Generative AI and the End of Education

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Abstract: This paper reviews the prevalent rise of generative artificial intelligence and its impact on HE in the UK. In doing so, it echoes a central thought from Neil Postman's provocatively named book which reflects on the nature and purposes of education. Whilst GenAI may be approached with a constructivist disposition, much of the response in practice and policy is marked by technological determinism. A constructivist approach, however, allows us to (re)consider the nature and value of education. The paper therefore maintains the angle of the educator in asking: what are we trying to do in (higher) education? What is the purpose of Higher Education today? This is a cross-disciplinary question, much like Postman's propositions were a cross-curricular reflection on the nature of schooling. Postman looked for a unifying narrative that can inspire 'the ends of education', or what education actually is and tries to accomplish, before considering its tools and approaches towards those goals. Those ends ensure that education does not become subjected to the false gods, such as economic utility and consumerism. These would spell the demise of any meaningful education, or 'the end of education'. What appears foundational to these questions is a belief in the nature of human potential. In education, the cultivation of that potential is arguably a fundamental end, whichever way education is organised. Where the cultivation of that potential leads, however, can remain rooted in a humanist framework, it could become posthumanist, or it could be simply bewildering. With the means of generative AI, the analysis raises questions on epistemic threat versus intellectual success, and new horizons of creative possibility in human-computer interaction. The human potentiality of thinking, interpreting, criticality, and scepticism, come forward as retained elements of the humanist narrative. In the dawn of generative AI as a teaching, learning, and assessment instrument, the end of education remains human potential. Higher Education especially, remains the place to critically and ethically stimulate the human mind towards new horizons of knowing.

Keywords: GenAI, Purpose of education, HE, Technological determinism, Postman

1. Introduction

AI may be perceived to be a single technology, yet it is 'a jungle ecosystem' of techniques, theories, and values (Lea, 2020, p323). It may be perceived as new, yet – much like many digital technologies – it has a long history of human thought and practical invention which has infused it with meaning. At present, there is a sense of accelerated change. On generative AI (GenAI), the UK government and advisory bodies have issued various national guidance and position statements in the last two to three years. These apply to education generally, Higher Education (HE) more specifically, and to wider society. Much of the current hype has emerged from ChatGPT, an OpenAI product. Though this paper isn't exclusively focused on ChatGPT, it illustrates the type of technology which spurred policy makers and practitioners to respond. Text-based GenAI in particular has made a developmental leap, as part of a 'GenAI boom' according to *MIT News* (Zewe, 2023). GenAI are technologies which 'generate' text, audio, images, and other content. This content may be considered as new or original, rather than a reproduction of existing content. An algorithm will be 'trained' on existing content that relates to its anticipated functions of text, image, sound, or other media generation. With predictive modeling, it will 'learn' to recognise and reproduce patterns in the existing content based on human prompting.

Two central philosophies of technology, being technological determinism or its opposite of social constructivism, offer a useful lens to analyse the responses to GenAI in policy and practice. This will be the first section below. The paper will, secondly, apply this to policy-making for UK HE. What will emerge is that 'how' we approach HE should temporarily take the backseat to a fundamental question: 'why'. This introduces the perspective of Neil Postman, 20th century American theorist, media critic, and educator. In his book *The End of Education* (1996), Postman expresses his view that any conversation on education is often about means, rather than ends. By this he means education would benefit from having one overarching purpose that steers policy-making and pedagogies. So amidst uncertain futures, is it possible to distinguish one such end of HE?

2. Technology Determinism and Constructivism

When GenAI is deemed 'unstoppable whatever government leaders do' (Crawford, 2024), or 'poised to change society more than any technology before it' (McGregor, 2024), this implies a determinist lens. Technological determinism attributes a great deal of causal power to technology's impact on human society. This may have a positive outlook, synonymising technological development such as GenAI with human development, as stepping stones of progress. In (Higher) education, that may offer the perspective that 'technology for teaching will *in and of itself* lead to enhanced or transformed educational practices' (original emphasis in Kirkwood,

2015). On the other hand, it may take a more dystopian view: things will change, but for the worse. Wyatt (2008) discusses nuances, from radical causation to more dynamic sociotechnical ordering, where technology nonetheless has a central influence still. So while it is a deceptively simple philosophy, it still functions as an umbrella concept (Hallström, 2020), and some may say to adopt a 'soft' technological determinist perspective (Kirkwood, 2015). Similarly, as discussed by Hallström (2020), there are streams of technological determinism which consider technology to be a neutral force, and those that recognise human values and processes. Nevertheless, in the continuum of theoretical nuance, determinism still posits technological 'impact' as a central thought.

