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University College Cork, Ireland
Coláiste na hOllscoile Corcaigh

# Using GenAI in Teaching, Learning and Assessment in Irish Universities

# USING GENAI IN TEACHING, LEARNING AND ASSESSMENT IN IRISH UNIVERSITIES

## Examples from the Disciplines

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Dublin



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# PART I
# INTRODUCTION

# FOREWORD



# Using GenAI in Teaching, Learning and Assessment in Irish Universities

Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin

University of Limerick
Ireland

University College Dublin
Ireland's Global University

DCU
Ollscoil Chathair Bhaile Átha Cliath
Dublin City University

Maynooth University
National University of Ireland Maynooth

Ollscoil na Gaillimhe
University of Galway

UCC
University College Cork, Ireland
Coláiste na hOllscoile Corcaigh

TU Dublin

While Generative AI technologies have existed for many years, recent rapid advances in the field have pushed these technologies into mainstream use across society. As higher education institutions grappled with these new technologies, initial responses focused on potentially significant threats to academic integrity. However, as our understandings have evolved, there is an increasing awareness that these developing technologies also present opportunities for teaching, learning, assessment and research in higher education.

Against this rapidly evolving backdrop, we in the Centre for Academic Practice (Trinity College Dublin) found ourselves faced with new challenges. How could we best support our educators to respond to the challenges of GenAI? How might we influence and support strategic initiatives and policy development regarding GenAI for teaching, learning and assessment at the institutional level? Conscious that our colleagues across the sector were facing similar challenges, we decided to initiate a cross-institutional collaboration with teaching and learning leaders from across the sector, where we could tackle this together!

Teaching and learning networks across the Irish higher education sector are well established, thanks to the National Forum's valuable work in seeding and nurturing communities of practice, and to the collegiality, support and good will of colleagues across the sector. Building on these networks, we approached teaching and learning leaders from across the seven universities in Ireland with the idea of collaborating to collate and share evidence-based practices in using GenAI to enhance teaching, learning and assessment. We are very grateful to these colleagues for their immediate acceptance of this invitation and for their enthusiasm, commitment and dedication to making our aspirations a reality.

With this publication, we aim to promote AI Literacy, inspire new teaching, learning and assessment approaches and spark innovation across disciplines in higher education.

The process began in January 2024, with 12 collaborating partners from the seven Irish universities, all of whom were teaching and learning leaders within their respective institutions. At this initial gathering, it was agreed that these partners would collaborate as co-editors of an open access publication which would comprise a collection of "use cases" showcasing how GenAI was being used by educators across the sector. Recognising that many staff were still at the "experimentation and exploration" stage of using GenAI, it was agreed that use cases would focus on identifying and sharing experiences, challenges and emerging practices with a view to expanding the knowledge base in this rapidly evolving area and informing future teaching and learning practices.

By June 2024, over 30 use cases had been collated through this collaborative effort. These use cases provide a valuable insight into how educators are responding to the challenges, and taking advantage of the affordances, of GenAI across a wide range of disciplines.

This publication opens with two reflective and insightful chapters from K.C. O'Rourke (TU Dublin) and Billy Kelly (National Academic Integrity Network): both chapters frame, and offer a contextual foundation, for the practitioner-focused use cases which follow. Each use case then captures how GenAI has been used within a particular academic context followed by authors' critical reflections on their experiences. These reflections underline the value of each use case as a meaningful learning opportunity: both for the authors themselves and also for you the reader.

We hope that these use cases inspire you to build upon the learning of others and harness the potential GenAI within your own practice.

Ana Elena and Pauline.

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Cover Design : Ms Florentine Poissonnier Faur. Images at the top of each example were created with Copilot.

We extend our heartfelt gratitude to **Billy Kelly**, Chair of the National Academic Integrity Network, and **Kevin O'Rourke** from Technological University Dublin, for their invaluable contributions to frame the teaching, learning and assessment practices of this publication.

We greatly acknowledge Dr Caitríona Ní Shé, Dr Claire McAvinia and Kevin O'Connor for their invaluable contribution to the final editing process of this open resource.

## Note to readers:

This is a live publication. If you are interested in contributing to this open resource and sharing your practice, please contact schalka@tcd.ie.

PART II

# GENAI IN HIGHER EDUCATION: REFLECTIONS ON A RAPIDLY CHANGING LANDSCAPE

# WHAT IS INTELLIGENCE ANYWAY? AI AND HIGHER EDUCATION IN THE 21ST CENTURY

**K. C. O'Rourke.**

Technological University Dublin.

My younger son recently finished secondary school, where he enjoyed computer science and did very well in that subject in his Leaving Certificate. When it came to his choices for university study, he listed computer science courses as his top three options. He had wanted to study classics, but that subject was not available to him at his school, so he had opted for computer science instead. Earlier in the summer, my partner had a conversation with him and asked if he was happy with his stated choice of university courses. After some to-ing and fro-ing, he revised his application form and placed classics as his first choice. He was offered a place on a classics course which he accepted and has now started at university. Some of my friends have expressed disbelief at what he had done. Computer science is surely a far better option in the twenty-first century than studying dead languages and ancient history, right? What are his job prospects going to be with a degree in classics? I am aware that this is a luxury afforded to him, not least because in Ireland our university fees are very low compared to other countries. Nonetheless, I think he made the correct choice. His future career is not exactly clear, but he is pursuing something that he really wants to do. Which brings me to the question I was trying to address in writing this piece throughout the time he was changing his mind: what is the value, if any, of higher education?

## Purpose of Higher Education

In these days of perpetual-crisis news headlines – exacerbated by attention-hungry algorithms and profit-hungry social media corporations – the purpose of a university education is not always clear. Conspicuous billionaires who abandoned their studies at private colleges in favour of entrepreneurial endeavours may suggest that university education is unnecessary, possibly even irrelevant, for success in the world of business. So why bother with university education at all? For most people, income and education levels are inextricably linked – medicine, engineering, computer science, among others, all attract high earnings – but does possession of a university degree signify anything beyond employability? Do humanities subjects and those with less practical application have any relevance to twentieth-first-century life? What is a degree worth anyway?

From the US to the EU, many of the traditional assumptions about higher education are now regularly questioned, with much scrutiny of the internal functioning of our universities, not least with regards to our use of public funds. Inside the academy, rather than resisting this, we should take heed. We need to

ask whether working in publicly-funded higher education is a privilege or a public good (or, indeed, both). What is the point of maintaining academic departments that teach subjects with low practical application, such as classics, philosophy, and the humanities more generally? Should our universities prioritise career skills for the economy over intellectual and personal development? This questioning extends beyond the scope and purpose of higher education to issues of academic freedom and the content of the university curriculum: should academics be sanctioned if their pronouncements extend to criticism of financial benefactors or of government policy, or if they wish to express support of (or indeed opposition to) foreign wars and regimes?

## The impact of GenAI

Add to all this the arrival on the scene of ChatGPT and other Generative Artificial Intelligence (GenAI) tools. Just when academia got used to the idea that internet access is here to stay and may even be a good thing – thanks in part to continued connectivity achieved throughout the COVID-19 pandemic – GenAI landed as an even bigger bombshell. The breakneck speed at which all digital things are evolving has brought with it the integration of artificial intelligence (AI) into almost all human activity. This digital revolution has caused alarm, even outrage, at many levels. From questions of bias and surveillance to potential existential risks posed by superintelligent systems, the unknown implications of AI loom large in everyday discourse. Across the industry, there is a widespread fear that certain professions will soon be rendered redundant, while in higher education the debate has largely been one of suspicion, with fears of AI-generated student work diluting standards, prompting heightened vigilance in assessment and a tightening of academic integrity criteria.

Clearly, we cannot simply ignore GenAI. And so, the big question has become how we respond. After the initial panic, discussion within the academy has moved on somewhat, and now centres on whether GenAI is a blessing or a curse, and how we might control and direct its use by students. But it is clear that if an algorithm can produce top-quality reports and read medical scans with greater precision and speed than a human can, many of the traditional approaches to teaching and learning will need to be revised in a way that actively facilitates the usage of such tools. And that could be painful. And relentless. As humans, we tend to stick with what we know, and as educators we tend to rely on the methods and techniques used when we ourselves were students. But as long as our internet connections hold, and while the underseas cables that connect the web remain intact and rogue programs are prevented from disabling our systems, GenAI is here to stay. As intelligent humans, we must learn to live with it. And we should help our students to use GenAI for the greater good, in a manner that helps rather than hurts the world, in turn bringing us back to the initial question regarding the value of higher education itself. To do that, we must understand what it is that we mean by artificial intelligence, and how it differs from what is achievable by humans.

