Interview

“Smart” Educational Technology:

A Conversation between sava saheli singh,
Jade E. Davis, and Chris Gilliard

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sava saheli singh: When I was asked to have this conversation, it struck me as a little weird because I don't think I have ever thought of “smart” in the context of educational technology. So let me start by asking, how do you understand “smart” in the context of educational technology or smart technologies in the context of education?

Jade E. Davis: That's a complicated question to start with. I don't know that we have used “smart” in the context of education because I think smart things usually make the decision so the person doesn't have to think. With education you want the opposite, theoretically, and the point of smartness is really the point of surveillance. So how do we obfuscate information or how do we highlight information from the person who's supposed to be surveilling the classroom? And here, I'm not thinking about modern technology; I'm thinking more about something that I remember wondering about as a kid: vanity panels on teachers' desks. Students are supposed to be exposed so the “smartness” is always about protecting one person (the teacher) at the expense of everybody else (the students) being vulnerable. If we think about more recent automated technologies, especially since the pandemic, they are focused on alleviating the stress of the teacher, that person who's supposed to be hidden but always there, and exposing the students more and more. Which is “smart,” but it's smartness in the service of power.

Chris Gilliard: I agree with Jade. I remember that there was a push towards SMART boards at some point. Other than that, the “smart”/surveillance mechanisms have mainly been, in my experience, in things that are supposed to alleviate the work of being an instructor. Things like algorithms that can supposedly grade a

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paper, or some type of predictive analytics. These things typically don't get labeled "smart" because they're not technically hardware that's connected to the internet. I think smart also winds up meaning some form of AI (artificial intelligence) and ML (machine learning), which is usually what we wind up with.

Jade: I'm wondering about the failure of the SMART boards, because I have seen them! They weren't being used as SMART boards, they were just being used as whiteboards, and that makes me wonder if we're hesitant to call things "smart" because so many places invested in these SMART boards that were going to change everything, and then they just seemed better as whiteboards anyway.

sava: I remember SMART boards! And I remember that, when I was teaching pre-service teachers, all of them were keen to get SMART board training because they believed having that skill would give them an edge on the job market. And I also remember how schools spent so much money getting these SMART boards, but often, teachers didn't get much support or training, so many of them ended up using it as a whiteboard, like you said, Jade.

What's interesting about both your answers is that you both conceptualize "smart" as a hidden mechanism or a hidden surveillance system that is ostensibly supposed to make a teacher or instructor's job easier. Do you think that's what's happening?

Chris: I can't help but think about it in terms of all the so-called "smart" things that exist that I don't want or need. An example is when I had to buy a new washing machine. It's almost impossible to buy one now that is not "smart." But all it really does is text me to tell me that the load is done. All I have to give up in exchange for that is connecting it to a network that's eventually going to be used as a botnet. This is also true of things like smart speakers. Maybe I'm the wrong person to be part of this conversation because I reject the framing in so many cases!

Jade: I think rejecting the frame is particularly important for education. If you think about what education is theoretically supposed to be doing for students and if you think about so many of the conversations around who students are and who they're going to be, "smart" technology is actually counter to what education is supposed to be doing for them. There is an assumption that is inherent in this conversation—if we're talking about education and the tools that have been deployed, and the programs that have deployed these tools—which is that educators are not smart enough or capable enough to really get to the root of what's happening in their classroom with regards to students and learning. So they need a "smart" supplement. Whereas students are supposed to not know things, so when we apply the "smart" for students, it often boils down to when the student performs well, they get something more challenging.

sava: So not only are "smart" technologies taking away the ability of a teacher to connect meaningfully with their students, smart technologies also help to sort and segregate classrooms and students according to the perceived ability or smartness of the student.

Jade: Yes!

sava: The pandemic has really complicated how learning and teaching are taking place since so much of schooling is now done from home or in a hybrid setting. I recently spoke with teachers across Canada for a project to find out how the pandemic had affected their practice, and all of them were struggling to keep up. They hadn't been given enough time to prepare for a completely different educational setting, and there was very little support or training for the technologies they had to rapidly become experts on. They were thrown in the deep end and did everything they could to create some sort of educational continuity for students, but it was a huge challenge. What have you seen in terms of how the pandemic has affected education and accelerated the uptake of some of these "smart" technologies, bringing them into our homes and into physical and virtual classrooms?

