 1983, 1999b; Simon, 1969, 1996) and design-based research focused on preferability (Collins, 1992; Collins et al., 2004; Honebein & Reigeluth, 2021; Reigeluth & An, 2009; Reigeluth & Frick, 1999). Art is also creative, but its goals, while less clear, are generally to produce thinking, insight, and enjoyment and can be viewed as falling into three categories: physical (or functional), social, and personal (Esaak, 2019), and the primary methods for its advancement are perhaps improvements in techniques for making it.

Hence, science, design, and art are distinct, but each typically draws on the others for both its practice and its advancement. For example, instructional design theory development and practice are both informed by learning theory, communication theory, and many other advancements in science (descriptive theories) (Reigeluth, 1999). And ID practice, in particular, benefits from art in relation to aesthetic aspects of each design. In our experience, ID has to date almost exclusively drawn from science and design, while LXD has drawn largely from design and art. But we propose that both LXD and ID should draw from both science and art, as well as design. An LX designer can benefit by drawing on science, and an instructional designer can benefit by drawing on art. Furthermore, different design situations may benefit from different proportions of artistic and scientific influences. Thus, while historically there has been a significant difference, we believe that the difference going forward should be small to insignificant.

Different Skills and Methods?

Second, Floor (2023) argues that LXD and ID are fundamentally different in terms of skills and methods, which is related to the amount of structure or flexibility in the design process (and is also related to the science versus art distinction). For example, he states that ID emphasizes a methodical or systematic approach to design and “requires more

analytical, methodical, and scientific skills rather than artistic skills” (p. 73), while LXD requires “having a sharp eye, empathizing with the target audience, generating original ideas, sketching visualizations to clarify and conceptualize these ideas, creating and iterating different designs, crafting elegant and surprising ways to communicate a message” (p. 72). Floor goes on to say:

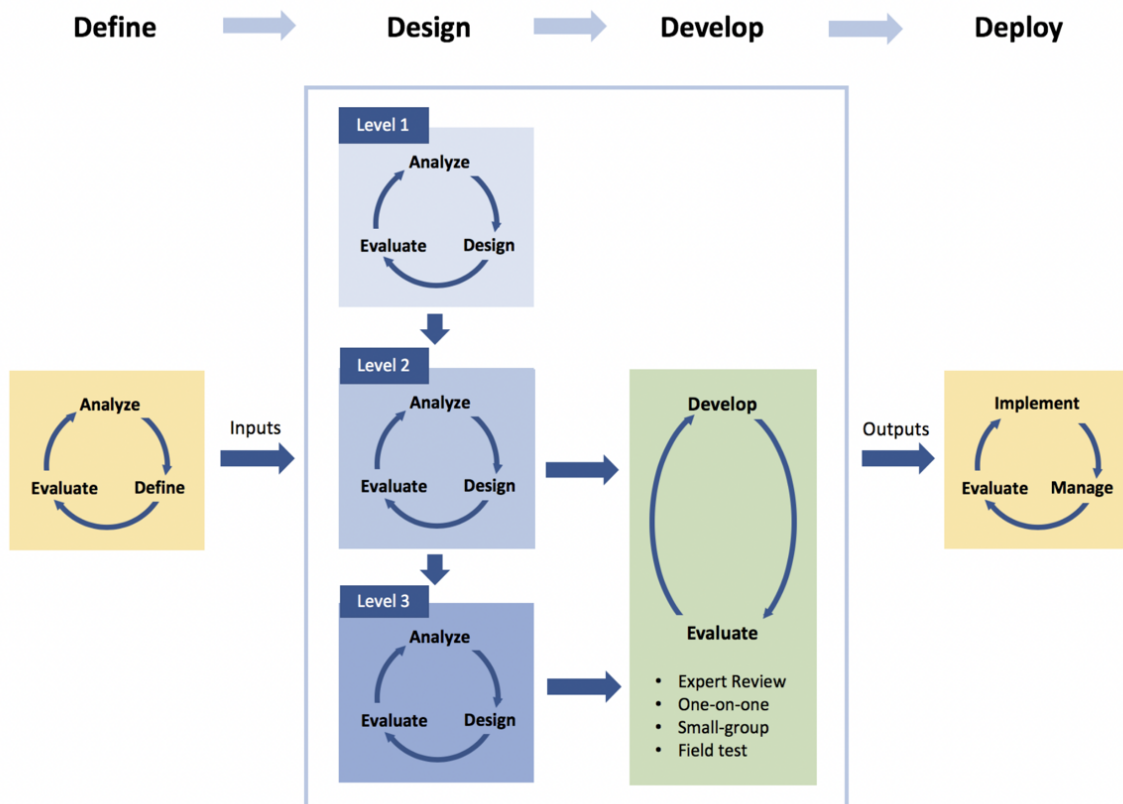
While the LXD process is also structured, it does provide more space in its process to be creative and quickly come up with different ideas, designs, and prototypes, which can be improved through iteration. There is a level of unpredictability that [LX] designers love. You’re not predetermining what the end result is going to be. The creative and experimental process inspires and guides you towards finding the right shape or form, like a sculptor turning a piece of stone into a sculpture or a painter turning a blank canvas into a painting. (p. 73-74)

