
VEC-TECH

EDUCATIONAL TECHNOLOGY, GAMIFIED PEDAGOGY, AND VECTORALIST CONTROL IN K-12 EDUCATION

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Current scholarly engagement with K-12 classroom use of gamified pedagogy falls into two distinct corpuses. The first, housing scholars like James Gee (2007, 2012, 2014), Greg Toppo (2015, 2016), Kurt Squire (2011, 2012), Jane McGonigal (2011), Constance Steinkuehler (2005, 2012), and Lee Sheldon (2012), sings the praises of game-based learning, and talk about video gaming as if it is some new way of engaging students. These scholars' work regarding learning (especially literacy) seeks to highlight the *types* of development and learning that videogames foster and how games-based learning is a replacement and reformation of older pedagogy. Video games teach critical thinking and aid in learning new literacies (Gee, 2007), structure the learning process to be more engaging and conducive to learning (Steinkuehler, 2005), will quite literally restructure and "save" how learning happens (McGonigal, 2011), can be implemented regardless of subject matter in *any* classroom (Squire, 2011), shape identity (Toppo, 2015), help to develop self-efficacy (Banfield & Wilkerson, 2014), and foster participatory culture and group learning (Sheldon, 2011). One of the many problems with this corpus of work is that these scholars make blanket assumptions about the learners that are in these learning environments: most of the subjects that they are writing on and for are assumed neurotypical, able-bodied, and actively engaged (or want to be actively engaged) in learning - "ideal students," if you will. They don't consider the learning process that non-"ideal" students have to engage with: students not having enough food, or not being neurotypical (or trying to learn with an undiagnosed or misdiagnosed disability or mental illness), or not having the necessary extracurricular support structures to succeed in modern education never come into question. These scholars only examine the macro-level picture of how the technology or pedagogy they're writing on subjectivates, or how apparatuses create the bodies in question, quantifiable, faceless learners they envision in a classroom. They fail to consider how these technologies can construct power dynamics between the people who create and require their implementation and learners, who more often than not find themselves in a position of powerlessness; a passive, voiceless consumer whose individual nature means nothing since that cannot be quantified.

The second camp, housing scholars like Suzanne de Castell, Jen Jenson, Lloyd Rieber, Jonas Linderoth, and Christopher Walsh, engage more critically with the *structure* of videogames and why games-based learning, in practice, doesn't always work (de Castell & Jenson, 2003) the way that scholars like Gee, Toppo, and Sheldon envision it to, and why gamers actually learn *less* through video games (Linderoth, 2012). These scholars tend to engage



with videogame-based learning from a more cultural standpoint and highlight how different models of game-based learning function in conjunction with the learning process: imitation and role play as ways of enculturation or wish-fulfillment (Young et. al. 2012), how “fun” factors into learning (Csikszentmihalyi, 1990, Malone & Lepper, 1987, Sicart, 2014), how game-based, structured learning tends to purposefully impede participants until they complete tasks in a specific and set order (de Castell & Jenson, 2003), and how games-based learning in the form of “edutainment” often times completely misses the successful elements of mainstream video gaming in favor of trying to strong-arm “learning moments” into the process (de Castell & Jenson, 2003, Rieber, 1996). One large problem that this corpus presents is the decentralization of the learners in the learning process. This corpus is critically engaged with the pedagogical or cultural reasons why game-based learning doesn’t always work to the ends that they are professed to, not with how, on the ground level, learners in the classrooms are engaging with learning and with each other, the incredible granularity and unquantifiable nature of individual learners, and how games-based learning presents its own values and ethics that sometimes clash with learning.