A common critique on (radical) technological determinism is that it leaves no space for human free will, autonomy, or agency. Constructivist perspectives, on the other hand, emphasise human ability to actively steer and shape change. This human ability has been posed as a human right (freedom of choice), and related to human dignity, responsibility, and other values. Within constructivist philosophies of technology, there is still a spectrum of theorising. Some models like ANT (Actor-Network Theory) suggest that the driving force of change is situated in a network of social processes, rather than with any particular entity such as technology. Change occurs holistically in the coming together of several parts – people, technologies, but also texts, contexts, processes, etc. A similar proposition is SCOT, or the Social Construction of Technology. This model focuses on the social processes that originated a technology in the first place. It therefore denies the possibility of technology as a neutral, outside force, by placing people and social processes as direct influencers of technology's emergence and also later uses.

Words like 'artificial' and 'intelligence' are value-laden, and subject to hyperbole and over-selling (Selwyn, 2022). Yet terminologies such as intelligence, or machine 'learning', are educationally significant. The denotations show a constructivist perspective, either accidental or intentional. It is complicated further by various interpretations on the nature of 'education', 'teaching', or 'intelligence' in itself, before considering what 'technology' or 'AI' is in that mix. The 'intelligence' of GenAI is ultimately the production of new content based on a human prompt. Interestingly, this technical aspect has been the foundation of a critique on GenAI as being inherently deterministic. While it may appear to generate new content, it is always based on a calculation and re-ordering of old data. That means something which is deterministic, such as the functioning of a machine, may still be experienced as constructivist, especially when it mimicks human authenticity, harkening back to the Turing test, and historically lingering questions on the locus of consciousness.

For now, it is important to keep recognising GenAI 's core functioning as determinist, meaning its output has a certainty based on the underlying calculations and data. Yet the human hand in this construction cannot be denied either. The 'technology complex' (Fleck & Howells, 2001) consists of physical artefacts, scientific thought, software processes, industry structures, management techniques, social and legal frameworks, and more. Impacts may indeed arise from any of these elements, they may be certain and predictable. Fundamentally, the underlying model has been built by people over time, in a particular place and context, which infuses it with beliefs and values that may differ from another time and place. The choice of data, for example, on which the GenAI will be trained, has been found highly significant to its outputs. Then, it very much depends on what we, as people, do with it. It is easy to prompt GenAI in such a way that it produces output which is wrong, or biased one political way over another, or socially or emotionally slanted. What we choose to do next with this output, is another constructivist exercise. It is not certain – it depends on our choices, our thinking. This re-emphasises the need to examine our social processes that integrate GenAI such as education.

Technological determinism cannot be dismissed as a fallac, shown by its persistence in research, public opinion, practices and policies (Wyatt, 2023). Yet Oliver (2011) cautions that we should be 'avoiding simplistic claims about impact, effect and technical causation, and concentrating instead on descriptions of practice, accounts of purposeful action and negotiated meanings' (p.382). This relates to another critique on technology determinism, that it seemingly absolves people of responsibility for changes or consequences. The impact is certain and unavoidable, after all. Again, a rather dangerous postulation. As argued above, we must continue to approach GenAI (or any technology, for that matter) as a constructivist exercise. The next section explores what the UK's national statements on (generative) AI have revealed in that regard, and HE's dominant response in return.

3. GenAI Meets UK HE

A constructivist analysis of technology must attribute central importance to technology in a particular time and place. In what follows, the context of HE in the UK will be examined. HE is generally understood to mean

undergraduate and postgraduate degrees offered to students above the age of eighteen. HE institutions in the UK can operate with a high degree of organisational independence, confined within national policy and strategising. Though there are around 450 HE providers in the UK, over 400 are in England. The majority of these do not have their own 'degree-awarding powers'. Instead, they offer the teaching of degrees which will then be awarded by another institution once requirements have been fulfilled. There are 175 such 'recognised bodies' in the UK which have the right to award degrees.

