

Title: Is the Higher Education Sector Facing Digital Darwinism? Are we ready for AI adaptation?

Abstract:

This developmental paper examines the current knowledge body towards Artificial Intelligence (AI) in education specific to the UK Higher education sector. In an overview of the current scenario, there seem to be two ambiguous alerts within the education system, one side of this coin stresses the potentiality of AI to transform the pedagogy practices while the other side of the coin presents unclear fear of adaptation of AI in the education system. Though government and governance policies emphasise the infusion of AI into the education system, key stakeholders are still apprehensive about AI transformations. This research paper also has objectives to explore the underlying mindset among the academic stakeholders on Artificial intelligence adaptation into current teaching mechanisms fostering the development of digital and cognitive skills demand for future employment tasks. As fourth industrial revolution seeks the integration of technology towards reducing inequalities and developing responsible entrepreneurship capabilities, and this can made possible by knowing the gaps and possibilities from AI applications in detail, stakeholder mindset and flexibility in pedagogical practices.

Word Count-2200

Track - Sustainable and Responsible Business

According to Charles Darwin's theory of natural selection, ***The survival of the fittest*** means every organism must adapt to their environment to survive, not necessarily the strongest and intelligent will survive but the most responsive and adaptable to change will survive. This reflects upon the ongoing revolution in the higher education sector, subject to advanced technologies' influence over the education sector leading to society as well. By incorporating this concept in a higher educational perspective, the current increasing application of AI in Education (AIED) demands an immediate transformation in conventional ways of imparting knowledge and teaching practices. Though with the rising alertness of AI in education and it is being agenda in most academic meetings, relatively there is less clarity on AI integration into conventional pedagogy. Artificial Intelligence (AI) provides promising possibilities to create a customized learning environment for all types of diverse learners.

However, an evolutionary wave of innovation in the Higher Education (HE) sector specifically at university level teaching, digitalization has been on a successful track in since past decade (Vincent Lancrin et al., 2019), steady increase in the use of ICT in educational institutions a, making it part of learning cycle and environment, by digitalizing the learning materials (e-library, virtual teaching, online training, synchronous and asynchronous methods of learning and Moocs). But the question about the tsunamic wave of Artificial intelligence (AI) hitting the educational regime currently, AI adaptation is still at the very nascent and experimental stage, but it has promising potential to transform the education outlook in coming years. This brings fears of Digital Darwinism among the stakeholders augmenting expectations of collaborative and adaptative capabilities of humans with machines to create beneficial purposes of lifelong learning.

Literature Review

This paper tries to explore a comprehensive review of AI in the higher education community from the following three different lenses.

1. Conventional way – AI teaching
2. Digital skills in stakeholder
3. MOOCS vs conventional degree

1. Conventional vs Contemporary teaching practices:

As we are experiencing a notable shift from traditional teaching practices with more infusion of technology to scaffold the diverse learning requirement, student engagement, critical thinking, and problem-solving skills. These skills are becoming prime imperatives at all levels to increase the thinking power to analyse information and make sense of vast data for informed decision-making.

The traditional teaching methods of the 19th century still hold good in current education systems, though it's supplemented with the digitalization of resources such as digital libraries instead of physical libraries, chalkboards replaced by PowerPoint slides, writing replaced by computers and laptops, in some in teaching programmes physical writing exams been replaced by assessments online. However, there has been a revolutionizing shift of traditional approaches towards modern adaptation of interactive sessions as explained in the below table.

Traditional	Progressive
▪ memorization ▪ same content for all ▪ hermetic subjects ▪ IQ tests ▪ didactic ▪ teacher-centred ▪ cognitive intelligence ▪ machine-scored tests ▪ norm-referenced assessment ▪ translation (languages) ▪ closed classrooms ▪ passive reception ▪ national perspective	▪ critical thinking ▪ student choice ▪ transdisciplinarity ▪ range of skills testing ▪ constructivist ▪ child-centred ▪ whole child – affective ▪ essay and project responses ▪ criterion-referenced assessment ▪ audiovisual and audiolingual (languages) ▪ open plan rooms ▪ pro-active participation ▪ multiple perspectives

Figure 1: Source- Evolution in teaching practices since 1960, Hill, I. (2012).