Neither of these corpuses address the power relations that games-based learning institutes, and what assumptions that technologic learning of any kind make about the learners participating in them. The problems I identified with both corpuses of educational technology and game-based learning literature are symptomatic of the larger problem of insidious and unbalanced Foucauldian power structures (1994, 331) within the education system: the scholars’ inability to attack the *form* and formalization of power which, in this case, is the pedagogical overcommitment to games-based learning which erases the granular needs of a classroom for a totalized image of the ideal student. Questions like the following go unasked and unplanned for: what entities are benefiting from implementation of games-based pedagogy in classrooms? What types of control does educational technology and gamified pedagogy institute between students and teachers? Teachers and administration? Teachers and parents? In this paper, I will be building out the work that Christo Sims did in *Disruptive Fixations* to further examine how the push for game-based classrooms create imbalanced power and control relations among teachers, students, administration, policy-makers, and ed-tech creators, and how knowledge commodification, or vectoralism (Wark, 2014), is becoming a standard pedagogic requirement from administrative or state entities. Both situations taken together create an entirely new milieu of conditioned learning, where the granular nature of student needs are outweighed by one-size-fits-all technophilic interventions such as games-based learning. Both situations must be rigorously questioned and understood before any inroads can be made into *actually* fixing modern education instead of trying to band-aid it with new technology.

The Road to Hell is Paved with Promises of a “Better Future”

The implementation of games-based learning in modern classrooms follow much the same arcs that Christo Sims examines in *Disruptive Fixation* (2017). This work profiles the rise and fall of the Downtown School in New York City. This school, designed by prominent ed-tech boosters, video game designers, and educational reformists, was an attempt to create an entirely game-based learning environment, aimed at reconfiguring the role of a student from one where routinized learning was the norm to a role where students engage with new forms of media and technology to “hack” learning:

“[instead] of the rote and boring activities that were common at conventional schools, students at the Downtown School would spend their days actively and creatively working through complex challenges in designed game worlds. Rather than passively consuming media, technology, and knowledge, students at the Downtown School would learn to be

creative makers, remixers, and hackers of technology and culture. Instead of taking on the identity of obedient pupils, students at the Downtown School would role-play the identities of scientists, designers, inventors, programmers, entrepreneurs, and other tech-savvy creative professionals. (2)”

In fact, the designers of the school argued that such an approach would “allow students to become lifelong, technically sophisticated, and flexible learners, innovators, and problem solvers (Sims, 25).” The aim of the school, and the aim of the people funding the school, was to create a class of person who was comfortable enough in digital spaces that they could move from one digital knowledge production space to another and do expendable production work.

In this work, Sims engages with two concepts that are important for understanding how and why games-based learning in classrooms create power imbalances. The first concept is the namesake of the book: disruptive fixations. Sims defines this as:

“the cyclical processes by which swells of optimism and idealism for seemingly disruptive philanthropic interventions often produce a countercurrent, or undertow, that paradoxically helps lock social processes into enduring and regressive forms while also, and ironically, renewing faith in the promise of more rounds of cutting-edge interventions. (Sims, 11)”

The problem with disruptive fixations like the specific ones that Sims outlines is that they rarely, if ever, involve the people that will have to function under the directives of the fixation in the process of designing (Sims, 15). In fact, they produce blind spots and skew what the actual nature of the implementation of the processes will be (Sims, 12). Especially with ed tech-focused philanthropic pursuits, the actions taken to get the end product are sites of power relations and politics (Willis, 1977, Ferguson, 1994) that engender division between those making them and those who are the subject of them. By valorizing these interventions and counter-practices, and only looking at “what could be,” these projects are sites of entrenchment of privilege instead of the usurpation of it (Sims, 20). The altruistic nature of disruptions focused at producing new movements in learning is often so all-encompassing that, in the process of pushing through with a reform, any means to get the project off the ground are harnessed, even if the means are counter-productive to the ends. In the case of the Downtown School, this meant that funding came from sources that are more concerned with generating revenue and a new class of worker (capitalist) and with further commodifying knowledge (vectoralist). These sources of funding include venture capital firms, data management firms, entrepreneurial reformists (Sims, 15), and even one of the largest video game production companies in the world (Sims, 3). The power to obtain permits and school board approval came from forging alliances with powerful parents in New York City who “in no way represented the interest of all the people that the intervention had been philanthropically sanctioned to help...” (Sims, 17). School activities, sponsored by partners of the school, were often geared toward entrenchment of technical skills that would make these students into the interchangeable knowledge production workers of the future, but were disguised as exploratory and “hacked” learning (Sims, 14). These blatant power-plays set the school up for failure from the start in terms of usurping current systems of control in traditional education. In fact, by forging these alliances and accepting funding from these entities, the Downtown School was little more than a technologic sweatshop from the start, producing new, expendable workers and conditioning them to endure the precarity of new technological production roles. As Sims points out, these kinds of alliances form structures that only benefit the people who make them (112), not the people who will be laboring under the interventions that are being created.

