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Using Theory as a Learning and Instructional Design Professional

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Editor's Note

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Practitioners in the field of learning and instructional design are commonly told that "theories are the foundation for designing instructional solutions to achieve desired learning outcomes" (Oyarzun & Conklin, 2021). But if this is true, why do designers often report that theory is "too abstract and inapplicable" to address common problems of practice (Yanchar et al., 2010, p. 50)? Or, alternatively, that theories are so "rigid" (p. 51) and prescriptive that they lead to one-size-fits-all solutions that do not fit the circumstances in which designers are working?

In my studies, I have come to believe that part of the problem is that designers think about theory the wrong way. They often assume it is like a tool (a power drill, for instance, or a circular saw). In this view, theory has some kind of capacity built into it that is independent of the person using it. Anyone can pick it up and produce results (if they have received the proper training, of course). But this perspective misunderstands something fundamental about human-centered work like learning and instructional design. Theories do not solve problems. People do. This does not mean theory is useless. It just means it plays a different role in designers' work than being a tool that they apply. So, if designers want theory to be applicable and usable they need to first put it into its proper place—a place that recognizes that they—the designers—are most central to the work of improving education, and not a set of abstract, theoretical ideas that are presumed to have the power to solve problems. From this perspective, theory becomes one of many supports for practice, but not the most important nor the most decisive.

My purpose in this chapter is to explain these issues. First, I review some of the challenges with the field's traditional views of theory. Next, I offer a different view of theory that conceptualizes it as a support that helps designers strengthen their own capacities for better judgement. Finally, I briefly describe different kinds of theory that apply to learning and instructional design practice, and how they support designers' judgement in differing ways.

The Field's Traditional Views of Theory

Many practitioners' views of theory come from a desire to turn the field into a science, so they can predict and control learning the same way people predict and control natural phenomena, like how to fly a plane or start a fire. There have traditionally been two versions of this: a strong view, that has attempted to treat instructional design knowledge as a system of cause-and-effect laws (Gilbert, 1971; Gropper, 2017; Merrill et al., 1996), and a softer view that does not guarantee results while still maintaining that good theory increases the probability that certain outcomes will occur (Jonassen et al., 1997; Reigeluth, 1997, 1999; Winn, 1997).

While these views of theory are useful in many fields, in learning and instructional design—where designers' purpose is to improve the countless ways that people can learn about and experience the world—both the strong and soft views present challenges. An extended reviews of these classic positions, and their accompanying challenges, are found in McDonald (2022), on which this current chapter is based. Here, I only summarize major points of my discussion there. The traditional views tend to presume that theories sit independent of any researcher or practitioner, serving as storehouses of knowledge, and containing power in themselves to solve problems of practice (Gropper, 2017). They reduce the complexity of the world, condensing it into technical models or methodologies that attempt to eliminate, or at least minimize, the possibility of a misstep (Bednar et al., 1991; Elen & Clarebout, 2007). Ideally, theories are objective and so can be picked up and used by anyone (possibly with some level of intellectual preparation) to control or optimize situations with some degree of precision (Honebein & Reigeluth, 2020; Reigeluth, 1997). When one views theory this way, it is logical to prioritize it over the seemingly less-dependable, idiosyncratic practitioner know-how that is taken to be the alternative (Clark & Estes, 1998; Klauer, 1997).

But despite the seeming logic of these ideas, a tool-like use of theory just does not help designers really understand—much less address—problems of practice. The world is fluid and intricate, and too complex for designers to match up the environments they find with instructions provided by rules or rule-like information (Dunne, 1997). There "are just too many features [in any situation] . . . to determine which rule or concept should be applied" (Dreyfus, 2014, pp. 231–232). In a practical, human-centered world, such attempts to use theory are like "using a flow-chart or decision tree" to carry out a conversation. Not only are the range of possible responses too great, even attempting to try misunderstands the nature of interpersonal relationships, where the point is not to manage them through "technical rationality," but to let them unfold according to their own, emergent logic (cf. McDonald & Michela, 2022, p. 63).

Reconsidering How Theory Supports Practice

If theory should not be thought of as tool that practitioners apply, what role should it play? Insights can be found by considering what defines an expert in a domain. Expertise is

> *discerning and responding appropriately to the subtle features and specific requirements of each situation. . . . without any explicit sense of effort, responding intuitively to the unfolding of circumstances without having to stop and think about what we are trying to accomplish—or otherwise needing to represent the conditions of satisfaction of our activity. (Wrathall & Londen, 2019, p. 651)*

Wrathall (2011) illustrated this by describing a person's skillful use of a knife. One's expertise is not based on knowing more facts about knives than someone else. While explicit information about a knife may be useful for some purposes, anything an expert can say about it is secondary to the way he wields it without thought, and uses it in relation with other kitchen equipment. He may or may not be able to articulate what he is doing at any moment, and, in fact, his thinking may be completely wrong in even important ways. Yet proof of his expertise is still observable in his actions. This ability to do something, even if one cannot always articulate what one is doing, is what Schön (1983) called "knowing-in-action" (p. 50), exemplified by the way that

