Transforming our World Through Design, Diversity and Education
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Marrying Digital and Analog with Generation Z: Confronting the Moral Panic of Digital Learning in Late Modern Society

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Abstract. In some quarters, the implementation of digital technologies continues to be touted as the solution to educational challenges faced by contemporary post-secondary instructors and their students. In this paper, I examine the veracity of the claims made by the purveyors of "edu-tech," particularly in relation to what we know about learning and in light of the characterization of traditional pedagogical strategies as vestigial. The arguments advanced in that context include the ideas that "digital natives" no longer can be taught effectively by "digital immigrants," that instructors must "meet students where they live," and that changes to pedagogy go hand in glove with an understanding of the putative characteristics of today's young learners. I argue that such claims are at best inconsistent with the evidence, that major structural issues have been ignored thereby framing debates far too narrowly, and that the political and economic consequences of neoliberalism must be taken seriously if education is to be of any value, going forward. The paper offers a third, "medium" way which highlights what we know about literacy, what technology can and cannot reasonably offer, and how "analog ways" can contribute to the intellectual and social development of post-secondary students. Finally, I advance the idea that serious evaluation and implementation of such an approach might help to eclipse the "moral panic" characterizing today's educational discourse.

Keywords: digital learning; analog learning; moral panic; neoliberalism

1. Introduction

Nonage [immaturity] is the inability to use one's own understanding without another's guidance. This nonage is self-imposed if its cause lies not in lack of understanding but in indecision and lack of courage to use one's own mind without another's guidance. Dare to know! (Sapere aude.) "Have the courage to use your own understanding," is therefore the motto of the Enlightenment. (Immanuel Kant, 1784)

This paper is a consequence of my increasing frustration with the quality of student performance in reading, writing and thinking. In almost four decades of teaching higher education students, I am increasingly dismayed at the lack of student ability to write, unwillingness to read, let alone process the reading, and above all, their incapacity to think beyond the facts presented to them. I am not the only one. Numerous scholars have,

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and continue to document these problems [28][4][14]. This paper asks that we pause and take stock of the claim that technological solutions will solve literacy problems [34].

In this paper I examine two related arguments. The first is the argument that the implementation of technology in higher education will in some sense improve learning outcomes for students, reduce costs and the cognitive load required by instructors attempting to improve the situation. My assessment in this regard is positive, in that the implementation of such technologies, if done wisely, with careful attention to what technologies *cannot* do, and with consideration of the reasons why students are struggling can succeed in improving learning outcomes. The second argument points to a problem that has hitherto been glossed over in the literature or has been absorbed into a discourse rendering it invisible. It is the argument that although educators, policy makers and academic administrators have confronted the impact of neoliberalism on academic labour [13][14][21][1], they have essentially ignored the structural conditions that have both given rise to and reproduced the current malaise amongst students, and the consequences of this turn. Accordingly, I contend that we ignore this issue at peril. The political, economic and cultural contexts of neoliberalism and the challenges this atmosphere poses must be confronted and transcended if we are to have any hope for an educated populace in the future. In this regard it is not the case that technology will act as a saviour, and indeed, it may reproduce and exacerbate the very conditions that must be confronted and transcended.

2. Background: Generation Z, Moral Panic and Education in Neoliberal times

There are numerous names for Generation Z, but most definitions agree that it is comprised of people born in the early 90s. Similarly, characterizations of their attributes vary but on balance this generation is said to be "tech savvy," practical and financially driven, caring, able to process vast amounts of information, and as one analysis [5, p. 4] puts it, are:

> ….passionate about the importance and value of higher education, particularly in the way it provides access to the career that interests them and rewards them financially.

The pursuit of Generation Z aspirations has caused something of a "moral panic" in that parents, educators, policymakers and other stakeholders are concerned that educational institutions may not be meeting the needs of this new generation. Higher education is, they point out, too expensive, irrelevant, does not meet the needs of the new economy, and does not meet students "where they live." Sociologist Stanley Cohen coined the term "moral panic" to explain public reactions to deviant behaviour, but more recently, the concept has been used to focus attention on the processes by which particular social and political issues become defined as problematic. Thus, Cohen encourages us to acknowledge and explore social reactions of concern, anxiety, indignation or panic to real or imagined social problems [10]. Meeting the educational needs of this generation presents challenges for educators and these needs must acknowledge core principles of universal design such as diversity and accessibility. However, educators must also be mindful that simply embracing technological strategies to meet these needs is not enough. Indeed, we should not lose sight of the purpose of education, especially in the present social, political and economic environment, one that is dominated by the tenets of neoliberalism. We need to be aware of this environment

because to ignore it is to decontextualize education and ignore that technology has what Selwyn refers to as a "social nature" [33, p. 82]. In short, the real focus of concern (the real panic) should be on how educational technologies can be utilized to help students better understand and negotiate a very complex and chaotic world fraught with significant social problems. Simply re-inventing education by virtue of "disruptive" technologies will not help us to understand our societies.

