ADDIE: Perspectives in Transition

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In an asynchronous forum responding to a prompt positing that ADDIE (analysis, design, development, implementation, and evaluation) might be used in teaching instructional design (ID) as a safety net for designers without native talent, instructors and practitioners of ID revealed mixed perspectives on the role of ADDIE in design. Critical theory analysis identified the "transitional perspective" that ADDIE is flawed but useful, and little connection between ADDIE and related ideas from other fields of design.

Introduction

In the field of educational technology, design has been viewed for over four decades in the official publications of the field as a systematic process of problem-solving (Smith & Boling, 2009). As part of this view, the Analysis, Design, Development, Implementation, and Evaluation model of instructional design (ADDIE), used as a conceptual model, a model of good practice, or a process model (Molenda, 2003), has been held out as the ideal from which practice deviates only by necessity, ignorance, or inattention (Branch, 2009; Rowland, 1992; Smith, 2008).

In most fields of design, process models are seen as a useful tool but not the central feature of design activity, and conceptual models of designing are not reduced to a simple formula (Cross, 2007; Rowe, 1987; Lawson & Dorst, 2009). In these cases, the designer, rather than a particular process or fixed set of concepts, is generally seen as the agent for ensuring that design decisions and processes are appropriate, and design character is seen as the disciplined engine for making decisions and enacting processes appropriately (Nelson & Stolterman, 2003b).

In this context, we are viewing design character as "the ability of human beings to reason and act with prudence in solving problems that are obstacles to the functioning, development, and well-being of individuals and society" (Buchanan, 1995). To "solving problems" we add the notion of desiderata (Nelson & Stolterman, 2003a), or design situations in which we strive for known or unknown desired outcomes, whether those are driven by known problems or not. This ability, which includes multiple forms of judgment, is further seen as one that can be developed beyond a natural endowment (Lawson & Dorst, 2009) and not one that is simply comprised of cognitive skills (Nelson & Stolterman, 2003a).

While scholars and teachers in the field are considering multiple alternatives to a reductionist model of designing in educational technology (Boling & Smith, 2012; Gibbons & Brewer, 2005; Jonassen, 2008; Parrish, 2005), as recently as 2009 a new textbook appeared in the field making the specific argument that ADDIE is the appropriate lens for viewing and teaching instructional design (Branch, 2009)—a view which does not address the character of the designer in an explicit way (Boling, 2008).

In addressing the broad issue of design character (Boling, Hardre, Easterling, Korkmaz, & Howard, 2010), the researchers have asked instructors and practitioners of educational technology to consider the role of ADDIE in our practice and our teaching—in particular, whether they see it as compensating for instances in which design character is not fully developed.

Our Study Methods

Data were collected online via a pseudonymous, asynchronous online discussion forum. This forum functioned like a simulated focus group in which the participants used pseudonyms. In this format, individuals could consider discussion starters on their own before making any statements, and could make their statements without concern for how their views would reflect on them in the eyes of the researchers or other participants. Power differences related to the perceived authority of individuals would also be minimized. With data from this forum in hand, we needed an analysis method that supported deep interpretation of participants' statements and preserved the richness of the participants' ideas. We chose critical ethnographic analysis (Carspecken, 1995). Our group represented, collectively, decades of experience in teaching, studying, and practicing instructional design, which allowed us to bypass the

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	"It's a teaching model rather than a practice model."
Low-level restatement	ADDIE is meant to be used in teaching, not in practice.
Immediate inference	Some people think ADDIE is a model of practice even though I do not.
High-level inference	The role of ADDIE is open to question and/or ADDIE may not apply to/be appropriate for practice
Thematic analysis	Role of ADDIE Perspective on the utility of ADDIE

Figure 1. Sample illustration of critical ethnographic analysis showing low-level restatement, immediate and high-level inference, and thematic analysis based on one participant statement.

step of contextual immersion and proceed to multiple levels of interpretation.

Twenty-six individuals out of all those who registered (n = 48) actually participated in the forums with at least one post (mean posts (4.92), std (6.06)). Sixteen participants contributed to the thread selected for this analysis. These participants comprised eight out of 10 of the most frequent contributors to the study overall. Five of the 16 contributors to this thread identified themselves primarily as researchers for the purposes of the discussion, while three identified as teachers and eight as practitioners of instructional design.

