

Artificial Intelligence and Higher Education: A Brave New World?

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**You're far too keen on where and how, but not so hot on why.
(Rice & Webber, 1973)**

Abstract: Higher education leaders anticipate various ways in which Artificial Intelligence will be applied within their institutions. There can be substantial value in data analysis, supplemental applications for educational and developmental processes, and complex problem solving. Decision-makers must be mindful of problems that may arise from the implementation of hyper-rational management practices, extensive surveillance systems, and applications that could control and narrow the experience of students physically, emotionally, and intellectually. AI offers valuable tools but also significant risks. Institutional leaders face complex and highly consequential decisions about how such technology will be deployed and shape the ongoing evolution of colleges and universities.

Résumé : Les dirigeants de l'enseignement supérieur anticipent diverses façons dont l'intelligence artificielle sera appliquée au sein de leurs établissements. L'analyse des données, les applications supplémentaires pour les processus éducatifs et développementaux et la résolution de problèmes complexes peuvent avoir une valeur substantielle. Les décideurs doivent être conscients des problèmes qui peuvent découler de la mise en œuvre de pratiques de gestion hyperrationnelles, de systèmes de surveillance étendus et d'applications qui pourraient contrôler et restreindre l'expérience des étudiants physiquement, émotionnellement et intellectuellement. L'IA offre des outils précieux mais aussi des risques importants. Les dirigeants d'établissements sont confrontés à des décisions complexes et lourdes de conséquences sur la façon dont cette technologie sera déployée et façonnera l'évolution continue des collèges et des universités.

Introduction

AI has become a frequent news item and a regular topic for journalists and other pundits offering commentary to the body public. The shifts compelled by AI applications are anticipated at foundational levels of human activity. Craig Mundie, former head of research for Microsoft, was quoted by *New York Times* columnist Thomas Friedman as asserting that “this is going to change *everything* about how we do *everything*. I think that it represents mankind’s [sic] greatest invention to date. It is qualitatively different – and it will be transformational” (Friedman, 2023). Friedman refers to this as a new “Promethean moment,” drawing a thought-provoking literary link between future-facing technological evolution and one of humanity’s oldest fables.

Ancient Greek mythology remembered Prometheus for bringing the gift of fire to human beings, thus enhancing the likelihood of their survival and changing the course of history (Britannica, 2022). Such mythology offers many insights even into modern human experience and behavior. The very name Prometheus means “Forethinker,” and certainly, forethought is demanded in the face of any technological change that has both the power to enhance or to destroy life, as was the case with fire and some argue may be with Artificial Intelligence. The Promethean theme was developed in a more modern context in Mary Shelly’s *Frankenstein*, famously subtitled *The Modern Prometheus*. The key thread of the story is that Frankenstein’s astonishing scientific advances begin with noble intentions and relative innocence, only to see the result of his work become a destructive monster due to the corrupting influence of a violent and dysfunctional society (Shulman, 2023). As many prominent AI scientists have stated, it requires little imagination to apply the same cautionary attitude to the potential evolution of AI (e.g., Center for AI Safety, 2023).

The Promethean metaphor bears a brief further digression. In addition to his status as a figure who paid a terrible price for his beneficence to humanity, Prometheus was also understood to be a trickster, an archetypal entity that appears in tales and mythology from cultures all over the world. A trickster was typically understood to possess extraordinary powers and was associated with mischief, deceit, betrayal, and treachery. Further, such figures typically defied easy categorization as they variously engaged in creative, destructive, malicious, or humorous escapades that made them “a sort of folkloric scapegoat onto which are projected the

fears, failures, and unattained ideals of the source culture” (Britannica, 2023). Indeed, aside from the technology itself, AI has become a kind of Rorschach Test for people to project their attitudes about the rapid advance of technology and perhaps even what it means to be human. Whether advanced technology reflects the “fears, failures, and unattained ideals” of modern culture is a matter of perspective, though AI, like the tricksters of myth, does seem poised between “omniscient creator and innocent fool,” (Britannica, 2023) and we can only hope that the destructive character of such figures is not ultimately reflected in the assessment of this technology.

The most optimistic tout AI as a kind of modern oracle; a seer that will solve problems, dispense wisdom, create art, improve the quality of human life, and even predict the future. Certainly, previous technological advances led to major changes in human organizations and activity. But unlike the massive shifts in human knowledge production, recording, and transmission that followed the development of such technologies as writing, the printing press, film, radio, television, and the internet, the anticipated AI revolution portends an enormous paradigmatic shift (see Kuhn, 1970). AI will likely change not only the way we do things but more importantly how we think about them and even define them. This prospect has spurred significant discussion over the need for public regulation of the technology and its applications. In late 2023, public concerns for the potential impacts of AI and the need for greater control and oversight resulted in an executive order from U.S. President Joe Biden spelling out a range of guidelines aimed at beginning the extensive work needed to attempt to plan for and guide the wider use of AI in the United States (Lima & Zakrewski, 2023), while ongoing debate about legal boundaries and guidance continues (e.g., Kak & West, 2023). The Canadian Parliament continues to work through ways to expand legislation governing the uses and potential abuses of AI applications (Shingler, 2023). In the meantime, the European Union has announced a comprehensive legal framework to govern AI and its uses (Chee, 2023; BBC, 2023).

