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I really do hope I’m wrong. I hope this is all much simpler than I’m making it out to be. But if “personalized education” neither resembles traditional school nor learning in the real world, whose interests drive that divergence? What answers to that question would scare us? Excite us? The question, “Can personalized education work?” is much less important to me than, “Whom will be hurt how by the ways that personalized education will fail?” It is essential that reforms not simply ‘work’ but be robust to all sorts of ways of *not* working. And frankly, I’m not sure that an honest Sal Khan would be comfortable taking the Hippocratic Oath, to commit to first do no harm, with which I will close, in excerpt:

I will prescribe regimens for the good of my patients according to my ability and my judgment and never do harm to anyone. [...] I will preserve the purity of my life and my arts. [...] I will leave this operation [in which I am not expert] to be performed by practitioners, specialists in this art. [...] In every house where I come I will enter only for the good of my patients [...] If I keep this oath faithfully, may I enjoy my life and practice my art, respected by all humanity and in all times; but if I swerve from it or violate it, may the reverse be my life.

<https://thesprouts.org/blog/rendering-learners-legible>

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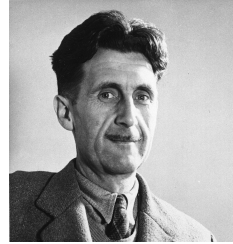
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Rendering Learners Legible

by Alec Resnick

Educators talk a lot about ‘personalization.’ Is the animating purpose of “personalization” in to render students legible? If it is, could Sal Khan take the Hippocratic oath?



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— George Orwell, ‘As I Please’

InBloom’s mission is to “inform & involve each student & teacher with data & tools designed to *personalize* learning.” Focus on that word, “personalize.” At the moment, this is an exciting word for many people in education. In this crowd, there is a common distinction between ‘transmission’ and ‘construction’ as metaphors for teaching (construed as transmitting information) & learning (construed as constructing a mental model).

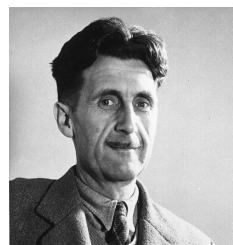
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Although this in fact is what typically happens in many classrooms, the party line of graduate schools of education and the broader world of educational theory is that transmission's no good. So, you'll often see teachers' email signatures cite Yeats' "Education is not filling a bucket, but lighting a fire." or Hutchins' "The objective of education is to prepare the young to educate themselves throughout their lives." before going back to a classroom where they stand at the front.

Framing learning in terms of "construction" makes it a problem of giving students puzzles, projects, and experiences that develop their mental models. You become naturally concerned with engagement and epistemology and ideas' expressive power. Issues like curriculum or assessment become constraints that buttress or obstruct the primary focus: surfacing & iterating learners' models.

If this happens in classrooms, you'll see it under the banner of 'project-based learning' or 'learning by doing' or 'hands-on.' But as with any words, these can and have been corrupted and diluted, often to denote their precise opposite, for myriad reasons—most driven by the gap between our nominal values and our functional priorities for education.

While progressive educators have reached nominal consensus that 'construction' trumps 'transmission,' that is not the point I'm trying to make. I just want to highlight the distinction these two, broad, rhetorical camps offer; I think it has a lot to teach us about personalization.

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If I said, ‘personalized education’ hundred years ago, well there’s private tutors, it’s gonna be very very expensive...And there were attempts, the book talks a lot about them, over the past hundred years, actually trying to do personalized education. [...] And they actually had very good results. I mean, these were peer-reviewed studies, very very good results, but it was just logistically hard to do. If you wanted to do self-paced education without computers you’d have to have these worksheets going around, the teachers would have to do all of this logistics and information management. What’s exciting now, the technology, it’s not there—and I’m very clear on this in the book—the virtual education, the software isn’t there to replace physical schools. It’s there to empower schools, so they can finally do personalized education, in a scalable way.

