

Teachers are designers

Addressing problems of practice in education

Teachers may be confused or put off by buzzwords like "design thinking," but the concept is a useful one: To solve stubborn, everyday problems of practice in schools, they should approach those problems strategically and systematically.

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Recently, a great amount of attention — both scholarly and popular — has been focused on implementing design thinking in schools (Norton & Hathaway, 2015). A recent piece in *The Atlantic*, for example, notes that “design” has become a buzzword in education (Lahey, 2017), even though many teachers remain unsure what it means or how to apply it. In this article, we provide an overview of design thinking, and we share some examples of ways in which teachers have used it to reconsider their own practice.

In brief, “design thinking” refers to a strategic approach to analyzing and finding solutions to messy real-world problems. By thinking like a designer — that is, by looking at how students actually experience the curriculum, classroom activities, assignments, and other aspects of life in school, much as an industrial designer might look at how consumers actually use products — they can better analyze problems and identify promising ways to move forward.

We do not advocate for a specific model of design thinking — it’s an overall approach to solving problems, not a particular technique or set of steps; there are many design thinking models in circulation; more than could be described here (Plattner, Meinel, & Leifer, 2010). Rather, we share some insights from teachers about their takeaways from using a design process, and we consider how design-based approaches can shed light on the kinds of problem solving that teachers engage in regularly as they navigate the challenges of the profession.

Navigating educational problems of practice

In their everyday lives, teachers frequently encounter challenging problems of practice that can be difficult to manage, from issues having to do with curriculum planning and instruction to student engagement, school culture, classroom management, school-community relations, and more.

Problems of practice are both complex and actionable, though they are unlikely to have a single right or wrong solution. For example, a teacher might wish to figure out how to increase student efficacy in a

particular mathematics course. If there were an easy answer, all math teachers would apply the one correct approach, and all students would thrive in math. It is precisely because there is no simple, one-size-fits-all solution that makes this challenge well-suited to the design thinking process.

Design thinking typically involves several phases, or stages, which have been codified over time as people have experimented with various ways of solving problems. For example, these stages often include:

- *Empathizing with stakeholders* to understand the problem, such as by interviewing or observing students, or trying to put oneself in their shoes;
- *Defining the problem*, which means describing it comprehensively, including all of its facets and students’ perspectives;
- *Ideating* or brainstorming to gather as many ideas for solutions as possible, from the commonplace to the wild and everything in between;
- *Prototyping* or choosing a solution to create and try; and
- *Testing* or trying the prototyped solution with students, to gain perspective on what works, what does not, and what needs to be done, or redone.

This may appear linear, but design thinking is actually an iterative and variable process. Designers, teachers, and others can cycle through stages or repeat them as needed to understand a particular situation.

We use a design thinking framework in an in-service teacher education course (which we have co-taught through Michigan State University). The process begins with participants choosing a problem of practice to address — it can involve anything from trying to increase student motivation in a math class to improving communication with parents, helping students develop better conversation skills, or any other issue that they see as important to their work.

In the course, we use the Stanford University

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d. School design thinking model to help the teachers work through the problems they've identified (Plattner, 2015). Again, we do not suggest that this one approach is best, but we do argue that it is important to choose a model, as it provides educators with a guiding framework, or "a way to intentionally work through getting stuck" (Watson, 2015, p. 16).

Through our work with teachers, we've identified three key concepts that we've found to be particularly important to support problem solving in educational contexts. They include valuing empathy, becoming open to uncertainty, and seeing teaching as design. (We phrase these as active words because our teachers often talk about the positive changes they accomplish, personally and professionally, during the design process.)

Valuing empathy

Singling out empathy as a key part of the process may seem redundant because it is already a phase in most design thinking. Yet, for the educators we work with, empathy has been a uniquely important part of the design process, directing them to put aside their familiar perspectives and see a problem from students' viewpoints (often through quick and simple interviews, observations, or putting themselves in a student's place). For instance, one teacher, Margaret, shared how important it has been for her to start with an empathetic look at the given problem:

As I interviewed my class, my students waved their hands in the air, enthusiastically wanting their voice to be heard. In the past, I would turn to my mentor teacher for advice. But in the empathize phase, I learned the importance of eliciting the student's voice . . . What I *thought* my class was thinking was not what they were actually thinking.