Chris: One of the things we've seen in the last year is the merging of work, school, and home for a lot of people. But that's not true for everyone. Let's not forget that there are people—essential workers, and even many students who have been going to school for a while—for whom that is not true. But yes, for many, work, school, and home have merged. As we attempt to wind down from the pandemic and go back to “normal,” there is going to be a continued push for “smart” technologies that are meant to ease that transition. And more often than not, this is going to be in the form of surveillance. Things like temperature scanners, facial recognition, contact tracing, and vaccine passports are being pushed by companies that promise these are the things that are going to speed up that return to normalcy. I hate to belabor the point, but many of these things don't actually do the things that these companies claim they do.

Jade: I agree. In addition to the temperature scanners, there are discussions about using density trackers in schools so that they have a sense of how many people are in the spaces to try to make sure that social distancing is being maintained. And while many schools are talking about returning to in-person teaching, there's the question about being “HyFlex” in the event that there is an outbreak or a student ends up sick and has to be gone for an extended period of time but they're still enrolled in school and they can't take time off. How do we then support classrooms in such a way that the teacher can teach and have the technology facilitate what's happening for the student who has to be remote because of unforeseen circumstances? I've heard some discussions around smart cameras and microphones that can adjust to the speaker or the classroom so that the professor doesn't have to direct or design the online portion of the class. So the pandemic has made us think about different ways to ease the extra work of moving and working across modalities. For example, the online learning programs at Duke University, the University of Pennsylvania, and the University of Michigan, which played such a big role in guiding teaching and learning during the pandemic, recently hosted a Pandemic Pedagogy Research Symposium to share takeaways on the challenges and innovations that emerged during the pandemic.

sava: What both of you are pointing to are all these other systems of surveillance and tracking data being brought into the context of education. Until now, temperature scanners, contact tracing, and density trackers aren't things we would include under “educational technology.” But in the context of the pandemic, we now have public health and education and their respective technologies coming together in a way that is novel and potentially concerning. Do you think these systems and the data they are amassing are leading to a larger and more invasive surveillance network?

Chris: If we continue down this dystopian path, yes. For example, suppose we put smart speakers in the classroom. Companies like Amazon claim that they can ascertain emotions and sentiment from people's voices—an online acquaintance called this throat phrenology!—and that is alarming. Do we really want that in our classrooms? So, yes, I think that these things are going to be combined, and they're going to be combined in really unfortunate and discriminatory ways that I think we're just beginning to see.

Jade: Thinking back to your initial question about what is “smart” and how things come together, I'm reminded of that student who was taking a class that they thought was really great, and then they realized that the professor was actually dead!¹ When you consider what most smart technologies do (like Chris's example of the washing machine that texts you) and you think of this in the context of the classroom, technologies are going to be used at the superstructure level to manage people and spaces. But when “smart” technologies work well, it's like that professor—who was so amazing and engaging that a student can watch him years later and still find it useful, and there was enough relevant information there that even the TA didn't know he was dead. This story is the perfect example of the conversations around automating the classroom. In higher education, we are recording all of our lectures or posting them online and universities have these lectures, so what are they going to do with them once we're gone?

A lot of this smart technology, like recording live lectures, is an extension of educational infrastructure that has always been there. Now it's just with more sensors. When I taught about surveillance before, I would

¹ See Kneese (2021).

point to the camera and the red phone in the classroom and tell students that I could call somebody and they could watch us. So that sort of infrastructure has existed in classrooms for a while, but now we'll add a layer of little colored dots that indicate the temperature of a person. My point is that it's not too different from what existed before the pandemic, it's just that we have a common language to talk about it and we're talking about it more. We also don't always talk about this sort of set up in terms of "smartness"; we talk about it in terms of safety. The red phone and camera were always about safety in the classroom and never about needing to watch what someone was doing.

sava: As you were saying Jade, more people seem to now have an awareness of the language to describe these things. While the pandemic has certainly accelerated the uptake and use of these technologies, it has also led to a broader awareness of these surveillance technologies, including the language to talk about them. Do you think that this awareness means we're headed for change? Is there a way to roll back this widespread adoption of these surveillance technologies?

Chris: We've started seeing more of what might be called "fuck the algorithm" moments. And I'm sure there are some folks who might say, "well, actually, it's not the algorithm," but that's not the point. I think these moments are really important because these conversations are being had by people who, up until this point, hadn't really thought that they had a reason to know these things. I would compare it to the financial crash—who knew what a credit default swap was up until then? I didn't! So, these conversations are really important because one of the ways you get change is that you get widespread acknowledgment of how these systems are impacting people's lives and an understanding that they have very little say and even knowledge of it.

