CHAPTER 8

Higher Education and Skills for the Future(s) of Work

Shirley Davey and Brian Harney

Abstract This chapter takes a macro-level approach to explore key skills required for the future(s) of work in a digital era. It will explore how the future skills highlighted both impact on, and can be co-created and nurtured through, formal yet flexible higher education. Our focus is purposefully on skills for the future (not of the future) and on futures (plural). A key underpinning to our argument is the need for a narrative that moves away from a technical focus on skill development to a more holistic view of human-centred development. This is discussed with respect to the human aspects of digitalisation in virtual and real dimensions, the slow movement and elevated well-being. In providing an infrastructure which balances reflection and action while locating digital disruption in its socio-economic context, higher education can ultimately provide a platform for greater certainty and progress in an age of digital disruption and uncertainty.

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8.1 Rationale and Motivation

Higher education institutions always face the challenge of being both timeless and timely. The evolution of on-line learning platforms, micro-credentials, virtual reality and corporate universities provides a stark reminder that the university infrastructure and modus operandi is "as old as those Manchester mills, based on a calendar that dates from a time when students had to go home to help with the harvest" (Marcus, 2020). Increased change brought about by developments in Artificial Intelligence (AI), robotics and digitalisation highlights the requirement for universities to (re)consider the role, impact and relevance of higher education in effectively contributing to a new era of work (Krishnan, 2020). This includes the challenge of changing career expectations and anchors with surveys highlighting that future students are likely to opt for becoming YouTubers or Vloggers over more traditional vocations like becoming a doctor or a fireperson (Berger, 2019). Universities are uniquely positioned to prepare students as future practitioners for emerging digital landscapes, including the ethical dilemmas and key strategic challenges that they will confront as citizens in the digital society. Equally, universities can sensitise students to the multiple possibilities for digital disruption to enhance the quality and experience of jobs, working lives, and venture creation.

This chapter explores the role of higher education institutions in fostering the education and skills required for the Future of Work. Higher education is built on a linear model founded on gradual certification of knowledge and skills, playing a formative role in the development of students, while equally serving the demands of labour markets. Digital disruption offers distinct challenges and opportunities in each of these domains. In the first section of this chapter, we detail growing demand and pressure coming from the evolution of work, mapping out key implications for the skills developed through higher education. Here we see a focus on skills for the Future of Work, with much of the impetus coming from economic bodies and policy think-tanks, as well as private sector consultancy houses. This discourse and dominant understanding narrowly frame the role and impact of universities. By contrast, the second section offers an alternative viewpoint providing a more holistic anchor to the long-term merits and imprints of university experience which recognises the multiple realities and futures of work.

8.2 Higher Education and Skills for the Future of Work: Current Emphasis

Headline statistics on the Future of Work highlight a landscape characterised by change and challenge. According to the Institute of the Future, 85% of the jobs that today's students will do in 2030 do not yet exist. Rapidly growing technologies including mobile computing and cloud computing, coupled with the Internet of Things and the rise of the metaverse, mean that the availability of appropriate skills and upskilling in the face of automation is a pressing concern for CEOs. It is therefore unsurprising that some refer to the need for "future fit" employees, mandating a "pipeline from the classroom to the workplace so the skills taught today match the skills that'll be in demand tomorrow" (Caplan, 2018). Questioning the relevance of the education system, Krishnan (2020) stresses the need to "update education with job readiness", stressing the ability "to compete against smart machines" with the "creation of long-term economic value in mind". Underpinning a discourse of upskilling and reskilling mandated by a, if not the, Future of Work is a number of high-level policy documents. For example, in its Future of Jobs Report, the World Economic Forum called out the growing significance of skills such as analytical thinking and innovation, critical thinking, complex problem solving and the use of technology (World Economic Forum, 2018).

As well as enhancing technical skills, consulting houses firms emphasise the need to focus on human capabilities such as relationship building, teamwork and leadership, as well as entrepreneurship and soft skills (Deloitte, 2019; PwC, 2019). Interestingly absent from many considerations are broader concerns related to the purpose and community of organisations manifest as stakeholder management or values related to sustainability and ethics. Following this logic, it is easy to glorify the leadership principles of mammoth organisations such as Amazon or Facebook, without inviting any consideration of their impact on working conditions and experiences of work or indeed on society more broadly (Harney & Dundon, 2020). In this vein, pedagogy often remains rooted in a functional, transmission-focused mind-set so that even when students do engage in problem-solving approaches, there is a preoccupation with

reaching a fixed solution whereby students "make assumptions [rather] than examine them" (Bridgman et al., 2018, p. 447). It is perhaps unsurprising to see a convergence of desired graduate skills or attributes emphasising critical thinking, global awareness and digital literacy underscored by the need to foster "employability" (Allen et al., 2019).