3. Education in the Neoliberal Era

Neoliberalism is a contested and complex topic, and I do not engage here in a detailed discussion of its antecedents and contours. In this paper, I simply define it in agreement with Harvey [19][7][17], who identifies the neoliberal era as one in which a deregulated free market economic system becomes the dominant form of social organization. It is a theory of political and economic practice:

> …. proposing that human well-being can best be advanced by the maximization of entrepreneurial freedoms within an institutional framework characterized by private property rights, individual liberty, unencumbered markets, and free trade. The role of the state is to create and preserve an institutional framework appropriate to such practices [18, p. 22].

It is thus a form of capitalism in which the velvet glove of the post-Keynesian welfare state has gradually worn thin and has been replaced by a political and cultural discourse of responsibilization. The unfettered market and its organizational methods function to reward those individuals willing to take risks in the sphere of economic investment and are lauded if they claim to be innovative or disruptive. That market is at the same time coupled with an opposite, that of the individual who is willing to give up certain historically given and fought for rights such as living wages, job security, and pensions in a rapidly changing world of work, and a cultural and political milieu fostering intellectual and ontological insecurity. In turn, these insecurities have bred anger, confusion, hatred and apathy in an information eco-system that is difficult to parse.

Within this system, social institutions such as health and welfare, criminal justice and education, have become subject to the logics of managerialism and profit maximization, primarily through the implementation of techno-positivist emphases on "counting," measuring successful outcomes and returns on investment. North American higher education is experiencing a range of policy and philosophical shifts as to the purpose of universities that are, to those concerned with the role of education in modern societies, disturbing to say the least [16]. Notably, these are not completely new developments. Indeed, debates over the purpose of higher education in relation to social contexts have been around for a very long time.

The earliest universities were mandated to develop young men (and they were all men) for the purpose of transmitting and reproduce existing canons of political, economic, religious and cultural thought. As conventions of science and its method of critique, evidence and logic began to replace the traditions of religion, new spaces for intellectual deliberation around political, democratic, ethical and legal questions emerged.

Of course, the Enlightenment and Industrial Revolutions changed all this. Universities shifted their concern from educating the upper classes to mass education [31] and industrial capitalism became the vehicle that would educate the "heads, hearts

and hands" of workers needed to labour in factories and skilled trades. Some students, by virtue of their financial status or luck, were able to attend higher education institutions to gain the credentials they needed to perform professional work in emerging sectors like management, medicine, and law [3]. Thus, universities became increasingly tied to the needs of the economic system. In fact, universities have never been a bastion of pure enlightenment or knowledge for its own sake. Such goals have been part of their mandates but have ebbed and flowed according to the value ascribed, in any given period, to higher education as a public good. Universities are now facing a different set of constraints embedded in marketplace values where the role of faculty, students and administration have become increasingly tied to those values. Again, none of this is necessarily new, it is just different in its contours. As David Harvey opines, contradictions in capitalist societies have the habit of moving around, rather than being resolved [17].

The aspect of the current era that I want to focus on here is the cultural, economic and political barrenness of the contemporary economic system. Variously labeled, post-industrial, post-Fordist, neo-capitalist, or neoliberal (the term I employ here), this is an economic system that is much more than a system of production and consumption. As recent events around the world, and in particular in the United States (with which I am most familiar) have demonstrated, many champions of the neoliberal order now have no misgivings when they proclaim that "there is no alternative," that the real enemies of freedom and prosperity are immigrants, women, and sexual diversity, that global warming is a hoax, and that all opinions to the contrary, even scientific ones, are "fake news." As Giroux [15, p. 2] writes, neoliberalism: "…. thrives on a kind of social amnesia that erases critical thought, historical analysis, and any understanding of broader systemic relations." This is the world of information we are asking our students to unpack and understand. Whereas universities have always had an uneasy tension between embracing and critiquing market values, the need to understand and critique those values has never before been more urgent.