Jade: My feelings about this are very complicated. I think it's good that people are becoming more aware of all of this stuff and that they have the language to talk about it, but it is unfortunate that this is happening in the context of a pandemic. We're in a global health crisis and the only way that we can meaningfully protect ourselves is to stay separate from each other and be honest about the interactions that we're having. So when you look at countries that have managed to really stop or stall the virus progression across time, they were countries where it was okay to have certain types of surveillance because they could trust the government, they can trust other citizens, and there was a culture where sharing for the greater good is okay. But in other places, we've allowed these technologies to exist and gain prominence and take all this information and use it for nefarious purposes and partner with bad companies and bad systems. So, there was an opportunity to show that these systems can actually be useful, but that was impossible, especially when it's coupled with the major misinformation campaigns that were happening and continue to happen. Over half a million people in the United States died and we're seeing the same thing happening in other countries where it's turning into conversations about freedom and control. And so, yes, I think these systems are bad. I am on board with that. But there doesn't need to be this much death, and theoretically, had these systems been more balanced in favor of a greater good rather than profit and capitalism, the outcomes might have been very different.

sava: Since you brought up capitalism [laughter], let's talk a little bit about who is benefiting from all this in terms of profits and in terms of the companies that own and run these technologies, and by extension, have access to all that data.

Jade: I think every company wants the Amazon model of controlling the entire workflow. These companies want to be embedded in our lives and homes in such a way that they become integral to our safety or at least the belief that they are somehow making the environment safer. They build up this dependence on them in such a way that people will forget that there were ways to do those things without the company, and there would be an uproar if the company were to go away. So, I think companies are playing a long game of locking in future profits and trying to get as much market share as possible right now while we still have an open market.

sava: I worry that these technologies are creating systems and settings that allow only certain kinds of movement or being that we must conform to. So, in a way, they are shaping us to better fit the systems which in turn make it easier to track and read us, as it were, and hence potentially predict and direct our movements. What do you think?

Jade: From my perspective I think these systems are gathering more information for the sake of having more information without a real purpose. I was reminded of my Ancestry DNA results (I did not do this voluntarily) and how over the years, my ethnicity has gone through many, many changes. So I think the goal of certain systems is just to collect that information and then provide insights, and then ask for more information in order to be able to provide better and more accurate insights, without ever really being able to pinpoint the insight that's actually meaningful. For example, we talked about temperature scanners earlier; that information isn't meaningful. Baseline temperatures vary and there are going to be people who have high temperatures for a plethora of reasons that have nothing to do with them potentially being sick, and there might be people who take something to suppress a fever. So none of that is meaningful, but we'll have so much information about it that will force an insight that says, "this information is meaningful." It feels like that's what a lot of these things are doing.

sava: Yes! And this information and the apparent insights from this information will be used to make decisions about people.

Chris: Ben Williamson's work talks about the ways that venture capital shapes education just through investment.² These people and companies aren't interested in pedagogy, they're not interested in education, and they're not interested in human beings. If we're going to be explicit, they're just interested in making money, so there's a variety of harms there. These systems operate on the extraction of data so platforms are most interested in capturing people and thinking about that in terms of carceral technologies that capture segments of people and control them. So, in some ways, that prediction is not so much about predicting a particular outcome, but *shaping* it.

Also, more often than not, the administrators who purchase the systems and the people who use them don't understand how they work. Todd Feathers did an investigative report for *The Markup* which showed how universities in the US calculate "risk scores" for students using algorithms that have race as a predictor for failure, where black and other non-white students were considered more likely to fail. The universities were not aware of this, and some have since discontinued the use of this algorithm because of the report,³ but things like this contribute to the scale of harms from top to bottom. This is how, from investment to deployment, these systems shape people's futures. I'm not trying to be hyperbolic about this, but if a system says that a particular person is at risk if they stay in a major, that can have major repercussions. For instance, I failed an English class once in undergrad, and now I have a PhD in English. The reason I failed was because the teacher was racist and an alcoholic, but that's not the kind of thing the system would capture. All this is to say that yes, I think systems like this can cause widespread harm.

Jade gave such a great answer earlier about the pandemic and trust and how systems of trust are based on how our society is structured. And we mentioned capitalism. Until we change the underlying motives for how and why some of these things exist, things won't change. I don't think it is possible to have equitable versions of things like predictive analytics and remote proctoring. I do think that there are some ways we could imagine technologies that could be useful for education, but in some regards, we are so far away from that that it seems like we can only imagine them.