Students equally have changing expectations and requirements as so-called new learners, including the means by which they access, evaluate and disseminate knowledge (Thompson, 2013). According to some critiques, an era of "ubiquitous disruption and unpredictable job evolution" means that the provision of knowledge associated with a university degree is open to question (Chamorro-Premuzic & Frankiewicz, 2019). For some, the solutions reside in more bite-size educational provisions in the form of micro-credentials, lifelong learning and accelerated industry education (Horton, 2020). Research evidence suggests otherwise, at least on some fronts. A survey of 18,000 employees across 15 countries found that those who had obtained a higher education degree had higher than average proficiency scores across cognitive, digital, interpersonal and self-leadership skill categories. Delving deeper, however, reveals some worrying insights as those elements with the weakest correlation to education included the likes of digital ethics, coping with uncertainty, empathy, creativity and imagination, courage and risk taking, coaching and synthesising messages (Dondi et al., 2021). Surveys of students find that less than half feel that their education experience has sufficiently prepared them for their chosen career (Pearson Education Report, 2020). However, the same survey notes that education was seen as an important career stepping-stone playing an important role in personal development and informing "personal identity".

At the heart of the debate is whether the role of university is to provide narrow skills targeted at employability or to provide students with an infrastructure enabling them to flourish in all their endeavours. Arguably, some of the discourse and dominant understanding, fanned by private sector-led consultancy reports and economic logic, have narrowly framed the role and impact of universities. By contrast, the following section offers an alternative viewpoint which provides a more holistic anchor to the long-term merits and imprints of university experience, beyond the immediacy of skills on demand or reaching specific employment requirements. As recently articulated by Grant (2021) in his treatise "Think Again", the role of higher education in society is to stoke curiosity, fuel discovery, foster debate, encourage critical thinking and develop the next generation into more sophisticated learners.

8.3 Higher Education and Skills of the Futures of Work: An Alternative Framing

For as long as the Future of Work discourse has had currency, there have been those that have cautioned against grand narratives and futurology associated with simplistic or overly deterministic portrayals (Nolan & Wood, 2003). Predictions and concerns about the automation of education and work and the displacement of jobs and learning echo through generations (e.g., Noble, 1998). While the Covid-19 pandemic has dramatically evidenced the impact of digital disruption, it has equally highlighted key fault lines with respect to access, gender, ethnicity and class (Spicer, 2020). Digital divides exist based on uneven access, use and outcomes of digital technologies, while deficits in digital literacy can result in the exclusion of many citizens from a digital society (Lythreatis et al., 2021). Mainstream Future of Work discourse tends to gloss over broader material inequalities, assuming access, infrastructure and opportunity as a given. Less evidenced in discussions are concerns about increasing inequality, coupled with deterioration in job quality and security of employment (Ainsworth & Knox, 2021; Colfer et al., 2023). This equally holds true for those working in higher education, where it has been argued that digitalisation has fostered standardisation and degradation of working conditions while simultaneously blurring work/life boundaries (Ivancheva & Garvey, 2022). This aligns with criticism of the neo-liberal agenda and associated short-termism which risks infiltrating and colonising both the purpose and processes of higher education. Michael D. Higgins, President of Ireland, has forewarned that:

> *We must confront a prevalent, flawed and dangerous perception that the necessary focus of higher education must be on that which is exclusively utilitarian in a narrow sense, immediately applicable, and whose value is seen solely in financial or economic terms. Such a view sees the primary purpose of the university, and those who study within it, as being in preparation for a specific role within the labour market, often at the cost of the development of wider life enhancing skills, including creativity, analytical thinking. These are the skills that will be essential to the citizens of the future to make informed choices about life/work balance, about what constitutes survival and consumption, and what is meant by human flourishing, solidarity or humanity itself.* (Higgins, 2016)

From this reading there is a risk that the Future of Work discourse, informed and fuelled as it is by private sector concerns, serves as the ultimate Trojan horse in bringing neo-liberal ideals to bear to inform and determine the purpose and outcomes of higher education. While relational dimensions are incorporated into the Future of Work, for example collaboration, inclusiveness and conflict (Dondi et al., 2021), a functional agenda means that these are associated with delivering a particular, predetermined end.

Zuboff (2019) cautions against "prediction products" founded on the unprecedented methodological prowess and behavioural data collected by big business as enabled through technology. The inherent risk is that academia becomes displaced by corporate research driven by profit maximisation seeking "not only to predict our behavioural futures but also intervene in them", meaning universities could easily find themselves subject to "profitable but dystopian future developments" (Gümüsay & Reinecke, 2021). The dangers of immediacy and commercial goals in a higher education setting are long recognised serving to reinforce "just how selective we are about the topics we deem it possible to educate ourselves in" (De Botton, 2019, p. 1). Moreover, there is an inherent risk that even if higher education institutions attempt to exclusively address corporate employment demands, face-paced companies become impatient and ultimately circumvent higher education in order to meet their own rapidly shifting competitive needs (Brown, 2020; Horn, 2020).

