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Challenges, Issues and Possibilities**

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Published

2021

Journal Title

The British Journal of Social Work

Version

Accepted Manuscript (AM)

DOI

[10.1093/bjsw/bcab168](https://doi.org/10.1093/bjsw/bcab168)

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# **Problematizing Artificial Intelligence (AI) in social work education: Challenges, issues and possibilities**

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## **Funding statement**

The authors received no funding for this paper.

## **Acknowledgements**

The authors would like to acknowledge the reviewers for their comments and helpful suggestions on this paper.

## **Abstract**

Artificial Intelligence (AI) is the 4<sup>th</sup> industrial revolution, and in higher education it will fundamentally transform the work of academics and higher education administrators. AI will also have several implications for students, including a reconsideration of what sorts of skills and knowledge should be taught and developed in the academy to prepare students for digital working lives. As social work educators, we have begun to wonder what the implications of AI in the academy will have for social work education. For educators, there are implications for pedagogy that go well beyond the introduction of new digital tools that merely integrate into existing teaching models and practices. This is because AI will not simply add to existing teaching modes and practices, but will fundamentally transform teaching and learning.

Drawing on recent literature and research into in AI and higher education, this paper explores possible future implications for social work education. We identify the transformative and disruptive potential of AI in higher education, and consider how this intersects with the ethical and relational side of social work as a profession. Implications for social work education are canvassed.

## **Teaser Text**

Artificial Intelligence (AI) is the 4<sup>th</sup> industrial revolution, and in higher education it will fundamentally transform the work of academics and higher education administrators. AI will mean a reconsideration of what sorts of skills and knowledge should be taught and developed in the academy to prepare students for digital working lives. The impact of AI in higher education will fundamentally transform teaching and learning, which will also have implications for social work practice. We identify the transformative and disruptive potential

of AI in higher education, and consider how this intersects with the ethical and relational side of social work as a profession.

## **Keywords**

Artificial intelligence; digital disruption; higher education; machine learning; social work education.

The rise of Artificial Intelligence (AI) is considered the fourth industrial revolution, likely to herald sweeping social, economic and political transformations (Xing & Marwala, 2017). Braidotti (2019a) suggests that it runs parallel to the Sixth extinction event positioning the non-human and human between these two great accelerating forces. Braidotti (2019a, p. 10) calls this the posthuman challenge because of the “unprecedented degree of technological intervention...and the intimacy we have developed with technological devices”. Bloomberg claimed in 2017 that AI is likely to be the “most disruptive force in technology in the coming decade” (cited in Raj & Seamans, 2019, p. 1). Other scholars question the deterministic nature of this, suggesting that neither utopian nor apocalyptic transformation is a certainty (Boyd & Holton, 2018). Change of some kind is likely, in an order of magnitude that is hard to fathom, and AI is central to this.

AI is not new, with the term first coined in 1956 (Zawacki-Richter, Marín, Bond, & Gouverneur, 2019) when it was established as a scientific area of research. Back then it was defined as “the science and engineering of making intelligent machines, particularly intelligent computer programs” (Knapp cited in Vyas, 2019, p. 224). However, it is the recent explosion and advancement of AI in nearly every aspect of life that is rendering it a

significant and transformative force that has yet to reach a culmination. Many questions remain over how and in what ways AI will impact human life, and even human subjectivity (Ferrando, 2014). Indeed, Braidotti (2013, p 3) suggests that “the boundaries between the categories of the natural and the cultural have been displaced and to a large extent blurred by the effects of scientific and technological advances”.

As social work educators, we have begun to wonder what the implications of AI in the academy will have for social work education. There are arguably potentials and possibilities, and many of these have been identified in the literature on AI and higher education (Bayne, 2015; Blumenstyk, 2018; McMurtrie, 2018; Popenici & Kerr, 2017). At the same time, we remain cautious and critical, largely due to the fundamental transformations that AI will impose on questions such as social work curricula and pedagogy, and what this will mean for social work educators and students. Following Braidotti (2019a, p. 10) where she posits “the ethical rule: it is important to be worthy of our times, the better to act upon them, in both a critical and creative manner” we present a prospective and forward-looking paper drawing on recent literature and research into AI and higher education, to explore possible future implications for social work education. We consider how the transformative and disruptive potential of AI intersects with the ethical and relational side of social work as a profession and discuss the implications for social work education.

