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# Troubling "Technologies": Exploring the Global Learning XPRIZE Using the Frameworks of Skinner and Foucault

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## INTRODUCTION

*In July, I completed a two-week doctoral residency. While there, I had decided to focus my dissertation on issues of scale in learning. My work will therefore center on two research questions: What might be wrong with large-scale approaches to learning? What benefits might smaller-scale approaches afford? This was not the topic that I had planned to pursue when I had left for school, but I had received and accepted some pragmatic advice while away. But had I made the right choice? This question continued to trouble me as my return flight landed and circumstances required me to travel home by public transportation.*

The thinking I share in this work was inspired by my trip home on the train. I focus on my first research question: What *might be* wrong with large-scale approaches to learning? In posing this question, my purpose is not to suggest that large-scale approaches do not have any role to play within a complex educational landscape, but instead to introduce a starting point for more critical and nuanced approaches to achieving proper scale within digital learning, both big and small. I conclude with a brief look at my second research question related to the potential benefits of small, introducing ideas I feel sure I will take up more fully in subsequent writings.

Focusing on the risks of large-scale approaches to learning, I begin with a description of a brief conversation that I had while travelling home by train. The conversation served as my introduction to the Global Learning XPRIZE. Based on this experience, I introduce a series of process-based "technologies," as defined by Skinner (1971) and Foucault (1988), providing a framework through which to explore this conversation and the XPRIZE. I consider the similarities between Skinner's "technology of behaviour" and what Foucault described as "the technologies of domination." I then highlight the critical difference in the ways these two men understood "technologies": whereas Skinner (1971) believed all human behaviour *should* be controlled, Foucault saw instead the risk that human behaviour *could* (and perhaps *would*) be controlled if we do not resist the mechanisms of process-based "technologies" through the development of what Foucault called "the technologies of self."

Having contrasted key concepts of Skinner and Foucault, I apply Foucault's framework of "the technologies of domination and of self" to explore further the potential risks of the Global Learning XPRIZE. In so doing, I consider how the technological tools that support it and the language that surrounds it, both shape and are shaped by deeply entrenched neoliberal power structures. I further question the level of autonomy child learners are likely to have as well as our roles and responsibilities as educators to more critically consider the risks and ramifications of this and other large-scale learning initiatives.

Finally, I conclude by sharing the story of what happened immediately after my conversation on the train about the XPRIZE. It is a smaller story of an alternate approach to learning, one story that centered on a single child and my capacity to notice that child. For me, this narrative reinforces the stark contrast between the large-scale, globalized approaches to learning I see represented by the Global Learning XPRIZE, and the much smaller, intimate moments of learning that leave behind no assessments, performance measures or data trails. Further, my story of THE LITTLE ONE further offers some clues about the affordances offered by smaller, more localized approaches to learning.

## THE XPRIZE MAN

*On the train, a man tried to strike up a conversation. "On your way home?" he asked.*

*"Yup," I said.*

*"Yeah, I was in Wyoming," he said. "Sixteen hours of travel for an hour of work."*

*I nodded.*

*"So where were you?" he asked.*

*"Calgary. For school."*

*"Oh school? What are you studying?"*

*"Education."*

*"Oh wow, education. That's an exciting field, so many great things going on. I've just been part of an XPRIZE in which Elon Musk paid for 4,000 tablets for kids from the ages of two to five in Tanzania. Great stuff!"*

*Instinctively I felt that what this man was describing was not a solution, but rather an example of so many of the problems within our current educational milieu. But I had no facts, no coherent explanations and no words to counter his enthusiasm and certainty. How does one even start to explain why a plan to apply high end technology as a vehicle for teaching illiterate kids to read might be a bad idea? Instead, I nodded weakly.*

## HISTORY OF THE GLOBAL LEARNING XPRIZE

The next day, I looked for more information about what the man on the train had said and, if true, evidence of critical engagement by educators and researchers. I quickly learned that the Global Learning XPRIZE is a "$15 million global competition to empower children to take control of their learning" (XPRIZE Foundation, 2018a), described as follows at the organization's website:

