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When generative artificial intelligence meets academic integrity

Educational opportunities & challenges in a digital age

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AUTHOR

ACHALA GUPTA

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The research presented in this report was funded by BERA's Small Grants Fund (SGF), which was set up in 2020 to support educational research. Through the SGF, BERA awards funding annually to research on a different, pressing theme each year with the intention that each project will:

- make important contributions to the discipline by contributing to and leading current debates
- develop research capacity by involving postgraduate students and early career researchers
- receive applications from and involving practitioners and policymakers as well as academic researchers.

In 2023/24, the theme chosen by BERA Council was 'education in a digital age: perspectives from policy and practice'. The aim was to support projects which explored different aspects of the way in which digital technology and practices are changing education, with a particular emphasis on how this impacts on practitioners and policymakers. We made three awards, each of which shares findings and recommendations for practice, policy and future research endeavours in a final report.

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AUTHOR AFFILIATION

Achala Gupta (principal investigator) is a lecturer at Southampton Education School, Faculty of Social Sciences, University of Southampton.

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British Educational Research Association (BERA)
Elizabeth Meehan Suite
Regent House
1–6 Pratt Mews
London NW1 0AD

www.bera.ac.uk | enquiries@bera.ac.uk | 020 4570 4265

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Summary

Our education systems have been acutely shaped by the rapid digitalisation of services (Selwyn, 2016). Recent interventions in the form of artificial intelligence, particularly the rise of language learning models (LLMs) (for example, ChatGPT), have effectively perturbed the teaching and learning industry across educational levels and institutions globally. Despite the plethora of views across sectors, there are relatively fewer empirically charged scholarly discussions on the issue. Redressing this gap, this project explores opportunities and challenges of using generative artificial intelligence (GenAI) vis-à-vis academic integrity in higher education (HE) settings.

Fieldwork for this project was carried out between September and December 2023. It involved semi-structured one-to-one formal interviews (n=10) and two focus groups (n=5) with educators who at the time of the fieldwork also played the role of academic integrity officers (AIOs) across faculties at a Russell Group university in England.

Research findings suggest that GenAI as a shadow education (or e-tutoring) tool can be beneficial in terms of expanding access to multiple knowledge bases and digital skills of future graduates. At the same time, its use has the potential to disrupt current quality assurance practices and undermine university principles and values of cultivating critical and creative thinking and learning skills — notably through the homogenisation of learning experiences often based on erroneous (and un-equalising) assumptions. Furthermore, staff views on GenAI vary by discipline due to, for example, their teaching and learning practices, perceived relationship between HE and the relevant industry, and assessment modes and designs. Key recommendations include a clear university-level policy on GenAI use and a revitalisation of academic integrity education and guidelines in partnership with staff and students across and within disciplines.

1. Introduction

Technology plays a key role in shaping contemporary education. Through inventions such as e-learning platforms, digital libraries, and interactive and personalised learning models and resources, technology has not only contributed to shaping the everyday practices of teaching and learning but has also reconfigured the social construction of educational institutions as well as relationships between teachers and learners operating in those institutions (Selwyn, 2016). The scope of digitalising universities continues to expand with radical technological interventions in the form of artificial intelligence, alongside developments in the field of big data and robotics. These interventions become apparent through the rise of autonomous classroom robots, intelligent tutoring systems, learning analytics and automated decision-making (see Selwyn, 2019, for a discussion on the future of teachers and teaching). These developments have always occurred in a parallel universe to some extent without posing serious threats to everyday educational practices, but more recently GenAI – artificially intelligent chatbots that function using LLMs (for example, ChatGPT) to generate human-like text responses (OpenAI, 2020) – has penetrated these practices incredibly efficiently, perturbing the education sector and teaching and learning institutions globally.

GenAI continues to stir discussions on education policy and practice. UNESCO produced resources to assist nations in taking prompt measures, devising sustainable strategies and building 'human skills' to ensure that these emerging technologies are centred around people (UNESCO, 2023). Simultaneously, regional organisations such as the European Commission (2020) introduced plans including the Digital Education Action Plan 2021–2027, and states such as the Chinese government issued regulations around the use of GenAI. Many of these regulations apply directly to educational settings. Unsurprisingly, therefore, GenAI-related educational changes are also realised at the institutional level, with HE institutions continuing to alter their stance and policies on GenAI usage. For example, the University of Hong Kong removed an initial ban on ChatGPT usage and instead fully embraced GenAI by offering educators and students free access to ChatGPT and Dall-E (see Hsu & Ching, 2023).

