DIGITAL LITERACY AT THE DAWN OF THE DEEPFAKE

Key implications for educators

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Introduction

‘The future, and how to prepare for it, is a perennial concern of education.’ (Facer, 2016, p.63)

Educators today must prepare students to cope with a world in which the digital and material, human and non-human are increasingly imbricated; cyberspace has become ‘coterminous with’ human society (Martin and Madigan 2006, p.xxvi). Furthermore, ‘Our digital world changes so quickly that we always feel we’re trying to catch up’ (Dodgson, 2018). So, educators must consider inherently uncertain futures.

An example of this unparalleled rate of change is ‘deepfake’ technology; Artificial intelligence (AI)-generated videos intended to deceive. Deepfakes have swiftly progressed from a novelty to being increasingly common and convincing (Venkataramakrishnan, 2019, p.13). In this paper, ‘deepfake’ is used as a metonym, a literary device deployed to describe a larger concept (Merriam Webster, 2019). As such, deepfakes symbolise rapid technological changes for which populations may be ill-prepared. AI systems ‘are evolving much faster than social systems can adapt’ (Kile, 2013 cited in Mičunović, Badurina and Bosančić, 2016, p.154). Therefore, educators must recognise how they themselves and their students are constructed as subjects by digital technologies.

In this paper, I argue that there is an urgent need to broaden the understanding of ‘digital literacy’ in education, from the narrow teaching of ‘operational proficiency’ (Pangrazio, 2016, p.163) to encompass more critical concepts including information literacy and media literacy. This paper doesn’t provide an exhaustive discussion of all definitions. Rather, it critiques the most prevalent ones and suggests broadening current educational practice to encompass wider definitions. While these broader conceptions of literacy are not new (Martin and Madigan, 2006), the reality is that educational practice often lags behind.

The difficulty of defining digital literacy

There is little agreement about what constitutes digital literacy in academic literature or pedagogic practice. Whereas conventional literacy skills are well-established, digital literacy skills are ‘diverse and less clearly defined’ (Neumann, Finger and Neumann, 2017, p.475). Digital literacy is variously described as computer literacy, technological fluency, network literacy, information literacy, media literacy and design literacy. These range from simply knowing how to use digital tools to critique and creation. However, ‘…the exact nature of the concepts remains inadequately defined’ (van Dijk and van Deursen, 2014, p.21). Moreover, these terms are often used interchangeably, confusing educators looking to inform their classroom practice. Understanding digital literacy is further complicated because ‘the spaces, texts and tools which contextualise such practices are continually changing’ (Pangrazio, 2016, p.163).
‘Learning to code’ vs. ‘learning to critique’

In educational practice, digital literacy has traditionally been equated with computer literacy, ‘the ability to use specific software applications for well-defined tasks such as word processing, e-mail, spreadsheets, and Internet searches’ (Bers, 2010, p.14). For instance, the Indian government’s ‘Digital India’ programme considers providing access to e-learning sufficient to promote digital literacy (Srivathsani and Vasantha, 2019).

As academic discourse developed from viewing computers as ‘instrumental machines’ to considering them as ‘epistemological tools’, there was an accompanying shift from teaching computer literacy to technological fluency; ‘the ability to use and apply technology in a fluent way, effortlessly and smoothly…’ (Bers, 2010, p.14). This is reflected in efforts to include coding and design skills in curricula worldwide, as in the UK and Australian national curricula respectively (Pangrazio, 2016, p.168). In India, AI was also recently added as a subject (CBSE, 2019).

The common goal is to make students ‘future ready’, arming them for employability. It is believed that ‘learning to code’ will not only promote individuals’ career prospects but also fuel their countries’ economic growth (Gardiner, 2014 cited in Pangrazio, 2016, p.168). This belief is lent support by the educational initiatives of tech companies. Intel’s courses for K-12 focuses on helping teachers integrate technology into the curriculum rather than engaging critically with digital literacy (Intel Teach Elements, 2019). Similarly, Microsoft focuses on mastery of productivity applications for the workplace, providing industry certification (Microsoft Imagine Academy, 2019).