Despite this urgency, the current environment demonstrates that much of history has been forgotten and instead, a discourse of progress, future imperatives and the ineluctable reality of Schumpeterian creative destruction [9] has taken its place. Academics are routinely reminded of the importance of "getting with the program" or being left behind, as the academy moves into a new era, often making blissfully optimistic predictions about the future rewards to be reaped if we just embrace technology in our teaching. The university is no longer a place to gain maturity, contemplate increasingly difficult and complex social, political and ethical issues and the requisite thinking skills to tackle these issues. It is now, more than ever, a job factory. Critics of education have always pointed to notions such as the functions of the "hidden curriculum" or have reminded us of Marx's depiction of schools as sausage factories. But in the current era of neoliberalism, the need to think and learn more than facts, and indeed to separate fact from fiction, has never been more critical. The crushing economic Darwinism that thrives on social amnesia, the abrogation of critical thought, historical analysis, and any understanding of broader systemic contradictions has now been replaced by memory work, and the elimination of thinking skills encouraging people to understand the links between public agendas and private worries, the very hub of the democratic process [25].

4. Eclipsing Moral Panic

In this paper I want to draw attention to the importance of seeing beyond the shallow and sometimes naïve argument that simply embracing digital technology will not only transform institutions of higher learning, but that they will also enhance and even sharpen critical thinking skills. The arguments educators have been hearing for the past few decades can be boiled down in the following way: Universities must change the way they have done things for hundreds of years because apparently, learners now learn differently, and what they learn must be scrutinized for "relevance." This new ideology which "marketizes" education exhorts that the university must change to adapt to the new demands of "student customers" by embracing the tenets and organizational imperatives of business, for without customers, any business will eventually fail [26]. So, the time is nigh, say the defenders of this position, for universities to reorganize around business principles, and university workers to deliver better customer service and to honour the terms of their "contracts" (syllabi) with the emerging student qua customer [8]. There is no need to panic because technology will save the day, and moreover, there is no alternative but to embrace educational technology because technological change is inevitable and thus desirable.

This argument is riven with unsupported assumptions, inadequate evidence and an agenda, while not necessarily intentional, bordering on reckless. Everywhere in Europe and North America, universities are witnessing massive expansion not of resources for students or improvements in student to faculty ratios, but rather growing differentials between administration and faculty, the casualization of academic labour, a creeping managerial demiurge with attendant cost cutting measures, and the reconceptualization of students and their families as customers, not learners [32][22][30][35][11][21].

Jemielniak and Greenwood (2015, p. 75)[21] put the matter succinctly:

> Students are culturally constructed as meritocratically motivated individuals who already know what they want and need and simply have to make wise consumer choices. Gone is the model of a student as a learner, as an apprentice, with only partly formed tastes who is exploring the university in search of an education that will provide satisfactory paths to the future.

And what of that future? One of the more astonishing aspects of the technology as saviour mantra is the notion that only an education facilitated by such means will prepare students for the jobs of the future. Parents and governments are panicked about "academic success" which they define in terms of employability and graduation rates [29]. It is dispiriting that this rhetoric stirs unease among already uneasy and ontologically insecure people by insinuating that their children will fall behind somehow if they do not adapt to the new world of work, which ironically, will *without question* be increasingly dominated by labour saving devices. Indeed, it is estimated that thirty percent of all work, including knowledge work in the United States will be automated within a decade [24]. We seem to have forgotten that technologies were invented, in no small part to *save* human labour, which begs the question; what kind of future jobs are we talking about? If generation Z aspires to creating their own business, are driven more than their predecessors by financial concerns, but at the same time are searching for authenticity and fairness, surely the education system must emphasize critical thinking skills along with technological literacy. The two can go hand in hand, but it is important to avoid fetishizing technological innovation in education at the expense of cultivating the capacity to critique dominant social orders.