Educators care deeply about students so it is easy to assume empathy is second nature. But another teacher in our class, Kelly, noted that it requires active questioning and investigating to come to an empathetic understanding:

I try to help my students in any way possible, to create activities and lessons that they enjoy and learn from. But now I look back and ask, had I ever viewed my classroom and my teaching from their perspective? Where on the spectrum of complicated and frustrating to simplistically wonderful were my lesson designs? I had no idea until I began this process.

This does not mean that educators must empathize and then simply do whatever students want; teaching is a complex negotiation among competing demands. But design thinking and problem solving

should at least *begin* with an effort to understand one's students. As Nina, noted:

It is easy to assume that students share the same passions that we do . . . but I'm realizing it is important to understand them with an open mind. Later, there are opportunities to make decisions and to balance needs and wants. But first making a sincere effort to hear what your [students] think or feel opens up new possibilities to balance student needs with other objectives.

Simply put, teachers tend to view the world through their own eyes, making it difficult to see the given problem clearly. A math teacher, Jordan, reflected on how using empathy in design caused a shift in his approach across teaching contexts:

I've so often heard people discuss "unmotivated" students. Now I wonder what insights would we gain from looking at the student perspective and how might it change what we do as educators? When I sit in meetings or PD now, I try to empathize with the people our decisions will affect. Without empathy, we end up thinking that things like more testing and "accountability" will result in better student outcomes.

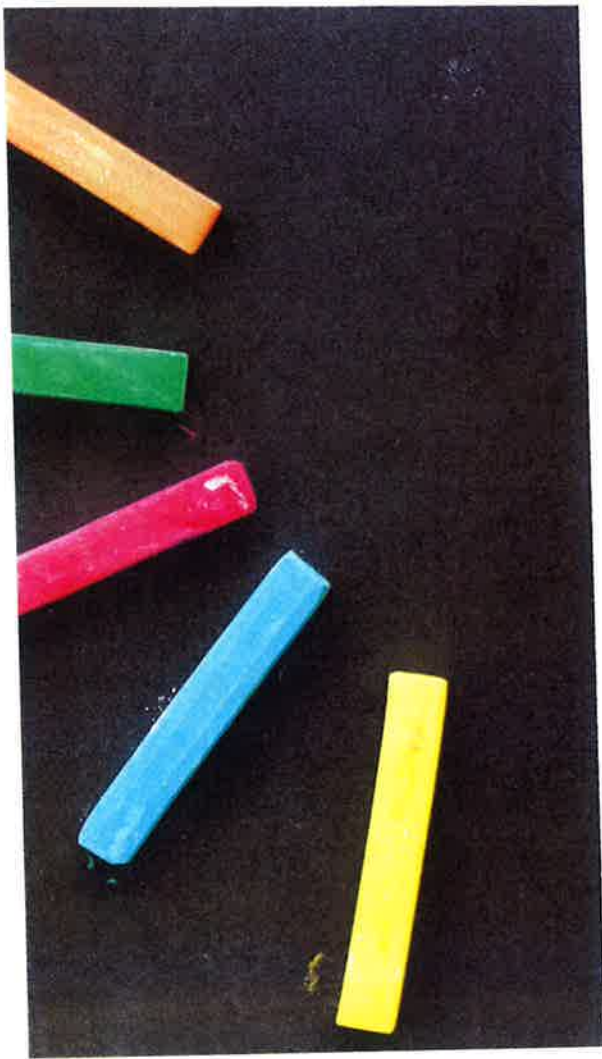
Becoming open to uncertainty and failure

Another key theme that has surfaced in our work with teachers is the need to confront uncertainty in the classroom. Historically, the U.S. educational system has valued conformity and rule-following, but creativity and progress require the willingness to try something new, be it a policy initiative, a new lesson design, or a change to the curriculum (Smith & Henriksen, 2016).