I believe these initiatives stem from the conventional view of digital literacy as ‘mastery or operational proficiency’ (Pangrazio, 2016, p.163) but do not reflect issues associated with the production and consumption of digital technologies like transparency, trust, surveillance and privacy. Such limited conceptions are inadequate in the present moment, ‘the dawn of the deepfake’. Digital literacy amounts to far more than mere mastery of technical skills. Paul Gilster, who popularised the term digital literacy, recognised critical thinking as a core skill to be developed (Martin and Madigan, 2006, pp.18-19). Therefore, educators’ understandings of digital literacy must ‘the role humans play in questioning, challenging and therefore shaping this techno-social system’ (Pangrazio, 2016, p.168).

As the idea of digital literacy expands beyond mere technical competence to include evaluation and critique (Pangrazio, 2016, p.164), we arrive at critical digital literacy. This provides ‘opportunities to examine broader issues associated with digital media use’ (ibid, p.169). Below, I outline three key issues and identify how they may be examined using critical digital literacy and associated concepts.

**Countering truth decay**

Establishing the origin and veracity of information has become more challenging in a world saturated by digitally-mediated messages and awash with disinformation. As a result, people face difficulties in ‘distinguishing between the truth and the representation of the truth, in determining which images and which experience to believe as true…’ (Mičunović, Badurina and Bosančić, 2016, p.140). Examples of the consequences of truth decay include the rapid dissemination of fake news using WhatsApp in India leading to mob lynchings (Chinmayi, 2019), or the Cambridge Analytica scandal involving
Facebook and the U.S. presidential election (Day, 2019). Identifying the diminishing role that facts, data, and analysis play in political and civil discourse, Huguet et al. (2019, p.ix) label this tendency ‘truth decay’ and suggest that media literacy education offers a solution, by helping people navigate ‘increasingly complex information ecosystems’.

Media literacy describes a set of competencies such as analysing, evaluating and synthesising information, understanding its context, and communicating responsibly. Adopting a media literacy approach, educators can encourage students to critically evaluate the motivations of those disseminating information, the content of a message, its construction, and the possible influence of the medium used to communicate it (Huguet et al., 2019, p.xi). Media literacy is often associated with other, overlapping concepts, including information literacy, news literacy, visual literacy (ibid). All these models build on ‘sociocultural perspectives of literacy’ in order to ‘contextualise digital practice within history, culture and power’ (Pangrazio, 2016, p.164). For example, in the Scandinavian context, national curricula incorporate critical approaches to the consumption and production of digital media, including multi-modal representations, analysis, evaluation and problem solving, including ethical and social concerns (Ryberg and Georgsen, 2010).

**Foregrounding surveillance capitalism**

Another concern that educators must use critical digital literacy to engage with is the economic system of surveillance capitalism. Powered by ‘big data’ this ‘information capitalism aims to predict and modify human behavior as a means to produce revenue and market control’ (Zuboff, 2015, pp.75-76). Data collection has only sped up as individuals are increasingly equipped with wearables or surrounded by surveillance equipment and sensors embedded in everyday objects making up the ‘Internet of Things’. Often, users may trust that their data is safe with large corporations, known as ‘dataism’ (Van Dijck, 2013, 2014, cited in Lyon, 2017).

Studying Google, Zuboff (2015, p.79-81) demonstrates that this trust is misplaced and the process of extracting big data is characterised by the absence of consent. The firm’s customers are advertisers, not the end users or ‘consumers’ of their services who exist chiefly to be subjected to practices of commodification and behaviour modification. Thus, end-users are stripped of ‘consensual participation’, ‘reciprocal rights and obligations’.

It is increasingly evident that young people do not necessarily acquire the desired competencies or literacies through mere use of technology (Ryberg and Georgsen, 2010). Hoofnagle et al. (2010 cited in Zuboff, 2015, p.84) concluded that a ‘lack of knowledge’ rather than a disregard for privacy is the reason why large numbers of youth ‘engage with the digital world in a seemingly unconcerned manner’. Educators must use the principles of media literacy to help students engage with the issues as there is evidence that increased awareness about surveillance produces changed behaviours (Lyon, 2017). According to Gilliard (2017, p.65), educators should be ‘leveraging the classroom to make visible the effects of surveillance capitalism’ and exploring the notion of consent. Students can be encouraged to critically evaluate concerns about reliability, authorship, bias, conventions of particular genres of communication, motivation and media ownership.

Importantly, critical digital literacy involves the ability to analyse deterministic attitudes to digital technologies. While foregrounding the risks of surveillance capitalism for students, educators must
recognise that ‘data subjects’ are not automatically compliant or lacking agency (Lyon, 2017). Students should not see themselves as passive recipients of surveillance culture but should be encouraged to explore how they are ‘critical recipients, active cultural consumers and co-producers’ (Ryberg and Georgsen, 2010).

