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Learning Technologies and Educational Equity: Charting Alternatives to the Troubling Pattern of Big Promises with Dismal Results

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The authors of this commentary explore the challenges that arise when learning technologies are not carefully examined for their possibilities and limitations through a critical lens of educational equity and justice. They outline an approach to the incorporation of learning technologies that begins with and prioritizes educational equity and social justice.

As signs appeared in 2014 that Los Angeles Unified School District's ambitious technology plan was about to crumble into another textbook case of school reform mismanagement and short sightedness, Superintendent John Deasy vehemently defended his plan to issue iPads to every student in the district. He stood by his words that iPads would lead to "huge leaps in what's possible for students" and would "phenomenally . . . change the landscape of education" (Blume & Rainey, 2014). He passionately countered his critics, arguing that iPads provided "youth in poverty with tools that heretofore only rich kids have had" (Blume & Rainey, 2014). Deasy boldly declared that getting the iPads into the hands of students was a "civil rights issue" that had to be addressed "as quickly as possible" (Blume & Rainey, 2014). Those who expressed caution or called for thoughtful deliberation were framed as naysayers, Luddites, and opponents of equitable opportunities for the most impoverished students in Los Angeles public schools.

Reeling from charges of improperly awarded contracts and a disastrous rollout, Deasy resigned soon after pronouncing his bold vision. The $1.3 billion iPad program was suspended after tens of millions of dollars were already spent. The educational opportunities for the "youth in poverty" that Deasy so spiritedly spoke about did not change in the end.

We have worked on a large scale STEM reform project over the past six years using mobile technologies and statistical software in high school classroms to introduce students to the increasingly influential field of data science. This collaborate reform effort between university researchers and school-based educators sought to integrate highly touted 21st century skills like statistical and compuational thinking into urban high school STEM classrooms. Through out work with this project, we have come to see how Deasy's venture with iPads is the norm and not the exception in educational reform relying on technology. As Cuban (2003) reminds us, the lofty promises of technology consistently fail to translate into substantial gains, in particular for youth who belong to groups that have been historically marginalized in schools and society.

Technology has a certain allure even among thoughtful, well-intentioned, and knowledgeable researchers and educators. It promises that digital wands will mysteriously extricate us from the systemic failings of schooling. Perhaps the most tenacious lore is the conviction that technology will motivate learning in today's digitally savvy youth. However, we have shown that the novelty effect of classroom technologies quickly wanes when it is not accompanied by support for strong teacher facilitation (Philip & Garcia, 2015). In multiple school contexts we observed, where powerful pedagogy by teachers was not recognized, valued, or nurtured, technologies that were initially perceived as exciting by students rapidly became repetitious and mundane. The simplistic assumptions concerning technology failed to promote student engagement in many instances and even backfired when learners felt their interests outside of school were co-opted by curriculum developers and teachers (Philip & Garcia, 2015). As a case in point, students were frustrated by adults who assumed they would be interested in taking pictures of their snacks for class assignments because of the common perception that youth supposedly post photos of everything on Instagram. They resented adults for attempting to turn their smartphones into "devices for school" (Philip & Garcia, 2015).

The allure of technology inspires a cavalier approach to educational reform. It starts with the premise that technology in the classroom will certainly benefit students and can do them no harm. The conviction that students are at least being introduced to cutting edge technologies that they would not have been exposed to otherwise (a refrain we hear in multiple circles of researchers and educators) prevents technology inspired reform from critically examining the possibilities and limitations of digital devices in classrooms. In our research, we have shown that overly optimistic visions about learning technologies without adequate pedagogical planning and support result in the intensification of inequities. For instance, in the absence of careful facilitation, data gathered through mobile technologies about neighborhood billboard advertisements reified educators' beliefs about deficient values and behaviors in communities of color and thus limited the learning opportunities they envisioned for their students (Philip, Way, Garcia, Schuler-2013). On a similar note, students who collected and analyzed data about snacking and nutrition with the project's technological tools still interpreted the data through a lens focusing on poor choices made by people of color (Philip, Rocha, & Olivares-Pasillas, in press). This lens not only reproduced racist stereotypes and ideologies, it also closed off opportunities to deeply learn about data. In another striking case, a seemingly benign representation of movie rental patterns through data visualizations became a heated contestation over what it meant to be African American (Philip, Olivares-Pasillas, & Rocha, in press). Over the course of the classroom discussion, the voices of African American students in the class were marginalized and alienated and all the students lost out on powerful opportunities to learn about data literacy and racial literacy. The assumption that learning technologies are necessarily beneficial or will not exacerbate inequities is fundamentally wrong. Digital tools run the risk of reproducing existing forms of inequities and injustices and even creating new ones when we do not pay close attention to the ways technologies shape and are shaped by classrooms and schools.