Maybe my dystopic visions of banks of students swiping at shoddy Android tablets running skinned versions of crappy, free courses authored by i3-driven content farms ‘collaborating’ with Google via their Course Builder, overseen not by teachers but by “classroom managers” whom the kids (who are inevitably mostly poor, black, and brown—their white, upper middle class counterparts get ‘personalized’ education in the form of, well, people. i.e. teachers at

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Now, let's return to inBloom: *"With access to the right information, educators can gauge student performance, develop insights, and act quickly to help students achieve their goals."* Read that again. That glib slippage between the interests of students and teachers is central to the rhetorical trick pulled by 'personalization.' It manifests as the conflation of teaching and learning, of learning and assessment, of process and product. The reason this slippage happens is simple: without it, Facebook, Google, and Khan Academy would need to admit that they are *extracting value from their users* by rendering them *legible* to other parties (i.e. advertisers, educators). This is the *fundamental* difference between Reed Hastings and Sal Khan. Netflix makes money when they deliver value to you. inBloom makes money when they deliver value to *state departments of education*, whose goal is not uncomplicated—at their best they want to help students, but the truer statement (and weaker claim) is that they want to *treat* them. inBloom helps them control and manage the treatment process.

To control a process you must first observe it. And you must be able to intervene in it, capitalizing on your observations to nudge the system in your desired direction. Ultimately, this is the promise of legibility—by watching what students do and how they do it at a fine enough grain, we will be able to carefully move them along our curriculum (Latin for "race course"), our ontology.

When you hear "personalization" ("I will help you find and do what *you* want") turn into "self-paced" ("I will help you find and do what *I* want you to do, in my order, but don't worry—at your own

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"Watch TV shows & movies anytime, anywhere."

Netflix doesn't talk much about personalization—they've had an incredibly consistent focus on becoming the "best way to rent a movie" since they began in 1999. Now, their value proposition is, "For one low monthly price, Netflix members can watch as much as they want, anytime, anywhere, on nearly any Internet-connected screen. Members can play, pause and resume watching, all without commercials or commitments." You have to dig around a bit to find mention of their ratings system, "It's only Members can rate the movies and TV shows they've watched through their TV or on the Netflix website. Netflix takes these ratings and pairs them with billions of other ratings by other Netflix members to accurately predict movies and TV shows members will enjoy." This despite the fact that they famously hosted a million-dollar competition to improve the accuracy of their predictions.

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So, what problem is personalization solving for Netflix? Well Netflix wants people to watch more movies. Finding movies that people want to watch is a natural solution to this. Sometimes, people don't know what they want to watch or what they'd like. So a matching algorithm helps them *find something customers want*.

“Happy Birthday!”

Imagine it's your girlfriend's birthday. You want to get her a gift. Do you get her a personalized gift? “Well, sure.” But you probably don't use that language unless you're monogramming or tailoring it. (Set those examples to the side; we'll be seeing more like them.) We assume gifts are personalized unless they're giveaway swag. How do you personalize your gift? Well, hopefully you know them well enough to simulate whether they'd like a given trinket. Sometimes we need help brainstorming trinkets, but rarely—at least with those girlfriends we know well—do we need help deciding whether they'll like it. To brainstorm, you might browse their Pinterest or keep a list of things they want or head to their social wishlist.

So, what problem is this process of personalization solving for you? It's helping you *find something they want*.

“I'm looking for someone who can read my profile and write an intelligent message and isn't a serial killer”

Imagine you're single. And 26. Most of your friends from college have moved on. You've just finished your graduate program and are

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But Facebook is not alone. Google's mission is “to organize the world's information and make it universally accessible and useful.” 96% of *their* revenue comes from advertising. But you could be forgiven if you were to browse their about page and miss that. Which notably, begins with the rhetoric of personalization, “Larry Page, our co-founder and CEO, once described the ‘perfect search engine’ as something that ‘understands exactly what you mean and gives you back exactly what you want.’

The first hint that Google's users are not its customers is buried a couple paragraphs down, “[Making it as easy as possible for you to find the information you need and get the things you need to do done] means showing you when your friends like an ad or a search result, so that you know it might be valuable.” In 2010, Bradley Horowitz, VP of Product Marketing at the time, described Google Buzz as ‘a Google approach to sharing’ and a tool that will ‘help you manage your attention better.’ The most generous possible interpretation is in fact, “Advertisers will hire us to help you manage your attention better.” Notice again the easy slippage between customers and users, between attention and ads, between helping and selling.

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Returning to our earlier examples of personalization—the weight trainer and birthday buyer and Netflix customer—what does it mean that there is no such tension in those examples? I think that’s quite significant. If you aren’t convinced, two more examples of personalization—if you’ll bear with me—will make that clear.