At the end of 2023, the UK's Department for Education published a position statement on the use of GenAI in the education sector (DfE, 2023). It aligns with the UK government's broader disposition towards greater technology acceptance and development, highlighted by the pro-innovation approach to AI regulation (Gov UK, 2021; 2023), the pro-growth National Data Strategy (Gov UK, 2022), and the government's educational technology strategy (DfE, 2019). It is constructivist in recognising there is potential but also limitation and possible harm depending on the use of GenAI. However, it aligns with a societal sense that GenAI is unavoidable and impactful. Its position is that education 'needs' to act in response to the technological change, which firstly includes an emphasis on building long-term knowledge to enable human subject expertise, for which the AI is not a substitute. Secondly, it suggests a revision of skills training is needed to adequately prepare for changing workplaces, and the safe but effective use of GenAI. This early position statement was followed up by a summary of selected educator and expert views in January 2024 (DfE, 2024). This report echoes the sense of technology's transformative impact on education. It suggests GenAI is already used across most of the school curriculum, to aid language learning, for coding lessons, as maths coaches, for the creation of historical characters, or creative art, and more. Similarly, in tertiary education (e.g. further and HE), the advisory body JISC (2023) reports that GenAI is already used by students in various ways: as a writing aid, a study tool, a research and search platform, a creative art and visual production tool, and for maths and coding assistance. In addition, JISC (2024) also found uses for enhanced scheduling and task management, personal and emotional support. Much of this reporting focuses on 'how' it used, rather than the overarching 'why' of using it this way, another way, or not at all.

While HE does not have a national curriculum, it does have subject benchmark statements suggested by the QAA (the Quality Assurance Agency for HE). It is an independent, national body, which aims to maintain and enhance HE teaching and learning. The subject benchmarks set out the sector-wide reference points on the nature of study and graduate academic standards. Each statement is reviewed every seven years by a panel of UK subject specialists. In its latest cycle of benchmark reviews, GenAI was specified as one of the five subthemes for the new benchmarks, considering 'how' (rather than 'whether' or 'why') this technology should be used in different subject areas. In response to the government's position (DfE, 2023), the QAA emphasised the importance of critical AI skills to meet the needs of an evolving labour market, and the need for education to evolve in light of these technological developments (QAA, 2023). In a later publication, it describes the transformation of HE through AI as 'inevitable' (QAA, 2024, p.1), implying a determinist stance.

In line with national guidance, HE providers published their own institutional strategies. The Russell Group (an association of twenty-four high-ranking UK universities) published a set of five foundational principles in July 2023, which includes the commitment to support staff and students' AI literacy, and the need for staff to support students to use GenAI appropriately and effectively. It further states that universities 'will' adapt teaching and assessment, continue to ensure academic integrity and rigour, and share best practice for education. In relation to the second principle, student use of GenAI, the document acknowledges this will be subject-specific and adaptive to future technological development and work contexts. Overall, the document steers education to ensure effective use of GenAI.

More specific guidance has since been issued by individual institutions, such as the University of Oxford's guidance for students (2024) and King's College (2024). It states AI cannot replace human critical thinking, argumentation, or subject knowledge, but such technologies may be used in support of human growth and development. Other university alliances, such as GuildHE, the University Alliance, or the Cathedrals Group have not (externally) published group statements, but institutional strategies echo HE's dominant position to accept positive potential, with caution. The University of Winchester's (2024) guidance for students, for example, details that AI may be used to support learning by simplifying language or explaining complex ideas that might aid understanding.

There is also a common concern over academic integrity, particularly related to assessment (QAA, 2024). In a UK parliament research briefing, Felix & Webb (2024) alongside others (JISC, 2024) identified concerns over technology's impact on intellectual development, due to over-reliance on AI. A proliferation of teaching and

assessment strategies have been suggested to constructively mediate such issues, such as the 'Oxbridge tutorial method' (Wooldridge, 2023), UCL's three-tiered categorisation of AI use in assessment (UCL, 2024), or QAA's recommendation for critical pedagogy in HE (Seal & Smith, 2021).

