Preserving Human Culture in an Age of Technological Disruption: Reflections on Knowledge, Education, and the Role of Universities

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Around the world, governments and universities have prioritised science, technology, engineering, and mathematics (STEM) education over the study of the humanities, arts and social sciences (HASS), polarising both academic fields in a bid to meet the needs of the next industrial revolution. In this essay, Joseph Liow compellingly argues that universities need to rethink such binaries to address the cross-disciplinary and interdisciplinary nature of knowledge and recognise that the HASS disciplines are essential for the survival of human culture in the digital age.

What do Susan Wojcicki, Jack Ma, Howard Schulz, Phebe Novakovic, and Arundhati Bhattacharya have in common? All five are (or were) running large, multibillion dollar organisations. Susan Wojcicki was CEO of YouTube, Jack Ma founded Alibaba, Howard Schulz ran Starbucks, Phebe Novakovic led General Dynamics, and Arundhati Bhattacharya chaired the State Bank of India. These five accomplished titans of the worlds of technology and commerce share something else in common. All graduated with a degree in the humanities and/or social sciences: Wojcicki in History and Literature, Ma in English, Schulz in Communications, Novakovic in German and Politics, and Bhattacharya in English Literature.

Indeed, there are many more prominent and successful captains of industry who, like them, share similar educational backgrounds in terms of their chosen majors at college. That fact should presumably put to rest any misplaced notion that the skills imparted by an education in the humanities, arts, and social sciences are marginal in today's fast changing world. In fact, given the pace of disruption and change confronting our present world, one would imagine that the need to invest

in understanding their consequences for humanity has grown more urgent.

Yet the larger trends are, unfortunately, moving in the opposite direction. Governments the world over are prioritising STEM (Science, Technology, Engineering, and Mathematics) education and ipso facto de-prioritising the HASS (Humanities, Arts, and Social Sciences) disciplines. Many universities have followed suit, slashing HASS research budgets and closing HASS departments, while enrolment numbers have declined.

Many of the reasons for this devaluation of HASS disciplines in universities and the wider economy are not new. Indeed, humanities have arguably been in "crisis mode" since the 18th century, a trend that has been documented in detail by Paul Reitter and Chad Wellmon in *Permanent Crisis: The Humanities in a Disenchanted Age*. The fact that this discrimination against HASS degrees often happens as a result of the systematic promotion of other fields only further reinforces the sense of marginalisation. The polarisation of the HASS and STEM fields in the world of academia is arguably more evident today as it unfolds against our present epoch of innovation and disruption. With the rise of artificial intelligence, quantum computing, machine learning, and rapid automation of technical skills, not to mention the pre-eminence of the so-called "entrepreneurial mindset" and the dominance of biosciences, humanist fields find themselves on the backfoot yet again, having to prove their "relevance" in an increasingly digitised and technologically driven world.

Yet this need not be the case, and the narrow narrative of polarisation should not be allowed to overshadow the vast potential for synergy between these two seemingly distinct fields. To be sure, various industries are experiencing disruption

caused by technological innovation on a significant scale. Automation has changed the very nature of manufacturing in fundamental and irreversible ways, while a host of professions from law and medicine to accounting and education will likely rely more heavily on artificial intelligence. Everywhere, indications point to the reallocation of finite resources within the private sector, public sector, and even universities to meet the growing demand for industries deemed to be the drivers of this fourth (or fifth, as it were) industrial revolution. The arts and culture sectors are certainly not insulated from the effects of such transformative change.

Therein lies the irony, for it is precisely in the face of such monumental change that the moorings of human culture, anchored in the disciplines found in the humanities, arts, and social sciences, are urgently needed. Writing on the features and virtues of "modern" humanities, Reitter and Wellmon observe: "In contrast to prior traditions of humanist knowledge… the modern humanities are consistently cast as a particular project to countervail against specific historical forces and problems that threaten the human. The modern humanities address not disordered desires, unruly passions, or the presence of evil but historical changes: Industrialisation, new technologies, natural science, and capitalism."

The point is that far from irrelevance, the HASS disciplines are crucial today for how they cast new light on old problems—and alternative light on new ones—that bedevil society, including problems associated with the breakneck speed of technological change. Consider, for instance, how the understanding of traditional burial rituals provided by anthropologists played an instrumental role in curbing the spread of the Ebola virus in West Africa. Much in the same vein, the environmental crisis confronting the world today cannot be addressed solely through the introduction of technologies as

important as that is. It is imperative that scientific and engineering advancements be accompanied by contributions from the fields of psychology and sociology because solutions ultimately involve behavioural and societal choices, not to mention the literary arts that create new narratives to encapsulate the struggle of humanity to cope with environmental degradation. It is not technology but the proper understanding of its utility and limits that makes it useful and us, human.

The Role of the University

Universities have always been integral to the progress of civilisations, societies, and nations. From Nalanda University whose influence stretched from Northeast India to Southeast Asia and China, to the Lyceum which laid the foundation for Western culture; from the House of Wisdom in Baghdad, from which cultural and scientific knowledge emanated in the ancient world, to Humboldt University which stood at the forefront of the scientific revolution, universities have shared two things in common. First, they were the progenitors and guardians of civil debate which shaped the societies in which they were embedded. Second, they were the producers and repositories of scientia, or knowledge, which in its classical definition transcends the boundaries of what we know today as disciplines.