In correlation to G20 countries met, AI dialogue on “Trustworthy AI in education”, which looks forward to the directives towards strengthening more complex skills such creativity, critical thinking, and collaboration, while on another it quite challenging to manage to generative AI reducing the critical writing skills among the learners as academics are experiencing the AI being more reliant source for assessment preparation(Civil, 2023; Zhai, 2022). While at one end the government is figuring out how to harness AI into our classrooms, to expose new generations towards digital citizenship in the digital era (OCED, 2019) and on another end due to the lack of AI entirety, there is consistent fear of academic misconduct or plagiarism among the university learners (Wood 2023; Yau & Chan,2023). The AI applications are still nascent stage though there are clear insights into AI’s beneficial pursuit in augmenting human capabilities and reducing social inequalities, which brings urgent review in the academic sector for AI policy and galvanising further responsible and accountability training towards AI usage.

2 Digital capabilities and skills

According to Futurenow report (2023), 59% of the workforce in the UK is unable to do digital tasks required in their work across all sectors. Considering the elevation of research on AI themes in the education sector though AI has been existing approximately 65 years now (Luckin et al., 2022), currently, it stands crucial to have clarity and adaptation to AI space, while educators are juggling to have sound knowledge on what is AI in education, the most interesting part which educators currently worried is *“Will AI replace the conventional teaching?”*. The Survey report from the Education and Training Foundation (Education and Training Foundation; 2019) found that 24% of teachers consider a lack of confidence in their digital skills as a barrier to using technology in learning. In fact, very interesting research by Nguyen, D. (2018) provides directives that current higher educational universities should be focussing on integrating and empowering the learners with the ability to reprogramme them to the nature of changing technology in the world of work rather than just engaging them in transformative technology.

There is still less percentage of clarity over the practical incorporation of AI into daily life of teaching practices, there is a lurking dull understanding of what AI can do and what skills and capabilities we require to adapt these AI applications. Though Education technology (Edtech) organisations are speedily increasing the momentum of selling advanced AI tools and applications to educational institutions with little information on underlying AI ethics ((Eaton, et. al, 2018). Considering digital Darwinism, AI applications can be catalysts for innovation or threats to those failing to adopt the AI capability reign. Despite AI expansion, the integration and diffusion of AI awareness and knowledge are sparse and incomplete within higher educational institutions. (Cantú-Ortiz et al., 2020; Dai et al., 2020; Ma & Siau, 2018)

In academia, the ethical consideration of AI is critically important to avoid any inequalities and consequences impacting cognitive skills for future employment. There has steep rise in research with positive outcomes on improvement in learners' academic performance and cognitive ability (Li, Gobert, & Dickler, 2019; Van Lehn, Banerjee, Milner, & Wetzel, 2020, Loup-Escande et al., 2017)

3. Mushrooming MOOCs (Massive Open Online Course)

The landscape of the conventional education industry model has been seeing disruption at a constant pace, based on the evolutionary theory of Christensen's theory of disruptive innovation (2012), there is a consistent rise of MOOCs' offerings, which provide customized and targeted guide to meet every learner need (Vah Lehn, 2011). This model has been successfully adopted by well-known and reputed universities across the world such University of Oxford, Stanford, Cambridge, University of Yale etc., based on its flexible characteristics such as flexibility, scalable and cost-effective (Mazoue, J. G. 2013).

Now, being endorsed since 2011 by leading enterprises such as Udacity, Coursera has gained strong attention from governments, the business sector and education institutions. According to Li (2019), traditional teaching mode cannot meet the digital era necessity, as MOOCs have raised the expectation bar of university teaching and information output. Considering the pressure building up on traditional pedagogy practices to bring a transformational shift or we call say wake call to the conventional education sector.