An alternative framing requires a (re)claiming of personal agency for students so that higher education provides an infrastructure whereby they learn to engage, explore and critique. Some higher education institutions have made progress in this regard, focusing on graduate attributes that go beyond discipline specific and technical skills, including "qualities that also prepare graduates as agents of social good in an unknown future" (Barrie, 2007, p. 440). In this sense the redundancy of predicting the future is recognised and students are enabled to "be ready for many different possible futures that could unfold" (Rinne, 2021), including a privileging of their role in co-creating and creatively articulating desirable futures. This approach goes some way to confronting the challenges of technological determinism, on the one hand, and inadvertently perpetuating a neo-liberal agenda, on the other hand.

It is beyond the remit of this chapter to provide any comprehensive overview of possibilities; instead, our focus is to point to three areas particularly appropriate to the gestation of this alternative knowledge providing platforms to prompt greater agency and agile understanding (Jackson, 2019). These are purposefully provocative, in that while they could be read as agnostic to technological change, arguably they take on greater salience in the context of such change.

8.3.1 Slow Thinking

Rather than focus exclusively on speed and disruption, there is a need to rebalance educational provisions to privilege greater thought and philosophy. It is clear that the pace of digital technology development has outstripped the pace of reflection with the consequence that "deep thinking is often the illustrious casualty in the digital revolution" (Forni, 2011, p. 3). Useful inspiration can be found in the slow movement born of criticism of fast food and now part of movements across the globe, for example slow city, slow living, slow travel (Honore, 2004) and even slow professor (Berg & Seeber, 2016). Slow movements are useful to consider on a number of fronts. First, they provide a counter to the prioritisation of speed and efficiency. The focus is not on the rate at which knowledge is produced or solutions reached, but rather the quality of such outcomes (Ulmer, 2017). Second, slow movements are founded upon the concepts of self-awareness and purposeful learning, highlighting the value of immersing oneself in the current moment as opposed to chasing the next shiny bright thing. Third, it follows from this understanding that dedication, focus, failure, deep learning and a long-term emphasis are all virtues to be praised and encouraged versus deficiencies to be addressed. Fourth, the slow movement serves as a means to directly confront the "always on activity bias" associated with the rise and diffusion of digital technologies (Staats, 2019).

Slow is not simply a way of thinking but a mode of being, something of a global awakening on the quality of life inherently related to the broader social justice and environmental movements. Importantly, slow does not mean unproductive but rather "differently productive" (Ulmer, 2017). Engaging with the apparatus of the slow movement provides one way to equip students "to face uncertainties and address problems not susceptible to inquiry based on pure analytical skills" (Sarooghi et al., 2019, p. 78). The focus therefore becomes one of generative or exploratory learning, providing a life-skill in the assessment and evaluation of evidence which

re-centres the ability to learn, as genuine curiosity paired with openness (Newman & Wallace, 2020). Ironically, such a foundation might provide for a more tenable and strategic contribution enabling wider and deeper connections across eco-systems and providing sensitivity and awareness to contextual trends and insights just as important as fast-moving technologies (Reeves & Whitaker, 2018; Satell, 2019).

8.3.2 Elevating Well-being

Much of the Future of Work literature risks treating individuals as "objects" as opposed to "subjects" whose dignity and worth exists independent of an organisation or job (Wright, 2020). This highlights the value of exposing students, as future employees, to the tensions and paradoxes inherent to capitalist workplaces. As per Yuval Noah Harari in thinking about future implications, including the impact of AI "Karl Marx is still a better guide then Steven Spielberg" (Harari, 2018, p. 246). Employment dynamics, and how they are addressed by organisations, will likely inform the choices students make about their future work and contribution to society. It is perhaps unsurprising that the OECD (2020) has recently called for a "redefining" of the growth narrative "to put the well-being of people at the centre of our efforts". New Zealand is exemplary here in moving away from narrow gross domestic product measures of economic success to focus on happiness and well-being as key indicators of progress (Ellsmoor, 2021). Educators can use new referents as cases and examples, drawing on cooperatives, urban gardens and social enterprises which prioritise ecological sustainability and well-being (Banerjee & Arjaliès, 2021). It will be increasingly important for students to be able to reflect and articulate what makes for sufficient growth and the necessity for frugal and conscious innovation. Insights about well-being also crossover to the role and impact of technology with students of today born into a technology-first society with little critical analysis of the extent of technology use and engagement which has become normalised. Encouragingly, there is evidence that more holistic graduate outcomes are being considered at policy level with "graduate voice" and attributes of "eudemonic" well-being such as the meaningfulness or importance of activity to graduates being incorporated into destination of leavers in higher education surveys (CABS, 2022). This leads to important considerations around health literacy and the human costs of technological performance and the pre-dominance of positive thinking and growth mind-sets, at the expense of just being, not knowing

and failing (Pfeffer, 2016). With this focus students are encouraged to explore whether technological change is likely to result in greater equality or simply reproduce or reinforce existing patterns of educational, economic and social inequalities (Brown, 2020).