Overall, a determinist perspective initially comes forward, in that GenAI is considered to have an unavoidable impact. That is significant, because it constitutes a collective human perception that this technology marks a certain change for human practice. But there is also a recognition of uncertainty. The impact or change seems tangible and certain, but what those changes entail is not yet (perceived to be) determined. That opens up a space for constructivist thinking. It shows a profound perception that human practices in teaching, learning, and assessment must adapt to a technological change, but also a belief in human potential to shape this change. The changes may incur positive potential, or harm, but it still depends on human use. Current strategising therefore appears to centre on 'how' to use and integrate GenAI in HE. However, a central question which still spans across these approaches is the overall purpose of HE. Rather than 'how' HE organises teaching, learning, and assessment, by using AI or not, it is still most important to ask 'why'.

4. False Ends of Education

In his book *The End of Education* (1996), Postman expresses his view that any conversation on education is often about means, rather than ends. He writes in the context of American public schooling of the 1990s, from his point of view as academic and HE tutor, and prolific media critic. He theorises that educational practice and policy remains stuck on the question of 'how' to integrate new technologies in teaching, learning, or assessment, instead of asking 'why'. Asking 'why' requires interrogating what the leading goals or values are. It requires the formulation of an overarching reasoning for all decisions and activities. Only after this, a discussion on means (the 'how') becomes meaningful. What Postman (1996) therefore proposes is a decidedly constructivist exercise, regarding the purpose of education as well as its means to achieve this purpose.

To Postman (1996), a lack of a clearly formulated purpose is an issue for education. He draws on religious terminology to explain his stance: 'For school to make sense, the young, their parents, and their teachers must have a god to serve, or, even better, several gods' (p. 4). That could be 'God' with a capital, but it doesn't have to be. What Postman values is for education to have some kind of transcendent idea to give a clear purpose, one that 'constructs ideals, prescribes rules of conduct, provides a source of authority, and, above all, gives a sense of continuity and purpose' (p.6). So the pursuit of God gives rise to certain approaches and practices in light of the overall goal. It ties people together in the same framework. This idea is clearly articulated as the goal, and while it may still have unknown qualities, it does create cohesion for the everyday decision-making. Actions and decisions are no longer random – they make sense, and that sense is derived from the overall goal. Without formulating such an end to education, it becomes meaningless (and therefore education ends, as the word play in the title of his book suggests).

The suggestions of technological determinism we can find in UK HE policy-making is alarming from Postman's (1996) framework. He theorises there are also 'false gods', and technology is one of them. It resonates throughout his other writings, such as *Technopoly: the surrender of culture to technology* (1992). He takes issue with changes that occur as a result of a view on technology as some kind of external, uncontrollable force (Postman, 1998). The UK Public Policy Lead at the Ada Lovelace Institute writes that 'the shape, pace, and direction of AI development in the UK is dictated not in Westminster or Whitehall, but overwhelmingly in the boardrooms and pitch decks of Silicon Valley.' (Davies, 2024). It is therefore constructed by people, but still certain in its impact – aligning with a 'soft' technological determinism. The rapid proliferation of policy and position statements that imply acceptance and change in HE learning, teaching, and assessment, purely as a result of GenAI becoming widely available, is indeed notable. It points to the central issue that the 'how' of education is driven by a wrong 'why'. That does not mean the prevalence of GenAI should be ignored altogether, which would undoubtedly do HE students a disservice. However, it does not justify GenAI to become the transcendent idea which leads HE (Postman, 1996).

A second false god which Postman (1996) identifies relates to the role of employability as an end of HE. Many students indeed pursue HE in preparation for certain careers (Brown, 2023). Though GenAI is positioned as impactful on human work and productivity, there is still uncertainty: how will GenAI redesign healthcare and nursing, or journalism, editing, copywriting, or website design and coding? That is a determinist question to ask, as we assume an impact will manifest itself, though we cannot say for sure what that will be. Yet taking human productivity and employment as the end of education is also false, in Postman's terms. He specified end values of economic utility and consumerism as problematic. To teach young people with the sole purpose of becoming economically useful – in generating money and then spending that money – would be a false god.

