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GENERATIVE ARTIFICIAL INTELLIGENCE IN HIGHER EDUCATION: BEYOND THE SHORT TERM

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Abstract

The advent of GenAI (Generative AI) has created a number of challenges and uncertainties for Higher Education. Much of the early discussion of these challenges has focused on what educators should do as an initial response, and on the need to maintain integrity of assessment given that GenAI can create text which is polished, and at least superficially meets the requirements of the type of essay that students are expected to produce.

This emphasis on immediate steps to adapt to availability of GenAI, and to recognise instances where approaches to assessment need to be altered, was entirely appropriate in the short term, but does not address how GenAI can fit into Higher Education in the longer term. This paper addresses how universities can and should adapt to GenAI beyond the initial response, and how academic staff should be involved in this process. It draws on theories of change which can be applied to various innovations and on the need for multiple players within a university to accommodate the impact of this emerging technology. It is grounded in the authors' participation in the change process as academics, teaching in a Business School, with an interest in technology innovations and their impact on pedagogy in particular.

University managers and those responsible for quality assurance and for determining pedagogic policies need to make decisions on how to address the use of GenAI and ensure that policies are clearly understood and agreed. Adapting to GenAI needs discussion and consensus that runs across different functions within a university and is not something which can be determined within organisational silos.

Keywords: Generative AI, higher education policy, theory of change, management education

1 INTRODUCTION

Among the challenges which academics and others working in higher education need to address are that it remains unclear what possibilities GenAI will offer in the longer term. It is tempting to dismiss it as a tool of limited value, for example because of its tendency to generate hallucinations, while overlooking the likelihood that these limitations will be overcome before long and indeed the experience that since their inception the current GenAI tools have already improved significantly. Similarly the level of engagement with GenAI among academics in particular varies considerably: it is likely to become increasingly difficult for anybody working in Higher Education to ignore it completely and universities' policies on GenAI need to include some consideration of how to support staff who are reluctant to learn about it or to engage with it.

From a student's perspective GenAI is a tool that they encounter in their everyday life and one which they can learn to use effectively. It is neither realistic nor constructive to expect students to avoid using GenAI completely and indeed to do so would lead to them developing skills which are already outdated when they graduate. Nevertheless in many disciplines students need to produce original, clear, and persuasive written work and the availability of GenAI creates new constraints around how this can be enabled and assessed. An ability to evaluate critically sources of information and to build on them is essential for university students and GenAI introduces both challenges and opportunities here, for example the need to understand prompt engineering.

2 METHODOLOGY

The authors became actively involved with GenAI in 2023 via individual personal experimentation and small scale deployment [1]. These disparate experiences led to joining forces to focus specifically on reskilling of the academic workforce, which hinged on three main approaches. Firstly, through

membership of institutional, national and international communities of higher education and business practice. Secondly, through tracking the work of a handful of early adopters, both academics globally and business practitioners up to and including CEO level. Thirdly, through developing examples of use cases applicable to both higher education degrees and to executive education in business,

The authors' specific focus is on undergraduate management education, which in their university as in many others accounts for a large cohort of students. The Business School's location, within London's financial district ("the City of London"), leads to close collaboration with employers which has informed successive pedagogic developments. This paper, in determining a suitable approach to incorporating GenAI, draws on the school's response to three previous events over past years: the financial crises of 2001 and 2008, a significant expansion in student numbers over the period from 2015 to 2020, and the Covid pandemic starting in 2020.

Throughout these changes a useful theoretical basis for the change proved to be an equation applied by Dannemiller and Jacobs who cite Beckhard, Harris, and Gleicher as its creators [2]. Change occurs when the condition represented here is present:

$$D \times V \times F > R$$

D represents dissatisfaction with the current situation, V the vision of what needs to be achieved, and F the first steps towards fulfilling that vision. R represents the resistance to change. Dannemiller and Jacobs allude to Argyris's concept of double-loop learning as an aim for a programme of change, having the potential to challenge norms and assumptions and to address the underlying causes of problems that could be the prompts for change.