## Intelligence

So, what do we mean by intelligence? *Britannica* succinctly says that human intelligence is a "mental

quality that consists of the abilities to learn from experience, adapt to new situations, understand and handle abstract concepts, and use knowledge to manipulate one's environment." Wikipedia, the bête-noir of academia, helpfully adds that intelligence differs from learning, as the latter "refers to the act of retaining facts and information or abilities and being able to recall them for future use," while intelligence "is the cognitive ability of someone to perform these and other processes." Intelligence, in turn, is related to the possession of knowledge and truth. As humans, not only do we know things, but we know that we know things: this belief, although not unchallenged, has often been held up as the characteristic that distinguishes humans from other animals. Such metacognition can take us into the realms of philosophy and psychology, as well as the worlds of pedagogy and even computer science. And it may well be that these disciplines are not so different after all, a revelation long known to many but which may provide the foundation for a new way of thinking about the university and its disciplines.

For most of the twentieth century, Anglo-American philosophy was dominated by what has been called the linguistic turn, an idea rooted (ironically enough) in mathematics and logic. Put simply, it is the idea that human language and its relationship to the world are all that we can use to constitute and represent (and thereby understand) all reality. In the words of Austrian philosopher Ludwig Wittgenstein's *Tractatus* (1922), a work composed in part during his time as a soldier in World War 1, "The limits of my language means the limits of my world". This was also the era of James Joyce's *Ulysses* (also 1922 and composed during wartime) and of *Finnegans Wake* (1939), both dense texts which are either works of art and genius or utter nonsense, depending on your perspective. Joyce's use of language, certainly in the latter work, breaks all the rules of logic and is therefore considered to be art: some have made the same claim for the Tractatus which ends: "Of that which we cannot speak, we must pass over in silence." Wittgenstein's *Tractatus* is dense, and some would say impenetrable, both in the original German and in its English translations. In fact, he later refuted some of his earlier work in his posthumous *Philosophical Investigations*, a work composed in part during his time in Ireland (a plaque commemorating him sits on the steps in the Glasshouse at Dublin's Botanic Gardens). In a similar vein, discredited German philosopher Martin Heidegger, in his 1947 "Letter on Humanism" observed that language contains all of human reality: "Language is the house of Being. In its home man dwells" (i.e., that somehow all reality is contained in language). The twentieth century can indeed be characterised as the century of language (in Ireland characterised by attempts to reintroduce the Irish language as the vernacular). And so, it is not really surprising that language – specifically large language models – rest at the foundation of what has come to be known as artificial intelligence.

The phrase Artificial Intelligence (abbreviated as AI) was first popularised by John McCarthy, an American mathematician, in 1955 in support of a funding application for a proposed summer workshop at Dartmouth College. The study, he proposed, was based on the idea that "a large part of human thought consists of manipulating words according to rules of reasoning and rules of conjecture", and would "proceed on the basis of the conjecture that every aspect of learning or any other feature of intelligence can in principle be so precisely described that a machine can be made to simulate it". Consequently, he proposed that "an attempt will be made to find how to make machines use language, form abstractions and concepts, solve kinds of problems now reserved for humans, and improve themselves." Essentially, McCarthy was putting into practice what the philosophers had been saying during previous and

subsequent decades that, in essence, language contains all human reality. Such an idea of reality, while attractive at one level, would appear quite limiting at another. To my mind, it seems a rather reduced way of looking at the world (to adopt academic language, it appears epistemically plausible but ontologically impoverished). Nonetheless, the essence of this idea has made its way into other disciplines, and by the late twentieth century, the linguistic turn had become very evident across the humanities and social sciences.

But this "Artificial Intelligence" is not intelligence at all, or certainly not intelligence as we attribute to humans. In fact, in many circles AI is known as Machine Learning, a far better term for what at base is a pattern-matching function. AI software is designed to reprogram itself in the act of pattern-matching: as the program is exposed to more and more accurate data, the more likely it is to reflect patterns correctly, in a manner recognisable by humans. For example, as English-speaking, literate humans we instantly recognise the letter sequences "ABCDEFG" and "abcdefg" as the first seven letters of the alphabet in upper and lower cases. We also recognise that "Abacus" and "abacus" are correct versions of spellings, while "aBBacuS" is almost certainly incorrect except, perhaps, as an imagined brand name (apt, perhaps, for an emergent software development company). We have learned this as part of our education in primary school, and our ability to recognise these patterns as words that may mean something in the context of other words and sentences remains with us as long as that part of our brain continues to function. If we encounter sentences such as "The abacus looks like Gavagai" or "The gavagai penholders the Abacus", we will be given pause for thought, because the sentences seem to make sense but ultimately do not (unless, perhaps, we are familiar with the philosophy of Ludwig Wittgenstein and/or W.V.O. Quine). This is clearly a part of (but not all of) human intelligence.

Software can be programmed to recognise patterns by exposure to the billions of examples available to it on the internet, placed there by humans in the act of communication both in commercial and non-commercial contexts. Such programs can recognise that capital letters are used in certain places and lowercase in others, and that certain letters and words follow patterns, which allow it to predict the next letter or word. It "knows" this (or more accurately, it identifies this pattern) because of the billions of examples it has matched in the data that has been made available to it[1]. As anticipated by McCarthy, AI can go further, and correct errors based on probability via the number of pattern-matching examples it is presented with. It can go further still and create new patterns of letters and words in sentences that reflect the identified patterns and make sense to humans. And it can go yet even further and create meaningful sentences that are recognisable to humans as grammatically and syntactically correct, but which are either inaccurate or bear no relation to reality: asked to summarise the plot of Ulysses (March 2024), ChatGPT stated that "The novel culminates in a surreal episode at the seashore, where the two protagonists briefly converge before parting ways" which readers of Joyce's masterpiece will recognise as incorrect. If challenged about such mistakes (or hallucinations), the software is programmed to reply with words such as "My responses are based on patterns and associations found in the data used to train me". In a reversal of Wittgenstein's claim, we can say that for AI at this stage, the limits of its world are indeed the limits of its language. But as the software is exposed to more and more materials, both in written and visual forms, the better it is becoming: already improved versions of these publicly available softwares are being used by all the major software companies, each attempting to outdo the other in their pursuit of market share and profits.

However, software does not actually know anything. Unlike humans, issues concerning truth are not within their capability. It has no knowledge concerning what any of these words or patterns mean and has no ability to evaluate them ("I do not have the ability to evaluate the moral implications of a particular action or decision"). The software may appear to understand by issuing such responses but, unlike humans, it is not aware that it is performing any function at all. It is simply an advanced pattern-matching machine. Put very simply in the words of Kate Crawford (Atlas of AI), AI is neither artificial nor intelligent. However, by telling the software that it is incorrect, we are, in turn, helping it to build a more accurate reflection of reality, in essence helping to feed the monster that is AI. And the intriguing thing is that as the software is exposed to more and more data, it can then begin to program itself in ways that humans cannot understand. And this, of course, is where it can begin to get frightening. The idea that software might independently execute commands to jeopardise a competitor's software program, or even more seriously to autonomously launch missiles in an attack on a physical location, is not implausible given the prevalence of AI software in all aspects of civil and military equipment[2]. And so now is certainly the time to take stock, to investigate what we are not able to foresee at present but which may be significantly possible for us to predict in the future.

## Artificial Intelligence: potential and challenges in Higher Education

Artificial Intelligence is already being used to excellent effect in medical diagnostics, identifying illness and disease from images and scans to a much more accurate level than humans can. However, as noted, AI software does not itself know what the patterns actually signify: human intelligence determines their meaning. In this manner also, through programming and responding, as humans we imbue software with our own particular interpretations, values and biases, whether consciously or unconsciously. And as software programming and deployment is overwhelmingly a for-profit, male enterprise, AI reflects a for-profit, male world unless there is a conscious effort to the contrary. And knowledge of this fact, equally, is where things can begin to get disturbing. AI systems, while designed to optimize efficiency and accuracy, can perpetuate biases, or produce unethical outcomes. For instance, biased algorithms used in hiring processes or loan approvals might discriminate against certain demographic groups, exacerbating societal inequalities. Our recognition of the prevalence of such biases underscores the importance of ensuring that AI systems are designed and rigorously tested to mitigate harmful consequences. Trust is essential for the ethical adoption and acceptance of AI technologies across various domains, from healthcare to finance and to criminal justice.