Reviews of policies and practices involving GenAI consider it as likely promising for educational purposes but at the same time caution its users of the challenges it presents (for example, Chan & Colloton, 2024; Chiu et al., 2023; Bearman & Ajjawi, 2023; Perrotta et al., 2022; Bender et al., 2021). These tensions build a canvas for this project where the intent is to offer timely and novel insights into the educational opportunities and challenges presented by the use of GenAI vis-à-vis academic integrity practices in university settings, thus effectively addressing multiple knowledge gaps in the scholarship, practices and policies concerning GenAI and education.

2. Research design

This project aimed to explore how staff – who are not only educators but also experts in academic integrity practices – made sense of GenAI in relation to existing practices and policies of academic integrity in HE settings (see Swedberg, 2020, for discussion on the nature and usefulness of exploratory research). The project addressed the following research questions (RQs):

RQ1: How do expert staff (AIOs) view the opportunities created by using GenAI for educational purposes, especially in the context of academic integrity?

RQ2: What are AIOs' perceptions of the challenges presented by using GenAI for educational purposes, including alongside contemporary practices of academic integrity?

RQ3: What are the similarities and differences in staff views on the use of GenAI – including opportunities and challenges – across disciplines?

Fieldwork for this study was carried out at a Russell Group university in England between September and December 2023. It involved interviews (n=10) and focus groups (n=5) with staff who served as AIOs across faculties at the time of data collection. These participants were educators and, as AIOs, they were required to devote a significant proportion of their time to conceptualising, developing, articulating and implementing university policies, guidance and regulations concerning academic integrity generally, and more recently in light of GenAI. Two expert staff members from each of the five faculties – arts and humanities; engineering and physical sciences; environmental and life sciences; medicine; and social sciences – participated in this study to account for any potential differences in approaches to understanding the use of GenAI for teaching and learning across disciplines. This research received ethical approval for conducting an empirical study involving human participants from the University of Southampton (ERGO reference number: 87631). Additionally, the project followed the BERA *Ethical Guidelines for Educational Research* (BERA, 2018).

For the interviews (conducted between September and October 2023), five senior AIOs, representatives of their faculties, were first identified and approached with an invitation to participate in this research. This was purposive sampling to generate data representative of each of the five faculties. Each of the senior AIOs was asked to nominate another colleague from their respective faculty to facilitate snowball sampling using participants' social networks. Nominated individuals were subsequently approached and interviewed. All 10 interviews were semi-structured and involved asking participants very specific but open-ended questions regarding the topic (for example, what are your views on the educational opportunities and challenges generated by using artificial intelligence?). The participants were supplied with appropriate probes and prompts (for example, can you elaborate on your views but regarding academic integrity and within your discipline more specifically?). Thus, the interview guide was curated to produce both generic and broader understandings of the issue, with many opportunities to glean the specific context in which these understandings were situated. This generated more holistic responses to the complex realities of GenAI usage alongside contemporary academic integrity practices.

Subsequently, five senior AIOs who had already been interviewed – one from each faculty – were invited to take part in a focus group (FG). Although all of them were interested in participating, we could not agree on a date that worked for everyone. As a compromise, two FGs were conducted. FG-1 included three AIOs whereas FG-2 included the two remaining AIOs – these FGs were carried out between November and December 2023. Like the interviews, the FGs were semi-structured, and the key discussion point was: what changes to university-level policies and what kinds of educational materials are required to best support staff and students regarding using GenAI in their everyday teaching and learning practices? Probes (for example, can you think of useful prompts for thinking about and discussing the effective and ethical use of artificial intelligence in education for staff and students across disciplines) were used to maintain the focus of the discussion.

Each interview lasted for about an hour and each FG for two hours. These conversations were audio-recorded and later transcribed. The transcripts were subsequently analysed thematically using NVivo software. The qualitative data analysis involved coding each transcript both inductively (thus identifying codes from the data) as well as deductively by identifying codes per discussion in the extant literature on the topic (see Boeije, 2010). The coded transcripts were then reviewed to identify key themes, which are discussed in the following section.

3. Findings & discussion

Research participants identified opportunities and challenges of using GenAI in contemporary practices of teaching and learning, with the challenges discussed primarily in relation to academic integrity guidance and regulations in a university setting. The key themes that emerged, along with disciplinary variations in participants' perceptions, are discussed below.

3.1 THE OPPORTUNITIES GENAI OFFERS & ASSOCIATED CAVEATS

Most research participants recognised that the rapid expansion and adoption of GenAI offer opportunities for educators to revisit and make appropriate changes to their approaches to teaching and assessment, thus potentially enhancing educational practices. Although some AIOs were more sceptical than others, everyone agreed on the increasing pervasiveness of GenAI and felt it would inevitably be embedded in educational practices, with many HE institutions already making necessary investments to realise this aspiration (see, for example, Russell Group, 2023).