Background

It is obvious that human history is marked by ongoing technological advances that have had substantial impact on higher education (Terzian, 2019), whether in the ways knowledge was recorded, conveyed, or measured. In contrast to previous innovations, AI seems to be vastly more sweeping in its potential to not only replace

human labor now common in higher education settings, but also human thought, particularly in terms of innovation and problem solving (Drozdowski, 2023; Friedman, 2023; Microsoft, 2020). Various assessments of the near-term impact of AI on higher education reflect the general prognosis for revolutionary, paradigmatic change. Consistent with the historical trend of Americans to embrace new technology with relative optimism (e.g., Aper, 2002; Vogels, Rainie, & Anderson, 2020), in 2020 the International Data Corporation reported findings from a survey of over 500 US institutions of higher education indicating that virtually all anticipated that AI would be “instrumental to their institution’s competitiveness in the next three years” (Microsoft, 2020).

Some commentators have suggested all of this as a kind of existential window, with universities struggling “to remain relevant and prove their worth,” presenting them with the relative Hobson’s choice of embracing this new paradigm wholesale or falling “victim to a new reality in which automation and the democratization of knowledge [will] render them obsolete” (Drozdowski, 2023). It bears asking whether technology serves human organizations or the reverse. Commentators like Drozdowski (2023) and Abdous (2023) assert that organizations must serve the technology, and centuries old practices should be regarded as relics largely because a new technology can do things faster and more efficiently. I do not offer this as some kind of rhetorical consideration. The implications of asking how and why processes and practices should be overhauled or eliminated by technology have everything to do with the kind and quality of the outcomes we need and value most. If AI is poised to utterly remake the work of universities, it seems critical to give careful thought to what matters and why, especially regarding the education and development of undergraduate students.

First Steps

Commentators on the impact of AI on US higher education have offered a range of perspectives on near term developments. Some recommendations are in a general category I will call “universities doing what universities do.” For many centuries universities have been deliberative communities of expertise, and recommendations for deliberation, study, and collaborative development are consistent with that venerable ethos. Contemporary literature offers various recommendations and admonitions for developing ethical and practical guidelines for the application of AI (e.g.,

Abdous, 2023; Harrell, 2023). Similar recommendations call for the creation of interdisciplinary research efforts to study the “social, ethical and pedagogical challenges associated with AI” (Abdous, 2023), collaborative engagement with external organizations in government and industry, initiating “AI-across-the-curriculum” efforts involving faculty from all disciplines, and rethinking curriculum to prepare students with “lifelong learning skills to make our soon-to-be AI-driven society both better and more just” (Abdous, 2023).

Beyond these kinds of proposals there are a multitude of specific suggestions for the day-to-day work of universities. As a basic way of organizing these comments I am summarizing these operational recommendations into four general categories: Admissions and Institutional Management; Market Analysis and Social Efficiency; Teaching and Learning; and Student Development. Each is addressed below.

Admissions and Institutional Management

AI applications are suggested as a means of optimizing the analysis of data on applicants, identifying prospects, and targeting personalized messaging to maximize enrollment opportunities (Abdous, 2023; Drozdowski, 2023). It is clear enough that good data and effective analysis can help significantly in maximizing the success of recruiting efforts. Frankly, a good deal of the efforts of well-meaning admissions staff over the years has involved largely scatter-gun strategies. Better data and more searching analysis can help effectively target admissions activities toward those subsets of the prospective student population that are most likely to be responsive to communications from specific institutions. Assuming that human beings direct the data collection and analysis, it is easy to see how high quality, statistically powerful analysis of good data can be a boon to admissions strategies and outcomes. As part of the same continuum of institutional activities, AI is proposed as a source for timely and ongoing communication with prospective students. Again, the value of such communication is clear enough, but systems have to be designed to assure that communication is clear, personal (including writing by human beings), and offers people functional opportunities to connect with actual human beings at any point in the recruiting process. If prospective students end up lost in the various loops of machine-generated communications, experience suggests the prospect of discouraging them rather than enticing them to learn more about an institution.

Even if AI becomes highly adept at writing for humans, prospective students will almost certainly need and want personal connections to the institution.

AI applications are also presented as a basis for informing comprehensive efforts to streamline institutional operations to gain new labor efficiencies and lower costs (Drozdowski, 2023). Such rationalization is appealing in terms of cost/benefit calculations and consistent with modern data-driven management philosophy. In the modern era resource efficiency and maximization of defined outputs (e.g., Taylor, 1911/2020) have been guiding principles, but hyperrational focus on efficiency in human organizations has not been without problems in the past. Efficiency and cost certainly matter, and many institutions are especially hard pressed in this regard in the current environment. The immense power of AI to rapidly review enormous amounts of information can offer important means for improving operations (Abdous, 2023; Drozdowski, 2023; Friedman, 2023), but for human beings to thrive there is a need for rational management to be defined more broadly than simple focus on mechanistic definitions of efficiency and productivity. History illustrates the ways in which criteria beyond such efficiency calculations matter deeply to human beings who live and work within such systems (e.g., Callahan, 1964; Gershon, 2015; Nelson, 1977; Vallas, 2011).