The discussion prompt used to generate the data for this study was written as a statement of belief with the concepts of interest to us embedded within it:

> If students who come into a basic instructional design course do not have a natural "feel" for design—and that's most of them—the best thing I can do for them is to give them a reliable template for the design process. So, when I teach basic ID courses, I introduce my students to ADDIE (analysis, design, development, implementation, evaluation).
>
> I encourage them not to see this as a linear process. But most of them will work in routine design situations after they graduate. They won't need to develop creative variations of ADDIE—which is a good thing, because many of them just don't have the mindset to do that.
>
> I know that even if they are not super talented designers, my graduates will use ADDIE and the basic principles of instruction to do a workmanlike job and produce decent instruction. This is the "safety net" of our field, after all—isn't it?

We chose a critical ethnographic approach to this study as one that encourages position-taking and making disciplined inferences from what people say and write (Carspecken, 1995). All members of the research team carried out an initial analysis separately, then again as a group. We carried out low-level restatement, immediate inference, high-level inference, and thematic analysis, using variable segments of individual posts as they made sense in each case (see ***Figure 1*** for an illustration of this form of analysis).

The group met as a whole to discuss trends and agree on themes. Our intention was not to reach a final consensus on specific meanings in the texts, but to arrive at a rich interpretation of what participants were saying, applying our own knowledge of the field and of design as we worked to take the positions of the speakers.

Results of the Study

What Is ADDIE?

Multiple interpretations of ADDIE's role in our field of practice emerged from the contributions made to this discussion. ADDIE was most generally referred to as a model for designing across participants who self-identified as teachers, researchers, and practitioners, and mentioned in a way that suggested little or no reflection on whether or not this would be so.

> I like to think of the ADDIE Model (analysis, design, development, implementation, evaluation) as the foundation to all instructional design. [participant 23; post 10: May 6]
>
> ...these fields use processes similar to ADDIE, but their aims are different. ADDIE is all about designing *instruction* [participant 8; post 21: June 6]
>
> ...ADDIE and other linear models. [participant 11; post 22: June 12]
>
> I think of the ADDIE model as a basic structure I learned in coursework. [participant 9; post 23: June 13]

Despite the assumption in most of the statements that ADDIE is a process model, a few participants took pains to describe ADDIE in other terms:

> ADDIE is a *reflection* of good practice, not a recipe for design. [participant 22; post 8: May 4]
>
> I do find ADDIE a useful set of *constructs* for many of the problems we face [participant 1; post 11: May 6]
>
> I think ADDIE/ISD mixes two kinds of theory and produces a somewhat confusing result. On the one hand it wants to be a design theory—one derived from general systems theory—which is legitimate. But on the other hand, it also wants to be an instructional theory—a domain theory in Schön's terminology. [participant 3; post 17: May 28]

ADDIE was also cast in the role of a teaching tool:

> When I teach a foundational ID course I start with a description of ADDIE and how the sequence was derived by observing a variety of good instructional designers in action. [participant 22; post 8: May 5]

> ...it's a teaching model rather than a practice model. That is, it provides newcomers to ID with a framework that they can use to remember and organize the elements of the IP process. [participant 16; post 12: May 8]

Whether or not participants saw ADDIE as a process model, they also discussed it as an identity marker and platform for discourse between instructional designers. Instructional designers seem to use ADDIE conceptually as a way to talk about critical aspects of what they do, and they distinguish themselves from others who do similar work (or with whom they work) by organizing their thinking using ADDIE as a high-level framework (Molenda, 2003).

> As an ID, I find that ADDIE is a common language to discuss "how we do things," or even "how we could do things" with other IDs. I find that in evaluating how I do things and in discussions with the other IDs, we keep coming back to ideas to move closer to the ideal, even if we don't specifically mention ADDIE (participant 7; post 7: May 5)

> ADDIE serves as the foundation for our ID-speak. [participant 17; post 15: May 19]

> I use ADDIE to discuss the components that comprise a good design. [participant 22; post 8: May 5]

In another discussion as part of the same study, one participant expressed this theme most directly:

> Now the easiest way to tell: those who talk about ADDIE must do some kind of ID, haha. [participant 14; post 5: May 27]

Perspectives Toward ADDIE

Participants expressed a range of perspectives toward ADDIE, from the notion of ADDIE as a pure ideal, through a view of ADDIE as flawed in various ways but still useful, to one participant who repudiated ADDIE outright.