These functions of universities as institutes of higher learning remain profoundly relevant for society today, not only as a pathway to a good career but more importantly, to equip students to live meaningful and fulfilling lives as citizens prepared to make constructive contributions to society. So, in keeping with its fundamental nature and purpose, what can universities do to not only reflect the

essentially cross-disciplinary and interdisciplinary nature of knowledge, but to ensure that this is transmitted to students?

First, in the face of transformative change and grand challenges that the present age of technology poses, universities must teach students to ask the right questions. How might technology drive cultural change, or is its role and function limited and to be determined by its users? Are we so dependent on technology that we have become slaves to it? What is the relationship between technology and the progress—or regress—of our society? For some, the development of technology is a measure of human progress, driving cultures towards a better (if not perfect) life. For others, technology is not without drawbacks or concerns that must be considered seriously. Jeff Hinton, formerly of Google and one of the foremost minds in the development of artificial intelligence, recently warned in an interview: "I don't think they should scale this up more until they have understood whether they can control it… It is hard to see how you can prevent the bad actors from using it for bad things." The fact of the matter is that the relationship between technology and culture and the arts is not predetermined. Rather, we need to cultivate an understanding of technology and the digital world that problematises simplistic assumptions about technological determinism, technological dependence, and technological progress.

Second, universities must endeavour to instil values and mindsets that are interdisciplinary in nature. Technological innovation does not take place in isolation and students should certainly not be taught to think as such. Students of data science or electrical engineering need to be aware about how geopolitics is shaping their industries today. Mechanical engineers can benefit from developing a creative eye for design aesthetics. Medical students would be well advised to develop cultural competencies

to allow them to communicate better as societies become more diverse because of globalisation. By way of these and many other examples, it should be clear that the role of universities must be to provide the full measure of educational experiences which will give students an advantage as they enter their respective sectors after graduation.

Third, to pursue the above, universities must constantly pursue curriculum innovation and integration. Indeed, it is easy to preach the need for interdisciplinarity and cross-disciplinarity in higher education. In fact, this has become something of a tiresome refrain. Walking the talk, on the other hand, is a different proposition altogether. To that end, some self-critical reflection on the part of educators is necessary. Do we believe in our own message of the importance of interdisciplinary education? Are we prepared to take a less dogmatic, less conservative approach to curriculum planning and execution? Can we break out of our siloes and comfort zones ourselves to embrace the brave new world we talk so passionately about?

Apropos my earlier point, there is an urgent need to break the impasse of binary distinctions between the STEM and HASS disciplines, for there is much synergy between these two domains. Let me suggest two examples. First, just as it is with industry, technology will be a vital component of cultural education. For instance, digital technology can allow artists, designers, and creative content producers to position themselves in the marketplace in a way that creates opportunities to gauge themselves and their works, not to mention garner visibility both nationally and internationally. Universities can help artists navigate the technological challenges and changing complexities associated with the digital world in ways that benefit both the public and the artist. It is easy to envisage too, how technology could be a useful ally in building a

robust infrastructure to support the arts and culture sectors in terms of visibility, access, and operating in a digitally networked world populated by an amorphous audience.

ChatGPT is another case in point. The emergence of generative AI threatens to fundamentally change how we think, write, and communicate. This has occasioned not a small measure of anxiety especially among educators, leading some to call for a return to 20th century ways of pen-and-paper assessment. That is probably not the right response. Indeed, the arid reality is that the landscape of knowledge acquisition is changing, and higher education must change with it if we are to fulfil our role and purpose of preparing students to be—and to remain—competitive in the marketplace and constructive citizens of society. To do so, we must equip them to be able to engage AI productively and in ways that can complement and enhance human creativity. Like other technological and digital platforms, ChatGPT must be part of the pedagogical toolbox. As John Villasenor explains: "I am helping my students to prepare for a future in which AI is simply another technology tool as opposed to a novelty. I am also telling them that they are solely and fully responsible for the writing they turn in bearing their name. If it's factually inaccurate, that's on them. If it's badly organized, that's on them. If it's stylistically or logically inconsistent, that's on them. If it's partially plagiarized, that means that they have committed plagiarism. In short, I'm encouraging my students to become responsible, aware users of the AI technologies that will play a profoundly important role over the course of their careers."

Conclusion

To clarify, this essay is not advocating a reduction of attention to STEM. Many of the areas of STEM fields are at the forefront of human innovation and invention, and they will play an indispensable role in our efforts to deal with tomorrow's challenges today. But in shifting our focus unquestionably to STEM at the expense of the HASS fields, as we see many governments and institutes of higher education doing, we risk throwing the proverbial baby out with the bath water, and in so doing, rendering a great disservice to society in the long term. The sooner this is understood, the better humanity's prospects of surviving and thriving in the digital age. Indeed, we would all do well to heed the words of German philosopher Immanuel Kant who wrote: "the human being is destined by his reason to be in a society with other human beings and to cultivate himself, to civilize himself, and to moralize himself by means of the arts and sciences." □

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