Jade: I don't know that there's a use for these types of tools for education in general. I don't know what purpose they would serve, except in some specialized fields that have found meaningful uses for them. I'm thinking of medicine here, because I recently had an extremely positive experience with algorithmically

² See Williamson (2017).

³ See Feathers (2021).

driven care. For example, one set of data is compared to data from a group of people going through certain therapies, and this provides some insight into how to modify the type of care that a person is given. Can this be applied to general education? I don't know. This doesn't necessarily translate to other disciplines and I'm not sure which other disciplines might have uses like that.

Going back to your earlier question, I think the benefits are always going to be in very specialized usage, where you have a very pointed question. The issue we have right now is that we have a whole lot of data without any pointed questions, so we have data looking for a question and a set of questions using that data to figure out something else or lead to the next question. And for whatever reason we believe that, because we can attach numbers and it's quantified, it is somehow more valid than everything else. But the truth is that so much about learning is in that "everything else" and not in the quantified data sets.

sava: Speaking of "everything else," during this pandemic there has been a huge sense of losing community because students and teachers are not together in person. A lot of students have talked about losing those moments of casual learning and the interactions and socialization that come with being in school together. Teachers have felt this too—it has affected how they teach and connect with their students. Teachers told me you might be able to focus on an individual student in the online setting because of the surveillance apparatus, but it's very different from being in a classroom where you can walk around and pick up on things because you know your students and give them in-the-moment support that is not afforded by an online setting.

Jade: And you can feel the shift in the mood. I used to teach subjects that were controversial and I would send the rest of the class to do group work so that I could stop and check in with a student, or ask a student if they can hang out for a minute after class and check in on them then. I would sometimes end the class two minutes early, just so I could check in and make sure that those students were okay. We're in a situation now where we have all of this technology leading everything and so much more surveillance, isn't it wonderful? [laughs] We know students are going through a lot and there's no way to stop and really check in to make sure they're okay, because everything is based on that little digital snippet—be it the data in your learning management system, or the little square if they have their camera on, or something they say in a forum. So, the way data are collected disconnects, in many ways, and the "smart" and digital technologies we have also disconnect and streamline everything to a single point of entry.

And, like I said, I think it works really well if you have a very pointed question that the data can answer. But when you're talking about a classroom, it's not these little smart learning modules that can go into a computer machine, and then work just as seamlessly as though we were together in person. That doesn't make any sense. Unless you want to make lots of money by producing lots and lots of information, that makes no sense.

Chris: Good teaching is a combination of art and skill and experience. I'm of the firm belief that no amount of data capture is going to be able to reproduce that. This is apparently a fringe belief in educational technology circles. When I'm in a classroom, I'm not interested in predicting what I think the student is going to do or what grade they might get. That is actually completely irrelevant to me, but prediction is central to how this technology operates. So, I'm skeptical of what the future looks like for "smart" educational technology because it's so invested in capture and control and prediction, rather than helping people maximize their own goals, what they think they're there for.

sava: I can't help but think of the carceral logics that underpin a lot of these technologies, and how they are turning us into, well, cops. I was talking to a colleague recently about how the learning management system they use shows them when students had downloaded a reading. That made my colleague uncomfortable because they didn't actually want to know that. Downloading a reading doesn't necessarily mean it gets done, so what's the insight here? It's possible that the student has already done the reading or already has the reading downloaded. But it's too late—the instructor has already made a judgment about this student and, now that this seed has been planted, they start wondering about who else didn't download the reading.

So, what is this piece of information doing, other than turning my colleague into a cop? What do you think about how so many of these technologies seem to favor a carceral approach to education through such granular surveillance of students?

Jade: We're assuming that this insight is meaningful because, if the data exist, they must be meaningful. We all know that nobody does all the reading. I didn't do all the reading! Chris only failed one class; I went out of my way to fail every other semester, so my GPA is really abysmal, but I had fun doing it [laughter]. When I was teaching, I tried to design classes that I wanted to show up to every day, and I would have to teach my students how to not read, or not think that reading was important. If we're talking about smartness and what you get from education, the important thing is being able to discern when you do and when you don't need information. All these technologies seem to assume that more information is better at all costs, and that is counter to what you're supposed to be doing in education. Your brain is your algorithm and you're going to learn to filter out the nonsense and get to the point that matters, and then come up with your own idea of what it all means. But the tools and technologies are doing the opposite, so, in that context, yes, you have to be cops because it's not about the student doing the thing that they need to do to get smart, it's about them doing the thing they need to do because the system told them to do it.