Within the cacophony of voices claiming that we must catch up to the realities of the new economic world order, are the realities of student engagement. Today, many students approach higher education instrumentally, with more of a sense of the putative exchange value of a degree rather than the aesthetic and personal value of deep and life-long learning. Arun and Roksa (2011) paint a dismal (and sometimes unflattering) picture of contemporary students, who arrive at the university unprepared, disengaged, unwilling to read or take proper notes, but with a sense of entitlement rooted in the assumption that because they paid for a degree, they can simply redeem their purchase at the end of the day, rather than earn it. This characterization may be too harsh, but there is good empirical evidence to suggest that standards of quantitative, prose and document literacy have remained flat, at least in North America.[2] In the meantime, faculty are struggling to use and understand the efficacy of massive open online courses (MOOCs), small personalized online courses (SPOCs), blended courses, learning analytics, adaptive learning, virtual immersion, artificial intelligence, machine learning, big data, and a host of other technologies for which the evidence demonstrating improved learning outcomes is inconclusive. And here, it is crucial to remember that these technologies are developed for commercial reasons—profit first and education second.

To drill down for a moment, although much of the research on the effectiveness of educational technology is inconclusive, there are some telling findings that bear repeating here [23][12]. For one, it would appear that if we are using the capacity for retention and memory recall as a proxy for learning, computer technology can have a positive effect as measured by scores on standardized tests [20]. This finding makes sense, given the overwhelming evidence from neuro-psychology that human brains are not very good at remembering information, but are excellent at networking it. If we view learning in the terms I am proposing in this paper, what Heinecke and colleagues refer to as "critical, higher order, problem-based inquiry," learning outcomes are quite different, and indeed, as they point out, perhaps we ought to be asking ourselves whether standardized measures of learning outcomes are really the outcomes we value.

There is no room in this paper to fully examine the issues I have briefly identified. I do want to suggest a potential way out from the liminal state of understanding and fearing technology on the one hand and rejecting it out of hand on the other. It involves reflecting on a careful appraisal of what does work in fostering student learning and leaves open numerous questions as to how technology can help.

Based on what we know about cognitive capabilities and as noted earlier, humans are much better at dealing with networked information than we are at recalling it. One of the best ways of fostering such innate capabilities is to provide students with skills that will encourage them to network information in their own ways (not the way Google or WikiPedia wants), *in their own words.* Adopting this strategy forces students away from the dangerous consequences of "copy and pasting" material into notebooks, which they then feverishly try to memorize the day before the exam [27]. The old, but tried and true analog method of pen, paper, notebook and pencil are not dead, they are dormant and deserve reconsideration as ways of getting students to process material, rather than having someone (or something) process it for them. I have employed this strategy myself, asking students to carry a notebook with them, and encouraging them to write down their thoughts for later transcription into a text management system, and the results, though at this point anecdotal, have been encouraging. The students are required to take notes by

[2] Interestingly, according to the OECD, the countries that spend the least per student on education, have the highest literacy rates.

hand because doing so increases the chances they will process the information, rather than just highlighting or underlining what they think may be important and filing it away somewhere. You cannot cut and paste from a web-site when you have to write things by hand. Then, students are asked to transform their handwritten notes into digital format so that their notes can be cross-referenced, tagged, linked, and most important, drawn upon and assembled in often unexpected ways to facilitate creativity. I am agnostic when it comes to what digital tool I recommend for this part of the process (the one I recommend is free), and this is but one way in which different technologies can be combined to realize a purpose that both meets and develops the educational needs of students. From what my students tell me, it works. They tell me they retain more, have a deeper understanding of concepts, and are able to solve puzzles more effectively. I am also noticing a marked improvement in writing competence. To paraphrase Pablo Picasso, by themselves, computers are useless because they can only give you answers. But if you combine the best of the old with the promise of the new, good things can happen. Students themselves have said that the "assignment" has helped them learn deeply, that the notebook approach was a "lifesaver," and tellingly, that they wished such methods would have been taught to them earlier in their university careers. In short, if it is true that generation Z are used to encountering massive amounts of information, the imperative shifts from finding information to learning how to process, deconstruct and rebuild it. Educational technology can help with this task, but only if we utilize these tools properly and under our control as educators, rather than the control of programmers, "content providers" and educational entrepreneurs.