## **AI and Machine Learning**

In simple terms, AI means the “creation of intelligent systems which assist in performance of complex data” (Vyas, 2019, p. 224) or “the ability of a machine to represent the human brain and perform intellectual tasks that a human can perform” (Vyas, 2019, p. 224). AI is related to digital computing and the rise of computer technology, but the difference between them is

considerable. AI was the term coined for *intelligence* associated with machines and is often set in contrast to intelligence demonstrated by humans and animals. Faggella (2018, online) offers the following definition of AI:

Artificial intelligence is an entity (or collective set of cooperative entities), able to receive inputs from the environment, interpret and learn from such inputs, and exhibit related and flexible behaviors and actions that help the entity achieve a particular goal or objective over a period of time.

Although interest in AI has waxed and waned since the 1950s, a revival has since occurred when the field started to work with ideas that replicated more closely *human learning* systems using Artificial Neural Networks (ANN) (Queensland Brain Institute, 2019). The use of ANNs became known as Deep Learning AI (Walsh, 2017). Advancements in this technology are made possible by gains in processing power, large datasets, development of deep learning algorithms, and, increased levels of funding. There have been enormous strides in the use of computational algorithms in conjunction with “improved processing power and larger data sets...[that] deliver exponential improvements in performance” (Walsh, 2017, p. 3).

Machine learning is a subset of AI and can be viewed as:

...the science of getting computers to learn and act like humans do, and improve their learning over time in autonomous fashion, by feeding them data and information in the form of observations and real-world interactions. (Faggella, 2020, online)

Familiar examples of machine learning in everyday life include: Google maps and traffic data integration; ridesharing applications that estimate price (e.g., Uber); spam filters in emails; and, facial recognition in photos and in visual imagery within social media platforms such as Facebook or Pinterest (Emerj Artificial Intelligence Research, 2020). Thus, AI and machine learning is not science fiction or futuristic; it defines much of our present. Many data rich

industries, including higher education, have taken up opportunities afforded by machine learning.

## **Artificial Intelligence in Higher Education**

According to Pence (2019), AI in higher education will fundamentally transform the work of academics and higher education administrators, and it will have several implications for students, including a reconsideration of what sorts of skills and knowledge should be taught and developed to prepare students for digital working lives. Pence (2019) argues that AI will transform: (1) higher education administration, (2) digital learning management systems and teaching and learning processes, and (3) research and research management.

First, AI is being used to coordinate student recruitment strategies and methods, manage application and enrolment processes, monitor and implement strategies to increase student retention, monitor and coordinate course progression and graduation, and improve alumni engagement (Dennis, 2018). AI algorithms are likely to be deployed in library services, academic advising and counselling, and university financial and administrative functions (Picciano, 2019).

Khare, Stewart and Kahre (2018) explain that AI is applicable at every point in the student lifecycle, from application to graduation and beyond. For example, it can access a student's program of study, course progression rules, timetables and enrolment patterns, student study load requirements and needs, assessments deadlines, the student's interests and career aspirations, and postgraduate study options and pathways (Khare et al., 2018; McMurtrie, 2018). AI is being used in managing student enrolment and retention by providing customised support to students at-risk of withdrawing from study, or who may have particular equity or learning needs (Barret et al., 2019).

Second, AI could transform teaching and learning, although this is a nascent potential at present. ‘Intelligent tutoring’ is a term coined for AI systems that can work out what stage a student is in the learning process. New course content and assessments are then introduced when students have successfully completed or progressed through foundational concepts and materials (Erümit & Çetin, 2020; Khare et al., 2018). Such a system can assist with scaffolding and sequencing of the learning environment, tailored to individual student needs and therefore providing a personalised learning experience (McMurtrie, 2018).