Market Analysis and Social Efficiency

AI is presented as a basis for systems that analyze and project labor market needs and trends, with the related recommendation that curriculum should be adapted to meet those demands and preferences (Abdous, 2023; Chen, 2023; Drozdowski, 2023). Interestingly, this application is touted along with the received truth that most jobs of the future are now unknown other than that they will require accommodation to AI. As Abdous (2023) notes, “higher education institutions must carefully assess how AI will affect the labor market in the future. This analysis should lead to a rethinking of educational pathways to prepare students for a hybrid labor market in which AI will play a significant role.” The World Economic Forum projects that AI will create as many as 97 million jobs by 2025. On the other side of that balance sheet is that the same source also anticipates that AI will eliminate 85 million jobs during the same time frame (Drozdowski, 2023). The upshot of such dramatic change is reflected in the observation by the Microsoft Education Team (2020) that “two-thirds of students today will

eventually apply for jobs that do not yet exist. In today's world, it is critical that employees continuously update their skills to keep up with technology and its power to drive change, and institutions need to provide students with skills that prepare them to meet the opportunities of tomorrow's careers."

Thus, the changes forecast are connected to a vision of substantial curricular changes to prepare students to find their places in an AI-driven world (Abdous, 2023; Microsoft, 2020). But given the uncertainty of what many of these jobs will entail in the future, it could reasonably be argued that the dawning of the AI era may invite renewed thought on the importance of a liberal arts education. If we accept the assertion that universities serve largely or entirely a social efficiency purpose – namely job preparation and the appropriate assignment of job-related credentials, how do institutions engage in job training for a future in which many of the anticipated jobs do not currently exist? It is ironic that some of the same observers who suggest that the liberal arts are no longer relevant in the modern world are quick to note that within a few decades most contemporary job titles will be obsolete or subsumed under a host of new jobs and tasks that have not yet even been fully imagined.

It seems obvious that if the preparation for and experience of work are on the cusp of such rapid evolution and change, then the education to prepare people for that unpredictable ride must be one that builds essential skills related to human agency, not job training for work roles already projected for the scrap heap of history. The fundamental intent of the liberal arts from the inception of the idea was that it was a course of learning and experience that prepared people to be free citizens in a free society, even though for a very long time such freedom was greatly restricted to a small segment of the population. Still, the purpose of such education was always less about the specific subjects studied, which changed significantly over time (e.g., Kimball, 1996; Nussbaum, 1997), and about developing essential skills of thinking, analyzing, communicating, and the habits of mind to apply these skills consistently, diligently, and as part of a life-long commitment to ongoing learning.

As Long Tran-Bui wrote in the *Wall Street Journal*, "In tandem with AI's growth, then, would be the re-emergence of the humanities in feeding it new knowledge as well as determining the ethical framework behind its usage. AI doesn't diminish the humanities' importance. It reinvigorates it" (quoted in Drozdowski, 2023). If human agency has meaning and value and we anticipate a future in

which we will protect and even prioritize such agency, then education would seem to demand focus on the core concepts of critical, analytical, informed, and ethical thinking. John A. Smith of Oxford University is famously quoted as telling his new students in 1914 that the main point of the educational experience they were about to embark upon was not that they would learn a raft of directly usable skills or be trained for a particular job, but that they “should be able to detect when a man [sic] is talking rot, and that, in my view, is the main, if not the sole, purpose of education” (Macmillan, 1975, p. 11). In the brave new world of AI, it will be essential to be able to detect when either person or machine are “talking rot.”

In a related vein, biologist E.O. Wilson (1999) once observed, “We are drowning in information, while starving for wisdom. The world henceforth will be run by synthesizers, people able to put together the right information at the right time, think critically about it, and make important choices wisely” (p. 294). Whether such synthesis will be the province of human beings or AI analysis, we’ve entered an era when virtually all the information in the world is available, but the order, priority, evaluation of quality, or sense of how to pull all the pieces together coherently to support the wise decisions Wilson envisioned remain undetermined. Does AI offer the prospect of such analysis and organization? Probably, but who decides on the rules for order, priority, quality, and synthesis? The AI mind? Legislators? Programmers? AI seems to make it even more likely that we will be swamped with information and begs the question of whether we will be pressed to rely increasingly on computer minds to “synthesize and make important choices wisely.” If AI gathers, synthesizes, and chooses, what is the impact on the search for meaning and purpose of human organizations, or individual human beings?

Teaching and Learning

AI is also touted as a basis for improving instruction by personalizing teaching and learning in ways that meet individual student characteristics and needs (Abdous, 2023; Chen, 2023; Drozdowski, 2023), as well as providing personal support for instructors. At first glance there is inherent logic in this assertion, since decades of research on student learning seems to me to show us one basic thing – there is no single best way to optimize student learning. Anyone who has undertaken the complex tasks of teaching should be aware of the diversity of student needs and

approaches to new information in any classroom. Strategies that work for one student may not work very well for another. The potential advantage of AI systems in support of teaching and learning is the possibility of customizing strategies that match best with student aptitudes and personal characteristics. Further, AI systems of this type should be able to address the needs of all learners much more fully and effectively because of the nearly endless possibilities for personalization of approaches. There will be no real need to leave the intersection of instructional methods and learning styles and aptitudes to chance, and little difficulty in dealing with novel needs or circumstances (Microsoft, 2020).