“more open & connected”

Facebook’s mission is to make the world more open and connected. 85% of Facebook’s revenue comes from advertising. Which means Facebook’s users are not its customers. And you can hear that tension in everything Facebook says and does. Even in Zuckerberg’s letter to investors, it takes a few paragraphs to get to the money shot:

As people share more, they have access to more opinions from the people they trust about the products and services they use. This makes it easier to discover the best products and improve the quality and efficiency of their lives.

One result of making it easier to find better products is that businesses will be rewarded for building better products - ones that are personalized and designed around people. We have found that products that are “social by design” tend to be more engaging than their traditional counterparts, and we look forward to seeing more of the world’s products move in this direction.

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quickly discovering you never actually learned how to make friends. Much less find a date. Luckily, there’s an app for that. So you fill out your OKCupid profile, answer their hundred-question personality test, and start browsing. When you use OKCupid’s special blend or Quiver features, you’re getting personalized dating advice and matchmaking.

But unlike our examples so far, it’s subtler than “helping you find what you want.” Sure, you can search for “single, straight, very attractive blond, measurements 36-24-36, looking for casual sex in my area” but that’s not what OKCupid is for. In OKCupid, personalization is a mix of matching and satisfying you. OKCupid aspires to find *people you want* whom you have some better-than-average chance of *getting* whom *also want you*.

“Does this make me look fat?”

Imagine you’re shopping for a shirt. You walk into the department store and an associate comes up to help you. At their best, you might say they’re working to ‘personalize’ your shirt—helping you find one appropriate for a given occasion or one that’ll complement your wardrobe or accommodate your tummy. But there’s a big difference between the personalization something like Blank Label provides (tailored fit) and something like Spreadshirt (customized prints). Blank Label is *matching* you—i.e. personalization is helping you *find something appropriate for your body*. Spreadshirt is matching your desires—i.e. personalization is *customization*. In both cases you ‘want’ the shirt (and indeed, even Blank Label offers customization

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through choice of pattern and fabric), but in one case you're asking someone to treat you and in the other to serve you. Keep this distinction in mind, we'll come back to it.

"I'm ready to up my weight."

Imagine you walk into the gym with your weightlifting partner. You lie down on the bench, and they begin loading up your regular load—180lbs. But last time, your partner saw that you were having a pretty easy time of it. As he puts on the last 10lb weight he pauses to ask, "You want to bump up your weight? You seemed ready for it last time." Now if the bench press had automatically suggested this to you based on measuring your impedance and completion rate, you wouldn't be surprised to see the inevitable Valley startup's page lead with, *Helping you personalize your weight training experience*. So what is your friend doing? It's a little more complicated than our other examples. They're helping you find a weight that's appropriate for you (in this way they are personalizing things as Blank Label does), but there are a bunch of other functions they serve: e.g. egging you on. Unfortunately, these affective components of your experience don't really have a rhetorical home in discussions of personalization. But [un]luckily for you, "gamification" has got that covered.

Anyway, let's return to education. What type of problem is personalization solving in education? I can't speak for advocates of personalization or even its target audiences, but I see one, overarching theme tying together personalization efforts. If we look

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With access to the right information, educators can gauge student performance, develop insights, and act quickly to help students achieve their goals.

Read that again. Whose are 'their' goals?

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Read that again. Given the option, how many students would naturally give well-meaning "Coaches, parents, and teachers" that visibility, if the choice were students?

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Read that again. For every minute a "coach" spends looking at that data, how many minutes do you think the average learner will spend—of their own volition—doing the same?

You're joining millions of Khan Academy students from all over the world who learn at their own pace every single day.

Read that again. Is the average student more or less excited to join the millions of Khan Academy students than the average "coach" is excited to join the thousands of Khan Academy coaches?

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are many, but consider: the screen you need doesn't change depending on the movie you show; all movies are files; most movies occupy similar roles in your day-to-day (i.e. they are a two hour endeavor in the evening); Netflix doesn't need to care about why you want a movie to give it to you effectively; the list goes on.

But many of these advantages can be summed up simply: movies and movie-watchers are *legible*. And while there's a fascinating discussion to be had connecting the modernist efforts Scott explores with the internal structure & logic of school, that's not what I want to focus on. I want to highlight that each of these overlaps—abstraction, techno-utopianism, information centrality, and so on—is deeply driven by or complicit in a need to render students legible in an effort to create a system at scale. And that need to create a system at scale is driven by our desire—rightly or wrongly—to impose a will on students to fix “a social problem.”