5. Conclusion: Labouring to Learn

It seems that everything must be new when it comes to technology in education. It is almost as if we have dispensed with the "old" because it just is, well, old. Like the elderly in most western societies, it appears that such technologies are seen as being past their prime, no longer serving a social or any other purpose, and indeed, may even be burdensome. Accordingly, it is claimed that we must move into the new world by innovating, disrupting, or engaging in disruptive innovation. Perhaps there is no stopping progress, but the critical issue is that we must evaluate what we mean by progress. Neoliberalism relies upon organizing principles in which dissent of certain types is frowned upon and even reviled, where people are drowning in a sea of (dis)information, and in which that information becomes difficult to parse and evaluate, resulting in shallow analysis in an educational environment that is decontextualized. We can use the remarkable capacity of Information Communication Technologies to enhance learning because these technologies open up the world of knowledge, make that knowledge more accessible than ever before, allow us to process and disentangle information, and reassemble it in creative and relevant ways. But we cannot lose sight of the social context to which new knowledge is being applied.

The commercialization and marketization of higher education is encouraging students to focus on its "instrumental value" [4]. On university campuses, the value of deep, critical thinking about social, ethical and political problems is being replaced by an emphasis on the hard sciences. There is no question that those sciences are critical to human development and betterment, but without the insight offered by the social sciences and humanities, the hard sciences will be vacant and potentially risky. At one flagship university in the United States, the board of regents is considering removing the

word "liberal" from the phrase "liberal education." Some universities are contemplating or have already closed humanities departments. Politicians have no qualms questioning the "marginal utility" of the social sciences. The current US president wants to merge the departments of education and labour (working title; The Department of Education and the Workforce). Meanwhile, incidents of hate and white supremacist propaganda on US campuses more than tripled in the last academic year [2], student debt is at an all-time high, and the prospect of well-paying, stable and fulfilling jobs is becoming more remote.

There is much work to do in our world, requiring deep literacy, creativity and the recognition of how little we actually know. We should not be confusing tools with what they are for [6], and the claims that there are now algorithms purporting to grade papers equally as well as humans, machines that can deliver and cultivate effective learning habits, e-content delivered by so-called world class professors (the majority of them from the US), all allegedly at lower cost to the public deserve careful scrutiny.

But this work will not take place in a learning environment that simply celebrates the novelty of technology and boldly claims its efficacy as the solution to learning challenges. The problem with learning has to do with the fact that information technologies *by themselves*, do not, provide the deep critical thinking skills necessary to unpack complexity. At least not yet. They do not permit students to develop these skills because these technologies are being used to do the thinking for them. As Brabazon (2007) [6] reminds us, a PowerPoint presentation is not a lecture and the blackboard teachers used for nearly 200 years organized information. It was not information itself. Many of our students are *not* processing information, they are simply evading or reflecting it via rote memorization and they are doing so because they are being tested on what they can remember. They think they can get whatever they need in the way of "information" through Google or Siri, or by taking pictures of Keynote slides with their phones. They do not understand that they must labour to learn, that learning is hard work, and that it should be.

While the technology genie is out of the bottle, we must learn to understand the limitations of technology while re-evaluating the value of the analog. As educators, we have to have good answers to the questions we all get from students nowadays, questions that reflect metrics such as "how long should the essay be?" "How many references should I use?" "How many marks will I get," or more substantive ones like "I don't have a topic," "I can't find anything on this," and "what do you mean I plagiarized?" We need to get students reading, writing, processing and thinking about information again, not just skimming and transcribing like the "mere technicians" C. Wright Mills (1959) [25] warned us not to become. We need massive education of teachers, not just in how to use technology, but when not to. No amount of gamification, or desperate attempts to meet students "where they are" will help them to confront the world ahead of them. We need to be less concerned with cost savings and efficiency, and more concerned with the content of education.

It is often forgotten that technology is fundamentally neutral. It has no personality, no morality, no conscience. It does not care. It has no empathy. But humans do, and what matters more than ever is the uses to which humans will put technology.[3] Generation Z are emerging as the largest generation. They have experienced more technological

[3] In the week following the 2016 presidential election of Donald Trump, a high school student used a pencil to scribble a hateful note which was placed on the desk of a Muslim-American teacher. The note said the teacher's "headscarf isn't allowed anymore" and that the teacher should "hang herself with it." The pencil did not write this message: a student did.

change than any cohort in history, and they are inheriting a very troubled world. But as educators we cannot simply "adapt" to them and we must resist the foolish idea that if we do not adapt universities will become irrelevant. We must recognize that while the computer is a marvelous technology for filing, recalling and storing information, books, pens, note cards and the guidance of a committed teacher might be essential for understanding it.

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