Beyond learning support, AI has also been discussed as supporting systems that can also improve assessments of learning (Abdous, 2023; Chen, 2023; Microsoft, 2020). It does not stretch the imagination to envision AI-driven systems that provide detailed, meaningful data on student performance. Such systems could also help instructors better plan and conduct evaluations of student work. But design and analysis are only as good as the thinking and planning that goes into them, and the history of curricular materials (including tests and related measures) supplemental to texts at all levels historically demonstrates limitations of these kinds of resources (e.g., Northern & Polikoff, 2023). AI may be able to help instructors design methods for evaluating student work, make data collection more systematic and efficient, and even help assure meaningful analysis of the resulting data that can then be used to assign grades or otherwise verify measured levels of student knowledge and proficiency. Still, important considerations remain to be thought through regarding what standards of student privacy and especially autonomy are best observed in applying such technology.

AI does suggest that the long-standing reliance on testing as a technology serving diagnostic, predictive, or evaluative ends stands on the threshold of revolutionary change. The extraordinary processing power of AI systems suggests the melding of adaptive testing methods with the psychometric insights of approaches like Item Response Theory to create new approaches to testing and measurement that could vastly exceed the documented limitations of “true score” approaches to testing (e.g., Crocker & Algina, 1986; DeMars, 2018) and build more integrated and comprehensive ways to measure knowledge and proficiency (Cui, Xue, Shen, Sun & Li, 2019; Plumed, Prudêncio, Martínez-Usó, & Hernandez-Orallo, 2019; Minn, 2022).

As an addendum to such considerations, long-established traditions for homework, projects, and testing as part of postsecondary curricula will have to be rethought utterly, since the same AI capacity used to evaluate student work will be used to generate student work. What is and is not cheating remains to be sorted out, and concerns about academic integrity that have risen dramatically in the age of the Internet will be magnified many times over (e.g., Lucariello, 2023), and long-established applications like TurnItIn are deep in competition with similar firms creating AI-driven systems for detecting student cheating (Appleby, 2024). This technological competition between student and faculty intentions and uses will no doubt escalate rapidly. But a much larger question looms beyond traditional definitions of and concerns about cheating. Students' abilities to rely on near omniscient learning assistants begs the question of what knowledge and skills are essential for students to carry about in their own minds. Notions of cultural literacy, the great books, or other operationalization of dueling canons that attempt to define the basic knowledge necessary to a "real" education or citizenship in the great intellectual traditions of the world are even harder to define if every person has ready access to virtually the entire scope of human knowledge and dynamic inquiry into the actual and possible uses of that knowledge.

Interestingly, one problem of overreliance on sophisticated computer applications may be illustrated in an elementary way by examples from the graduate statistical analysis classes I taught for many years. From the mid-1980s until the early 2000s the sophistication of commercially available computer based statistical analysis packages increased tremendously. From punch cards, to mainframe computing that required extensive job control language, to pull down menus with preset analysis options, it became increasingly easy to conduct statistical analysis of even very large data sets. While this evolution offered distinct advantages to those learning how to use statistical tools (e.g., obviating the need to memorize methods of calculation or language for instructing the computer) it also meant that student understanding of methods, purposes, and outputs was increasingly compromised.

For example, "user friendly" analytical packages relied on various pre-made assumptions about how to set up and run analyses. Anyone familiar with statistical hypothesis testing will recall that there are critical assumptions underlying different statistical methods and that failure to understand or account for them imperils appropriate interpretation of the resulting

calculations (e.g., Glass, 1972). Yet for all its sophistication, the computer was often unable to flag sometimes elementary errors or note when the output it was so beautifully presenting made no sense at all. Perhaps most insidious, however, was that student reliance on and confidence in the computer tended to make them careless and lax about assuring that the machine was doing things that make sense in the world of human experience. The machines' assumed superiority in knowledge, speed, and accuracy led to sometimes silly errors because their human users abandoned their own judgment and capacity for careful thought and analysis. Such overreliance on and overconfidence in machines can result in assumptions about and acceptance of incorrect or suboptimal output when they are trusted implicitly to supersede human judgment.

Similarly, recent experience with AI tutoring has shown that a sophisticated AI math tutor could “produce perfect sentences that exhibited top-quality teaching techniques, such as positive reinforcement, but fail to get to the right mathematical answer” (Chen, 2023). AI models have also been found to often emphasize speed over coherence and pedagogically sound responses, as well as being culturally simplistic and even biased (Chen, 2023; Tiku, Schaul & Chen, 2023). As an added note in this regard, Elisabeth Bik, who has examined more than 20,000 peer-reviewed, published scientific papers dating back to 1995, has found that errors or intentional misrepresentations of data occur in just under 4 percent of the publications. That is about 800 papers in the timeline represented, a significant number when it comes to rigorously reviewed claims to knowledge. Especially relevant in this discussion is not so much that human authors can make errors or even “fudge” data or findings, but Bik’s deep concern that erroneous AI-generated images or representations may be nearly impossible to identify. In her words, “Anyone could misuse AI to generate false information, photos, and text. And that’s what I’m worried about, because *we cannot distinguish it from what’s real*” (italics added) (Funk, 2023, p. 51). Even Sam Altman, CEO of a major AI application company, has stated publicly that he “probably trust[s] the answers that come out of ChatGPT the least of anybody on Earth” (O’Brien, 2023). He may have made the comment at least partly in jest, but it reflects the healthy skepticism that should be part of any leap into this envisioned cyber-centric future.