Personalization accelerates and lubricates this process of rendering students legible. To see this unvarnished, we must examine the language of those advocating personalization. And in that language, if you listen for power dynamics you will find a very different landscape than what you heard in our earlier work exploring analogies to personalization. As you read these excerpts from inBloom and Khan Academy, ask yourself what the analogous statements from the weight trainer or birthday buyer or Netflix executive would look like.

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are many, but consider: the screen you need doesn't change depending on the movie you show; all movies are files; most movies occupy similar roles in your day-to-day (i.e. they are a two hour endeavor in the evening); Netflix doesn't need to care about why you want a movie to give it to you effectively; the list goes on.

But many of these advantages can be summed up simply: movies and movie-watchers are *legible*. And while there's a fascinating discussion to be had connecting the modernist efforts Scott explores with the internal structure & logic of school, that's not what I want to focus on. I want to highlight that each of these overlaps—abstraction, techno-utopianism, information centrality, and so on—is deeply driven by or complicit in a need to render students legible in an effort to create a system at scale. And that need to create a system at scale is driven by our desire—rightly or wrongly—to impose a will on students to fix “a social problem.”

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at what school does rather than what graduate schools of education say, we might model 'education' as a process of exposing students to the right information at the right time and in the right order, 'personalization' becomes the process of defining 'right' and making the implementation of more correct answers scalable. Which almost sounds like our earlier analogies' mix of matching and satisfaction. Except there's a tension when we look more closely at the structure of whose desires and constraints are being satisfied. And that tension points to the driving force behind personalization: its promise to render learners *legible*.

Rendering learners legible

James C. Scott's *Seeing Like a State* is one of my very favorite books. In it, Scott walks through half a dozen “schemes to improve the human condition” that have failed. Whether introducing permanent last names to lubricate tax collection or subdividing land into plots to support industrial agriculture or centralizing planning in high modernist cities like Brasilia to increase efficiency, Scott tells a compelling story about the pressure to render resources—human and natural—“legible.” Scott paints “legibility” as a primary force in the practice of statecraft specifically and modernism more broadly because of its role as precursor to control and value extraction. In doing so, Scott beautifully articulates a terrifying warning against the combination of institutional hubris and authoritarian structures. Planners of all stripes not only assume they understand the systems they tweak (whether natural or political) but that abstract,

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interchangeable elements comprise these systems (whether trees or citizens). The resulting design errors and ripples of unintended consequences become either the systems' undoing, or are seen as cause for even broader mandates to tweak and engineer systems, piling intervention atop intervention.

These failures are tragedies in the purest sense. Not only do they originate in hubris, but are also motivated by optimistic and altruistic views of progress and humankind. Scott traces these tragic dimensions back to a common set of characteristics, many of which are germane to our investigation. Consider the following juxtapositions (here, I quote Scott directly):

- *Another student, another user*— “The lack of context and particularity is not an oversight; it is the necessary first premise of any large-scale planning exercise. To the degree that the subjects can be treated as standardized units, the power of resolution in the planning exercise is enhanced.”
- *What's missing is access to the right information at the right time—its all about information transmission*— “The clarity of the high-modernist optic is due to its resolute singularity. Its simplifying fiction is that, for any activity or process that comes under its scrutiny, there is only one thing going on. In the scientific forest there is only commercial wood being grown; in the planned city there is only the efficient movement of goods and people; in the housing estate there is only the effective delivery of shelter, heat,

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sewage, and water; in the planned hospital there is only the swift provision of professional medical services.”

- *'Average' teachers & students need our help*— “What is perhaps most striking about high-modernist schemes, despite their quite genuine egalitarian and often socialist impulses, is how little confidence they repose in the skills, intelligence, and experience of ordinary people.”
- *If students are not doing what they should, we can make them*— “If such schemes have typically taken their most destructive human and natural toll in the states of the former socialist bloc and in revolutionary Third World settings, that is surely because there authoritarian state power, unimpeded by representative institutions, could nullify resistance and push ahead.”
- *Personalization will disrupt a broken industry*— “[Reforms'] power, it is worth remembering, was least contested at those moments when other forms of coordination had failed or seemed utterly inadequate to the great tasks at hand: in times of war, revolution, economic collapse, or newly won independence.”
- *Technology will unlock students' potential and provide great education to all*— “That these tragedies could be so intimately associated with optimistic views of progress and rational order is in itself a reason for a searching diagnosis.”

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