It is clear that AI has the potential to revolutionise the workplace and higher education for the better, making learning more personalised, accessible and effective, while also improving administration and supporting research processes. However, in a democratic society, attempts to achieve this should be made in a manner that is fair and transparent. We must address ethical concerns, data privacy and equity issues to ensure that AI technologies are deployed responsibly and inclusively, and not just for the benefit of the billion-dollar tech industry. The 2024 introduction of AI legislation by the EU goes some way towards

achieving this ambition, but enterprise and higher education both need to take it a step further and educate our academic community regarding both the threats and possibilities which AI holds. And it is here that the necessity for a broader approach to education becomes evident. Just because we *can* do certain things does not mean that we *should* do them. But how can we make such decisions? Re-enter the humanities, those disciplines that explore issues concerning the human condition, whether through the lens of Greek tragedy or the philosophy of Aristotle. According to one GenAI (drawing heavily on *Britannica* and Wikipedia, "The humanities encompass branches of knowledge that focus on human beings, their culture, and the methods of inquiry derived from an appreciation of human values. These disciplines include the study of languages, literature, arts, history, and philosophy. Essentially, the humanities explore the unique ability of the human spirit to express itself through various forms of expression and critical analysis." This, I believe, is where we find the true value of higher education and its relevance to contemporary society.

So, what does academia need to do in order to respond effectively to GenAI and its widespread use in education and in society more generally? In the first instance, we need to know what it is, and to what end it is being used. To date, such information has been the preserve of private enterprises, which have jealously guarded their algorithm secrets and sought to outperform each other and to bypass regulation for the sake of their own bottom line. But this lack of transparency holds us all hostage and is detrimental to the promotion of accountability, trust, ethical decision-making, and regulatory compliance in the deployment of AI. Stakeholders, especially universities, need to understand how AI systems make decisions and the factors influencing those decisions. Transparency fosters trust between AI developers and end-users: when we understand how AI systems work and the data they use, we are more likely to trust the outcomes produced by those systems. Furthermore, as AI technologies become increasingly autonomous and capable of making decisions without human intervention, questions of accountability and transparency come even more to the fore. Autonomous AI systems raise concerns about who bears responsibility for their actions and how to ensure accountability in cases of error or wrongdoing. Without clear guidelines and mechanisms for accountability, the deployment of AI in critical domains such as healthcare, criminal justice and transportation risks undermining public trust and confidence.

Privacy and surveillance represent another ethical frontier in the age of AI. Technologies such as facial recognition and predictive analytics enable unprecedented levels of data collection and analysis, something which can be used to reduce crime, but which equally raises concerns about mass surveillance and privacy infringement. The proliferation of AI-powered surveillance systems can pose significant risks to civil liberties and individual freedoms, necessitating robust ethical frameworks to safeguard privacy rights and prevent abuse. (Again, the EU laws regulating AI go some way towards achieving this.) Moreover, the potential for job displacement and economic disruption stemming from AI automation fuels debates about societal fairness and equity. While AI promises to enhance productivity and efficiency, the widespread adoption of automation technologies may exacerbate income inequality and socioeconomic disparities. Considerations surrounding job displacement highlight the need for policies that prioritise retraining and reskilling initiatives to ensure a smooth transition to an AI-driven economy. Beyond these immediate concerns, there appear to be existential risks associated with the development of AI systems, raising questions about the future of humanity and our role in shaping the trajectory of technological advancement. Such existential risks, if real, underscore the imperative of adopting a precautionary

approach to AI deployment and ensuring that ethical considerations are paramount in guiding research and innovation.

But the question of ethics is more than a matter of compliance and box-ticking, of knowing which rules apply and where. Whose values are important? For example, does the belief that environmental concerns are more important than profit accumulation, or that individual liberty is more important than state control, have a basis beyond personal interests or religious belief? These are not questions of science but of the humanities. Which in turn brings us back to the question of higher education. If we merely train our students – our future workforce – to create and use AI, we are doing them a disservice. As citizens of the world, our students need to understand not just how AI works, but they also need to know how to make it work for the greater good. And just what that good is has always been somewhat moot, a grey area. And grey areas are not always looked upon favourably from a STEM perspective which, like some religious and state agencies, tends to favour black and white, right, and wrong answers.

So, what does higher education need to do in order to make sense of our digital world of artificial intelligence? To begin, we must start from a position of helping students to think more broadly about their chosen fields. And to do that, as educators, we too must think more broadly about a world changed by all things digital. Existing boundaries between disciplines need to be questioned and breached if necessary: classicists need to have an understanding of computer science and scientists need to have a grasp of the humanities that is more than superficial. We must actively revisit our curriculum in almost every discipline in order to prepare our graduates for a world of uncertainty that is imbued with GenAI. We need to understand that education and training, while not mutually exclusive, are not the same, and that everything we do as humans is imbued with our particular values. We have to acknowledge that there may be a difference between the needs of our students as future contributors to the economy and their understanding of what it means to be human in the twenty-first century. And to achieve that we need a change in mindset among us academic staff. This will not be easy: insufficient time and inadequate levels of support have regularly been cited by academics in survey after survey regarding their low levels of engagement to date with digital technologies. This will need to change. To be successful we need to work together, from top down to bottom up across disciplines and departments to agree a way forward, and we need to do that now. The companion pieces in this volume demonstrate some of the ways in which we are already doing this. But we need more. More imagination. More creativity. Only in this manner can we help our students to find their meaning and values relevant to the contemporary world. Along the way, we might also begin to clarify the role and purpose of our universities in the twenty-first century. And thus, we can lay the foundations for a better society, indeed a better world, for future generations.

(October 2024)

## Suggested further reading:

Goodlad, M., Stone, M. (2024) "Beyond Chatbot-K: On Large Language Models, "Generative AI," and Rise of Chatbots—An Introduction", *Critical AI*. 2 (1).

# Footnotes:

1 The legality and ethics of using such data in this manner, given that large parts of these are protected by copyright, is controversial. A recent revelation that Microsoft has paid large sums of money to academic publishers to train its OpenAI software on the publishers' output has proven controversial, and has drawn outrage from authors who had not been informed of this move.

2 One response from MIT is the AI Risk Repository. Launched in August 2024, this documents over 700 potential risks advanced AI systems could pose and describes itself as "the most comprehensive source yet of information about previously identified issues that could arise from the creation and deployment of these models."

# GENAI IN HIGHER EDUCATION: KEY CONSIDERATIONS

**Billy Kelly**
Chair, National Academic Integrity Network.

## Introduction

Generative Artificial Intelligence (GenAI) has changed the landscape of higher education (HE) momentously, offering fundamentally new affordances in learning while at the same time dramatically moving the needle on assessment integrity; it is much more than an inflection point on the trajectory of technology in higher education.

In many respects, GenAI has made manifest things that were already amiss in HE: higher education institutions (HEIs) generally have demonstrated sustained innovation, albeit at a slow pace with little fundamental change to teaching and learning methods and the assessment of learning that underpins their accreditation of learning. Those methods have not always changed to reflect technologies and their changed student bodies: more often than not, technological advances have been incorporated into a centuries-old operational model, perhaps with the limited exception of distance and online learning.

HEIs must now grapple with the short-run and long-run implications of Generative Artificial Intelligence (GenAI) for learners and for accreditation while recognising that the capabilities and applications of GenAI and related technologies are growing at a relentless pace. We are entering what Sarah Eaton calls a "postplagiarism" era, where developments such as neurotechnologies will bring ethical and integrity considerations centre stage (Eaton, 2023).

The discourse around GenAI is crucial: talking about GenAI as if it is a single entity doesn't make sense; it covers and can encompass so many different levels and depths of use, raising differing concerns, among them, ethical and equity issues and inherent biases. Just as smartphones have changed the way we interact with society, so, too, will GenAI change the way that stakeholders of all types will engage with HE. The ubiquitous presence of GenAI, embedded in the everyday technologies that our teachers and learners use, will cast them as co-creators of knowledge and can be expected to impact on the behaviours of all within the HE ecosystem. Furthermore, the apparent expertise of GenAI and how GenAI is discussed in the media and the wider world threatens the social contract that HE has had with wider society: what is the rationale for HE if GenAI can substitute for it at a fraction of the cost?