This distinction between LXD and ID has, indeed, been the case, but in fact both skill sets are important for both LXD and ID to best facilitate learning. The bottom-up approach to the ID process (i.e., breaking the desired skills into progressively smaller pieces and designing instruction for each piece) has made it difficult to exercise creativity, and researchers have not added much guidance to their ID models to encourage its use.

But we argue that creativity is very important in ID as well, especially for the learner-centered paradigm with its focus on learning by doing and the creation of immersive learning environments. Thus, we designed the Holistic 4D Model (Reigeluth & An, 2021) to encourage more creativity in the ID process, but also to offer more guidance for science-influenced design-theory (guidance on which instructional methods are preferable for which situations), which has also been sorely lacking. This model encourages creativity by taking a holistic, top-down approach to the ID process, which has three levels of design (see Figure 1). The top level entails creating a fuzzy vision of the entire learning experience, which encourages big-picture, out-of-the-box thinking about what the learning experience should be like. Each level utilizes just-in-time analysis, so the top level begins by gathering just enough information to create the fuzzy vision of what is to be learned and how it is to be learned – the learning experience. This is the most creative level of design. The mid level works out more details for the fuzzy vision, and the lower-level of design is where the designer works out the most detailed blueprint of the instruction, which is based mostly on science (i.e., well researched instructional theory). Interestingly, most ID models have lacked such science, as well as guidance for creativity.

Figure 1

The Holistic 4D Model of Instructional Design



The bottom line is that, while LXD and ID have historically used different skills and methods, we believe the ID process should be less structured and more flexible and creative, and that LXD would benefit by being a bit more structured and design-theory-based.

Design for the Learner or the Teacher?

A third issue for differences in the design process is focus on the learner and the learner experience. The design of teacher-centered instruction focuses on what the teacher should do. In contrast, the design of learner-centered instruction focuses on what the learner should do – the LX – even though the role of teachers or their technological counterparts as facilitators should not be ignored. We believe this essential difference between the teacher-centered and learner-centered paradigms is the most important change to take place in the modern history of education and training – more important even than technological developments, though the latter make it easier and less expensive to make the learning process learner-centered.

Our understanding of the LXD literature is that a designer should start by designing what the learner should experience (from the learner perspective) before designing the instructional methods that will support learning during the LX (from the ‘teacher’ perspective). This is very different from most ID models, and we have incorporated it into the Holistic 4D Model, though we are currently working on improvements to this guidance. In fact, we find it helpful to think of the design process as:

1. Identifying the kinds of learning that are desired (similar to the LXD emphasis on goal-orientation),
2. then identifying the kinds of mental processes in which the learners need to engage for the desired learning to take place,
3. then designing the kinds of learner experiences that will likely trigger those mental processes, and
4. finally, designing the things that can be done (which we call instructional methods) to support or facilitate learning from those learner experiences.

However, scholars acknowledge that LXD currently offers little in the way of guidance for the process of designing the LXs, and even less for instructional methods to support learning from those experiences (Jahnke et al., 2020; Schmidt, et al., 2020). So, what specifically should LXD researchers work on in the way of such guidance?

Regarding design of the LX, in the Holistic 4D Model, we identify two very different kinds of expertise for training and education: task expertise, which is concerned with how to do things, and topic expertise, which is concerned with understanding things. These require two very different kinds of learning experience. Consequently, we offer guidance for LXs that are task-based and for ones that are topic-based, though much more guidance is still needed. Work on simulations and virtual worlds (including both virtual reality and augmented reality) is also highly relevant here (e.g., Mayer et al., 2022; Myers & Reigeluth, 2017; Radianti et al., 2020; Reigeluth & Schwartz, 1989). We suggest that further guidance for the design of the LX should address the environment in which the LX will take place, the role the learner will play, the resources and tools that will be available to the learner, the people with whom the learner will interact, and others.