3 EXPERIENCE OF PAST CHANGES

3.1 Financial crises

The 2001 and 2008 financial crises challenged a number of certainties that at the time informed management education and changed many of the expectations held by employers. The authors identified a need for a shift from an emphasis on rational, predictable, skills among students. This period led to the emergence of a number of new ideas around management education. Mintzberg, an influential figure in business strategy and a long-standing critic especially of MBA courses, argued for a closer link between management education and management practice, and a move towards what he termed the art and craft of management more than the science [3]. Critical Management Studies developed as a field of research within which established areas of management were studied in ways which were radically different to what had been accepted before [4].

Colby et al, as an output from work by the Carnegie Foundation, propose an approach to business and management education based around four dimensions: analytical thinking, multiple framing, reflective exploration of meaning, and practical reasoning [5]. There is a thread within this of recognising complexity and the extent to which management problems can look different from a variety of perspectives, and of relating reflection and analysis to practical actions. The authors and colleagues developed an approach, in line with these dimensions, to teaching undergraduate students business skills based on reflective practice, and also an elective module where participants could dive more deeply into reflection on their own distinctive perspective on an uncertain world. This was an explicit response to the 2008 financial crisis and the need to prepare students for an environment that neither they nor the teaching faculty could predict and what might be termed the DNA of this approach has continued to inform skills teaching in the Business School since then.

In this context, dissatisfaction with the status quo stemmed from the shortcomings of established views of business and management education. The new teaching materials constituted first steps towards a vision of a more reflective approach, and these provided sufficient impetus to overcome resistance from the effort needed to redesign course material.

3.2 Increased student numbers

From 2015 to 2020 the undergraduate programme within the Business School expanded considerably from a typical first year intake of 250 students, split between two separate courses to a first year intake of over 600. This reflected the popularity of business and management undergraduate courses across the UK as a whole and an opportunity to build on connections with the City of London and on the work

that had already been done to create a course which prepared graduates for a changing world. The course's success in attracting students was key to the overall success of the university.

This expansion necessitated significant pedagogic innovation based on the principles that participants in the course, given that they were part of a very large cohort, should have a significant element of small group teaching and should be expected to work in an environment where they needed to contribute actively to their own learning. In parallel with building on the existing approach to skills training, with students working in seminar groups of around 20 which in turn were subdivided into teams of four or five who needed to collaborate actively with one another on assignments, a module on Critical Analysis [6] based on Problem Based Learning was introduced for first year students. This used the textbook by Chatfield [7] as a core resource and was based on students working in groups of typically 16 and taking it in turns to lead discussions.

Additionally students participated in an activity where a small amount of conventionally taught content was integrated with an online role play simulation with initially 9 challenges – later reduced to 5 challenges purely because of constraints on the time available within the curriculum – carried out in groups. Students were allocated a professional role, but the “CEO” role rotated each round of the simulation, so that all had experience of dealing with the stresses of this role.

In this context dissatisfaction with the status quo stemmed from a recognition that without change it would be difficult to benefit from the potential arising from a strong demand for undergraduate management education. First steps, notably the Critical Analysis module, aligned with the vision of creating a large scale course where students were active learners and experienced small-group teaching. Resistance came from an attachment to material and structures within the course which had been present for many years.

3.3 Covid pandemic

Early 2020 brought a further external factor with the Covid pandemic. In many countries including the UK this led to an immediate imperative from March 2020 to move existing teaching online, and this presented a particular challenge to institutions such as the authors' university which had placed a strong emphasis on their city centre location and their connections with local employers. One of the authors, whose induction talk to new students at the start of their time of undergraduates typically included a reminder that they were not taking a distance learning course, was in the position of telling some of the same students a few months later that they were in fact going to experience distance learning.

The early stages of the pandemic were characterised by what became known as “emergency remote teaching” [8] with the rapid adaptation of existing material to be delivered online and rapid marshalling of resources to make this possible. There is a contrast between this and the ongoing effect of the pandemic, and one of the key lessons from the experience was that student expectations have been changed irrevocably, partly because it is now a matter of everyday experience that certain sorts of learning can be delivered online even in an environment where the primary approach to instruction is face to face.