# Need to reimagine

Already we have seen GenAI create a crisis of trust in our assessment methods: the authenticity and integrity of some of HE's widely used assessment methods have been fundamentally undermined by widely available GenAI tools. This has implications for accreditation of learning and for the policies and procedures that assure that learning.

GenAI technologies will challenge all levels of education to reshape the learning journey of students: what learning should or should not be outsourced to GenAI? To the extent that what happens in primary and post-primary education shapes those students' patterns of engagement with learning, there are likely implications for student learning in higher education. While the impact of GenAI on earlier stages of learning may have consequences for higher education, what follows focuses just on the HE stage of the learner journey.

## Learning

What does learning mean in the context of sophisticated GenAI and ubiquitous and embedded GenAI technologies? For example, if we just took the cognitive domain of Bloom's taxonomy, what do the levels mean in the presence of ubiquitous GenAI with respect to what we expect as a learning outcome? In the presence of artificial intelligence, what do *knowing*, *understanding*, or *applying knowledge* mean in terms of the ambition that we have for the learner? What should the learning outcomes (LOs) look like? And what should the assessment of these LOs look like? The LOs must take account of artificial intelligence. Given GenAI, what are we looking for in our learners to demonstrate analysis, synthesis, and evaluation? The answers to these questions will reflect individual disciplines and there cannot be a 'top-down' solution; it must come from GenAI literate staff on the ground. Resourcing and leadership in GenAI literacy must come from the highest levels in the HEIs and the sector, but it is critical that those at the coalface of learning – where staff and students interact – have current and comprehensive understanding of the capabilities of GenAI and the ethical considerations in its use. This should be supported by professional development at national and institutional levels, e.g., .*GenAI for Teaching and Learning: How to do it right?* (The National Forum, HEA, 2024). What is key is that engaging with GenAI literacy is not a discretionary choice for those working and learning in HE: as educators, we need to ensure that we (and our learners) understand how, and when, to *integrate* GenAI into our learning practices and, at the same time, limit the outsourcing of required learning to GenAI and mitigate negative impacts on learning practices; learners need to be equipped with the evaluative skills to guide them in their use of GenAI tools. There is no 'one size fits all': what is appropriate will vary across disciplines and stages of learning.

GenAI technologies offer transformational possibilities in addressing the challenges posed by increased participation in HE: personalised learning supported by a GenAI tutor, individualised curricula reflecting diverse student needs, automated grading and feedback, etc. Mollick & Mollick, 2023, point to a creative use of existing GenAI technologies in supporting the student learning journey, while, at the same time, identifying the attendant risks associated with their use. The potential impact of GenAI technologies on student creativity is mixed: its supportive capabilities must be balanced with concerns of negative impacts

and, in particular, with the impact of a learner's 'creative confidence' on their effective engagement with GenAI in this area (Habib et al., 2024).

The GenAI landscape in higher education is likely to be populated by bespoke GenAIs, where LLMs are trained and fine-tuned to reflect specific disciplines and stages of learning. This points to a need for professional development for staff in training of LLMs and in the deployment of GenAI technologies.

Used appropriately, GenAI can be an enhancer of the aggregate of learning, raising those at the bottom of the distribution significantly more than those at the top. Mollick (2024) sees GenAI as a great leveller, raising the performance of those at the lowest initial levels, turning "poor performers into good performers" and boosting "the least creative the most".

## Assessment and accreditation

Accreditation of learning is arguably the core function of universities; if they cannot appropriately ensure that learning has taken place, then their authority, reputation, and raison d'être are fatally undermined.

GenAI has been shown to be capable of successfully answering existing sophisticated tests of knowledge and evaluation framed as MCQs (Newton & Xiromeriti, 2024) and of passing professional and other examinations (Varanasi, 2023), (Gimpel, et al., 2024). While GenAI is likely to be integrated into assessment practices, it is its *unauthorised* use that is problematic, specifically, *unauthorised content generation* (Foltynek, et al., 2023).

In the short to medium term, much of the focus is likely to be on setting out to secure current versions of assessments (or variants of these) against academic misconduct. This is an understandable response by the HE community but will not be a sustainable position for the longer term due to workload and resourcing issues. The challenge of ensuring the authenticity of students' learning will, almost certainly, require a more engaged and personal interaction between learner and assessor, whether in proctored assessment or in interrogative interactions with learners such as interactive oral assessment (Ward, et al., 2023). It is worth noting that these approaches necessarily impact on practices related to anonymity of learners in assessment and feedback.

More importantly, Lodge et al. (2023) note the resource intensity of assessment security and identify "a need to target ... [resource-intensive assessment methods] ... to where it will have the most impact – namely those moments of assessment that provide greater assurance that students who have been awarded the qualification have achieved the program outcomes".

As GenAI becomes embedded in the learning environment and learning itself is increasingly mediated by GenAI technologies, how concepts such as creativity, innovation, and originality are evaluated and rewarded will create new questions for educators. At the same time, it may confront learners with the need to navigate an uncertain line between what is allowed and what constitutes academic misconduct.

## GenAI and hallucination

The apparent capabilities of Large Language Models (LLMs) are tempered by their tendency to 'hallucinate' where the LLM may produce plausible but erroneous information and present it as fact.

While more recent LLMs hallucinate to a lesser extent, there remains a need to check the credibility and veracity of what has been produced. Detecting hallucinations is likely to present different challenges for learners depending on discipline and stage of learning: there will be disciplines where there are clearly established truths and others where interpretation is key; similarly, where learning is at the boundaries of knowledge, discerning fact from hallucination may be particularly demanding. The capability of learners to meet the challenge of verification may be an important consideration in deciding the stage of learning where learners are exposed to GenAI: for example, final-year undergraduates would be expected to be better placed to substantiate an LLM's output than a first-year undergraduate.

## Disruption to the integrity of qualifications

Without a doubt, the widespread use of GenAI has increased the risks to the integrity of qualifications: these integrity risks extend from pedagogy to assessment. Zero risk does not exist. It follows that institutions should adopt a risk-based approach to integrity, recognising the existence of risks, undertaking an assessment of those risks, and developing strategies to manage and mitigate those risks. The risks to pedagogy and curriculum may not yet be clearly identified but those to assessment are already evident. These include abilities to produce elements of assignments such as essays, reports, computer programming code, etc.

The design of assessment and the learning culture nurtured by institutions will play an important part in abating academic integrity risks but cannot be expected to eliminate those risks. That and the adoption of lessons from situational crime prevention can further mitigate the integrity risks in assessment. In a parallel with opportunities to prevent crime before, during, and after the crime event, Birks & Clare (2023) identify corresponding examples of clear guidance and assessment design (before), monitoring assessment activity through submission of drafts (during), and random interviews based on markedly different scores as between supervised and unsupervised assessments (after). Nonetheless, the efforts of institutions in setting out to detect cases of 'unauthorised content generation' will continue to be an essential element in deterring academic misconduct.

## Assuring the integrity of qualifications

The rapid growth of GenAI tools and technologies and their incorporation into everyday tools used by staff and students has created blurred lines as between what is seen as acceptable use of GenAI and what has strayed into areas of inappropriate use. From an institutional and learning perspective, identifying that "inappropriate use" is important: is this a misconception on the part of the learner or is it a deliberate attempt to deceive? Depending on the conclusion reached, the institutional response may range from education and additional guidance to the application of misconduct procedures.

While the core of the institutional solution to assurance of integrity may be assessment design and guidance for learners, a necessary accompanying dimension must be the development of robust processes to detect inappropriate use.

It is clear that technological solutions such as GenAI detectors do not, themselves, represent a credible

or equitable solution (Perkins, et al., 2024). But AI detectors are likely to be an essential element in institutional processes, "detectors are not all equal, but the best are better than faculty at identifying AI writing" (Bowen & Watson, 2024).

The discourse on the use of AI detectors is almost universally flawed by erroneously treating the results of these detection tools as capable of yielding a binary decision as was the case with using text-matching software to detect cut and paste plagiarism, e.g., Weber et al. (2023). Where detection tools are improperly used to yield binary decisions, the consequences include false accusations of misconduct, and 'false positives', with attendant stress on learners.