> The Global Learning XPRIZE challenges teams from around the world to develop open source and scalable software that will enable children in developing countries to teach themselves basic reading, writing and arithmetic within 15 months… the prize purse will be objectively awarded to the team that generates the best international standardized test scores within the group of participating children. (para. 1)

This paragraph epitomizes the promises of large-scale educational technology to empower children and positively impact the world, but at what cost? "Scalable software," "teach themselves," and "standardized test scores" all represent to me terms that signal the need for critical analysis. Consequently, I spent hours searching for such an analysis of the Global Learning XPRIZE. Instead what I found were many articles from news outlets celebrating this contest (see Associated Press, 2019; Business Wire, 2019; Basulto, 2014; CTVnews.ca Staff, 2017; High, 2018; Shapshak, 2016; Shieber, 2019; Wilward, 2019). These articles consistently emphasized the positive potential that new money offered through this contest could address the serious problem of illiteracy throughout the least developed countries of the world. These news outlets universally celebrated the importance of innovation, and new ways of thinking, emphasizing the ability of this project to deliver measurable results. While, in time, the XPRIZE *might* achieve some of this positive potential *might*, these articles lacked the balanced and critical analysis that I was seeking.

In fact, I found only a single author raising concerns about the Global Learning XPRIZE. Audrey Watters (2014) critiques a series of potential issues in terms of the tools proposed, and power relationships inherent in the contest schema. In her "Ed-Tech as Ideology" section of a blog post on XPRIZE, Watters examines the fact that contest rules stipulate the "literacy portion" of prize entries "would require the children learn English:"

> To me, that speaks volumes of how the XPRIZE imagines this problem will be solved. That is, it won't be solved locally. It won't be solved by children or by communities in the developing world. It won't be solved by *people* even, but by software. It will be imposed from elsewhere — from engineers. And likely from engineers from a different geographic location and almost certainly from a different economic class and from a different culture. (para. 3)

What happens when software engineers begin to believe that they can solve complex social problems about which they have neither background nor context? What happens to us, to our world, when *we* start to believe that they can do so?

Three years after Watters' prediction, five finalists were announced: three from the United States, one from the United Kingdom and one from India. These finalists are currently field testing on thousands of Tanzanian children in isolated villages. Watters was right; with the support of the United Nations and the government of Tanzania, the "solution" to illiteracy will be imposed from elsewhere via software loaded onto tablets (XPRIZE Foundation, 2018b) in a contest that prioritizes a top-down approach to knowledge production and knowledge acquisition. Moreover, this contest normalizes a deficit discourse of the kind identified by Kayumova, McGuire & Cardello (2018) in which these children and their communities are presumed not to possess the abilities to solve their own problems.[1]

The Global Learning XPRIZE is but a single example of a growing movement to embrace personalized and autonomous learning via new digital platforms in a world where scale and quantification in education have become normalized (Eisner, 2013; McRae, 2013; Roberts-Mahoney, Means & Garrison, 2016). Moreover, despite the XPRIZE's nod to objectivity, there is ample evidence that both technology and education are neither neutral nor objective (Cottom, 2016; Gilliard, 2017).

As I looked deeper, it became clear where the prize money was coming from and the strings that might be attached. Elon Musk and the Dick & Betsy DeVos Family Foundation are among the prize's benefactors (XPRIZE Foundation, 2018c). This is not DeVos's first such act of doctrinal philanthropy. In Michigan, DeVos has contributed millions of dollars to an "ideological lobby that has zealously championed free-market education reform for decades, with little regard for the outcome" (Strauss, 2016, para. 11). DeVos's philanthropic track record supports Selwyn and Facer's (2013) contention that "digital technologies are now an integral component of the new governance of educational institutions and those who work within them along neoliberal principles … of control" (p. 4).