8.3.3 *Human Transformation in the Virtual Era*

We are human beings, never human doings. The balancing act between human and non-human actors in sharing knowledge in any organisation creates an emerging paradigm (Harney & Collings, 2021). Digital is so deeply embedded in our lives that we often overlook the magnitude of its transformative effect. There is a rising demand for tech-innovation, cyber-physical systems, alongside data acquisition and analytics to support decision making. Co-bots, originally defined as novel technological manufacturing systems, are today able to work with a certain degree of dexterity and in conjunction with humans in the same physical workspace (Bauer et al., 2016) in many industries. With AI, manifested by machines that exhibit aspects of human intelligence (HI), being increasingly utilised in many sectors, there is a need to create a symbiotic relationship between humans and machines (Huang & Rust, 2018). The power of AI in collaborative decision making is already widely recognised; indeed, Deep Knowledge Ventures, which focuses on drugs for age-related diseases, has appointed an AI algorithm, called Vital, to its board of directors (BBC, 2014).

An organisation's response to digital disruption should focus on people and processes (Kane et al., 2019). We now live in a world where any company can tap into the talent cloud to identify the highest-quality, lowest cost actor, be that technological or human for a particular task (McGowan, 2020). In this reality, we must focus on how humans uniquely add value, leveraging, not competing with, rising technology. Professionals in the near future must learn to not only utilise but collaborate with AI, avatars and co-bots in both the real and virtual worlds. What education should do to support this is to empower learners to unlock their potential in these virtual dimensions and aspects of collaboration, in order to:

- be secure, education should be the anchor nurturing FoW skills;
- break new ground, vanquishing new worlds be they virtual or real, and proceeding away from the status quo towards learning for life;

- build beyond boundaries, education like business is a contact sport and transdisciplinary learning is key. Students should be prepared to journey in different disciplines.

The beauty of the current situation is that because we have built highly sophisticated AI that can learn, we have also built AI that can help us develop far more sophisticated and secure human intelligence (OECD, 2018). An intelligent approach to AI in education, including working with AI developers, is essential to address and co-create the best of AI and HI.

In recent years, the metaverse has attracted enormous attention from around the world with the development of related technologies (Duan et al., 2021). As technology advances and consumes more routine work, the value of work requiring organic cognition increases. Research from Australia on "Peak Human potential" (Gallagher, 2019) found that the more an industry is disrupted by digital technologies, the more that workers value uniquely human "social competencies". To maximise human potential, we need to put humans at the centre of every value creation process, augmenting human capacity with ever more capable tools. Today's talent must embrace change and importantly, they must be able to navigate it.

8.4 Conclusion

Higher education institutions provide a critical infrastructure for "practitioners in training" to develop skills in order to effectively explore, navigate and co-create the future(s) for work. This chapter has focused on a move away from instrumental and utilitarian education towards embracing a more holistic approach which at once privileges asking and answering questions. While recognising immediate demands from employers for input into the analysis and design of education, they should form the beginning rather than the end of such assessment. Too often considerations focus on the "bright shiny" new object, to the neglect of what remains the same.

A key part of our argument is that more attention needs to be directed to the agents tasked with creating the futures of work, both students and educators. A consideration of the slow movement prompts a re-insertion of the human and humane in attuning awareness and providing students with the tools and infrastructure to be qualitative researchers of their own

experiences (Markham, 2019; Tett, 2021). It is also important to note that students' enthusiastic appreciation and interest cannot be presupposed, while formative choices and learnings are made prior to reaching higher education (Allen & Simpson, 2019; OECD, 2019). Educators also need to reflect, refresh and assess the impact of their own engagement with digital technologies to "open up the walls of the classroom in new directions" (Adler, 2015, p. 189). There are a range of higher education stakeholders with an ability to influence the student experience.

In the effort to be both timeless and timely, universities risk either being complicit in reproducing the ills of the current system or serving as harbingers of change and enhanced understanding. The role of higher education is not to prepare students for a given Future of Work based on fixed disciplinary knowledge and a predetermined career trajectory. Instead, education should prepare students for the various futures of work, providing them with innate capabilities and strategic awareness grounded on an ability to ask the right questions, to critically analyse, to explore silences and inequities, and to seek their own wisdom. This infrastructure of skills will provide a basis for wisdom and insight necessary to strive in an age of digital disruption and mass uncertainty.

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