> *a tightrope walker's know-how . . . lies in, and is revealed by, the way he takes his trip across the wire . . . [and] a big-league pitcher's know-how is in his way of pitching to a batter's weakness, changing his pace,*

or distributing his energies over the course of a game. (pp. 50-51)

Unlike some other forms of knowledge, knowing-in-action is not improved by following rules or even softer guidelines. Situations move too quickly for people to stop, deliberate, and make a choice about what rules to follow. Instead, experts act based on something subtle they notice in a situation that cues them in to where they should place their efforts. But these nuanced details are often difficult to put into words. Consider how a baker just knows the dough is ready by a certain spring she feels when kneading it. There is not really a rule that describes when "springiness" has been reached. It is something that she just learns by doing. In addition, experts also have a sense of "connoisseurship" (Belland, 1991, p. 23; see also Parrish, 2012) that helps them make fine-tuned discriminations between good and bad, or better and worse, options (cf. Wrathall, 2019).

None of this should be taken to mean that guidelines have no value, however. Rules, guidelines, or principles might be very useful when something does not go as planned or when one is inexperienced in navigating an environment on their own (Dreyfus, 2014). They may also be useful to the experienced in certain cases to help them check their biases or consider whether their individual perceptions are accurate or should be tempered. When such moments occur, designers might find explicit information—like the guidelines and frameworks found in many theories—helpful to get through a challenge. But strict adherence to those guidelines also interferes with designers elevating their performance to expert levels. Thus, while there may be a place for novices to use theory in the sense of following a set of instructions, for experts this often hinders instead of helps their ability to perform (Wrathall & Londen, 2019).

Understanding this shows designers better ways to use theory in practice—ways that do not treat it like a tool or a set of instructions. If what matters is paying attention to situational cues, or developing a sense about what choices are better or worse, theory can be conceived as an aid that supports designers' development of such dispositions. Instead of a tool, then, theory is a way of changing designers themselves—helping them experience situations differently so they come to see and feel things the way experts do (Dunne, 1997; Wrathall, 2011). It also helps them discern fine-grained situational cues, while orienting them towards previously unseen possibilities (Wrathall & Londen, 2019). Further, theory models the character of good practice (Yanchar & Faulconer, 2011), and moves designers' feelings, desires, and values, drawing them in towards a full, wholehearted commitment to the field and its practices (Wrathall, 2019). From these perspectives, the scholars who develop theory could be seen as offering a set of propositions about what the world is, or what it could be, that strengthen designers' capacities through engagement with theoretical ideas (studying the theory, critiquing it, extending it, and so on).

Instead of tools or instruction, then, perhaps a better analogy is to consider theory to be like pianists' practicing of scales. The goal is not to play the scales flawlessly as an end in itself, but to use the scales to strengthen players' fingers, and develop the ability to play notes quickly and in certain orders—the muscle memory that allows skilled players to hit the right notes at the right time, without ever looking at the keys. Similarly, if the goal is for designers to extend their capacities, then studying theory can be a way to develop their "design muscle memory," allowing them to recognize patterns and select alternatives without conscious deliberation. In this way, theories change the designers themselves. Their capacities are increased as their theoretical repertoire grows.

What might this look like in practice? Consider this analogy: marathon runners do not try to tie their racing performance to any particular training session. It is not any individual practice run, it is all of them together that make the difference—along with all the other exercises the runners used to strengthen themselves. Likewise, if designers are regularly engaged in exercising their theoretical capacities, when the time comes to design something, they find that they just see something in the situation that is relevant. Or they find themselves caring about and valuing a certain option—they just want to follow a certain path. They might not even be able to explicitly tie what they do to a specific theory (or other design activity like studying precedent or analyzing the needs and constraints of their students). Rather, it is all those sources of insight together that lead them to good decisions. In other words, they have used theory to develop stronger intuitive design judgments. Most of the time there is little need to try and segment out the effects of an individual theory from anything else that strengthens designers' capacities for a particular moment. There may be some particularly difficult cases, of course, where they do explicitly refer to a theory for guidance. But even then, it is more productive if designers mull over it, letting it work on them to spark ideas, rather than try to use it like a recipe. And there may be

times that designers are asked to justify a choice, in which case they might refer back to a theoretical concept to assist them in explaining. Yet they should keep in mind that what they articulate are after-the-fact rationalizations—hopefully helpful in building confidence in what they have done, but perhaps not exactly what led them to the path they chose.

Different Types of Theory for Different Practical Needs

Just like there are multiple forms of piano practice to strengthen different aspects of a musician's capabilities, there are multiple forms of theory that help designers practice various dispositions needed to act more expertly. Building on the work of Dunne (1997), I've developed a framework of at least some of the different kinds of theory we can find, along with what each type of theory offers. A full account of each, and how they differ from each other, can be found in McDonald (2022). Here, I only summarize how they apply to instructional design practice, and how they support designers' judgement in differing ways.