## INTRODUCING THE "TECHNOLOGIES" OF SKINNER AND FOUCAULT

Struggling to organize my thoughts around the XPRIZE and the lack of critical engagement the prize has attracted, I concluded that "technology" in the sense of hardware and software was not the problem. Marx (2010) places this phenomenon in context, as follows:

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[1] Further, one could argue the contest does not credit locals with the ability identify and define their own most pressing problems, among which English language illiteracy may be a low priority.

> In contemporary discourse, private and public, technologies are habitually represented by "things"… By consigning technologies to the realm of things, this well-established iconography distracts attention from the human—socio-economic and political—relations which largely determine who uses them and for what purposes. (p. 576)

To make sense of the XPRIZE and other large-scale educational technologies projects requires that we move beyond "a technology of things." Rather, we must adopt an approach that more carefully considers the complex interactions and power dynamics that surround those things.

In seeking to re-center the importance of human relations, both socio-economic and political relations, I found it helpful to return to the work of Skinner (1971) and Foucault (1988). Through this process, I found both surprising alignment and stark contrast. Each man demonstrated a clear understanding that process-based "technologies," could be used to affect / coerce desired behaviours. However, whereas Skinner (1971) believed that his "technology of behaviour" *should* be used to influence conduct and saw such influence as a positive technological advancement, Foucault (1988) instead warned that what he termed "technologies of domination" *could* be used to influence behaviour subversively if such domination was not resisted intentionally through active development of the "technologies of self."

## SKINNER'S "TECHNOLOGY OF BEHAVIOUR"

Skinner (1971) was interested in the interactions among technological tools, power, and control of human behaviour. He believed that the behaviour of a person is shaped by that individual's interactions with the world and with others through something Skinner called "the technology of behaviour". Based on his early lab experiments using rats and pigeons, Skinner concluded that methods of control, including operant conditioning and schedules of reinforcement, could induce both individuals and entire societies to behave in prescribed ways (Rutherford, 2017).

Skinner (1971) rejected the idea of individual autonomy, instead embracing the notion that all human behaviour could be explained by outside stimuli. Moreover, he felt that once externalities were understood, they *should* be manipulated to control the behaviour of people. He sought to bring learning behaviors under more direct control through careful management and sequencing of learning tasks supported by positive reinforcement (Skinner, 1968). In the sphere of education, he equated teaching children to training pigeons in his lab. Skinner's work has had a profound impact within both the fields of education and computer science, particularly in the realms of behaviour management, computer-based learning, and personalized learning and programmed instruction (Driscoll, 2005).

## FOUCAULT'S "TECHNOLOGIES OF DOMINATION" AND "OF SELF"

Almost twenty years later, when nearing the end of his life, Foucault (1988) developed his own process-based technological framework. It included three "technologies of domination" that typically served to reinforce one another. He defined these as the "technologies of production, sign systems and power." He also described a fourth set of technologies that he labelled the technologies of "self." However, he died before completing his work related to these technologies. As a result, their conceptualization remain somewhat ambiguous, and particularly so with respect to the technologies of self. I have therefore drawn on Spivak's (1993) notion of interpreting one post-modernist through the works of others as a way of extending Foucault's uncompleted ideas. In this case, I have used the work of Lyotard (1984) and Deleuze and Guattari (1988) to extend Foucault's technologies framework. Using this approach, Foucault's technologies might be described as follows.

## TECHNOLOGIES OF PRODUCTION

Foucault's (1988) technologies of production involve the ability to produce, transform or manipulate things. Building a computer, writing a software program and applying an algorithm are all examples of the technologies of production in action. Foucault's concept of subjection has been applied directly to computer programming's ability to expose users to inconspicuous yet potent forms of "ontological tinkering" (Hernandez-Ramirez, 2017). Lyotard (1984) similarly asserted the computerization of society "could become the 'dream' instrument for controlling and regulating the market system, extended to include knowledge itself" (p. 67).