The development of robust processes to counter the unauthorised use of GenAi is a very real challenge for institutions, a challenge that is likely to involve both technological solutions and human interaction. At best, AI detectors and assignment metadata will raise suspicions which may prompt further investigation by professional staff. An additional problem for institutions is that where past technological solutions, such as text-matching software to detect plagiarism, allowed decision-making to be devolved to those grading assignments, this will not be the case where suspicions of the unauthorised use of GenAI are encountered.

## Need for strategic responses by HEIs

Arguably, the disruptive technologies of the last 30 years – the PC, the World Wide Web, and other ICT technologies – have made little fundamental difference to the organisation and structure of learning in higher education. While universities have generally enhanced the reach and standards of higher education, for the most part, those disruptive technologies have been absorbed into the structures that predated them: libraries offer online access to resources and are transformed into learning spaces for students; VLEs allow delivery, management, and assessment of learning; remote learning has become less distinguishable from on-campus learning; and the learning experience of on-campus students is a more hybrid one. The responses of higher education to change have been operational, adapting its traditional model to reflect the affordances and challenges of the new disruptive technologies. A key factor has been the ability of higher education institutions to adapt to and manage the pace of diffusion of new technologies in their learning environments. So far, so good, for the established model of higher education.

But what of Generative Artificial Intelligence? GenAI offers a new set of affordances and challenges. It has the potential to transform pedagogy and student supports while at the same time impugning the validity of widely used means of assessment. We can already see operational responses, most notably in the modification of assessment methods, where institutions seek to address the risks of students outsourcing assessment tasks to GenAI. At best, this puts higher education in the recovery position.

Higher education needs a strategic response to artificial intelligence; operational responses will not be enough. The challenge for higher education is that GenAI is an evolving technology, so the effectiveness of any operational response is likely to be short-lived. Reliance on operational responses places higher education in a war of attrition with an evolving technology, an educational version of trench warfare. What is needed is a strategic response as a failure to do so will condemn higher education to a never-ending cycle of operational responses to this evolving technology, a path to enduring disorder. A strategic response demands a paradigm shift by universities if they are to avoid this perpetual cycle. In addition, the expected

evolution of GenAI tools and technologies implies a necessary long-term commitment to resources and to staff development.

In planning for the future, HEIs cannot afford to wait until ethical issues around the use of GenAI are resolved to a universal consensus; the ethical concerns themselves are likely to evolve as GenAI evolves.

As higher education engages with preparing its graduates for a GenAI future, the question is often asked: "What should we teach (and how)?"- a more salient question is, "How will learning happen"? That later question points to the need to factor in the likely behaviours of learners in a GenAI world.

In designing the learning journey, higher education needs to ensure that GenAI enhances learning rather than providing shortcuts that undermine learning skills and the longer-term knowledge essential for foundational knowledge and the development of expertise. Institutions need to consider what parts of learning can be and should be outsourced to GenAI while preserving the goals of higher education and recognising that it is unlikely that one size fits all across disciplines.

## Ethical considerations

For education, ethical considerations on the use of GenAI span micro, meso, and macro levels. At a macro level, concerns range from the resource and environmental costs of the development of GenAI technologies, human rights, equity of access, potential inherent biases, and intellectual property matters. At meso, institutional, level ethical considerations need to be central to universities' engagement with GenAI irrespective of where GenAI is deployed, in curriculum design and delivery, in assessment, in support services, in data usage, etc. These considerations go beyond their use in higher education – HEIs must equip their students with the wherewithal to make ethical decisions in their graduate futures. Additionally, HEIs will also have important thought leadership roles in the appropriate use of GenAI in society. At the micro level, where faculty and learners interact and where GenAI is part of the learning process, the ethical use of GenAI should itself be a fundamental part of that learning process.

## References:

Birks, D., & Clare, J. (2023). Linking artificial intelligence-facilitated academic misconduct to existing prevention frameworks. *International Journal for Educational Integrity, 19* (1), 20.

Bowen, J. A., & Watson, C. E. (2024). Is it time to turn off AI detectors? *Times Higher Education.* Retrieved November 7, 2024.

Eaton, S. E. (2023). Postplagiarism: Transdisciplinary ethics and integrity in the age of artificial intelligence and neurotechnology. *International Journal for Educational Integrity, 19* (1), 23.

Foltynek, T., Bjelobaba, S., & Glendinning, I. (2023). ENAI recommendations on the ethical use of artificial intelligence in education. *International Journal for Educational Integrity, 19*(1), 12.

Gimpel, H., Gutheil, N., Mayer, V., Bandtel, M., Büttgen, M., Decker, S., Eymann, T., Feulner, S., Kaya, M. F., Kufner, M., Kühl, N., Lämmermann, L., Mädche, A., Ruiner, C., Schoop, M., & Urbach,

N. (2024). (Generative) AI competencies for future-proof graduates: Inspiration for higher education institutions. *Hohenheim Discussion Papers in Business, Economics and Social Sciences.*

Habib, S., Vogel, T., Xiao, A., & Thorne, E. (2024). How does generative artificial intelligence impact student creativity? *Journal of Creativity, 34* (1), 100072.

Lodge, J. M., Howard, S., Bearman, M., Dawson, P., & Associates. (2023). Assessment reform for the age of artificial intelligence. *Tertiary Education Quality and Standards Agency.* Retrieved November 7, 2024.

Mollick, E. (2024). *Co-intelligence: Living and working with AI*. Portfolio/Penguin.

Mollick, E. R., & Mollick, L. (2023). Assigning AI: Seven approaches for students, with prompts. *The Wharton School Research Paper.*

Newton, P., & Xiromeriti, M. (2024). ChatGPT performance on multiple-choice question examinations in higher education: A pragmatic scoping review. *Assessment & Evaluation in Higher Education, 1* (1), 1–18.

Perkins, M., Roe, J., & Vu, B. H. (2024). Simple techniques to bypass GenAI text detectors: Implications for inclusive education. *International Journal of Educational Technology in Higher Education, 21* (1), 53.

The National Forum (2024). OpenCourses.ie. (n.d.). GenAI for teaching and learning: How to do it right?.

Varanasi, L. (2023). GPT-4 can ace the bar, but it only has a decent chance of passing the CFA exams. Here's a list of difficult exams the ChatGPT and GPT-4 have passed. *Business Insider.* Retrieved November 7, 2024.

Ward, M., O'Riordan, F., Logan-Fleming, D., Cooke, D., Concannon-Gibney, T., Efthymiou, M., & Watkins, N. (2023). Interactive oral assessment case studies: An innovative, academically rigorous, authentic assessment approach. *Innovations in Education and Teaching International, 1* (1), 1–18.

Weber-Wulff, D., Anohina-Naumeca, A., & Bjelobaba, S. (2023). Testing of detection tools for AI-generated text. *International Journal for Educational Integrity, 19* (1), 26.

PART III

# ARTS, HUMANITIES SOCIAL SCIENCES

# GENERATIVE AI AND DCU BUSINESS SCHOOL



**Institution:** Dublin City University

**Discipline:** Business

**Authors:** Robert Gillanders, Shadi Karazi, Silvia Rocchetta, Gary Sinclair, Suzanne Stone

**GenAI tool (s) used**: ChatGPT

## Situation / Context

DCU Business School constitutes a wide variety of disciplines including economics, management, marketing, finance, accounting, entrepreneurship, human resources, data analytics and more. We asked students from three different DCU Business School modules to develop a context-specific question for ChatGPT and to review the essay work it provided.

Two modules were from the economics discipline with relatively small numbers of students (less than 30), and one was a large marketing class with 80 students. The economics modules were final year advanced classes while the marketing module was a second-year course.

## Task / Goal

The emerging literature argues that integrating Generative Artificial Intelligence (GenAI) into a business school curriculum has the potential to enhance learning by enabling students to pose questions, engage in reflective thinking, challenge existing knowledge, and foster discussions about answers. This integration can lead to increased student engagement and interaction with the subject matter.

As we all know, Artificial Intelligence (AI) poses threats to the integrity of many commonly used forms of continuous assessment. Alternative assessments such as oral examinations and reflexive work that are frequently flagged as solutions are just not possible at the scale required for a large number of modules, with high staff-student ratios. Hence, we needed to think about how to use the technology in ways that suited disciplinary needs and large class sizes.