There are numerous existing and emerging examples of AI to displace some tutoring tasks in the form of tutor chat-bots, sometimes called teacherbots (Bayne, 2015; Tamayo, Herrero, Martin, Navarro, & Tranchez, 2020) that can, for example, send messages to students if they have not recently been on the course website. Machine learning is also used in Learning Management Systems (LMS) to rate materials for their accessibility, and the Turnitin application ‘e-rater’ automatically comments on grammar and written expression on student papers. While it is not unusual for AI to be deployed to grade assessments with pre-determined answers, work is now being done to develop AI programs that will grade and provide feedback for short answer and long essay written assessments (Khare et al., 2018). This has wide ranging implications in rendering a key part of conventional academic work largely obsolete.

Finally, AI is being developed for research functions, particularly research that involves large datasets. There are AI applications for developing research questions, sifting through literature, and performing general research assistant tasks (Pence, 2019). For example, AI is currently being trialled to read and produce written summaries of academic literature (McKenzie, 2019). In other words, AI could contribute to producing literature reviews by sorting through thousands of publications on a topic. Given the complex and

multidisciplinary nature of research problems, interdisciplinary collaboration across multiple sectors are likely research futures, and Picciano (2019) suggest that in such cases, it is “possible that the lead researchers may be algorithms in an AI laboratory” (pp. 280-281).

The literature and development of AI in higher education extolls the benefits, particularly to deliver substantial financial dividends to higher education institutions (Dennis, 2018). Yet, questions can be raised over whose interests are reflected in the AI and higher education discourse. A systematic literature review on AI in higher education found that the potential benefits and applications include all areas of profiling, selecting, admitting and retaining students, intelligent tutoring, and providing a personalised service to students (Zawacki-Richter et al., 2019). However, authors working in STEM fields accounted for most papers on this topic. Less than 10% of papers were authored by people with an education background, and most papers (73.3%) reported on quantitative studies (Zawacki-Richter et al., 2019).

There seems to be a dearth of qualitative studies about AI in higher education that are grounded strongly in education disciplines, and even less so in social work. More concerning is that Zawacki-Richter et al., noted in their review that “a stunningly low number of authors, only two out of 146 articles (1.4%), critically reflect upon ethical implications, challenges and risks of applying AI in education” (p. 10). Hence, while AI is touted as having numerous benefits to student education and learning, we should be cautious about some of the claims made for AI in higher education.

Despite this caution social work needs to engage with what Braidotti (2019a, p. 10) refers to as “[T]he Convergence...with its distinctive combination of speedy transformations and persistent inequalities...[which] are planetary and multi-scalar.” AI systems are created by humans, like conventional human systems, bias and structural inequity can be built into them, even if inadvertently. For example, AI algorithms may reinforce racial and gender stereotypes

and inequalities (Howard & Borenstein, 2017). Authors have explored the ethical concerns raised by machine learning, particularly relating to predictive risk modelling in child protection (Gillingham, 2016; Keddell, 2014). While predictive risk modelling is not inherently political or ethical, it can be seen as being subject to developer bias (Keddell, 2014). For example, in her analysis of child protection predictive risk modelling used in Aotearoa New Zealand, Keddell argues that the ethics of the tool come down to systems development and the orientation of the policy that sits behind it. While work is underway to provide a framework for AI use in Australia with a focus on fairness, privacy, transparency, and accountability (Dawson et al., 2019), broader social work engagement with AI and machine learning would be beneficial.

## **Ethical Considerations**

### **Social Work, Digital Technologies and Ethics**

Social work is already engaged in an extended conversation around digital technologies, and we argue this should extend to discussions about AI. Like digital technologies more broadly, the implications of AI are social and political (Braidotti, 2013). ICTs have significantly reshaped social work practice and education (Hill & Shaw, 2011; Ley, 2012). There are numerous ways in which technology is used in social work from the ubiquity of email and telephone communication through to online counselling and the widespread use of social media across all social work domains of practice (Chan, 2016; Sinha & Larrison, 2020; Sitter & Curnew, 2016; Westwood, 2019). AI could become just as commonplace.