## TECHNOLOGIES OF SIGN SYSTEMS

The technologies of sign systems involve how meaning is coded into our words, cultures, language and technological tools. For Lyotard (1984), who focused heavily on the use of language to sustain and gain power, the technologies of sign systems are closely associated with the *grand narratives*, stories that function as oppressive agents that both legitimize and perpetuate dominant cultural beliefs and values. In this paper, I focus on two grand narratives relevant to Global Learning XPRIZE, personalized learning and corporate benevolence.

## TECHNOLOGIES OF POWER

A third set of technologies relate to power and its ability to determine the conduct of individuals. For Foucault (1982), "the exercise of power is not a naked fact, an institutional right, nor is it a structure which holds out or is smashed: it is

elaborated, transformed, organized; it endows itself with processes which are more or less adjusted to the situation" (p. 792). Foucault further saw power in terms of governmentality, or the power relations that occur at the intersection between "the technologies of domination of others and those of the self" (Raffnsøe, Thaning & Gudmand-Hoyer, 2016, p. 255).

## TECHNOLOGIES OF SELF

Taken together, Foucault's technologies of domination align quite closely with Skinner's technology of behaviour; these are the technologies that can be used to coerce the behaviour of others. What definitively sets Foucault's (1988) technologies apart from Skinner's technology of behavior, however, is Foucault's fourth set of technologies that he termed "the technologies of self." He contended that it was through the development of technologies of self that individuals could "transform themselves in order to attain a certain state of happiness, purity, wisdom, perfection, or immortality" (p. 2). Unlike Skinner who desired to manipulate the behaviour of others, Foucault suggested that through "technologies of self" individuals are able to and should effect actions autonomously "on their own bodies and souls, thoughts, conduct, and way of being" (p. 2).

For Foucault, technologies of self represented the mechanism through which technologies of domination might be resisted and through which destabilization and transformation of socio-economic structures can occur (Mitcheson, 2012). Although Foucault used the word "self," Deleuze and Guattari (1988) identified the importance of connections and conjunctions while Lyotard (1984) highlighted the importance of shared local narratives. Put together, perhaps the ideas of these post-modernists point to a collective approach to resistance that the word "self" might not suggest.

## RELATIONSHIP BETWEEN SKINNER & FOUCAULT'S TECHNOLOGIES AND EDUCATION

Foucault (1988) spoke less directly about education than Skinner but Foucault did acknowledge that each of his four technologies implied "certain modes of training and modification of individuals, not only in the obvious sense of acquiring certain skills but also in the sense of acquiring certain attitudes" (p. 2). This idea of Foucault's aligns with Skinner. Whereas Skinner rejected the idea of personal autonomy, however, Foucault instead ultimately emphasized its importance, stating: "Perhaps I've insisted too much on the technology of domination and power. I am more and more interested in the interaction between oneself and others…. The history of how an individual acts upon himself" (p. 2).

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Foucault's words resonate for me. I have spent a lot of time re-reading and thinking about them. I have been both intrigued and challenged by them. I now read them as presenting two calls to action. First, pay attention to the interactions between training methods and technologies. Second, do not neglect the technologies of self. In fact, Foucault may have been conceding that Skinner's vision of achieving full control over humans and society through a technology of behaviour could work; he was certainly not accepting that that would be a good outcome.

## THE "TECHNOLOGIES" AND THE GLOBAL LEARNING XPRIZE

How do the technologies of Foucault and Skinner relate to African children receiving free tablet computers? Educational technology is about far more than teaching illiterate kids to read. Sanya, Desai, Callier and McCarthy (2018) argue as follows:

> Explicitly and implicitly, educational systems and institutions imbue value into specific histories, ideals, lives, systems, ideologies, and futures. In these ways citizenship is defined in educative practices. These educative practices are not simply in the classroom, curricula, school policies and artifacts and rituals of everyday school life …. They are also in the disciplining of students and teachers, determining what can and cannot be taught, and what knowledge is produced, valued, circulated, and censored. (p. 5)

Controlling education, in this case via a global learning initiative, is an effective way to both accumulate and exert more control over entire populations. I submit that this is why Skinner was so interested in education and why Foucault expressed regret about not sooner exploring the methods of training and developing technologies of self. Education matters and who controls education matters.