Postman did not deny the instrumental nature of schools altogether, but if that purpose was solely workforce preparation, that would be an issue: 'schooling can teach you how to make a living, or teach you how to live' (Postman, 1996, p.x). The role of the employability agenda in HE has been critiqued more widely, stating 'HE has been re-positioned as a means to an end rather than an end in itself' (Tight, 2023, np). It reduces the value of humanity by conceiving of education's primary aim as the production of good workers and consumers (Postman, 1996, p.31).

So it may be that learning with GenAI is meaningful, and therefore education must adapt its pedagogies to ensure this, but not if that learning is actualised to ensure the learner's employability (as an exclusive goal), or to accommodate technology. However, in the proliferation of policy and position statements, discussed in Section 4, appears a dual, constructivist stance. The impact of GenAI is perceived as certain, but the nature of its impact may still depend on human use. Concerns over the negative impacts on human thinking, integrity, and intellectual development, as well as hopes for its positive impact on the development of human learning and creativity, all share on central interest: human potential. This may lay the foundation to formulate HE's unifying narrative.

5. Human Retained

There has been a historic purpose of education to cultivate human potential, whichever guise education takes. 'Formation' is key, meaning education is an intentional process that shapes an underlying potential, which may be lost or corrupted. This intent to pursue education as humanisation is not unusual: 'For Kant, as it was for Plato and Rousseau, the "human" is the end of education' (Snaza, 2013, p.40). For as long as educationalists have set out their views on pedagogies or theories of the mind, there has been an unwavering belief in human potential. Piaget, Vygotsky, Malaguzzi, Socrates, Bruner, Wollstonecraft, Leopold, Mead, Noddings, Greene, and many more, all lived and worked in very different times and places but maintained a view that education must steer its means towards the cultivation of human potential. Without this purpose, education is nothing. It ends.

Human potential is the unifying narrative that appears to cross time and place of educational theory. The cultivation and protection of human potential could therefore be a viable end of education, as it resonates with educationalists across centuries. In HE, John Henry Newman's lectures captured in *The Idea of a University* are still considered foundational. Truth and the pursuit of knowledge should be overarching purposes, Newman stated, which can be achieved by debate, critical discussion and reflection, in multiple fields of study. Similar views are expressed in modern-day authorship, for example Edward Saïd's ideas of academic freedom of thought and exploration of ideas in academia. Here, we find a development from the idea of merely (though there is no 'merely' about it) cultivating and protection human potential. HE offers a step from formation of the human and the potential we know is there, to achieving new, original, and undiscovered potential. It can therefore be said that the learner's human potential in HE extends a bit further, to potentially unknown horizons. Employability as an end may be limited, for example, but the meaningful redesign of careers is a constructivist exercise. Technology in itself is a false god too, but the use of it for the purpose of maximising human creativity to new horizons could be meaningful. HE is about discovery and reach to an unknown. This also necessitates an exploration of values that guide towards the unknown.

A sweeping generalisation is that education today has firm humanist values, but humanism is a complex matter in itself, with a long historical development and various theoretical nuances. The focus on the 'human' has been problematised in various ways, generally accepting that the meaning of 'human' is contingent. It is therefore a deeply constructivist exercise, to determine what is human, then its potential, then the purpose of education in regards to human potential, what education is in itself, and to what unknown it may lead. There is also a seemingly increasing line of thought on the human as limitation. This gives rise to posthumanist or transhumanist theory, and related purposes of education. Radical posthumanist thinkers will echo Max More's *Letter to Mother Nature* (2009), a manifesto in which the biological limitations of being human are denounced in favour of new potential for being. It is a remarkable constructivist stance, to recalibrate an entire mode of being. More (2009) states the next steps will be developed 'cautiously, intelligently, and in pursuit of excellence', 'guided by critical and creative thinking'. In a paradoxical way, the ambition to leave human limitation behind still links to a belief in the human potential to become, develop, learn – perhaps towards more and greater things than we had previously imagined. While posthumanist theory has a central desire to decentre a focus on the human, it must also acknowledge a belief in the human to be able to do so: potential, in other words.