The second concept Sims engages with is called rendering-technical. Rendering-technical, as Sims describes it “refers to the ways by which experts imagine and

conceptualize the worlds into which they plan to intervene as both intelligible with, and amenable to, the instruments they have on hand or are designing. (13)” It is necessary to examine the actual design process that interventions like the one Sims profiles go through to understand how power structures come out of them. Sims describes the brainstorming, creation, and implementation of the Downtown School as an exercise in “rendering-technical,” or how the people in charge of the interventions envision and conceptualize the worlds in which they plan to make an intervention (Sims, 13). Sims describes the process of rendering technical as an “as-if” situation: the creators of interventions imagine the world they are intervening in “as-if” they were a part of it; “as-if” they have local, first-hand, experiential knowledge of the incredibly granular milieu that they are intervening in (Sims, 9-10). It is often the case that ed-tech and gamification interventions are made for and targeted at classrooms and schools that are racially and socioeconomically diverse (Wachira & Keengwe, 2010), and that the technologies being used to intervene have little to no bearing on the actual problems that participants in the classrooms are experiencing (Sims, 22).

The problem with this type of altruistic interventionism is that the intervention is basic pastoralism in that an entity (for example: administration in a school or district or a learning technology company) which has more resources or social clout to expend than those who labour under the entity (in the case of this article, teachers and students) need a new intervention to better teach and learn, and that entity and their resources are the only one capable of providing this (Mulder et al, 2010). The nature of this type of interventionism not only strips the autonomy of all participants and assumes one standard, quantifiable learner type, ability, and metric of success, but it also completely erases the cultures of the spaces being intervened in. The “as-if” imagining exercises of interventionists’ rendering-technical, where they draft a totalized image of the people they are intervening upon doesn’t account for the granular and un-totalizable nature of the space, which further entrenches the systematic oppression and inability to dismantle the *concept* that they are intervening upon (e.g. disability classrooms using kinesthetics and visuals instead of sound for deaf students). But, as Sims pointed out, it’s exactly this cyclical motion that substantiates the perceived necessity of intervention in the first place; “[paradoxically], the routine failure that often accompanies such interventions does not lead the figured worlds that specialize in cutting-edge... interventions to collapse; rather, failure and contestation play a key role in sustaining these worlds, and hence in generating new rounds of disruptive fixation (38).”

If You Die in the Game, You Die For Real

Often, these technologic interventions in the classrooms are not asked for by the teachers, students, or parents, and completely miss the granular nature of the needs, both educational and extracurricular, of those being intervened upon (de Castell and Luke, 1983; de Castell, Bryson, & Jenson, 2002). The decision to make interventions into classrooms are equal parts derivative of: trends that emerge from standardized test data or other quantifiable data sources (Phelps, 2005), clout-building for school districts or educational institutions (being able to point to a piece of technology in classrooms and say, “we implemented this in x year, and from that year until now, we’ve seen y result, and we’re very proud of our decision to go with this technology”) (Boals et. al, 2015), state-sponsored projections showing that a certain type of job is undertrained for, understaffed currently, pay more (read: yield more of a return on investment, read: more yield per student invested in) (Sims, 31-4), very mixed research that states that self-efficacy in “diverse students” and “socioeconomically disadvantaged students” increases with exposure to STEM-related technology (Capraro, Capraro, & Lewis, 2012) and long-held beliefs about general inequality among US citizens; specifically:

“because technological change and globalized economic relations – both of which were often assumed to be generally beneficial and outside the realm of politics – had made the skills of many people outdated and not as valuable... [and] cutting-edge educational interventions were the only way to remedy these problems and, in particular, the belief that all citizens should be molded into the sorts of creative, tech-savvy, and entrepreneurial subjects that had done comparatively well in recent decades. (Sims, 31-2)”

Games-based curricula, especially, assume a certain type of student and success metric: one that is interested in and motivated by games, and who wants to “win,” whatever that may mean in the context of the game. games-based curricula aim to tap into the commercial success of video games as vehicles of critical participation and engagement to make learning more enticing for students (de Castelle and Jenson, 2003). But even in the context of student-teacher interactions within game-based learning, there are power dynamics that can completely upset the point of implementing that pedagogy choice in the first place. The teacher ultimately holds power over the win/loss state in a games-based learning, and what either of those outcomes means for the students, while the students have little recourse except to participate willingly or be punished, either through disciplinary action, grade reduction, or shame and guilt.