Harnessing technology for social good has been identified as a grand challenge of social work (Berzin, Singer, & Chan, 2015). Like all new technology introduced into practice, the impact of digital technology has not been without criticism and concern. Ethical concerns have been

raised about the increasing use of information and communication technologies in social work practice (Boddy & Dominelli, 2016; Chan, 2016; McAuliffe & Nipperess, 2017; Reamer, 2017) and education (Fang, Mishna, Zhang, Van Wert, & Bogo, 2014). This has resulted in recommendations for the development of policies (Barsky, 2017; Karpman & Drisko, 2016) and ethical standards to guide practitioners and educators (e.g., Australian Association of Social Workers (AASW), 2016a, 2016b, 2016c). Codes of ethics have incorporated specific clauses to address issues surrounding the use of ICTs in social work practice and education (see AASW, 2010), although arguably not at the pace required (Byrne, Kirwan, & Mc Guckin, 2019; Chan, 2016). Reamer (2017) suggests that the main challenges concern informed consent, privacy and confidentiality, boundaries, dual relationships and conflicts of interest, practitioner competence, records and documentation and collegial relationships. Others highlight issues related to the professional presentation of self (Sage, Anthony, & Iverson, 2019), the digital divide (Gough & Spencer, 2019) and surveillance (Byrne et al., 2019).

### **Social Work, AI and Ethics**

Despite substantial interest in digital information and communication technologies in social work practice and education—and the ethical challenges these technologies present—social work has largely overlooked artificial intelligence, machine learning, and indeed the ethical implications of AI. Tambe and Rice (2018) are a notable exception as they explicitly address the rise of AI in their edited volume, *Artificial Intelligence and Social Work*. They explore the ways “AI can be used to improve society and fight social injustice” (p. 3). Tambe and Rice—whose work emerged from a collaboration between social work and engineering—argue that the current and future beneficiaries of AI are privileged groups with access to internet technologies. Concurrently, Tambe and Rice argue that AI has the potential to benefit

the most disadvantaged: “by bringing together social work scientists and computer scientists, we can tackle thorny, seemingly intractable problems in brand-new ways” (2018, p. 4).

AI and machine learning is already deployed in some areas of policy and practice. For example, machine learning has been tested on large samples to demonstrate a superior accuracy rate of predicting suicide risk than human risk assessments (Walsh, Ribeiro, & Franklin, 2017). Machine learning has also been developed to strengthen the accuracy of risk assessment frameworks for predicting domestic violence (Petering et al., 2018). In California, AI algorithms were used to predict which peer change agents would be effective in influencing homeless youth to protect themselves against HIV. The algorithms were effective at choosing young people that have the most networks to be peer change agents, and this led to improved sexual health interventions and outcomes (Rice et al., 2018).

In public health, AI is emerging as a technology to assist policy makers and program developers to improve and expand universal health coverage (Vyas, 2019). As far back as 1989, others have suggested that AI could support risk assessment, decision-making and workload management in child protective services to improve service delivery, especially in a climate where funding is restricted (Fluke & O'Beirne, 1989). Machine learning was recently trialled in children's services in the UK and while the results were not particularly positive in terms of being able to estimate risk, the authors did not rule out the opportunity of using machine learning in the future (Clayton et al., 2020). Moreover, AI counsellors are now commonplace. Woebot is an AI counsellor that treats anxiety and depression. It exchanges almost five million messages a week with users, and has, according to Woebot (2020), been clinically evaluated with successful outcomes.

These are just a few examples, but what is common among them is the hopeful optimism of AI technology to find correlations and patterns that are not obvious or comprehensible to human beings, and for AI to assist or even take over key functions in policy, planning, data assessment, modelling and decision-making. As the world generally—and social work practice specifically—becomes ever more complex, and massive data more readily available in a multitude of forms, the likelihood that AI and machine learning will be common-place in social work settings is high. Thus, it is crucial that social work scholars engage in critique taking on board Braidotti's (2019a, p. 113) argument that we can no longer speak from nowhere but instead can speak as agents that are “posthumanist, post-anthropocentric, embedded, embodied, relational, affective and ethically accountable”.