In a multi-university collaboration, Snaza et al. (2014) call for new approaches to education with the underlying purpose of abandoning anthropocentric perspectives. It poses a similar view on the narrow horizons of the human, while believing humans can be more – as posthumans, perhaps. Hence an interest in the term 'transhuman', to indicate it is a progression, rather than departure. What the posthuman curriculum might do is hard to envision, Snaza et al. (2014) write. Snaza (2013) coined the term 'bewildering' to describe this: 'a grappling toward a radically different sense of what "pedagogy" could mean' for an education system that does not purposefully intend to humanise (p.39). There is a bewildering aspect to GenAI, in terms of its speed, natural communication, and convincingness of information. Snaza (2013) poses it is good to accept that the means of education are not currently clear, because the purpose is: a focus on the 'why', rather than 'how'.

Andersson (2022) refocuses posthumanism by suggesting a continuum that entangles a conscious, interpretive subject with nonconscious cognition, which was also theorised by Katherine Hayles. It suggests the (human) subject as 'retained rather than dethroned' (Andersson, 2022). This could philosophically align with GenAI, as it proposes a conscious, interpreting human prompter interacting with a non-conscious information-generating machine. The issue would occur in allowing an attribution of interpretation and consciousness to the machine. Due to its natural communication technique, and convincing nature of information generated (even when there is a growing awareness of AI hallucinations and misinformation), this may be easily done so. That would lead to Postman's (1992) worrying stipulations of the technopoly. It reaffirms the importance of HE to forefront human potential as an end.

These continuities are becoming more widely recognised in educational theorising, suggesting students are entangled with other intelligences (some of which artificial), and that this requires a re-examination of fundamental aspects of education. Despite a pro-adoption of technology which pervades the UK strategies, the human potentiality of thinking, interpreting, criticality, and scepticism, come forward as retained elements of the humanist narrative in considering the future of education. It is hard to imagine what this education might constitute. It is 'almost unthinkable', but: 'The unthinkable, however, is a good place to begin if we might want to imagine education for a different sort of human from the one we have been thinking with for far too long' (Facer, 2023). The end of education remains human potential, and HE especially, remains the place to boldly explore new potential. There may be a cautionary note needed to the idea of unbridled pursuit of human potential, however. The ethics, critical reflection, and debate that lie at the idea of a university serve as necessary safeguards. There is also the likelihood that potential will (need to) be directed, as many educationalists have theorised more specific aims for the development of the human potential according to their interests, time, and place. Still, it works as a foundation for the unifying narrative which Postman (1996) proposed as essential for education.

6. Conclusion

This paper set out with the ambition to explore whether there might be an end of education that emerges as a common theme for HE in response to the rapid emergence of GenAI. A dominant national view leans towards technology acceptance, meaning UK HE and UK government have adopted the position of *using* the new technology, in a pro-growth and pro-innovation manner, rather than avoiding it. The transformative impact of GenAI is widely accepted as certain and inevitable, which is a determinist stance. However, the exact nature of changes still carries uncertainty, which opens a space for constructivist thinking. Much still depends on human use and decision-making.

The constructivist stance is reflected in UK HE policy-making and position statements. Most of these efforts have focused on 'how' to integrate AI in education, rather than 'why'. The latter is more important to Postman (1996). Without a purpose, education is steerless. But Postman (1996) also warns against the 'false gods' of employment, consumerism, and technology. Taking these as the purpose of education would also spell education's demise. Yet various policies and position statements show that HE may veer towards exactly those ends. This would lead to Postman's (1992) feared 'technopoly', a society where people's worldviews are exclusively formed by technology's determinist influence.

A central value which emerges, however, is human potential. Negative impact of GenAI is perceived as an interference with the human potential for critical thinking, intelligence, creativity, integrity, etc. Yet depending on use, it can also enhance the development of that potential in education. The focus on human potential as a purpose for education aligns well with the history of educational theory. However education is organised, it centres on the belief in the ability of people to become. What they (should) become varies across educationalists. Paradoxically, even in post/transhumanist theories of education, there is a belief in human potential still. So, the end of education should remain human potential (retained rather than dethroned).

Without believing in human potential, educating people becomes meaningless indeed. In HE in particular, the human potential is characterised as driving further, to new creativity, and the distant horizons that these learners (and their societies) might achieve.

Human potential can viably be an end for education, to which technologies are subjected as tools when thinking about 'how' to educate for potential. More work is needed to further articulate this 'why', before tackling 'how' to integrate GenAI in teaching, learning or assessment.

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