What follows is a deeper exploration of the process-based technologies at play within the context of global learning initiatives, and specifically the Global Learning XPRIZE. I have opted to use Foucault's classifications, partly because the delineation between the three technologies of domination offers a helpful framework, but also because I see Foucault's technologies of self as a glimmer of hope. Where Freire (1996) encouraged resisting the banking method of teaching as a political act, Foucault's technologies of self appear to advocate for similar resistance on the basis of self-care. My preference for Foucault's framework does not negate the real influence of Skinner's ideologies. In fact, I fear that this particular tale will in fact become a Skinnerian tragedy.

## TECHNOLOGIES OF PRODUCTION

If there were one thing the Global Learning XPRIZE contest could do to empower Tanzanian children to take control of their own learning, it might be to support their capacity to choose for themselves what and how they would like to learn. One technological tool that could support such opening up of choice could be access to the open Internet. According to the proposed guidelines, however, that will not happen.

> The tablets will be equipped with wireless communications to receive from and transmit to a central in-village server. The tablets will not be connected to the Internet. This ensures that the Competition is a level playing field and mimics the real-world situation in the communities in which XPRIZE aims to be most helpful, i.e., places where there is no practical or affordable Internet access. (XPRIZE Foundation, 2015, p. 14)

For me, this paragraph is troubling. In the rules for a contest that celebrates innovative-thinking and overcoming barriers, they have assumed that a lack of access to the Internet is a problem, a "real-world situation" that cannot be resolved. This assumption has been made and accepted despite the fact that mobile phone access in sub-Saharan Africa grew from one percent in 2000 to 54 percent in 2012 (Macharia, 2014) and that in Tanzania in 2018, 39 per cent of the population was using the Internet. Moreover, Wyche and Olsen (2018) found that among rural Kenyan women access to mobile Internet signals were not the most common barrier; rather the most common barriers to access were identified as not owning a mobile device, the inability to charge batteries and a lack of knowledge regarding use of the technology. Interestingly, each of these barriers was addressed as part of the Global Learning XPRIZE contest structure, yet the contest rules precluded piloting projects that leveraged the affordances of Internet access, as if imposing a contrived limited resource project design.

It could be argued that providing Internet access to these XPRIZE children might not be beneficial but instead would open them up to increased levels of commodification and gamification. That reasonable concern points to the complexity of the interactions between Foucault's technologies of production and technologies of domination, but also underscores the importance of who is making such a decision. In this case, it appears that faraway foundation funders arrived at decisions regarding access to the open Internet before launching the contest or choosing the participating communities.

In the research with rural Kenyan women, Wyche and Olsen (2018) found: "What our respondents most wanted was to learn how to access and use the Internet, which suggests a greater effort should be made to provide such information to women and let them decide what content they want to access" (p. 43). Might it be

possible that the women in neighbouring rural Tanzania would want similar opportunities for their children? Within this context, the XPRIZE rules raise a serious question, why might the contest funders have *explicitly* excluded Internet access, apparently, without consulting either the children themselves or members of their families? Perhaps the contest funders are not particularly interested in changing the status quo where the status quo works in their favour.

The contest guidelines (XPRIZE Foundation, 2015) cite research provides insight into the future these faraway decision-makers propose:

> Our vision is not only to support child-driven learning within each local community of children, but also to connect these learning communities eventually across the globe. In this way, children from different deployment sites will be able to discover, share and communicate with each other through specially designed apps that support children's desire to create, communicate, and share with one another (Wolf, Gottward, Galyean & Morris, 2013, p. 12).

