

# Disruptors in Educational Technology: A Futurespective Case Study of UK Computing Academics

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## ABSTRACT

The COVID-19 pandemic forced extensive experimentation in how education has been – and may be – delivered worldwide. The increasing use of and dependency on educational technology for diverse aspects of learning, teaching and assessment has been felt across all disciplines, including computing. Similarly, we have seen an explosion in the use and application of artificial intelligence (AI) tools in education, potentially being as significant a disruptor and a catalyst for change as the pandemic itself. This single UK institutional pilot study critically explores how technology may be employed to support and benefit computing students in the face of this emerging ongoing disruption.

## CCS CONCEPTS

• **General and reference** → **Empirical studies**; • **Social and professional topics** → **Computing education**.

## KEYWORDS

Educational technology, AI, perceptions, pedagogy, COVID-19

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A futurespective is an agile retrospective where you start from the goal to find ways how to get there. Teams place themselves in the future by imagining that their goal has been reached, and “look back” to gain insight for better steps to take to create the best end results [2]. The COVID-19 global pandemic significantly impacted the delivery of education [6], including the discipline of computing [4]. Reflections on the use of educational technology to support learning, teaching, and assessment have been widespread [5]; equally, the impact of generative AI technologies such as ChatGPT [3], on education is significant. It is timely for academic faculty to engage in a futurespective to meaningfully co-create an understanding of the challenges and opportunities that such disruptors bring to emerging future models of education.

This preliminary work explores perceptions of computing academics in the UK, following a similar methodology employed in

recent work [1]. We describe the key outcomes of a single UK institutional case study, which consisted of three workshops ( $N=11$  computing academics) using the sailboat retrospective approach [1], where a team envision sailing a sailboat to a tropical island. This approach promotes collaborative discussion among attendees and generates ideas and outcomes. Firstly, participants identified: *Wind*: What have we learned during the pandemic and from our current use of generative AI?; *Island*: What is the ideal outcome for the use of technology in learning?; *Anchor*: What current challenges exist?; and *Icebergs*: What future challenges exist? Secondly, the issues were then classified according to their impact and how challenging they would be to address. The workshop outcomes were analysed using grounded theory; following independent coding, two researchers then met to discuss differences, confirm their understanding, and ensure inter-rater reliability (IRR=0.85). The analysis of participant responses uncovered several themes; the most significant being: the emergence of disruptive technologies (e.g. ChatGPT, GitHub Copilot, etc); the digital, data, and AI literacy of students; faculty confidence and capability with existing and new educational technologies; and time available for faculty to develop the required competencies in emerging technologies.

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