**Problematising personalised learning**

Educators must also problematise educational technologies for the purposes of critical inquiry. A particular area for attention is the growth of personalised learning. As platforms and advertisers perfect their own data mining techniques, educational institutions ‘rush to mimic those strategies in order to improve retention’ (Gilliard, 2017, p.64). Underpinning the ‘smart classroom’ is the use of algorithms to analyse masses of student data, which is used to give individual feedback, personalise learning paths, recommend content or offer supportive intervention (Williamson, 2017, p.89). The allure of personalised learning is strong as it offers ‘a balm for budget austerity’ (Kim, 2019). However, there are concerns educators need to keep in mind.

There is the question of educational data mining and students' right to privacy. By the time a child attains the age of 13, a staggering 72 million data points have been collected by online trackers (Harris, 2017 cited in Mascheroni, 2018, p.6). Although students may be aware of data mining and surveillance, they may not be mindful of how this happens in education (Slade and Prinsloo, 2013, p.1516). By requiring students to interact with adaptive learning algorithms, are educators unwittingly contributing to ‘dataveillance’, whereby student data is harvested for commodification?

A critical approach to learning analytics would also examine data storage. Students should be able to learn from past experiences, even failures, without those failures being inscribed onto their permanent record (Snowden, 2019, p.96; Slade and Prinsloo, 2013, p.1520). This is linked to wider issues of bias. Carr (2019, p.7) highlights how failure locates individuals within specific ‘social and academic strata’. Pattern recognition and predictive analysis could push students deemed ‘at risk’ of failure further towards it. Stigmatised students could be kept ‘prisoner to past choices’ by the predictive capacities of learning analytics (Pariser, 2011 cited in Slade and Prinsloo, 2013, p.1517). At the institutional level, this may result in ‘digital redlining’ where schools with historically less successful student populations are denied the same opportunities as successful ones, thereby perpetuating inequalities (Gilliard, 2017, p.64).

Educators also need to examine the ultimate objective of smart/cognitive classrooms; optimizing human cognition. ‘When nonconscious cognitive devices penetrate into human systems, they can then potentially change the dynamics of human behaviours through changing brain morphology’ (Williamson, 2017, pp.93-94). Critical digital literacy might lead educators to more closely examine the somewhat dystopian worldview that human brains need to be made ever more efficient and to question whose ends it serves. Furthermore, it remains unclear if intelligent tutoring systems based on brain modelling account for neurodiversity of any sort. Conceptualising the brain as a computer presupposes ‘standard’ brain functions to be reproduced. Educators would do well to consider if this drive towards more personalised learning could result in stultifying uniformity in human cognition.
Conclusion

Educators must urgently recognise that digital literacies are critical, rather than purely functional in nature (Ryberg and Georgsen, 2010). Applying critical digital literacy could empower students and educators in various ways e.g. once suitably informed, students may choose to opt out of personalised learning. Instructional strategies that promote media literacy may build ‘young people’s meta cognitive skills in reflecting on their own behaviour that results from the media choices in the online environment’ (Hobbs, 2006, p.105).

At the institutional level, critical digital literacy could make educators more mindful when using educational technology to predict student potential (Slade and Prinsloo, 2013, p.1522-1523). Greater awareness may lead educators to champion ‘trust, reciprocity and academic freedom on campus’ (Bayne et al., 2019, p.104). An example of this is the University of Edinburgh’s vision statement (2019, p.19) which aims to 'Use technology to build relationships between students and staff based on trust, resisting logistics of surveillance and unnecessary monitoring.'

Finally, this ‘opening up’ of the concept of digital literacy cannot easily be achieved without the support of all stakeholders. Gibson (2007) identifies how American parents remain enthralled by the computational metaphor for the brain, which has led to ‘some questionable ideas about teaching’ despite many in academia encouraging a wider perspective to literacy. Therefore, to truly help students move from ‘learning to code’ to ‘learning to critique’, educators will need buy-in from parents, principals, curriculum designers and policy makers, who will all need to understand the value of critical digital literacy.

2,169 words
Reference list


Venkataramakrishnan, S., 2019. Can you believe your eyes? How Deepfakes are coming for politics, *FT Weekend Magazine*, October 26/27, 2019