These researchers do not appear to envision a world in which all of its citizens have equal access to an open Internet, but instead one where they remain dependent on powerful technology companies to mediate their actions through a series of "deployment sites" and "specially designed apps." This approach guarantees that faraway software engineers will determine what is taught, what knowledge is produced and circulated and what is censored, thereby fully subjectivizing the learning these children can accomplish.

Meanwhile, these companies will gain unfettered access to interaction data of these children, information that can be used to develop further the software that manipulates their behaviour and controls their worldview. Gajjala et al. (2017, p.146) assert that "the contradiction of individual control over learning counters online surveillance and digital platform design" in such technology platforms:

> Algorithm and community bylaws together produce opaque hierarchies and invisible control over the process where the rules of so-called participation and the level playing field have the potential to exploit and oppress. (p. 146)

It now is increasingly common that platforms, particularly Facebook, are so heavily used that they are *believed to be* the Internet (Benesch, 2014; Wyche & Baumer, 2016; Wyche & Olsen, 2018), a fact which demonstrates how effectively social inequalities and neoliberal economic models are becoming *encoded* into our tools through the technologies of production. The Global Learning XPRIZE demonstrates that, as with other forms of oppression, intersectionality plays an important role in the distribution of the negative consequences, with the most severe impacts felt by groups that already are marginalized (Gilliard, 2017).

## TECHNOLOGIES OF SIGN SYSTEMS

While the pilot projects of the Global Learning XPRIZE are taking place in Africa, creating the conditions in which they can thrive requires manipulation of the technologies of sign systems at a global scale. The enterprise depends on educators, policy makers and the public accepting several of what Lyotard terms "grand narratives" (1984). Here, I focus on two such narratives: the narrative of personalized learning and narrative of corporate benevolence.

The XPRIZE relies on the widely held belief that corporations will act as good citizens. Our media systems are in fact built on this assumption (McMurria, 2008). In reality, what drives corporations is profit and profit is derived by controlling the largest possible market share: Corporate benevolence simply acts as a mask behind which ultra-large corporations and foundations can advance their neo-liberal agendas (Hursh, 2012).

The narrative of personalized learning is another belief system critical to ensuring support for the XPRIZE. The idea of personalized learning can be traced back directly to Skinner's (1971) behaviorism. In order to accept the premises that sustain the personalized learning movement, we must accept that education is primarily about teaching children specific, codified, and measurable skills, the most important of which are basic literacy and numeracy. We must also believe that personalized learning is the best and / or inevitable way of teaching those basic skills. Roberts-Mahoney, Means and Garrison (2016) found that the literature from a variety of government, corporate and research sources was overwhelmingly positive with respect to the potential of personalized learning despite the lack of any evidence to support the effectiveness of personalized learning; other systematic literature reviews concur (Bodily & Verbert, 2017; Ferguson & Clow, 2017). Similarly, Watters (2018) noted "[w]hile there's much hype about the revolutionizing of education through the creation… of various 'teaching machines,' that promise remains largely unfulfilled. Yet the push for more automation in education continues" (para. 3).

Given the lack evidence to support these grand narratives, why do the narratives persist? They persist in part because they represent "slow and long lasting, calamities that patiently dispense their devastation while remaining outside our flickering attention spans—and outside the purview of a spectacle-driven corporate media" (Nixon, 2011, p.23). Moreover, that spectacle-driven corporate media is mostly controlled by the same powerful people who want us to continue to accept these narratives as truths. They use the media to repeat these "truths" they want us to believe. "If you repeat this fantasy, these predictions often enough, if you repeat it in front of powerful investors, university administrators, politicians, journalists, then the fantasy becomes factualized" (Watters, 2016). And it is not just repetition, but repetition in the absence of critical engagement. Our conspicuous silence regarding the social, economic,

political and cultural impacts of technology in education amplifies the already powerful voices of elite venture capitalists such as the XPRIZE benefactors (Selwyn & Facer, 2013).