Some AIOs talked about using GenAI as a teaching and learning tool for introducing and simplifying complex phenomena followed by critical appraisals. Many of them saw the potential of GenAI technology in initiating conversations with students. Comparing it with Wikipedia and Google search, these AIOs felt that tools such as ChatGPT have the potential to present complex ideas in simple words using common and accessible phrasing, thus aiding the process of introducing a new topic (see Chiu et al., 2023, for examples of intelligent tutoring systems). However, acknowledging the possibility of GenAI providing an erroneous knowledge base (see Bender et al., 2021, for discussion), these AIOs felt strongly that educational inputs from GenAI ought to be critically discussed in the classroom to ensure deep learning. Critically appraising GenAI-generated outputs, often with the ideas and knowledge produced through discussion with students, was deemed useful by research participants to enable the students to observe the benefits and limitations of using GenAI. This approach,

some AIOs felt, would not just ensure engagement with GenAI in learning (which they felt would be inevitable as the technology becomes embedded in most aspects of social life) but also teach students not to rely on it solely for accurate and well-thought-through results.

GenAI has the potential to expand the knowledge and skills the universities provide to future graduates, thus radically enhancing students' HE experiences. Given the pervasiveness of GenAI in a variety of employment sectors, such as health and business, some AIOs felt that teaching and learning in the future will be mediated by this technology. AIOs from engineering, for example, suggested that akin to the changes brought to HE through the incorporation of computers and calculators, it is possible that the more time-intensive aspects of a student's work can be reduced, thus offering learners and educators more time to focus on higher-level and more creative work that might be more in alignment with human intelligence. This speaks to the ongoing discourse on the relationship between education and machine learning (see Alpaydin, 2016). Simultaneously, some AIOs argued that the expansion of machine learning may also mean topics such as data analysis, data scraping and data visualisation will be taught with the use of artificial intelligence tools to enhance human capability, thus matching the skills needed in the future employment landscape across fields and enhancing students' experiences in university settings concurrently. These productive notions regarding GenAI are premised on its transformative potential to mediate the relationship between education and work.

Finally, AIOs talked about students using GenAI as a personal tutor to engage more effectively with their educational materials. Some AIOs alluded to the opportunity GenAI offers for overcoming language barriers, especially for students whose first language is not English, to support communication with their peers and educators (see Coronado et al., 2018, for a case of learning Java programming with the help of a cognitive assistant). Some AIOs suggested

that GenAI can prove to be an excellent coach and provide students with, for example, resources to work with when they apply for internships or future jobs (including CV templates and formatting conventions for job applications). Another example shared was using GenAI-powered translation software to access knowledge produced and written in other languages. For example, this software could be used to translate texts written in Russian or Germanic languages to bring those conversations into a history research project, especially given that fluency in those languages is not assessed but including those perspectives can helpfully bolster the arguments a student may be making. These examples speak to the scholarly discussion on the use of intelligent tutoring systems for personalised learning and support (see Alkhatlan & Kalita, 2018, for a review), thus adding further complexity to existing deliberations on shadow education (Gupta, 2023; 2022a; 2022b; 2021).

3.2 THE CHALLENGES OF USING GENAI IN CONTEMPORARY HE SETTINGS

Most AIOs maintained that the use of GenAI undermines the principles and values of universities. Alongside problematising GenAI tools for reproducing problematic and likely erroneous knowledge (as mentioned above), AIOs highlighted the implications of GenAI usage in homogenising students' relationship to learning (for example, producing texts in similar styles using specific approaches only), thus potentially leading to the demise of creativity in students' HE experiences (see Chiu et al., 2023, for discussion on this theme). This process, the participants felt, could be challenging to monitor and manage with the widespread use of GenAI by students unprompted by educators.

All the research participants highlighted that GenAI challenges learning and assessment practices and poses a serious threat to contemporary measures of ensuring academic integrity in universities. They discussed how the use of GenAI tools can potentially de-skill students if they continually *rely on* these tools (and not just use them when needed) for their engagement in lectures, structuring their work and articulating their ideas (see similar findings in Darvishi et al., 2024). This in turn raises the question of what students are being assessed on and the implications of the lack of clarity on how GenAI use speaks to discourses on current assessment criteria and

practices. Moreover, staff maintained the necessity of broadening the definition of a breach in academic integrity and associated regulations, especially given that currently there is no software which can adequately determine the use of GenAI and the extent of that use in students' assessments. The lack of possibility of monitoring GenAI use significantly compromises equity in assessments and quality assurance of HE qualifications.