ADDIE as ideal. More than one participant forwarded the combined position that ADDIE is the "clean" or "ideal" model of instructional design and that factors in the real world prevent its use in that ideal form.

> ...you would assume I use the ADDIE method on a daily basis. And I suppose I do. It's just not the sparkling, shiny ADDIE I thought I'd be using when I was in grad school. It's an accelerated, smushy version. [participant 13; post 2: May 4]

> The only time I ever followed strictly an ID model was as a student. In the so-called 'real world'...I find that timelines are too short and the client too fickle. [participant 7; post 3: May 4]

Those factors included: money and time constraints, ignorance of co-workers, and lack of power for instructional designs to dictate or encourage good practice.

> To meet the project timeline, the IDs typically operate in "factory mode." The ID develops a learning product using a standard template to satisfy the client's requirements and then moves the deliverable through the process as quickly as possible to deliver it to the client for review and approval. [participant 18; post 13: May 12]

> The ADDIE model is hard enough to execute in the most ideal, supportive environments. So why would the instructional designers in this one kill themselves to carry out a design process no one else even recognizes? The IDs don't have any power in this organization. It's absolutely essential that instructional designers know about the ADDIE model. Just don't be surprised when you get into a work situation and find no one uses it. [participant 10; post 6: May 4]

The constraints mentioned were discussed, in our interpretation, as impeding forces that interfere with ideal design rather than as the invariant ground against which design takes place, or as part of the generative force for design.

At the high level of interpretation, we discerned the backgrounded notion that, used as a process, ADDIE is deterministic; that is, use of ADDIE in its idealized form will produce good, or even best, results. This is closely linked to the idea that ADDIE represents the way that the best design is done, rather than the way most design is done, although the latter distinction we understood to refute, at least to a degree, the deterministic view of ADDIE.

> ...ADDIE was not originally a prescription for how to design instruction, it was a description of how good instruction is designed. When I teach a foundational ID course...I use ADDIE to discuss the components that comprise a good design....ADDIE is a reflection of good practice, not a recipe for design. [participant 22; post 8: May 4]

An additional perspective that preserved ADDIE as a clean, possibly ideal model, included the idea that it is a useful teaching tool to give students a model for design before they have to struggle with the messiness of real world designing.

> ...it's a teaching model rather than a practice model. That is, it provides newcomers to ID with a framework that they can use to remember, and organize the elements of the processed. Experienced IDs are likely to have their own

mental model and are able to adjust the model to fit the specific situation—making conscious and thoughtful decisions about what parts of the model to adjust, do in combination, or skip altogether [participant 17; post 22: May 08]

ADDIE: flawed but useful. The perspective that ADDIE is flawed but useful surfaced in multiple statements across participants and manifested itself several ways. These included the notion that we alter ADDIE, or how we use it, or both, and the notion that we need to look outside the field at other options for conceptions and models of design.

One idea for altering ADDIE is to keep what is useful, even though we search for alternate models.

...we need to be about a vigorous search for the alternatives to ADDIE/ISD as it is now generally understood. But I think the search ought to include finding a way to disentangle what is good in ADDIE/ISD from what doesn't belong there, and saving that part. [participant 3; post 17: May 28]

In another case, the suggestion was to alter the perspective on how ADDIE is used and actually to add to the model.

As a corporate designer, I should admit that ADDIE never gets a chance to be followed formally as we learn it in school. In the corporate basement, we use it as a set of "heuristics," if you will, as a blueprint, and always add P (for planning) and M (for management/maintenance), making it PADDIEM...[participant 18; post 20: June 6]

We also saw the familiar notion that ADDIE be used as is, but in a non-linear way:

...more experienced designers know that it describes some of the things we do or want to do, but not in a rigid sequence. [participant 4; post 15: May 19]

This suggestion was made even when the participant questioned whether it was realistically possible or not:

I find that no matter how often I bark about it NOT being a process, NOT being linear, NOT being sufficient or responsive to the wide range of design challenges we face, my students still treat it as a blueprint for success. [participant 1; post 11: May 6]

The idea that alternative models of design exist did not even arise for some participants, but it was clearly expressed by others.