We were trying to "build in" the new technology and design an authentic assessment that would engage students and meet the learning goals. DCU Business School has a strong commitment to developing critical

thinking and creativity skills, and we also hoped that the assessment would build on and help develop these skills further by requiring students to think carefully about the course material and arrive at questions that pushed beyond the boundaries of the set curriculum.

## Actions / Implementation

Students were tasked with posing questions to ChatGPT and evaluating the output from the artificial intelligence software. This varied somewhat by discipline. The economics students were told to set a question that ChatGPT would answer. Examples of the prompts were given such as "write a long essay on _____. Include 10 in-text academic references. List the references at the end." The question was submitted via our online learning platform with a 500-word explanation of why the question was important and worth asking. This explanation was to draw on their knowledge of economics in general and of the module in question in particular.

Half of the grade for the assignment was for an interesting and well-motivated question. Examples were provided at the start of the module and throughout the lectures. The rest of the grade went for an assessment of the AI's output. The output was generated by the professor taking the class and sent to students to ensure that there were no privacy concerns. Students were told to assess the output on grounds of accuracy, relevance, referencing, and depth of argument. Written comments were to be added to the Word file and submitted online. Examples of output were provided at the start of the course with annotated critiques of the output and an overall assessment and grade for the essay.

Students in the second-year marketing module were instructed to use ChatGPT to develop an introductory understanding of the concept of social marketing. They were asked to write a one-page reflection on their use of ChatGPT. This assessment was set relatively quickly after ChatGPT was released. Consequently, it was the first experience for most students to use the tool. Following submission, students were asked to share their experiences in class. Emphasis was placed on weaknesses of the tool, when it was appropriate to use for assessment and how to best develop knowledge of a particular topic. Students were provided with guidance on how to use it in future assessments for the module.

## Outcomes

We collected both quantitative and qualitative data from participants through an anonymous online survey designed using the Google Forms survey tool. Ethics approval was granted by DCU Research Ethics Committee. The survey questions comprised quantitative Likert questions and open questions designed to gather qualitative data. Survey participants were invited to complete the survey by email through a gatekeeper (Teaching Enhancement Unit) to avoid any pressure on students to participate, in line with research ethics guidelines. The survey was designed to minimise the time commitment for participants with an approximate time of 15 minutes to complete. 29 students completed the survey.

Eighty-six percent of survey respondents agreed that it helped them understand how Chat GPT works

but there was a mixed response of opinions on whether it deepened their understanding of course material (52%) and developed their critical thinking skills (59%). Other findings were that:

- 86% liked that ChatGPT was integrated into the module;
- 86% agreed it helped them understand how ChatGPT works;
- 62% said that they were more inclined to use ChatGPT in other modules after this assessment;
- 83% agreed it was an engaging mode of assessment;
- 52% agreed it deepened their understanding of course material;
- 45% agreed it developed essay writing skills;
- 59% agreed it developed critical thinking skills.

The qualitative responses were also mixed, reflecting a desire to learn more about the technology but also some anxiety about when and how GenAI could be used:

- *"It was helpful in that I developed a better understanding of what lecturers look for when marking assignments."*
- *"I think getting the opportunity to grade a paper may really improve our own essay writing skills as we learn what and what not to do."*
- *"It was fun for it to be integrated with the module, because it's proactively moving with the technology era we are in, and I do believe it is important that all students know about the AI, so that nobody has an advantage."*
- *"Interesting to see where technology is but important to note that it isn't perfect."*
- *"I liked that I could get help from an innovative AI tool to write my essay better and to gather useful articles that it suggested. What I don't like is the morals behind using this service, in particular with students. Students will take advantage of using ChatGPT and this is unfair to other students who are not using it."*
- *"I disliked that [I didn't know to] what degree I could use it, I didn't want to overuse it in fear of being told I had used it too much and would be penalised."*

## Reflections

These results are encouraging as it is important that students learn about the limitations of GenAI, even if more work is needed to ensure that the technology works to deepen understanding and critical thinking skills.

What was clear in this research is that students need to develop better prompt engineering skills. Cotton et al., (2023) suggest that such questions need to be personalised, and Lim et al., (2023) place emphasis on ensuring students engage in fact-checking and verification for information produced by GenAI. We learned that toolkits need to be developed in which to guide students regarding the use of prompts and the follow-up fact-checking processes that are required to use such tools appropriately and effectively.

In terms of the quality of the work, in the economics modules, many of the questions were of an

extremely poor quality. Many were very poorly written while others were not grounded in theory or the class material in any meaningful way. A small but appreciable number were simply questions that had been covered in class.

The evaluation of the output, however, was generally very detailed and went beyond noting the false references. The conclusion was that students were good at evaluating the quality of an argument but needed additional guidance in formulating and motivating a novel question that pushed beyond what they had been taught.

In subsequent years, the assessment was used again in economics modules but was rebalanced so that the weight for the question was two-thirds of the grade and the evaluation one-third. More time in class was given to discussing what constituted a good question and students were strongly encouraged to discuss their plans with professors during office hours. This led to a significant increase in the quality of the questions.

Overall, guidance cannot be left to individual module coordinators. The approach to generative AI within the classroom has to be formalised at an institutional level to avoid confusion amongst students and faculty. Clear policies and toolkits need to be formulated.

## Further Reading

Cotton, D. R., Cotton, P. A., & Shipway, J. R. (2024). Chatting and cheating: Ensuring academic integrity in the era of ChatGPT. *Innovations in education and teaching international*, *61* (2), 228-239.

Lim, W. M., Gunasekara, A., Pallant, J. L., Pallant, J. I., & Pechenkina, E. (2023). Generative AI and the future of education: Ragnarök or reformation? A paradoxical perspective from management educators. *The international journal of management education*, *21 (*2), 100790.

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# NAVIGATING PATHS OF RESISTANCE: TIGHT-ROPING GENAI'S ROLE IN CONTINUOUS ASSESSMENT DESIGN



**Institution:** Maynooth University
**Discipline:** Business
**Authors:** Shane McLoughlin
**GenAI tool(s) used**: Microsoft Bing AI

## Situation / Context

Artificial Intelligence (AI) has been a captivating topic of enquiry for many years within Management Information Systems (MIS), a discipline anchored within European business schools with a focus on developing, applying, and communicating knowledge at the intersection of digital technologies, people, and organisations.

Across industries, AI has been applied some time now, from robotic process automation to decision support systems. However, AI's role and potential in business and society is becoming increasingly overt and pervasive, due to advancements in a "Generative" branch of AI technology.

GenAI creates "new" content by distilling patterns from training data, guided by user instructions. Advancements have been fast and compelling, with students and employees rushing to exploit its capabilities. For the "Introduction to MIS" module at Maynooth University's Business School, over 700 students learn how such digital technologies support organisations and enhance their competitiveness, as well as critically assessing opportunities and challenges that these emerging technologies pose.

## Task / Goal

This year's assignment goal was to support the school's "living lab" approach to bridging education with practice, ensure academic integrity, while meeting key learning outcomes which include critically assessing how technologies impact organisations, along with ethical and social considerations.

To achieve this, 736 students each conducted case studies exploring the impact of new digital technologies on Irish companies. To tackle head on the huge issue of AI use in academic work, students were required to complement their research with a GenAI tool and then critically appraise that tool's

effectiveness. They then worked in groups to discuss their experiences and derive shared learnings, submitted in both written form and orally. To ensure AI complemented, rather than replaced original research, students had to document and make transparent their research process as part fulfilment of their assignment. This involved cataloguing their "search and selection journey," by highlighting and capturing screenshots of information and sources encountered, submitted as the case study appendices.

## Actions / Implementation

To implement the assignment for such a large module, several considerations and steps were taken. The assignment had to align with the university's policies regarding the privacy of students' personal data. In the "current" absence of university-tailored and controlled GenAI tools, students were encouraged to use Microsoft Bing AI (Copilot) as it can be used without the student having to log in.

Detailed instructions comprising four parts were designed to communicate the assignment's objectives and requirements, accompanied by templates to fill in answers to submit for each part. Each student was randomly assigned an Irish company to case study, and 148 groups were assembled for the group component.