In this context dissatisfaction with the status quo represented the impossibility of continuing to deliver education without adaptation. Given the speed and absolute necessity of change in this context it is hard to identify first steps as being distinct from the vision, and in practice there was little resistance beyond practical barriers such as lack of knowledge among staff of how to teach online.

4 RESULTS

4.1 Context

The focus in this paper is not on GenAI technology itself. It is by contrast on what changes are essential in curricula and pedagogic practices in the non-technological dimensions of undergraduate management education. These are of two broad categories. Firstly, there is a further need to address the problems and risks in dependence on GenAI. Secondly, there is an opportunity to rebalance the undergraduate management curriculum by reducing the often heavy emphasis on technical knowledge of multiple disciplines, and significantly increasing the emphasis on generic qualities, most importantly on critical thinking and related skills, in line with the proposals explored by the Carnegie Foundation.

In seeking a phrase which sums up willingness to combine active use of modern technology with an unashamed focus on non-technological thinking and dialogue processes, a first thought was “*High tech,*

high touch" [9]. But the authors subsequently encountered the motto of the University of Twente, Netherlands. This is not expressed in Dutch, but in English, and almost exactly sums up the pedagogical ambience that they have been aiming for:

"high tech, human touch" [10]

4.2 Responses to GenAI

There is an important parallel between the advent of GenAI and the Covid pandemic in that there is a contrast between initial reactions and longer term measures. Initial responses to the availability of GenAI focused on the risks to established approaches to assessment, and as with the pandemic dissatisfaction with the status quo was immediate, this time because of the concern that students could use GenAI to fabricate written material for assessments, and resistance was largely due to lack of knowledge among educators.

By mid 2024, it had become clearer that even at national level, and certainly within institutions, there was relatively little appetite for addressing the non-assessment dimensions of GenAI. Of course, there have been notable exceptions, typically arising from bottom up innovation, rather than top-down policy. Many commentators with deep GenAI expertise in higher education have argued that its effects are so profound (both risks and opportunities) that there needs to be a strategic review of pedagogic strategies, replacing those which have remained relatively little changed during the 20th century, if not earlier. In this way there are parallels with the need to rethink management education in the light of the financial crises.

It became clear to the authors that given the incremental and tactical approach to GenAI being taken in practice, it was becoming essential to spell out the risks involved in that relatively passive approach, as well as the opportunities to shift higher education curricula from their traditional practices that were increasingly poorly aligned with the needs to employers, certainly within a business school context. Most worrying was the lack of investment in reskilling the entire higher education workforce to be personally confident in hands-on use of GenAI. The focus in the body of work reported here is on a second worrying feature, namely the failure to adjust pedagogic strategies and tactics. This is in the context of GenAI broadly undermining traditional assumptions about demonstrating the acquisition of key skills in learners in a form relevant to current and future employers [11] [12] [13]. In the same way that earlier changes have demanded cooperation between people in different roles within a university, GenAI has different implications for different aspects of higher education [14] [15] [16]. There is a tension between striving for clear guidelines and standard approaches and the need to apply GenAI in different ways in different pedagogic contexts. Prompt engineering is recognised as one skill that students do need to learn in response to GenAI and others can be expected to emerge [17] [18]. Along with providing students with this and other related skills it is essential that staff within a university are competent in the use of GenAI and realistic in understanding what it can do.

5 CONCLUSIONS

These concrete experiences lead to a number of conclusions about key non-technological pedagogic approaches that not only are much less vulnerable to assessment problems in traditional essay courseworks, but which also address central needs of employers in an era where GenAI is already playing an everyday role in business practice. What is particularly noteworthy is that that these approaches collectively provide a foundation for being able to consider all aspects of technology development in a holistic fashion, critically embracing ethics, social and humanistic dimensions faced by individuals, organisations and societies.

5.1.1 *Innovation can be implemented at scale*

5.1.2 *This requires high-level support both in terms of risk acceptance and of providing the necessary resources*

5.1.3 *The experiences over more than two decades have established a base position where there is a pedagogic style capable of addressing the "human touch" needs sought by employers and which many faculty and students see as key leadership qualities.*

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