Chris: I'm really in favor of rejecting many of these systems precisely for this reason. For instance, I don't unlock my phone with my face or my fingerprint. There are security reasons not to do that, but for me, there's another really compelling reason not to do it. We're told that it's safe to use your face or your fingerprint because the data are kept locally on your phone, that it's encrypted, that Apple doesn't have access to it, blah blah blah. I understand this claim, but when you get accustomed to using biometrics to unlock things, it normalizes a type of behavior that is easily transferred to other contexts. So now I expect that it's okay to have facial recognition on the refrigerator at Rite Aid or the Starbucks drive thru, and so on. The allure of data complements this everyday normalization of biometrics. This is why I strongly reject the surveillance bells and whistles that learning management systems or other kinds of educational technology systems offer. Not only do I not need to know that level of information, I also don't want to know it because it normalizes the expectation that these kinds of intrusions into people's lives are acceptable and necessary.

Jade: We're a no-face no-finger household too, I said absolutely not. When I got my phone I told my kids, "You better not put your thumb on that either, use your knuckle!"

sava: The conversation around privacy and data often focuses on the individual being in control of our own data. On the surface, this sounds good because it's apparently giving us agency to decide what happens to our data, but I also wonder what this actually means for an average person who is not a data scientist. Data are different in different contexts—I can see how data from a work out or something could be useful, or even some types of health data—but the kind of data that is being logged based on our movements online or within a learning management system isn't really useful to me, and I don't think I would even know what some of the data means. Like you were saying, Jade, just because the data exists doesn't mean that it provides an insight, and it is often presented as such and I'm told that, if I control my data, I can decide what is done with it. But, to be honest, as an average person, I don't understand what is ever done with it so how is this control meaningful to an average user? I think there should be a space for rejection and for saying no, without cutting off access to things. What do you think about this discussion around giving people control of their individual data?

Chris: I have so many thoughts on this. The thing is, I'm actually not in control of my data, because I don't want it to exist at all, I don't want it to be created. One of the effects of how we've conceived of and created technologies in the last couple of decades is that we've removed meaningful consent and the ability or willingness to acknowledge that you can gain a ton of insight just by asking people a question. Rather than knowing how much time someone spent on a page, a simple question like, "What did you get out of this?" can be far more useful. For example, I teach writing and so often, I can just look at a person as they're composing something and say, "That's an interesting choice. Why did you do that?", and you can learn a

lot from that. And this can actually help people become better writers, just by having a conversation about how something is interesting, or have you thought about this, or here's how I read it, or something like that. Those insights are actually far more valuable than if I know how many times they've deleted a sentence and rewritten it. But somehow we've been led to believe that these datafied insights, so to speak, are superior.

sava: It's so interesting how this word "insight" has lost its meaning after marketing and PR-speak have appropriated it. We are told that we're going to learn something unique or interesting about someone based on these arbitrary data points, as opposed to learning something genuinely meaningful or unique. These datafied insights and systems seem to be abstracting us away from the core of who we are. As you said, Chris, engaging with someone about why they made a certain choice gives you that much more insight, whereas the system has abstracted this person into a machine that wrote a sentence and then rewrote the sentence three times, without any space to understand why they may have done that. So, do you think that the more we "data-fy" ourselves and the things we do, we are getting further away from ourselves and from each other?

Jade: Yes, we are. We are at a point where we have become so dependent on algorithmic connections. For example, if you remember the discourse from recent years, they would say that Facebook would know that you're breaking up before you knew that you were breaking up, because of the data it has on you. And now we are at a point where our external bodies are data and the key to the world. Our faces, our fingerprints, even our veins. Not a lot of people know this, but your vein pattern is the most accurate biometric identifier you can use. Theoretically, you could fake fingerprints or a face, but your vein pattern as it's read through your hand is very simple, but very individual, and it's harder to fake. And we have gone even further than that. Let's quantify your sleep: you have a smart pillow and a smart headband. Let's quantify your learning! Go to this algorithmically driven MOOC if you're outside of classes, or if you're in elementary school, we're going to give you smart assignments that are going to get harder as you go through them on this app. We've made it so that, culturally—I'm using the PR speak here—the insights from the data are more accurate and relevant than the thing you might think about yourself. So even if you say, "That's not true about me," the algorithm and predictive analytics have said this is what needs to happen or this is what's going to happen, and it's to a point where even if you question it, it's hard to get out of. If you look at education as a sort of training ground for how to be in the rest of the world, and if that's how the rest of the world is, it's fantastic that they have these tools! Because this is the culture we've allowed to exist.