Finally, when contemplating the ways to navigate the GenAI landscape, all research participants talked about the difficulty of securing consensus among staff whose views on this may differ by, for instance, their personal and professional attitude, discipline and experiences in HE. Participants shared that although some of their colleagues appeared to be proactive about using GenAI, others found it detrimental to their educational practices and therefore expressed resistance in using it. Similarly, staff in some disciplines, particularly where the use of artificial intelligence and GenAI was viewed as important to future employment, were assumed to be more forthcoming in making use of this technology in their teaching and learning than staff members in other disciplinary contexts. The existence of multi-layered differences in staff views about its use and uptake, many AIOs felt, had serious implications for the implementation of GenAI-related changes to HE practices, including providing students with guidance on its use across and within degree programmes consistently.

3.3 DISCIPLINARY VARIATIONS IN UNDERSTANDING GENAI-LED OPPORTUNITIES & CHALLENGES

There were notable disciplinary differences in how research participants articulated their willingness to harness the opportunities arising from the use of GenAI. Specifically, its use was deemed less helpful in teaching undergraduate medicine courses where greater emphasis is placed on practice-based learning, teaching and assessment models. In contrast, its use was advocated for accessing knowledge produced in a foreign language to enhance arguments in history. In engineering, where artificial intelligence is often used in teaching and learning, GenAI was seen as a mechanism that can assist students with saving time by using it to perform everyday computational tasks while simultaneously allowing students to be exposed to more complex ideas earlier in their degree programmes.

Similarly, the key disciplinary variations in understanding GenAI-induced challenges and explaining them stemmed from disciplinary-rooted learning and assessment practices and future employment prospects. AIOs from the disciplines that focus on assessing students' knowledge predominantly through extended written assignments (which often take place in social sciences, and arts and humanities) were more likely to see the use of GenAI as a crisis than their counterparts (in medicine, for example, where most assessments are exam-oriented). Moreover, in fields such as engineering where artificial intelligence is generally embraced less reservedly both within academia and in relevant industries, the AIOs felt that students *ought* to learn the processes that can eventually be fast-tracked by using GenAI tools, as not knowing this may have potential ramifications for students' employment opportunities.

4. Conclusion & recommendations

In conclusion, this research acknowledges the unique set of opportunities GenAI tools provide for enhancing the teaching and learning potential and capabilities of educators and students in HE practices, but it also underscores the challenges these tools bring to the HE sector. The following recommendations may aid universities, staff and students in harnessing those opportunities while simultaneously mitigating the challenges.

4.1 FOR UNIVERSITIES

1. Universities should have a clear stance and a co-ordinated approach towards the use and misuse of GenAI, which should be readily available for staff and students to refer to.
2. Staff should be provided with upskilling training and support to maximise the opportunities GenAI brings to their subject and discipline and address the challenges it may pose.
3. Education policies, including those related to academic integrity, should be reviewed and revised if necessary and made flexible enough to accommodate changes in the ever-evolving field of GenAI. They need to respond effectively to GenAI-led transformations that are often rapid and radical.
4. Universities should create opportunities and platforms for dialogue among staff in consultation with students (or their representatives) to discuss how GenAI can enhance HE experiences, address emerging educational challenges, implement policies effectively and enforce best practices regarding GenAI usage.

4.2 FOR STAFF & STUDENTS

1. Clear guidance should be provided to students on the use of GenAI and the permissible extent of using GenAI outputs for specific assessments, with additional requests made to declare GenAI assistance to ensure a fair assessment. This guidance should be consistent with the assessment specifications and learning outcomes of each module and the respective degree programme.
2. Given the likely unmonitored GenAI use by students, staff should consider reviewing their assessment rubric to see if this needs to be adapted to effectively assess students' learning outcomes, which may need to be reconsidered as per the formal allowance and anticipated use of GenAI in writing assignments.
3. If institutions decide to embed GenAI in teaching and learning, then it is vital for staff to reflect on the ethical use of this technology in their practice, with necessary pedagogical importance being given to critical thinking, reading and writing skills across degree programmes.
4. A much greater focus should be placed on academic integrity education in order to maintain quality in all aspects of teaching, learning and assessment in HE. Staff should lead by example and actively engage with students to encourage responsible and ethical behaviour. This is particularly important for students who may be vulnerable to misusing GenAI or engaging in academic dishonesty more generally.

Since GenAI is rapidly evolving and the notions and practices of academic integrity are correspondingly constantly transforming, more research needs to be done to capture moments of change to fully comprehend educational opportunities and challenges in this GenAI-led digital age.

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