

## 2.1. AI and learners

### 2.1.1. AI applications and pedagogy

Despite using state-of-the-art technologies and often being grounded in the cognitive sciences (Anderson et al. 1995), almost every existing commercial AI tool designed to support learners effectively embodies a naïve approach to teaching and learning. The dominant approach involves spoon-feeding pre-specified content, adapted to the individual's achievements, while aiming to avoid failure. In other words, despite suggestions to the contrary, the approach is effectively behaviourist or instructionist, and ignores more than 60 years of pedagogical research and development (in, for example, deep learning, Entwistle 2000; guided discovery learning, Gagné and Brown 1963; productive failure, Kapur 2008; project-based learning, Kokotsaki et al. 2016; and active learning, Matsushita 2018). This behaviourist approach, especially the spoon-feeding, prioritises remembering over thinking, and knowing facts over critical engagement, thus undermining learner agency and robust learning.

To give a parallel example, considerable effort has been expended by the research community and commercial organisations to develop AI-driven e-proctoring. During the pandemic, as a great deal of education moved online, so did many assessments – leading the company businesses of automated exam monitoring, e-proctoring, to grow massively. But the use of e-proctoring is controversial, and has been accused of intrusion, racial discrimination, failing to work properly, preventing learners taking their exams and exacerbating mental health problems, while having little impact on cheating or attainment (Brown 2020; Conijn et al. 2022). This constitutes an example of automating and scaling up poor pedagogic practices, rather than using AI to develop innovative approaches.

A second example is “personalisation”, which is often mentioned by the media, EdTech companies and many policy makers, and is an ambition that has been around for almost 100 years (Watters 2021). If we can have personalised recommendations on Netflix, why can't we do that in education? Indeed Pearson, one of the biggest education companies in the world, may be seen as trying to rebrand itself as the Netflix of education: “Much as you would consume movies through Netflix, or buy services through Amazon, we want education to be delivered through this single, quality user experience, but available to all ages and stages of learners.”<sup>52</sup> However, Holmes and colleagues argued that this misses the point (2018). Some “learning with AI” tools might provide each learner with their own individual pathway through the materials, but they still take them to the same fixed learning outcomes as everyone else. The pathway may be personalised but not the destination. This is a weak understanding of personalisation.

One could argue that personalisation of learning is not primarily about pathways (the micro level of learning) but about helping each individual learner to achieve their own potential, to self-actualise, and to enhance their agency (the macro level

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52. Undelete news (2018), “Pearson aims to become the ‘Netflix of education’”, <https://uk.undelete.news/post/pearson-aims-to-become-the-netflix-of-education/68102>.