Because errors, assumptions, or questionable representations may be virtually undetectable under normal circumstances, it is absolutely necessary to define and institutionalize ways for human

beings to be able to assess the accuracy and meaningfulness of AI operations and output. Again, reliance on machines substantially increases the importance of rigorous development of critical and analytical thinking, since doing calculations of whatever kind still requires that the assumptions, processes, and results are understood and not simply accepted as infallible. Further, given that at least some AI applications seem to be highly vulnerable to malevolent actors (e.g., Hunter, 2023), critical human evaluation of AI actions and outputs is essential.

Interestingly, some scholars suggest that AI will mean that students “no longer need to be fully proficient – in other words, doing all computation by hand or writing all essays without AI support” (Chen, 2023), but the fundamental problem with that perspective remains as it has always been. Students who do not have a grounding in how answers are calculated or why some information is better than other information cannot know if what is presented to them is trash or treasure. It is further argued that by no longer “requiring mastery of proficiency” AI applications will somehow “raise the bar” because students will have to “edit and curate, forcing them to engage deeper than they have previously” (Chen, 2023). The idea is that AI will facilitate more creative and far-reaching educational and learning ventures for students. Yet, how does anyone “curate” what they don’t know or understand? Is a future anticipated in which AI will be accepted as a substitute for clear, systematic human thinking and informed judgment? If that day comes, does it make human beings no more than dependents on AI systems?

Perhaps the question is an epistemological one – what warrants a claim to knowledge? Is the machine an authority in and of itself, to be trusted above human judgement? Ultimately, it seems quite clear that the preservation of meaningful human autonomy requires that AI be understood as a tool and not as a substitute brain. Just like any other tool, it has valuable applications and less valuable applications. A pertinent question along this line is to ask whether AI will be understood and used as a tool, not unlike the use of calculators in math classrooms. Obviously, the use of calculators has reduced the need for students to memorize basic details like multiplication tables or even routinely used calculating formulae. It has not, however, removed the necessity of knowing and understanding basic mathematical computation. Similarly, innovations like the printing press made learning and information more widely available but did not eliminate the need for and value

of writing skills (e.g., Harrell, 2023; Chen, 2023). Given the fact that AI systems are well capable of independently doing such things as formulating and completing complex analyses and producing written text, these questions are challenging, indeed.

Challenging at a different level is the kind of enthusiasm for monitoring students reflected in descriptions of learning programs like a project called *The Enemy*, designed to allow participants to “journalistically hear the perspectives of combatants on both sides of conflicts in the Democratic Republic of the Congo, El Salvador and Gaza – while customising the experience based on users’ body language as a proxy for their potential biases and attentiveness” (Harrell, 2023). Few educators would object to the idea of an interactive learning experience that allows students to gain insight into the perspectives of people with very different experiences and interpretations of those experiences. My hope is that many more would raise objections to the implication that part of the learning experience should include monitoring student “body language” to measure “biases and attentiveness.” It is this kind of surveillance, no matter how it is packaged or described, that should invite many questions about how best to employ the potential of the total environment implied by AI. Such surveillance and its implications require further careful consideration when it comes to anticipated AI applications related to student experience beyond the formal curriculum.

Student Development

Universities enroll students with commitments to help them maximize their talents in developing important knowledge and skills. Helping them persist to graduation is part and parcel of such commitment. AI is suggested as a basis for improved ways to create integrated systems for strengthening retention and helping students graduate by providing improved, customized tutoring, advising, and personal support (Drozdowski, 2023). The suggestion that students will be well served by AI advising and personal support invites substantial scrutiny.

First, AI has the potential to create massive databases on students (and everyone else) with all the possibilities of inappropriate uses or disclosure of personal data. Drozdowski (2023) reports on “An AI-powered tool called *Element451* [that] uses behavioral data to rate students’ potential for success. It’s 20 times more predictive than using demographics alone.” It is no exaggeration to observe that no serious researcher believes

that “demographics alone” are or ever were fair predictors of student potential. More importantly, however, how many students honestly want to have their lives run through such a statistical food processor to learn what their “potential for success” is calculated to be? Is the implication that those who don’t project to be successful might simply be denied the chance to learn, grow, and transform their lives? Will predictive statistical analysis that addresses everything from parents’ DNA to coffee preferences really become the method by which students’ futures will be shaped? Anyone familiar with statistical analysis understands that statistics can tell us a lot about groups and the probability of certain observations, but statistics tell us nothing about individuals. Such data are descriptive but are not and should not be taken as prescriptive when it comes to individual students.