In our work with educators, we find that no matter how accustomed they may be to seeking the "one right answer" to classroom problems, teachers can quickly break themselves of that habit. A key step in design thinking asks them to seek ideas widely and without judgment, then to try a new idea in practice, testing its effectiveness. This gives them permission to be wrong, reflect, try again, and explore possibilities rather than to avoid risk taking.

For instance, one teacher, Claire, recently told us that in the face of strict school accountability systems, many of her colleagues have become obsessed with finding quick ways to improve student performance, which makes it difficult to explore and address the root causes of poor achievement. She noted, "We think we know why problems occur. We think we have the answers. So often we skip empathizing and understanding and defining, and jump right into a solution. Fortunately, I see it now . . . how crucial it is to focus and refocus."

Another teacher, Jordan, reflected on how impor-



tant it is to have creative freedom as teachers build environments and classrooms where mistakes and ongoing iteration are expected:

I enjoyed this design process as it allowed me to develop lots of ideas without worrying how they might be perceived and received. We have to accept that we might learn as much from a failed idea or prototype as we'd learn from a successful one. It's necessary to develop a culture of trust and risk taking both for teachers and students.

Of the many things that educators can take away from design thinking, the ability to try new things, and sometimes fail and rethink or regroup, is key. Another teacher, Joan, noted, "I learned it is OK to be wrong! I talked to my students as stakeholders, listened to their concerns and opinions, and used what I had gathered to change my original ideas. The solutions that emerged were greater than I thought they could be."

Viewing teaching as design

Finally, a broader takeaway from our recent work with in-service educators is that they should make it a priority to view themselves as designers — of student learning and experiences.

We've found that, initially, most teachers think of themselves as "doers" and "implementers," not designers of solutions or experiences. As one teacher Nina commented, "The term 'design' can bring with it many associations. When I initially thought of design, I thought of car styling or of architecture. I had not thought to apply the term 'design' to the complex issues that I encounter in teaching."

Or, as another teacher, Joan, put it:

Had you initially asked me to describe design, I would have said it is an art achieved by artists, car designers, or architects. I would not have said that I, myself, fit into this category. I hold many roles — mom, wife, teacher, colleague, leader. But not designer. Boy, was I wrong.

Many of our teachers noted how, through the process of using design to address classroom and school issues, they began to see themselves as creative individuals who had the tools to enact change in their context. For example, Morgan reflected on her growth as she began to connect education to design, saying that:

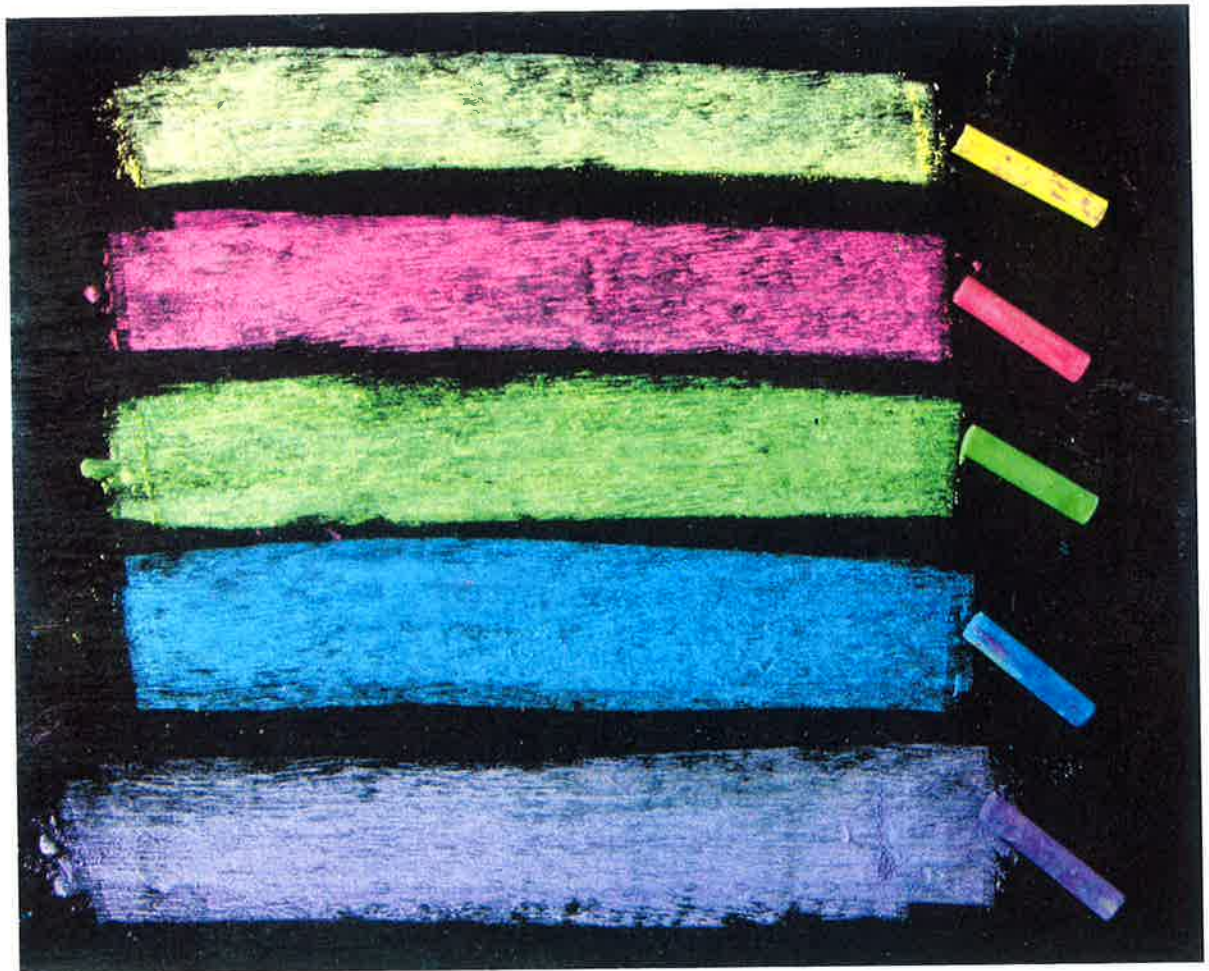
I chose a problem that I've tried solving through other means, but also previously thought, "Well, teachers are always trying to make students more engaged." But here I found I was actually making progress toward designing a solution! I could also tell at this point that my mind-set had shifted and I had begun to see teaching and lesson creation from a designer's point of view.

This view of oneself as a teacher-designer has been empowering for many educators as they become more confident in their abilities to creatively engage in problem solving. As Janet noted:

I no longer see myself only as a teacher, but as a designer. I had always thought a design was based on an idea that just popped into your head. I always thought people with excellent ideas were the people that just naturally had great ideas. This work has taught me that everyone can be a designer and that there is a process. Teaching is design . . . I was a designer without even realizing it.

What does this mean for education in practice?

Educational problems of practice are complex and involve a range of moving parts and variables, including school and classroom contexts, human psychology, and knowledge of pedagogy and content. We argue that when confronted by such complex problems, it helps to take a strategic approach to problem solving, treating it as a systematic process of analyzing and redesigning one's everyday work in schools (from classroom management, to student engagement, to community relations, or



parent engagement, and more). In doing so, we can adapt some of the approaches and skills that designers have often successfully applied to human-centered problems.

Free online tools and resources for design thinking have become increasingly available, allowing teachers to learn more about it, including the Stanford d.School model, the IDEO Design Thinking for Educators model, and others. But at the same time, through working in professional development settings, we've found that certain aspects of design tend to be particularly important to teachers. Perhaps more so than professionals in other fields, teachers tend to focus on the importance of seeing problems empathetically, becoming open to uncertainty, and recognizing that teaching itself is a form of design.

Herbert Simon, the "founding father" of the field of design, viewed design as human-centered problem solving. As he put it, "Everyone designs who devises courses of action aimed at changing existing situations into preferred ones" (1969, p. 130). We hope that teachers or administrators dealing with complex challenges in schools will see themselves in this statement. **K**

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