## TECHNOLOGIES OF POWER

Big technology companies have amassed enormous sums of money, sophisticated technologies and political clout that translate into a tremendous amount of power (Doctorow, 2018). I suggest that they might also have an agenda, to de-stabilize public infrastructure and increase dependence on private corporations; this agenda could include education. Like Skinner, powerful neo-liberals including the XPRIZE funders, regard controlling education as an effective way to accumulate and exert more control over populations. The Global Learning XPRIZE is only the latest specific instance in a series of efforts towards realizing this agenda (Selwyn, 2013). In fact, this contest shares much in common with the now defunct One Laptop Per Child (OLPC) campaign.   For example, Matt Keller who previously served as the vice-president of the OLPC is now the Senior Director of XPRIZE. When one wields sufficient power, one's answer to a failed project is to rebrand and repeat.

Over the lifespan of the program, the OLPC was heavily criticized. Many of these criticisms are equally applicable to the XPRIZE. The problems noted by critics included: decision-makers who were disconnected from realities in the region, the reinforcement of colonial patterns and an underlying ideology that was entrenched in western ideals (Naughton, 2005; Brown, 2009; Brabazon, 2010; Allen, 2012). Other criticisms of OLPC appear to have served as "lessons learned" for the XPRIZE.  Educators, for example, questioned the "goodness-of-fit" between the OLPC program and the schools within which the laptops were distributed and several governments refused to partner with the program (Ananny & Winters, 2007; Padmanabhan & Wise, 2012; Selwyn, 2015). The structure of the Global Learning XPRIZE seems designed to avoid repeating these two mistakes.

> Since we formally partnered with UNESCO, they have been on the ground getting ready for this one-of-a-kind field test. From working closely with the Government of Tanzania in choosing the children, from selecting and working with the 141 "Village Mamas" -- women from each village who have been empowered to ensure the smooth functioning of the test --UNESCO has been using its deep knowledge of education, and its commitment to working closely with the government to make the Global Learning XPRIZE possible. (Keller, 2018)

Apparently in light of lesson learned, the Global Learning XPRIZE has decided to focus on implementation with a single supportive government and have hired local women rather than seeking support in schools. These "innovations" bring this contest one incremental step closer to the neo-liberal goal of teacherless education (Selwyn, 2013; Keller, 2018). While these changes in approach are often highlighted as a positive, perhaps we do not to ask often enough, "Positive for whom?" Clearly this approach is not positive for prospective or existing teachers who may face increasing precarity. I find little to celebrate when I read about the "successes" Wolf et al. (2013) describe as pre-cursors to the XPRIZE:

> The young boy who taught everyone how to use the tablets initially became the unlikely hero of the village and took on the role of teacher over the last year. Similarly, the older girls were clear teachers for the younger children in both villages (p. 14).

In my reading of this paragraph, I see the absence of sufficient supports, children having self-organized to support one another. As a result, in addition to acting as research subjects for programmatic software created outside their cultural context without their input, these children now are expected to take on the roles of teachers; who needs public services and infrastructure when kids can do it all for free?

**TECHNOLOGIES OF SELF**

We know little about the children at the center of this "one-of-a-kind field test" except that they live in 141 villages in Tanzania. The 2015 proposed guidelines indicate that the research subjects would range in age from seven to 11 years old (XPRIZE Foundation, 2015), though anecdotal evidence points to them being younger. We also know that their national government, UNESCO and their parents have or will consent to their participation.

There is no evidence however, that anyone has asked these children for their opinions at any point. Furthermore, the sensitive nature of the data that is being gathered seriously calls "into question the role of power imbalances, the lack of agency, the inability to provide genuine informed consent" (p. 68, Jayaram, 2014). Moreover, it is also unlikely that anyone has shared the fact that "while there is zero scientific evidence that personalized learning systems enhance educational efficacy, there is a growing body of research that suggests exposure to screen technologies is harmful for the cognitive, physical, and affective development of children and adolescents (Roberts-Mahoney, 2015 pp. 417-418). Taken together, the Global Learning XPRIZE represents one a step toward something Schneier (2013) described as a form of "digital feudalism." This is the portrait of children supposedly empowered to take control of their own learning in a neoliberal world, and it is a portrait that I find terrifying.