Six tutorials were delivered to support the assignment objectives. These included exploring the concept of "Responsible GenAI" in terms of ethical and sustainable use of the technology, alongside such aspects as fairness, inclusivity, transparency, and accountability. Tutorial work also involved facilitating good practice (through exercises and examples) in crafting prompts and appraising responses, as well as facilitating group work and presentations.

In terms of the assignment's requirement for appraising GenAI's effectiveness, instructions defined 12 facets for appraising responses: completeness, relevance, comprehension, plausibility, accuracy, assumptions, bias, convenience, creativity, decision-making, learning, and anything else. For the group component of the assignment, students additionally appraised the tool's overall ease of use and usefulness in terms of its features and functionality.

## Outcomes

Students generally reported a positive experience with using GenAI tools as part of their assignment, particularly evident in their appraisals of the tools' ease of use and overall convenience. However, many emphasised the added efforts needed to verify responses, particularly depending on the tool used and how well prompts were crafted.

What struck many students was the speed and volume of relevant information received even to simple prompts, leading to periods of "information overload," sometimes resulting in confusion and a sense of being overwhelmed. This could suggests a needed focus on understanding temporal factors in learning and assessment with GenAI, particularly in the context of scaffolded or incremental approaches to learning and its importance.

Overall, there was a good effort made by students to document and make transparent their research

process, thereby showing that a focus on documenting the process in continuous assessments can be useful, alongside the focus on outcomes.

## Reflections

Overall, the intervention highlighted Zipf's principle of least effort (1949), where convenience, in many cases trumps effort, with greater attention needed on accounting for and managing the path of least resistance in assessment design. It also suggested a keen focus on the relative importance of temporal factors in learning with GenAI, as well as the benefit of capturing "process" in their use. Here, both the development, tailoring and evidence gathering of education-specific GenAI tools would be welcomed.

Finally, deep questions emerged about the potentially changing nature of learners' self-efficacy, i.e., beliefs in one's abilities to successfully perform or accomplish specific tasks or outcomes. Importantly, self-efficacy has been linked to motivation, resilience, and learning strategies that, in turn, produce better outcomes.

The intervention found some students perceived that GenAI augmented and extended their own abilities in producing outcomes of sufficiently high quality, leading to increased self-efficacy. For others, learning to think critically and research rigorously in the context of GenAI's "seeming" superiority in producing "relevant" content, may lead to decreased self-efficacy where one feels there is little point in even trying to match or compete with a machine's capabilities. Understanding the nature of how GenAI use factors in self-beliefs and empowerment versus learner disenchantment in one's abilities and efforts at problem-solving, critical thinking, and creativity; could help inform their future design and use.

## Further Reading

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: W. H. Freeman.

Dwivedi, Y. K., Hughes, D. L., Ismagilova, E., Aarts, G., Coombs, C., Crick, T., Duan, Y., Dwivedi, R., Edwards, J., Eirug, A., & Galanos, V. (2021). Artificial intelligence (AI): Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice, and policy. *International Journal of Information Management, 57*, Article 101994.

Komarraju, M., & Nadler, D. (2013). Self-efficacy and academic achievement: Why do implicit beliefs, goals, and effort regulation matter? *Learning and Individual Differences, 25*, 67–72.

Schunk, D. H., & Pajares, F. (2009). Self-efficacy theory. In K. R. Wentzel & A. Wigfield (Eds.), *Handbook of motivation at school* (pp. 35–53). New York, NY: Routledge.

Sein, M. K., Henfridsson, O., Purao, S., Rossi, M., & Lindgren, R. (2011). Action design research. *MIS Quarterly, 35*(1), 37–56.

Sweller, J., Ayres, P., & Kalyuga, S. (2011). *Cognitive load theory*. New York, NY: Springer.

Zipf, G. K. (1949). *Human behavior and the principle of least effort: An introduction to human ecology*. Cambridge, MA: Addison-Wesley Press.

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# EXPLORING AI IN ENTREPRENEURSHIP EDUCATION: A CASE STUDY ON ADAPTING ASSESSMENTS FOR DIGITAL LITERACY



**Institution:** University College Cork
**Discipline:** Business
**Authors:** Gillian Barrett, Marie Ryan, Ciara Fitzgerald
**GenAI tool(s) used:** ChatGPT

## Situation / Context

This example focuses on a final-year entrepreneurship module offered by Cork University Business School (CUBS) at University College Cork. This module is designed to introduce students to the practice of entrepreneurship through experiential techniques, helping them develop entrepreneurial thinking and skills relevant to the digital era.

The module covers topics such as business models, business model innovation, industry and market analysis, and strategic growth opportunities. It includes approximately 130 students from diverse business disciplines, including accounting, management, marketing, and international business.

The module is assessed entirely through continuous assessment methods, consisting of an individual assignment, a group innovative project, and a "live" group pitch. The assessment focuses on entrepreneurship practice and action, aiming to foster communication, critical thinking, digital literacy, and problem-solving skills, preparing students to navigate the evolving business landscape and adapt to the challenges and opportunities of the digital era.

## Task / Goal

In this entrepreneurship module, our goal was to explore how Generative AI (GenAI), particularly ChatGPT, could be integrated into teaching and assessment practices to enhance student learning and engagement. The primary objective was to adapt one assessment (the use of business models in Small and

Medium Enterprise (SME) organisation) to reflect AI's growing influence on education and to advance students' skills relevant to the digital era.

According to Lim et al., (2023), integrating GenAI into the classroom offers an opportunity to elevate assessments to higher levels of critical analysis and rigor. This aligns with contemporary pedagogical shifts towards student-centric learning (Grubaugh et al., 2023). By incorporating AI tools into the assessment, we aimed to promote students' critical engagement with AI-generated content and teach them how to navigate and leverage these technologies effectively (Dalalah and Dalalah, 2023). This also addressed concerns about academic integrity in the face of AI tools' growing capabilities (Extance, 2023), encouraging responsible and ethical use of AI in academic settings.

## Actions / Implementation

Our approach aimed to enhance student engagement, develop critical thinking skills, and advance digital literacy.

We implemented an adapted assessment that incorporated both primary and secondary research, guiding students through a two-part analysis. Students selected a local SME and conducted interviews with the SME leader, assessing the company's business model, industry, and market environment. This enabled students to develop a Lean Canvas (Maurya, 2012) for the SME and suggest complementary business models for future growth opportunities. The approach aimed to blend AI-generated insights with student analysis and creativity, fostering digital literacy and critical thinking skills (Mollick and Mollick, 2023; Grubaugh et al., 2023).

To encourage students to critically engage with AI tools, they were required to prompt ChatGPT for information on their chosen SME's business model and to critically analyse the output (providing evidence to support). Given the SME context, ChatGPT did not recognise 90+% of SMEs entered. Some students accepted this and did not engage further with ChatGPT, noting that the tool had no information on their SME, so they could not analyse it. For other students, they understood the importance of 'prompts' when using ChatGPT, i.e., the call to action for ChatGPT to generate text (Mollick & Mollick, 2023; Poola, 2023), as outlined in the reflection that the more information on their SME that they provided the tool, the more complete the answer was. This assessment task demonstrated how students needed to learn how to use the tool – the importance of effective prompts, to navigate the benefits and downsides of AI tools, including the recognition of their limitations i.e. hallucinations and confabulations (Extance, 2023; Gill et al., 2024).

Relevant learning outcomes included:

- Developing critical analysis skills through engagement with ChatGPT outputs and its business model suggestions.
- Building on theoretical knowledge through a deeper engagement with SMEs current use of business models and future business model opportunities.
- Engaging with SME leaders and testing business insights.
- Strengthening digital literacy skills by learning to navigate AI tools in a responsible manner.

## Outcomes

The main outcomes of integrating ChatGPT into this entrepreneurship module were threefold.

- **Deeper Understanding of Business Models**. Students developed a more comprehensive understanding of business models by engaging with both primary and secondary research (Kolb, 1984). The primary research through the SME leader interview brought the SME business model(s) to life for the students (Lave and Wenger, 1991). Through the critical analysis of the interview combined with critical evaluations of ChatGPT outputs, students now had a multifaceted view of business models and their evolution (Mollick and Mollick, 2023, Bloom, 1956).
- **Critical Engagement with AI.** Students learned to critically engage with AI-generated content, recognising the importance of effective prompts (i.e. a set of instructions) (Vygotsky, 1978) and being wary of the limitations of ChatGPT's output (i.e., hallucinations and confabulations) and engage in fact-checking (i.e. through primary data). This engagement fostered their digital literacy and critical thinking skills (Paul and Elder, 2019).
- **Digital Literacy Development**. Students gained a better understanding of how to navigate and leverage digital tools (i.e., ChatGPT), fostering skills relevant to the digital era, such as evaluating AI-generated content and its role in strategic decision-making (Lim et al., 2023). Integrating GenAI in such project-based assessments promotes digital literacy and encourages reflective practices amongst students (Schon, 2017).