Considering the amplifying shift happening in the education sector, which demands an increase of AI infusion into education (AIED) has caught up with changing AI applications, as AI itself is subject to Digital Darwinism. Though their swift increase of research advocating for AIED their integration and adaptation of advanced technology with Pedagogy seems to be challenged as there is an evident gap of technological knowledge among the academicians striking the polarised opinion with technology experiences with their lack of experiences and understanding of pedagogically community.

Research gap-

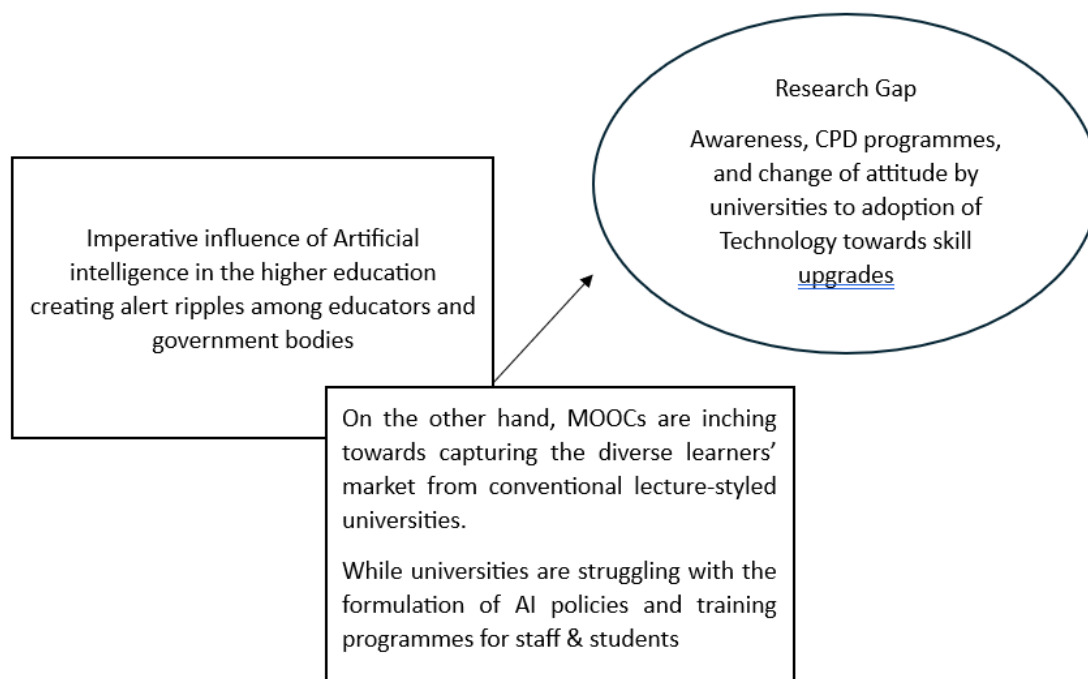


Figure 2: Research gap

Plans to further develop of research paper:

Plans to expand the research by conducting a systematic literature review on the available body of knowledge in relevant journals, aiming to explore it further and identify the existing views on AI evolution and adaptation perspectives at the academic stakeholder community by using a mixed methodology approach to collect the data for the research from various and relevant stakeholders such as educators, policymakers, students and identified MOOCs institutions. This paper will also be looking for research grants to develop into action research to provide a contribution towards policy development as well as easing AI apprehensions in the higher education system.

Conclusion

As discussed in earlier sections, the breakthrough of AI applications is a wake-up call to the conventional education sector. This evolution of technology not only requires technology infusion but also the digital mindset of academics and researchers. The education sector can foresee that rapid development of technology needs agile adaptation and integration before succumbs to the Digital Darwinism phenomenon.

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