Similarly, AI chatbots are envisioned to be routinely employed to counsel students about such matters as financial aid, advising, and career directions. Ocelot is one such application that touts the fact that two-fifths of students in a study of its use consulted the chatbot outside of regular business hours, though it is not clear what the research showed about the accuracy and effectiveness of AI bots in comparison to their human counterparts, or whether, perhaps, alternative hours for students to consult with human beings would have resulted in different findings. Another application, perhaps indelicately named Woebot, is designed to allow students to “explore their emotions” with a process called “intelligent mood tracking.” Related AI tools are intended to supplement academic advising by monitoring data believed to predict the likelihood of students failing or dropping a course (Drozdowski, 2023). It seems that the monitoring would need to be done by human beings to give the system the grist for analysis, but the implication of ongoing monitoring independent of human advisors, counselors, and support staff seems clear enough.

A larger question, of course, is whether it is desirable or even functional to increasingly reduce or narrow the interaction of students with faculty and staff. Past research has suggested that interpersonal interaction between students and faculty improves student satisfaction and persistence (Pascarella & Terenzini, 2005). If such interaction is demonstrably beneficial to important student outcomes and substantive human contact remains a priority of the educational enterprise generally, the application of AI guided systems for advising and monitoring students is best implemented

with care and carefully circumscribed to avoid a simplistic reliance on automated systems. There is certainly more at stake than simply improving the cost and efficiency of advising students and monitoring their progress.

AI and Personal Meaning

The relative uncertainty of individual outcomes, the importance of personal privacy, and the necessity of preserving people as individuals with authentic agency should particularly give us pause. It isn't revelatory to observe that human beings are creatures in search of meaning and purpose (Heschel, 1966; Frankl, 2014). This may be an individual psychological truth, but it goes beyond the interior world of each person; human beings must find ways to make meaning in their personal, social, and professional settings to cope with the demands of their life circumstances. Psychologically, such "meaning making" is understood to involve the ways in which people understand or make sense of their experiences, relationships with others, and themselves as engaged and aware participants in the world of experience (Ignelzi, 2000). Systems, events, or actors that challenge or disrupt such processes can have profound effects on people, organizations, and communities.

Habermas (1985) laid a foundation for contemplating the ways in which meaning making in local, experiential contexts is affected and distorted by larger systems that are imposed on the "lifeworld" of daily experience. Such "colonization" of the lifeworld by larger systems of governments, economies, or technologies transforms the day to day meaning making experiences of individual human beings and communities both formal and informal. In the mid-1990s Castells, drawing on these ideas, documented the development of a "network society" that reshaped work, organizations, communities, markets, culture, and communication. In his analysis of the growing global network, he observed that society was increasingly "structured around a bipolar opposition between the Net and the Self" (Castells, 2009, p. 3). He postulated that the growing tension between the cyber world and the world of experience creates "structural schism[s]" between "culture and nature, society and community, function and meaning" (Castells, quoted in Magee, 2011).

Aside from the culturally homogenizing effects of a network system that intrudes on and comes to dominate the lifeworlds of workplaces, communities, organizations, and even families, this "colonization of the lifeworld" that overrides individuality and

particularity was further articulated as “the fully administered life” by Horkheimer (quoted in Arnold, 2015). Indeed, if AI systems are used to curate, monitor, and guide the lives of students, such fully scripted, monitored, and managed experiences embody a unidimensional, administered existence that undermines or even denies individual critical thought and meaning making. Marcuse (1964) particularly noted the power of economic/rational/technical systems and ideology to dominate society and individual lives. The potential pathology in a loss of human meaning making, autonomy, and ultimately personal liberty is profound to contemplate. Systems can and do drive people toward “right” thinking, and in a world of loneliness and alienation it is abundantly evident that people will find online information, ideas, and communities that will draw them in powerfully.

The relative hazards of online friends or acquaintances are too widely understood to deserve much further discussion. The buffer of technology between a human being and the larger physical world carries substantial impacts and limitations. The degree to which the relative distance and anonymity of the online world has exacerbated uncivil, unethical, and even violent communication is enormous. Aside from extreme statements, the online world seems to make meaningful exposure to different ideas and experiences less rather than more likely. The algorithm-driven “curation” of sites, messages, images, news, and more tends to narrow the worlds of users rather than expand them, despite the remarkable potential for the online world to expand individual contact with people, places, things, ideas, information, and experiences that are outside the realm of their everyday lives (e.g., Merton, 2021).

It is critical to note that the evolution of the online world has coincided with the documented growth of epidemic loneliness and isolation in the United States (Murthy, 2023). Thus, it offers little comfort to envision a world in which AI-generated teachers, counselors, and friends will become ubiquitous for young people. In the final weeks of his life, philosopher Paul Woodruff noted his deep desire to be in the physical presence of his friends, noting that “web-based connections are simply not as good as in-person ones. Technology tempts us into being satisfied with pseudo-friendships, and these can be dangerous. You’d be a fool to marry or promise sex to someone you had never met off-screen. That’s because the internet can’t reliably protect us from falsehood. Now, artificial intelligence has become a champion at falsehood. It can create false images of people — even of my friends — and get me to believe they

are real” (Woodruff, 2023). Yet universities anticipate the possibilities and benefits of intentionally blurring that line by creating advisors, teachers, and emotion monitors that seem human but are in fact simply masses of files interacting rapidly enough to create the illusion of a thinking brain and even a personality.