There are ethical problems that are difficult to assess and resolve. Grant (2018) argues that while “autonomous software agents based in artificial intelligence (AI) have many potential applications at the intersection of public health and social work” (p. 237) there are beneficence problems arising from the duty to “do no harm” and to maximise benefits. This is a duty arising from the utilitarian principle of doing the greatest good for the greatest number (Banks, 2015). The beneficence problem with AI presents social work with a dilemma: “in some foreseeable intervention contexts, the software agent may recommend an intervention plan that maximizes expected aggregate benefits for the target population by generating expected benefits for *some* of its members and *expected harms for others*” (Grant, 2018, p. 240, emphasis added).

It is these sorts of ethical issues that need to be fully unpacked in the context of social work research and education. While scholarly attention on AI and its use in social work practice is developing, there is an absence of literature that explores the use of AI in social work education. In the Australian context, the *Australian Social Work Education Accreditation*

*Standards* (AASW, 2020a) provides some guidance in relation to ICTs, particularly as it relates to social work practice, profession-specific graduate attributes, and required curriculum content (AASW, 2020b). But there is nothing that speaks to using technology in social work education generally or AI specifically, nor attention to any potential ethical issues raised. The *Global Standards for the Education and Training of the Social Work Profession* (International Federation of Social Workers & International Association of Schools of Social Work, 2004) do not have anything to say on the matter either, though we note that these standards are currently being reviewed.

For a values-based profession like social work, questions of power and ethics are important to an analysis of the place of AI in social work practice and education. The digital architecture and coding algorithms are a substantial form of power consolidated by large corporations. Braidotti (2019a, p. 28) discusses this as part of cognitive capitalism where “production of marketable knowledge, notably data about matter, by increasing the speed of technological innovation and supporting the convergence and combination of different branches of technology”. Corporations are neither transparent nor democratic (Popenici & Kerr, 2017). This raises questions and implications for higher education:

If we reach a point where the agenda of universities is set by a handful of techlords, as well as the control over their information and the ethos of universities, higher education is looking ahead a very different age [sic]. (Popenici & Kerr, 2017, p. 4)

Companies such as Google, YouTube, Zoom and others are incorporated into learning management systems and numerous educational applications are used in teaching. How data is collected, stored, used, and accessed by students and teaching staff who use these applications are all questions social work educators need to explore, as too are the privacy

and surveillance issues surrounding AI including the implications of the embeddedness of commercial interests and third-party vendors in higher education.

The broader context that is driving AI into higher education is the prospect of using the data for informing AI development and the wider global movement towards mass education (Bates et al., 2020). At the same time, the university as an institution worldwide is experiencing a massive contraction in public support and funding (Picciano, 2019). This mass education model rooted in international competition creates enormous financial pressure and problems of scale for higher education institutions. AI is touted as a technical solution to this financial and logistical problem, and one that could see substantial parts of the workforce augmented by AI while other parts displaced (Picciano, 2019; Popenici & Kerr, 2017). Nevertheless, some note that uniquely human traits cannot easily be replicated by machines such as adaptability, teamwork, creativity and integrity (Alphabeta, 2019).

### **Implications for Social Work Education**

The implications of AI in the academy suggest three emerging prospects confronting social work educators: *what* to teach; *how* it will be taught; and, existential threats about the future of social work and social work education. We foresee a greater impetus to include critical digital literacies in social work education, precisely because AI and machine learning will become commonplace in social work practice and society generally. However, as Taylor (2017) argues, there are “knowledge gaps, pertaining to digital literacies and technological competence in social work education and practice” (p. 869). Without a sound understanding of AI, social workers and those who educate them, risk being left behind with little critical understanding of how AI and machine learning works, and the implications for furthering or frustrating aspirations of social work values of fairness, justice and equity. Writing from a

critical post humanist perspective, Bell (2020) draws on work by Braidotti (2019b) and Baldwin and Dylan (2018) to inspire social workers to draw on a relational focus in the “documentation of the material experiences of marginalised entities” (Bell, 2020, p. 61). Following Braidotti’s observation, social work has much to offer in this space since relationality is at our core, enabling us to work in the “trading zones” between universities, social movements, marginalised entities and industry and other interests’ (Braidotti, 2019b as cited in Bell, 2020, p. 61). Drawing on Baldwin and Dylan (2018) she encourages social workers to be creative visionaries whilst keeping relational accountability and ethics in view (Bell, 2020). Keeping these values and skills at the forefront at this time where AI is advancing in its reach in multiple spheres, social work can draw on knowledge of material impacts of AI on those who could become invisible or marginalised, to have a key influence in its development.