I can connect to everybody online. It's wonderful. And the system is going to suggest other people to connect with, even if I'm already connected with thousands and thousands of people. So, your interior life is now just a data source to give you that next set of "meaningful data" that will produce more data and so on and so forth. I'm just waiting for the internet to go offline so this can stop for a bit [laughter].

sava: In this past year or so, a lot of students have successfully organized against the use of alarmingly invasive remote proctoring software. Remote proctoring software is not new, but this is a good example of how the pandemic has increased the uptake *and* awareness of these systems, including understanding how these systems harm us so we are able resist and push back. I'm a firm believer in creating space for people to say no, to allow people to opt out of these systems.

Chris: The idea that some of these things can be abolished, or dismantled, or broken down and launched into a black hole, is seen as ridiculous. For instance, people say that you can't uninvent facial recognition, but there's a long history of societies deciding that certain things—technologies or chemicals or harmful practices—should be abandoned or legislated out of existence. So, the rediscovery of abolition as a thing that's actually possible, and often necessary, is a really important shift that we've seen in this past year, especially with regards to technology. That's where I draw a lot of, I won't say optimism, but some degree of hope.

Jade: I'm always pro "culture of absurd" to show how faulty systems are and how much the thing that we think is the truth is not actually the truth but really a culturally constructed belief. I want to host a drag AI

event, just so people can have fun and do something that's a little bit ridiculous, and find a moment of joy when they realize the system doesn't do anything meaningful if it's this easy to make the system suddenly not see us. Because when you experience something like that, you start to question whether the system is actually seeing or reading what the system says it is.

Chris: That's so important. A lot of the pushback and hate you get when you speak out against these systems is trying to hide one simple thing: that often, these systems don't actually work! People are making absurd claims about things that are actually not possible. All the hate directed towards critics is meant to make them shut up about the fact that, for example, you can't predict the future! For people who are not experts, one basic, simple thing we can do is to ask if something is actually possible. Can the system or software or technology actually do the thing it claims to do? You'll often find that the answer is no.

Jade: I just have to contour my face, move my eyebrows, and give myself giant bags, and suddenly I'm not myself. That's pretty epic for systems that are getting people arrested and sent to jail!

sava: Any last thoughts?

Chris: I would caution people to look at the ways that home, school, and work are being fused into the same place. If you think a particular practice or technology is okay for a particular segment of the population, imagine it being used on you, because you are next. I hate to have to frame it like this, but think about how something can hurt you as an individual. Unfortunately, for some people, the only way they can understand is to think about how it might harm them. I'm here to say that it will harm you. It might not hurt you as much or as soon, but it will come for you. So, the extent that people are okay with a certain kind of technology being used on students, imagine it being used on you as an instructor, because you're next.

Jade: When we start talking about these systems, it is easy to lose sight of what's important. The thing that creates any educational space is the people in it. Education is always evolving and changing, and the outcomes are always going to change depending on who's in the room. When we make technology—smart technology and predictive technology—the central and most important member of the classroom, we lose sight of all the potential that should exist in those spaces. So, we need to think about how we find meaningful ways to resist or work around something if it's mandated, so that people are able to learn what it means to have real insight into themselves in their learning. How do we reclaim that while abolishing the role of the overseer that these technologies have taken on in education?

sava: Yes, absolutely. Instead of bringing us closer together and giving us more real insight into each other, these systems are pitting us against each other and pushing us apart. What makes me sad is that, like you were saying, Chris, we have to get people to think about how they, as individuals, are going to be affected by these systems because we've become less interested in how it affects "us" as a collective, as a society. We have to see that if one person is being harmed by something, that means that we are all being harmed because we are all connected. We're losing that connection with our communities in some way, partly because we are told that these systems and technologies support and create community. And sure, we are able to connect through these systems, but they're also making us more individualistic and separated. Like you were saying, Jade, it's taking us further away from actual insights into ourselves.

Jade: Yes, and I think in education in particular there's a bigger risk because it's already a sorting system in many ways. So, what happens if you bring in a smarter sorting system that has fewer and fewer inputs from people to correct what's being done? That is one of the things that I worry about.

sava: Well, thank you both for this deeply insightful dialogue! I always come away from our conversations that much smarter and that much more scared, and I know that people will read this and feel the same.

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