I want my students to build their own models so that they can respond to the context and constraints they encounter. [participant 1; post 11: May 6]

...we need to be about a vigorous search for the alternatives to ADDIE/ISD as it is now generally understood. [participant 3; post 17: May 28]

...excellent models of iterative design and development exist in fields such as software development (such as rapid application development) and architecture. These are easily adapted to ID. For design, it is best to first understand the general field of design, then bring in instructional theory, graphic and multimedia design, game and interaction design, and the like. [participant 5; post 19: June 6]

There was some skepticism regarding alternative models:

If you want to find "an introductory text that is an ADDIE-free zone," take an art class....ISD exists in a fertile zone that lies somewhere between art and science. Take out the science and you're left with creative hunches that may or may not lead anywhere. ISD without the *systems* (the S) is pretty worthless, IMHO. [participant 8; post 21: June 6]

In speaking of ADDIE as flawed but useful, the positions of multiple participants were distinctive for their expressed ambivalence. These participants seemed unable to identify a definite view of what might replace ADDIE even as they discuss the perceived shortcomings of ADDIE or what they see as its limited utility.

I haven't yet had the courage to walk away from ADDIE as a place to start and as conceptual framework, even though I seem to be locked in a mighty struggle with it. [participant 1; post 11; May 06]

I struggle with ADDIE. I often wonder why my ID course is built around ADDIE when, as George says, no one uses it in work situations...So far, my answer has been that it's a teaching model rather than a practice model. At least that's my story and I'm sticking to it (for now)! [participant 16; post 12: May 08]

I think of the ADDIE model as a basic structure I learned in coursework. Some instructors looked at the model as the "answer," others viewed it as one model to choose from. But in reality if it is not supported by those who employ and pay us then it doesn't really matter. However, I think it is a good starting point for those entering the field and important for coursework. [participant 11; post 23: June 13]

ADDIE repudiated. Although a minority position among these participants, the repudiation of ADDIE as a teaching tool or a tool for practice was categorical when it was expressed.

I think ADDIE has outlived its usefulness. It does about as much to increase project risk as it does to decrease it. It confounds design and project management...even for novices, I think it does more harm than good, and it risks inhibiting development of expertise over time. [participant 5; post 16: Monday, May 25]

Discussion and Conclusion

Our study suggests that ADDIE is a subject of special interest in the instructional design field. The discussion

revealed a variety of perspectives across participants, and in some cases differing perspectives offered by a single participant within a single post. It struck us that many of the statements made by the participants assumed a foundational position of ADDIE in design and at the same time questioned that position, or questioned some aspect of ADDIE or its use. The overall distributions of these themes can be viewed as a rough continuum, with "pure" ADDIE and "repudiated" ADDIE at the two ends, with a few unambiguous statements reflecting each position. Most statements fell somewhere between these extremes, reflecting some variation of the "flawed but useful" (or "flawed but what's the replacement?") viewpoint.

We characterize this as a *transitional perspective* in which, even as questions that have the potential to change practice and education in the field are being raised, many statements made by the participants seem also to assume that some deterministic model is required for designing. In addition, while issues regarding designers are central to discussions of designing in other fields, we see it as significant that the prompt in this study devoted to ADDIE did not give rise to comments about designers, talent, or character—even though the prompt was constructed to encourage such comments. The prompt may have been too complex, or may simply have raised an issue that the participants did not see as connected to the more familiar topic of ADDIE. To the degree that the latter is the case, we infer that these questions are not connected in the view of these participants, even though some of them were particularly selected for their broad views on design and designing. This can be seen as another transitional feature in the discussion—while ideas about designing are more nuanced in this field than they might have been a decade ago, they do not yet connect to some major constructs addressed in other fields of design, e.g., design thinking (Lawson & Dorst, 2009), design space (Goel, 1995), qualities of designers (Brooks, 2010), or designers rather than tools as the guarantors of design (Nelson & Stolterman, 2003a). The statements showed little evidence that the complexities resulting from serious considerations of such constructs are being addressed when instructional designers talk about ADDIE.

Acknowledging that this discussion was a limited view of both the participants' perspectives and by extension of those in the field, we see the significance of the study as a revealing—and, we hope, useful—snapshot of a moment in the field at a moment when we are questioning our foundations. □

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