Thus, ensuring students have a sound understanding of AI and its benefits, as well as a critical approach to its use, is essential for social work education. Engaging students in thinking critically about the convergence of technology associated with the fourth industrial revolution on the one hand and the sixth extinction on the other would lay a foundation for consciously teaching and assessing areas where humans perform better than machines (for example, creativity and integrity) (Bearman & Luckin, 2020) and may strengthen social work graduates’ practice.

For social work educators, there are also implications for pedagogy and modes of instruction that go well beyond the introduction of new tools or gadgets that slot into existing teaching models and practices. Educators would be familiar with the increasing digitisation of teaching. However, underneath these digital innovations sits a familiar instructional model, one where the educator drives the process and students are taught in cohort models in a

structured layout. AI could potentially *change* these teaching models and practices. For example, automated courses can mean a permanent AI educator presence, dispensing with the need for scheduled activities and instead delivering personalised and on-demand learning services to students (Popenici & Kerr, 2017), as well as to mass groups in open online courses. As mentioned, the phrase ‘teacherbots’ has already entered the education lexicon (Bayne, 2015), raising questions over the role of educators and their relationships with students. Once the digital learning environment is developed, it could conceivably run itself—guidance through the course and authentication of learning could be managed via AI and machine learning technologies.

AI and other technologies may be used to increase the scope of simulated learning. Recent developments in AI, especially alongside virtual reality (VR), show the potential for immersive experiences in training in social work education (Neden, 2020). For example, combined with AI, VR users can interact in a dynamic way with a virtual character (Trahan, Smith, & Talbot, 2019). This too is a transformative development for social work education, since a longstanding concern has been how students’ activities in the classroom can fully prepare students for the realities of complex practice in the field (Goldingay, et al., 2020). Through being involved in immersive experiences, students are exposed to potentially upsetting and challenging events in a safe and controlled way, thereby minimising harm to themselves or to real service users. In other words, much of the simulated learning that is typically located in field practicum could potentially be delivered using VR and AI simulation technologies.

Finally, the future of social work education will involve confronting existential questions over what it *means* to be a social work educator, and what exactly we are educating *for*. Picciano (2019) forecasts a loss of purpose in the academy, as many of the traditional

research and teaching functions done by academics may someday be outclassed by AI, something that may seem upon us now given the accelerated transformations in higher education resulting from the COVID-19 pandemic. He gives an example of global scientific competition to try and solve one of the most complex and seemingly unsolvable problems in the field of biology (protein folding). The competition was the source of friendly rivalry between researchers, and it spurred on various advancements in this field, as scientists worked away at this problem. In 2018 this problem was solved—and the competition ‘won’—by “DeepMind, the artificial intelligence (AI) lab owned by Google’s parent company, Alphabet, Incorporated” (Picciano, 2019, p. 270). On one hand, this achievement could be celebrated as technical marvel, but on the other it seems unsatisfactory: the role of human agency in solving this problem was revoked, and, furthermore, this achievement took place in the context of a private sector company, not in a university. Social work education and research largely occurs in universities, and social work pedagogies have historically involved significant human-to-human interaction in knowledge creation and transfer. The Deep Mind example challenges the presupposition that social work education and research need always take place in the university institution, and nor will it solely be the providence of human agency.

In speculating about the future of social work education, Robbins et al., (2016) point to a rapidly changing context. The mode of delivery will entail a greater focus on online, open access, large scale, flipped and web-based methods, where the educator role and interaction with students is heavily mediated by digital communication technologies. There will be a much stronger emphasis on digital literacy for social work students, well beyond simply knowing how to operate digital technologies. They also suggest greater public accountability for competency-based teaching and assessment, and a further push towards job readiness.