If the recent pandemic taught us anything it should have taught us about Woodard’s experience of the necessity of direct human interaction. Many young people continue to struggle with learning and social experiences because of extended periods of compulsory isolation. People of all ages continue to try to find new, functional norms for work, for social interaction, for how their families will work, and more. We need each other, we need to be together, with conversation, debate, and sharing time with others who are indeed “other” and not mirrors of ourselves, our preferences, and our “curated” peer group (Aper, 2022). Interaction between human beings in physical proximity to one another involves experience and communication that cannot be replicated (at least at this point) via digital means. Eye contact, for example, engages the cerebellum and activates parts of the limbic system that help us both recognize and share emotion and is seen as essential to the ability to experience empathy (Denworth, 2019; Koike, et al, 2019). In a political, social, and economic system that is rife with conflict, even hatred, and severely lacking in empathy, this is deeply important. Our prospective AI friends and advisors imply the possibility of more alienation and disconnection from the world of experience, not less.

Strikingly, Emma Brunskill, a Computer Science professor, regarding the prospects of students receiving coaching and feedback from AI entities, has observed that “there are an enormous number of soft skills that are really hard to teach effectively, like communication, critical thinking, and problem-solving. With AI, a real-time agent can provide support and feedback, and learners are able to try different tactics as they seek to improve” (Chen, 2023). The irony seems rich, indeed, in the notion that a computer (though understood to be very elaborate and powerful) is envisioned as an instructor who will teach humans emotional intelligence. It is difficult at this time to fully appreciate a future in which human-emulating AI will teach inexperienced human beings about such concepts and associated behaviors as love, courage, devotion, meaning, honor, personal integrity, interpersonal boundaries, or self-respect.

Implications & Discussion

The troubling prospect of non-human systems monitoring, teaching, advising, and counseling students is more than a mordant observation. It is no exaggeration to observe that the AI educational and developmental applications advocated for adoption by universities suggest a kind of 24/7 monitoring and guidance for students and perhaps for faculty and staff as well. A critical question is whether proposed AI applications in higher education necessarily require surveillance and the colonization of lifeworlds historically shaped by the comparatively less efficient processes of human organizational behavior and interpersonal interaction. As Foucault famously argued, an essential feature of power relates to the ability to exert domination grounded in the “differential possession of knowledge” (quoted in Dreyfus and Rabinow, 1983, p. 223). AI applications involve such a differential by definition, given the vastly greater access to information and rapid processing of that information possible for them. This superiority and potential ubiquity in student experience raises key questions about how this technology masks or obscures sources of information, opinions, values, and assumptions that are reflected in the data used and applied by AI. Returning to the essential analytical and critical faculties that must be built and honed as part of an education for the future, human beings must become adept at routinely analyzing assumptions about considerations like the axiological, methodological, ontological, rhetorical, and epistemological roots of any arguments and claims to knowledge. Yet, to what degree is the possibility of such analysis compromised by the veneer of omniscience of a computer with the capacity and power to eclipse any human mind?

Aside from the Big Brother implications of living in a world of constant surveillance and the immense power such surveillance confers on those who control the technology (Foucault, 2023), the idea that the best life is one that is continuously shaped, cultivated, and curated to minimize discomfort, inconvenience, or incongruity demands challenge. Horkheimer’s concept of the “fully administered life” concisely captures the paradox inherent in the notion of controlling and guiding the lives of students to avoid discomfort or struggle and maximize socially desirable outcomes. Interestingly, the concept of AI as a near boundless basis for customized educational and developmental experiences invites reconsideration of arguments made more than half a century ago by famed behavioral psychologist B.F. Skinner.

Skinner argued that traditional human values of individual freedom, autonomy, and dignity were antiquated notions that romanticized aspects of human behavior that tended to result in negative outcomes and suffering for individuals and society generally. He rejected explanations of behavior from the perspective of states of mind, feelings, or similar mental constructs and promoted the idea that human behavior could be scientifically studied and shaped for the greater good by focusing instead on the physical and social environments and stimuli that people experience. He claimed that the problems young people experienced were due to “defective social environments” and urged that human behavior be studied and shaped consistent with the rational, dispassionate processes of the natural sciences (1972), setting the stage theoretically for the kind of behavioral monitoring, teaching, and guidance systems implied in AI applications outlined above.

Yet many pre-AI revolution people tell stories of discomfort, inconvenience, or incongruity as essential parts of their own growth and development into more capable, competent, and successful human beings. To wit, Taleb (2012) has elaborated the argument that there is a necessity for human beings to encounter difficulty, uncertainty, ambiguity, and even hardship. In reference to his own experience he noted, “As a child of civil war, I disbelieve in structured learning... Provided we have the right type of rigor, we need randomness, mess, adventures, uncertainty, self-discovery, near-traumatic episodes, all those things that make life worth living” (p. 242). Yet the proclivity of our society in recent decades has leaned toward efforts to manage young peoples’ lives with highly scheduled, elaborately structured programming intended to maximize learning and development and minimize distractions or randomness in their experience. AI can certainly program student experiences with the goal of fostering seamless and optimal outcomes, but human beings have proven time and again to be something more than biomechanical machines that simply need better programming, Skinner notwithstanding.