Returning to Foucault (1988), I find it difficult to see what space these XPRIZE children have to act upon themselves, given the severe constraints placed upon their technologies of self. These children face a situation in which they have limited recourse for challenging the dominant technological practices and decisions being made on their behalf (Tzou, Scalone & Bell 2010). In the high stakes world of the XPRIZE, these children are not even contestants vying themselves for the prize, but instead operate as game tokens to be moved from Start (their current literacy level) to Finish (a higher level of literacy) in 15 months. Their reward for participation *might be* the ability to *maybe* read a single sentence. Even Skinner's pigeons received food as rewards for good performance.

And while I will not underestimate the resiliency of children to make the best of difficult situations, they deserve better from us as educators, educational technologists, policy makers, and members of the public. This story of the Global Learning XPRIZE has been difficult to write, due largely to the conspicuous lack of academic research and critical discourse related to the project. Nevertheless, as onlookers and as consumers of technology products we do possess the ability to act and effect change, whereas the children at the center of this experiment have limited options to act upon themselves while facing the technologies of domination stacked against them. We must decide how we will enact our own technologies of self. Actions we will or will not take determine whether the end of this story is Foucauldian or Skinnerian; the more we remain silent, the more tightly technologies of domination exert control. If we want to change the outcome, we need to ask more questions, think more critically, and challenge the powerful fantasies of large-scale technology solutions even as they become factualized

## THE LITTLE ONE

*The XPRIZE man got off the train.*

*A Little One and two Loved Ones took his place.*

*One of the Loved Ones held the Little One up to see out the window as the train sped along. Neither of them spoke; they simply watched out the window together.*

*The second Loved One did speak. Spoke on the phone. Spoke in Spanish, a language in which I recognize sounds, but cannot easily understand meanings.*

*They transferred the Little One between them and smiled at one another.*

*A stop (or two?) later, one of them got off the train, then after two more stops, the other two also got up and left.*

*I wish I had whispered "thank you" to them as they departed.*

There was no website from which I could gain more insight into this little vignette the next day, but there was a story. What did the Little One see and think and *learn*, staring out the window in this tiny, undocumented and unfunded moment of caring? These are questions for which there are no data points, no algorithms, no global funding.

I could perhaps apply the technologies frameworks of Foucault (1988) and Skinner (1971) to this story. Clearly the Loved Ones had power over the Little One. And vice versa. Something, an event, or life situation, or a decision made by one of them led them to be on that train and through those events. I feel sure the Little One learned something. But in this version of this story, I am the learner. I wanted to thank them, because in the small time and place that we spent together, they taught me something, or perhaps retaught me something that I already know, but too easily forget; hope is easily restored if we stop chasing a better future and instead notice what *just is already*.

What I did was notice. On a different day, when not contrasted by the XPRIZE man, I almost certainly would have missed this story: that would have been my loss. By noticing, I was rewarded with a reminder of just how easily the ideas of large-scale technologies can be replaced with the smaller scale alternatives. The XPRIZE man got off the train and there they were ready to take his place. Might educators and educational technologists similarly be capable of replacing large-scale, globalized mega-projects with something smaller? What tools and process-based technologies *just are already*, waiting to be noticed? Foucault (2000) said: "As soon as people begin to no longer be able to think things the way they have been thinking them, transformation becomes at the same time very urgent, very difficult, and entirely possible" (p. 161). I have noted that, at the end of his life, Foucault expressed interest in strengthening his concepts regarding the technologies of self.  I believe his interest was tied to his awareness that we have agency but need to exercise, grow, and strengthen that agency. I further believe the act of strengthening the technologies of self is connected intimately to developing an ability to notice the small, the minor and the local, and to attend to initial clues about the benefits that scaled down approaches to learning *might* afford.

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