Teachers, in the grand scheme of educational power dynamics, are positioned as middle managers: they are often not the ones pushing for game-based learning or educational technology, but are pressured to implement it either by state-sanctioned common core curricula requirements or by administration. In effect, and sometimes against a teacher’s better judgment (for who knows their own classroom’s granular nature better than the teacher), teachers are pressured to implement ed-tech and game-based learning as a control tool: behavior is thought to be normalized and controllable in the confines of a games-based classroom, which means that learning, theoretically, improves (Nebel, Schneider, Rey, 2016), which is almost never the case in practice. If a teacher does not adhere to district protocol or to administrative suggestions in the form of classroom gamification or use of educational technology, the mode of subjectivization that administration relies on (quantifiable learners/test scores/trends) breaks because the intervention that administration has assigned goes unutilized and untested, yielding no knowledge that can be commodified and mined. Teachers are punished for bad test scores with further interventions in several forms. More educational technology may be required for their classrooms, specialist intervention for students during planned classroom time that forces the students being intervened upon to do double work and the teacher to teach double, further oversight from administration to make sure that teacher is following protocol.

What could be a radical protest toward rendered-technical interventions that ultimately have no power to solve any of the problems faced by learners being intervened upon (Sims, 22) often never come to fruition. At the end of the day, all systems of education still operate in a late-capitalist, vectoralist society that only values what learners in the education system can produce that is quantifiable. This truth is something that both students AND teachers must struggle under. For teachers, they must maintain high test scores and prove that their students are growing according to metrics not created by them, and if they don’t, their means of supporting themselves is in jeopardy. In the context of modern education utilizing games based learning, this often means that teachers must forsake pedagogy that has worked in the past to teach students, such as rote drilling for math or writing and rewriting words for penmanship and English vocabulary building. Instead, teachers must adopt games-based learning strategies that are totalizing strategies that cannot and do not account for the granular needs of classrooms, such as neurodivergence and income disparity.

In the End, Does it Even Matter?

Games-based learning is not a new complication to education. Given proper time, thoughtful implementation, and unwavering support in addition to teachers identifying actual needs and spaces for games-based learning, they can be incredibly helpful tools of enrichment. What this article is meant to push back against, though, is the unthoughtful and uncritical engagement with games-based learning scholarship that sees the games-based learning as infallible and invaluable (regardless of context). It is also meant to highlight, through Christo Sims incredible work in *Disruptive Fixations*, issues of power within prescribed use of games-based learning pedagogy. Administrative and state-sponsored pressure, big data and quantifiable metrics of “success” among learners, uncritical and half-baked implementation of educational technology and games-based learning (with no follow-up support for teachers), rendered-technical interventions that create the games-based learning models that are foisted off on teachers, the process of creating a disruptive fixation and how the altruistic nature of most of these interventions do more harm than good, the active erasure of granular learning environments and the assumption by scholars, administrators, policy-makers, and ed-tech creators that there is a uniform, “ideal” learner that interventions can be made for and implemented for with no problems or afterthought: these are all issues go widely unaddressed throughout *any* corpus of educational literature. Though, admittedly, I do not have any sweeping answer as to how education reform should be carried out, I thoroughly believe that if scholars, administrators, policymakers, and ed-tech creators actively and thoughtfully engage with how the things they implement affect the entire milieu of education, and they don’t implement what isn’t helpful, or write policies, metrics, and pedagogy requirements that that actively hamper educators by forcing them to adopt pedagogical styles that actively combat the needs of their students, then ideas of proper reform and more critical, rigorous, and granular pedagogy will soon follow.

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