If Skinner epitomizes a rationalistic instrumentalism that envisions AI as a boon to the productive capacity of universities, perhaps novelist Fyodor Dostoevsky best captures a profoundly different and important insight into human thought and behavior. Dostoevsky was a relentless critic of the rationalism of a scientific perspective that defined human beings as objects explainable and manageable consistent with discoverable natural

laws. In his 1864 novella *Notes from Underground*, his protagonist observes,

“...science will teach man [sic] ... that he never has really had any caprice or will of his own, and that he himself is something of the nature of a piano-key or the stop of an organ, and that there are, besides, things called the laws of nature; so that everything he does is not done by his willing it, but done of itself, by the laws of nature... [so that] everything will be so clearly calculated and explained that there will be no more incidents or adventures in the world.

Then ...new economic relations will be established, ... worked out with mathematical exactitude, so that every possible question will vanish in the twinkling of any eye, simply because every possible answer to it will be provided” (1974, p. 753).

AI, capable of instantly calculating the logic and likelihood of all human actions, should rightly be assessed in the light of the meaning of human experience. Comprehensive calculation, observation, and control are aspects of the colonization of lifeworlds that may threaten human freedom and possibility. Dostoevsky insisted that even (perhaps especially) if all human experience is analyzed and somehow known, predicted, and settled people will find “that there is no happiness in inactivity, that the mind which does not labor will wither, that it is not possible to love one’s neighbor without sacrificing something to him of one’s labor ... and that happiness lies not in happiness but only in the attempt to achieve it” (quoted in Morson, 2023). Ultimately, in Dostoevsky’s view of the world, “people are not just material objects, and will do anything, no matter how self-destructive, to prove they are not” (Morson, 2023). Programming for optimal results may very well not lead to happiness or satisfaction with life, and if it does, what does that mean?

The Upshot

In any analysis about how universities will evolve in the future, it’s essential to address the question of purpose. What, in the end, is the point or objective? Is it simply information transfer and skill development? Is it primarily a mechanism of social efficiency to

serve the needs of the economy by preparing competent workers? If so, perhaps the ideal approach to education exemplified by the scene in the film “The Matrix” that depicts the character Neo learning martial arts by having a cable plugged into his head. In the end, is reading a book or engaging in hours of study, practice, and training no more than a charming anachronism in a world where any knowledge or skill can be electronically fed directly into the brain? If so, *then* what does education mean? Is there an essential authenticity to experience that human beings require? If so, what is authentic? Does it mean anything in the world toward which we are racing?

I offer this as an invitation to further contemplation and debate. The world of physical experience carries an authenticity grounded in the complex interplay of time, energy, matter, and consciousness. This authenticity is the grail of our quest for meaning. To the extent that we are disconnected from our fellow beings our lives are inauthentic, and to the extent that we are disconnected from the complexity and particularity of place our experience is inauthentic (Aper, 2022). Inauthenticity is inherent in AI, which is a synthetic reflection of human thought, since consciousness is arguably more than simply rifling through a million datasets in a millisecond. It seems possible that advocates for AI confuse productivity with progress, and complexity with meaning. AI applications may provide uncanny emulations of human speech, thought, and behavior but still embody only a semblance of actual human experience, sensation, intuition, or creativity. To a degree Socrates could not have dreamed, AI creates the appearance of knowledge without actually having knowledge. The computer can never lose a trivia contest, but the computer “knows” nothing. The computer has never labored, or suffered, or feared, or struggled, or loved, or hoped. The computer only “knows” the facts, and like the most terrifying psychopath, it can perfectly emulate normal human emotions while experiencing none of them.

Even pre-AI this inauthenticity gnaws at the center of our lives until there is a hole that we try mightily to fill with things that can never fill it. We live a charade of choices and individualism when in fact we, our homes, our landscapes, cities, schools, workplaces, and markets become ever more homogenized and inauthentic. AI presents systems of information and problem solving that stagger the imagination, but simultaneously presents a thinly veiled system of oppression defined by power differentials based on constant

surveillance, massive differences in access to information, persuasion toward particular ends, and loss of human agency.

A somewhat sardonic observation about the limits of the world of information available online is that “you can’t google wisdom.” Thus far that’s been true, but will AI obviate that jest? Perhaps, depending on how wisdom is defined. If wisdom is simply a matter of choosing optimal outcomes among varying paths defined by complex sets of variables, AI can probably be quite helpful. If wisdom has something to do with deeper discernment and interpretation of non-linear or affective information and experience, AI may have a way to go. If wisdom has to do with deeper understanding of the human condition, AI has a very long way to go. AI can present simulacra of human thought, expression, even emotions, but at this point it remains a highly elaborate player piano. Universities are tested now to find a way forward in which Dr. Frankenstein’s creation grows as a trusted and valued servant and does not become a soulless and even destructive master.

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