For the *design of the instructional supports*, instructional theory already offers much proven guidance that could easily be adapted into LXD models (Merrill, 2020; Reigeluth, 1999; Reigeluth & Carr-Chellman, 2009; Reigeluth, Beatty & Myers, 2017). Such guidance includes the various kinds of scaffolding that will be offered to aid learning during the LX. Such scaffolding may include just-in-time tutorials, which have several advantages: greater transfer of skills and understandings through divergent practice (practice that varies the conditions of performance as much as possible), greater long-term retention, competency-based assessment of each individual member of a team, and even automatization of skills when appropriate, all of which we address in the Holistic 4D Model. Scaffolding may also include the use of various supports for learner performance that are gradually faded over time, among others.

When it comes to guidance for designing the LXs, including their instructional supports, it is important that LX researchers identify the situations for which they recommend each design (each set of guidelines). As discussed earlier, different LX designs will be beneficial for different situations. This situational guidance may take the form of principles, or the form of a set of design features (methods or a model) for a given set of situational variables. It is important that any principles specify the situational variables for which each design feature is believed to be desirable (Honebein & Reigeluth, 2021): If [situation A], then use [design feature X]. The most important situations are likely to include the nature of the learning goals, the nature of the learner, the constraints of the learning situation, and the constraints of the ID or LXD process and resources (Reigeluth & Carr-Chellman, 2009). Honebein and Reigeluth (2023) have added a fifth situational variable, institutional requirements.

Conclusion

We believe the comparison of LXD with ID is confounded with the comparison of the teacher-centered paradigm of education/training with the learner-centered paradigm. The latter entails personalized, competency-based, collaborative, project-based, and self-directed learning. It is an experience-based-learning paradigm, and it requires considerable creativity and extra sensitivity to the learners, but it also benefits from scientific knowledge. Changing the ID process from a bottom-up, piecemeal approach to a top-down, holistic approach is crucial for allowing much more creativity and sensitivity to individual learners in the ID process. Instructional designers need to move beyond the dualistic thinking of either LXD or ID, and embrace the systemic thinking of both LXD and ID. While they may entail different perspectives,

skills, methods and tools (Floor, 2021), they are not incompatible; indeed, they are complementary, and the integration of the two is considerably greater than the sum of the parts, as Schmidt et al. (2020) indicate in their first axiom, transdisciplinarity.

Design thinking, user experience design, interaction design, human-centered design, game design, instructional design – all these are useful, and none preclude use of the others. We can understand why some LXD authors might want to set LXD apart as different from ID, because ID has typically overlooked many of the important tenets of LXD, but they are not incompatible. Whether we choose to call it instructional design or learning experience design or learner-centered design or humanistic design is of little consequence to us. What is important is that it is a different paradigm from teacher-centered instruction and consequently has a different underlying philosophy. Also important is that it should include everything that is helpful for making learning easier, quicker, more motivational, and better (longer retention, better transfer).

We encourage LX researchers to use the Instructional Theory Framework (Honebein & Reigeluth, 2020a, 2020b, 2023) in their efforts to develop better guidelines for LXs and the LXD process. The Framework offers guidance for identifying various kinds of conditions (learner, content, context, ID constraints, and institutional requirements) and values (about learning goals, priorities, methods, power, and institutional priorities) that influence the preferability of various design options – in this case, methods for what the LX should be like. The goal for researchers is to identify different kinds of LXs (different features of LXs) that are preferable for different sets of situation variables (both conditions and values), leaving plenty of room for variability and creative design within the specification of each “kind” of LX. The Framework is equally useful for generating guidance for the LXD process, identifying ways that the process should differ depending on conditions and values for the process.

LXD has great potential to improve learning. We hope these ideas help LX researchers to better realize that potential.

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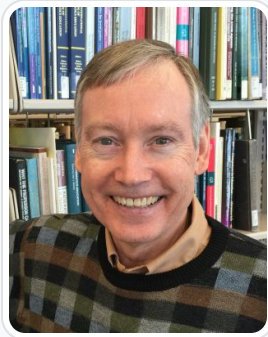
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[1] We refer to these as “instructional methods” because they are things that are done purposely to facilitate learning.





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