Social work pedagogy will include a stronger focus on critical thinking, judgment, decision-making, appraisal, creativity, greater integration between classroom and field pedagogies, and less about content or conceptual knowledge (Robbins et al., 2016).

Social work educators have been exploring the use of technology in social work education for more than two decades. Much of the attention has been on the efficacy of online social work education (see Wretman & Macy 2016) as compared to traditional face-to-face delivery and there is literature that explores the ethical implications of technology in social work practice and education (see Reamer 2019). There is also literature that explores the ways technologies can be incorporated into social work pedagogy and curriculum (see Hitchcock et al., 2019). However, there has been little research to date (Diaconu et al., 2020) that explores social work educators' views and experiences of the rapid technological advances in course management and delivery. We see this is a key area of research going forward.

### **Conclusion: A Thought Experiment**

As we write this paper, the Australian higher education system is undergoing a massive program of shrinking its labour force through redundancy measures in response to the financial disaster invoked by the COVID-19 pandemic. This meta-context, combined with AI technologies, render the academy in a challenging context for social work education. What this means for students, educators, and service users is yet to be fully understood. As the academy increasingly resembles an institution for “neoliberal corporate capitalism” (Rustin, 2016, p. 4), the driving values of higher education, and the technologies that feed them, may culminate into what Thornton (2014) calls “academic capitalism” (p. 3). Further critical analyses of AI in social work and higher education could explore how AI technologies are a wider apparatus of biopower, how they work to construct knowledge and social reality, and

how these intersect with the disintegration of the liberal democratic project, and the rise in ultra nationalist authoritarian theocracies.

We conclude this paper with a speculative thought experiment, where we distil from the literature key possibilities for social work higher education, asking the question: if AI and machine learning is realised to its forecasted and fullest potential, what might social work education in the future look like? It should be stated that some of what is described below is perhaps familiar even now, given the accelerated adoption of digital, machine learning and AI technologies into the academy.

*Academic social work educators will be employed to collaborate with instructional designers, AI programmers, engineers and animators to create social work courses. Their role will be largely at the design level, helping craft digital, online, VR and AI learning environments. Courses will be available for students on demand, and students will be able enrol and complete their studies at any time. Semesters, cohorts and year groups of students will be a thing of the past. Student queries and course progression will be managed and overseen by AI systems, supported by casual teaching assistants, who may live anywhere in the world, teaching remotely. AI and machine learning tools will be constantly scouring libraries and the internet looking for the latest research publications, and they will automatically update reading lists and course materials accordingly. They will produce short summaries of the latest research, which will then be presented to students using AI voice and animation tools, dispensing with the need for academics to record or deliver lectures. The bulk of the assessment will be competency-based, and, therefore, amenable to grading by AI. More complex assessments may be graded by human teaching assistants. Practicum hours will be significantly reduced, as most of the learning tasks normally reserved for practicum will be completed using VR and simulation exercises, as students interact with AI 'clients' and 'multi-disciplinary professionals'. Face-to-face practicum will be reserved to authenticate learning and networking. As part of their studies, students will collaborate with each other and with industry and government and non-government entities around the world using online communication tools.*

*They will work to creatively invent digital, AI, machine learning, and other innovations to address complex social problems. Students will have substantial choice, flexibility and personalisation over their learning journey. Educators may rarely meet or interact with students directly.*

Social work is a profession rooted in relationships, and social work pedagogy has emphasised developing critical thinking and an inquiring mind, developing empathy and ethical reasoning skills, developing a social conscience, and fostering strong interpersonal skills with students. Social work educators seek to train students to practice with integrity, demonstrating respect for all people, promoting their wellbeing, and advancing social justice and human rights. Much of this has historically been achieved in a face-to-face teaching environment using dialogical and other conversational pedagogies, although increasingly social work education has moved to substantially include digital and online learning (Goldingay, et al., 2020). As a profession, we need to ask: Are there aspects of social work and social work education that are non-negotiable? What should be retained and fought for? The answer to these questions requires urgent and sustained consideration and debate amongst social work educators.

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