Different Forms of Practical Theory

- Compelling accounts of the dispositions and skills associated with resourceful design practice.
- Describing the different affordances possessed by instructional materials or technologies.
- Drawing attention to opportunities to act.
- Describing principles for organizing relationships and structures between situationally relevant people, resources, activities, and events.
- Articulating forms of excellence in practice that the field of learning and instructional design strives towards.

First, theories can articulate compelling accounts of the types of dispositions and skills associated with resourceful design practice. For instance, Belland (1991) articulated a notion of connoisseurship in educational technology that "attends to the affective needs of the learners" (p. 26) and qualitatively changes how practitioners appreciate, evaluate, and design new learning systems (cf. Parrish, 2012). As examples he suggested knowing students "as people and not just as the 'kid in station 86'" (p. 27), and recognizing where "kindness leaves off and obsequiousness or patronizing begin" in the tone of an instructional text (p. 30).

Second, theories can help designers understand the affordances possessed by the different kinds of materials or technologies with which they work, along with what might better draw out potentials a material offers. Many of the models, principles, frameworks, or guidelines common in the field describe or explain these kinds of issues. Consider Mayer's (2014) multimedia principles of instruction, that provide useful information about how one can take advantage of learning affordances offered by visual and aural media technology. Such suggestions can act like a person one is having a design conversation with (Dunne, 1997; Schön, 1983), where they draw attention to relevant forces, help designers question their assumptions, explore possibilities, their our aims, or take a step towards something useful. In this view, theories contain wise advice that can inform designers' situational understanding (even if they do not offer universal laws).

Third, another form of theory draws designers' attention to opportunities to act, so they can take advantage of suitable moments that appear. An analogy Dunne (1997) used to explain this kind of theory was of a sailor who could recognize that when the waves break in a certain way, it is her best chance to cut across them safely. As with the other types of instructional design theory, opportunities to act are not formulas to follow. They function more like a focusing device—sharpening designers' view, and accentuating what it might look like when a useful opening appears. For instance, Richardson et al. (2019) studied the perceptions of university faculty and instructional designers on the nature of their working relationships. Their research uncovered several factors that indicate the faculty-designer collaboration

is going well, such as when relationships are "egalitarian" (p. 862), and when the parties involved had clear expectations about what to expect from each other. Such conditions do not guarantee success in any collaborative effort. But where they exist (or when one can arrange a situation to bring them about), they can legitimately be viewed as creating a more fruitful opportunity in which to act, allowing designers a space in which they can attempt further actions that move them and their collaborators towards ends they find mutually desirable.

Fourth, theory can also describe principles for organizing relationships and structures between situationally relevant people, resources, activities, and events. These describe another form of influence designers can have, where they enable or facilitate certain kinds of activities based on how they arrange a setting (or, alternatively, prevent or discourage other kinds of activities). For example, consider the patterns definitive of problem-based learning. This approach is characterized by students who have responsibility for their learning, collaboration between participants, ill-structured problems as the basis of inquiry, a tutor (or facilitator) who guides students through the learning process, and informational, spatial, and/or technological resources that facilitate participants' free interactions (Cowdroy, 1994). Designers can use the patterns of problem-based learning in such a way as to encourage the kinds of outcomes for which it is known, even though once the situation begins they must realize that participants will always take it over and shape it to their own ends (McDonald, 2021).

Finally, theory can articulate forms of excellence in practice that the field of learning and instructional design strives towards. Yanchar and Slife (2017) defined these as the sense designers have of "what is good or right to do in relevant situations, [and] what counts as satisfactory or unsatisfactory conduct" (p. 154). Forms of excellence are usually tacit. They are the values and related considerations that inform good practice, but that are often in the background and so designers are only implicitly aware of their influence most of the time. But by clearly articulating the field's values and aims in compelling ways, designers can be drawn towards options or outcomes that the field finds valuable, and helps ensure their work is aimed towards important ends. Unfortunately, forms of excellence have not traditionally been a focused topic of inquiry in the field, but there are some illustrative exceptions such as Matthews and Yanchar's (2018) study of designing instruction that encourages learners to take responsibility for their own learning.

Concluding Thoughts

The central message of this chapter is that instead of reducing the world of practice into abstract models or techniques, theory takes its proper place when it supports designers as they learn how to cope with practice in all its color, vibrancy, and liveliness. As a field, learning instructional design is in a strong position to produce this kind of theory, perhaps more so than other fields that are not as tightly connected to practice or that have more direct interest in scientific forms of theorizing (as is often the case in fields like psychology; cf. Wilson, 2005). I urge all of us in the field, both researchers and designers, to be more thoughtful in considering the theories we develop and use, and aim towards theoretical contributions that are truly aligned with the field's core purpose of creating excellent learning experiences.

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