We believe that learning technologies and cutting edge curricula have a role in transforming schools into more equitable and just spaces. They also facilitate types of learning that are valued in the contemporary economic system. Perhaps more importantly, they

provide opportunities to critically imagine and strive towards more just and equitable alternatives (Philip, Schuler-Brown, & Way, 2013). We believe that classrooms and schools must be responsive to new technologies and emerging fields of study. We argue, however, against the stunning lack of caution and reflection and the unfounded belief that innovative technologies and novel curricula will undeniably make things better and not worse. Introducing new technologies and curricula into classrooms without a deep interrogation of the inequities and injustices that currently exist within these spaces is bound to lead to the same cycle of unfulfilled promises of digitally inspired reform. Pushing for the incorporation of new technologies in learning must be accompanied by careful deliberation of how these tools might fortify, attenuate, or alter learning opportunities and relationships of power in the classroom.

In Deasy's plan and in the reform project we worked with, fantastical visions of technology prompted otherwise thoughtful educators and researchers to assume that these devices will lead to a challenging curriculum for students. As we witnessed in our research, technology was mostly incorporated in ways that were surprisingly rote despite initial grand visions. For example, the powerful everyday uses of technology were constricted within the restraints of schooling (Philip & Garcia, 2015). The reform effort's promise to democratize computer science and data science fell significantly short as the technology instead shackled the curiosity, creativity, and ingenuity of teachers and students. The responsibility for curricular failings growing out of naïve assumptions about technology was ultimately placed on teachers. The proposed solution was not a deliberate and critical examination of the technological assumptions in the curriculum, but a demand for educators to learn more subject matter content and incorporate specific teaching strategies.

We believe that technology in schools must be approached in a way that unseats assumptions about the intrinsic value of technology. It is consequently most useful to think about learning technologies in terms of the texts, tools, and talk they make available in classrooms (Philip & Garcia, 2013). This allows educators to carefully consider the unique affordances and limitations of a particular technology within a specific learning context. For example, digital technologies can expand the texts that become available in classrooms. These technologies have multiplied the prospects for students to create multimodal and content rich texts including images, video, sound, notes, and GPS tags that reflect their learning inside and outside the classroom. As tools, technologies allow students to dynamically collect, represent, visualize, analyze, interpret, communicate, and exchange these materials. These digital modes of talk have the potential to redefine communication by allowing students to participate in classroom conversations that transcend the confines of a school building. Asynchronous discussion allows texts to move with students across physical, social, and virtual spaces. As a result, digital technologies have the potential to strengthen and engender new avenues for powerful learning through their many affordances.

Viewing learning technologies through the lens of texts, tools, and talk minimizes the tendency to fall into the trap of misguided expectancy. Thinking about these affordances of technology tempers the digital seduction that ensnares educational reformers time and again. Once we strip technology of its fantastical properties, researchers and educators who are interested in using digital tools in school reform are forced to think about how these technological affordances might be leveraged to create and enact challenging and meaningful curriculum. This lens allows us to rethink the relationship between technology and quality teaching; quality teaching is no longer a static attribute but becomes a dynamic process where educators learn to employ these resources in ways that make sense for students within their unique learning contexts. Viewing technology as texts, tools, and talk compels us to better respect, value, and nurture the incredibly complex craft of teaching (Philip, Martinez, Lopez, & Garcia, 2016) rather than extend the false hope of technologically centered solutions.

By no means do we believe that viewing technology through the lens of texts, tools, and talk is sufficient to address the deep inequities in society. Effectively dealing with inequities in public schools necessitates tackling the social, political, and economic inequities that shape the teaching and learning context. The tremendous value placed on technology in school reform obscures deeper issues underlying educational inequity in this country. This includes historical and contemporary processes of marginalization and oppression based on race and class that we have addressed in our research, and other equally significant processes such as gender, sexuality, nationality, language, and ability. Blind faith in technology not only prevents us from addressing the complex factors that have created an unprecedented level of inequity in our country, but can also profoundly intensify them. We come closer to the reality of a more equitable and just society by diligently considering how the affordances of learning technologies fit into a vision for greater equity and justice within the particular strengths and needs of each classroom and school. To disrupt inequities and injustices, we invite school leaders, teachers, parents, community members, and students to grapple with the questions we have outlined below as they incorporate new technologies into *their own* learning environments. We intentionally begin with questions focused on society to reiterate that a vision for an equitable and just society should drive learning and technology rather than the other way around.

1. What is *our collective vision* as school leaders, teachers, parents, community members, and students for a more equitable and just society?
2. What learning in *our particular classroom and school contexts* will lead to this vision of society? How will it occur?
3. What texts, tools, and talk afforded by new technologies will support such learning in *our particular contexts*?
4. What types of support will teachers need to effectively leverage these resources and provide students with a challenging curriculum that leads to such learning *in our particular contexts*?

It is our hope that engaging in dialogue, debating, and struggling with these questions rather than espousing digital gadgetry with its exaggerated and unfounded promises will inform how technology is used to support learning in public schools for greater equity and justice.

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NOTE: This version contains minor edits from the version that appeared on the TCR website.