Evaluation of these outcomes was conducted through continuous assessment, including analysis of student performance on assignments, interviews, and critical reflections, revealing the varying degrees of student engagement and the need for further guidance on navigating GenAI tools.

## Reflections

The integration of ChatGPT into this entrepreneurship module provided valuable insights. We learned that scaffolding the assignment (i.e., breaking down the assignment into smaller components) enabled students to build on their learning (Vygotsky, 1978). Plus, offering "how-to" guidance in class on AI prompts was crucial for fostering digital literacy and critical thinking skills (Mollick and Mollick, 2023), thus providing students with a sense of confidence in their learning path.

One unexpected outcome was the varying degrees of student engagement with ChatGPT's output, revealing the need for further guidance on navigating GenAI tools. This highlighted the importance of emphasising critical thinking and a healthy 'scepticism' when working with AI-generated content, given its potential for hallucinations and confabulations (Extance, 2023).

For future iterations, a more comprehensive approach to guiding students in GenAI interactions is essential. Workshops or specialised modules focusing on digital literacy and critical engagement could help address these challenges.

Additionally, incorporating more real-world tasks and hybrid assessments can further support authentic learning experiences, aligning with contemporary pedagogical shifts (Grubaugh et al., 2023; Kolb, 1984). This would provide students with balanced assessments that blend GenAI tools with traditional methods, fostering an equitable and relevant learning environment.

## Further Reading

Bloom, B. S. (1956). *Taxonomy of educational objectives, handbook I: The cognitive domain*. David McKay Co Inc.

Dalalah, D., & Dalalah, O. M. (2023). The false positives and false negatives of generative AI detection tools in education and academic research: The case of ChatGPT. *The International Journal of Management Education, 21* (2).

Extance, A. (2023). ChatGPT has entered the classroom: How LLMs could transform education. *Nature, 623* (7987), 474–477.

Fatayer, M., & Wehr, D. (2023). Developing authentic assessment through open educational practices. *ASCILITE Publications*. [Preprint].

Gill, S. S., Shahid, M., Das, T. K., & Kumar, A. (2024). Transformative effects of ChatGPT on modern education: Emerging era of AI chatbots. *Internet of Things and Cyber-Physical Systems, 4*, 19–23.

Grubaugh, S., Levitt, G., & Deever, D. (2023). Harnessing AI to power constructivist learning: An evolution in educational methodologies. *EIKI Journal of Effective Teaching Methods, 1* (3).

Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development*. Prentice-Hall.

Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge University Press.

Lim, W. M., Long, A. T., & Lee, H. Y. (2023). Generative AI and the future of education: Ragnarök or reformation? A paradoxical perspective from management educators. *The International Journal of Management Education, 21* (2).

Maurya, A. (2012). *Running lean: Iterate from plan A to a plan that works*. O'Reilly Media.

Mollick, E. R., & Mollick, L. (2023). Why all our classes suddenly became AI classes. *Strategies for Teaching and Learning in a ChatGPT World*. Harvard Business Publishing.

Paul, R., & Elder, L. (2019). *The miniature guide to critical thinking concepts and tools*. Rowman & Littlefield.

Schön, D. A. (2017). *The reflective practitioner: How professionals think in action* (2nd ed.). Routledge.

Vygotsky, L. S. (1978). *Mind in society: Development of higher psychological processes*. Harvard University Press.

## Digital Resources

Ash Maurya's (2012) Lean Canvas framework Lean Canvas – 1-Page Business Model (leanfoundry.com)

# Author Biographies

**Dr Gillian Barrett** is a lecturer in the Department of Management and Marketing, Cork University Business School (CUBS), University College Cork (UCC). Gillian's research interests lie at the intersection of innovation management, open innovation, and entrepreneurship in the context of global high-tech small and medium sized enterprises (SMEs). In 2019, Gillian was awarded the UCC President's Award for her excellence in teaching. Gillian supports several entrepreneurship education initiatives throughout the university. She is also Programme Director for the Postgraduate Certificate in Project Management and the Certificate / Diploma in Management Practice. Prior to academia, Gillian worked for fifteen years in industry in a variety of senior management and leadership roles primarily in innovation and technology management.

**Dr Marie Ryan** is the Program Director of the BCom International programme and an economics lecturer at Cork University Business School, UCC. In 2023, Marie received the UCC individual President's Award for Excellence in Teaching and Learning. With 15 years of experience in lecturing economics, including five years of international experience, she has developed a pedagogical philosophy shaping her students into critical thinkers creating an environment that values inclusivity, integrity, and lifelong learning. Her leadership in teaching and learning is evident through her work in UDL, inclusive assessments, and academic integrity. She has been involved in three Digital Badge projects and video campaigns and has earned 3 teaching-focused awards and 11 Digital Badges. She is also a '23/'24 Women in Leadership Aurora. As an applied economist, Marie's research spans across health, tourism, and education.

**Dr Ciara Fitzgerald** is a senior lecturer in Business Information Systems, at the Cork University Business School in UCC. Her research and teaching interests lie at the intersection of Technology Innovation, IS Entrepreneurship and Digital Strategy. Her research investigates (1) strategies used by universities and firms to manage intellectual property and the commercialisation process, (2) strategies to engage citizens and policymakers in responsible innovation and technology assessment, and (3) exploratory and applied research of innovative health information systems. Ciara has published widely in leading journals and influential volumes such as Research Policy, Journal of Technology Transfer, Information Systems Frontiers, and Communications of the Association for Information Systems. Ciara's industry experience includes consulting experience at Accenture. During her time there she gained valuable experience working on a multitude of projects for clients in the financial services sector. She is the co-programme director of the BSc Business Information Systems.

# AUGMENTING DIGITAL MARKETING LEARNING WITH GENAI



**Institution:** Trinity College Dublin
**Discipline:** Marketing
**Author:** Kisito F. Nzembayie
**GenAI tool(s) used**: ChatGPT, Midjourney, and HeyGen

## Situation / Context

I lecture across our MSc Entrepreneurship and Innovation, MSc Management, and Executive Education programmes. In this case, I describe the use of GenAI in a digital marketing module designed for students in our MSc in Management programme. The module was delivered from September to October 2023 to a cohort of over 51 students. This was my second year teaching the course at Trinity.

Given the fast pace of technological change, digital marketing curricula must be regularly updated to remain relevant. As such, this module fully embraced GenAI in marketing. To reflect the evolving AI-driven marketing landscape, I aimed to expose students to key digital marketing technologies, including ChatGPT, Midjourney, and HeyGen, as part of the content marketing lessons.

Recognising the potential for AI to facilitate cheating and uncritical thinking, I redesigned the assessments to be more authentic, embedding four learning theories into a holistic experiential learning framework. These included social constructivism, demonstrated through collaborative learning; cognitivism, emphasising critical reflection; behaviourism, marked by knowledge transmission through lectures; and connectivism, which values the networked nature of digital learning. This extended pedagogy

integrated the dimensions of experiential, presentational, propositional, and practical knowing (Heron & Reason, 2006) (Nzembayie et al., 2024).

The new assessment design consisted of a 30% critical reflective essay (introduced this year), a 40% group project, and a 30% individual project based on the group project findings. In their groups, students analysed the digital marketing efforts of four lesser-known Irish companies, producing detailed reports, content, and video presentations. They developed digital marketing strategies and content marketing campaigns to address the weaknesses identified in the companies' digital marketing activities. For the individual project, each student selected a specific area of weakness from the group project and developed and implemented digital marketing strategies. This individual assessment, worth 30%, was submitted as a report, accompanied by AI-generated SEO articles, promotional videos, images, and the prompts used, all included in the appendices. The final 30% reflective piece required students to highlight their experiences and insights gained from both projects and the course as a whole. This assessment aimed to foster authentic, collaborative, and reflective learning. The use of lesser-known companies and real-world scenarios encouraged genuine engagement and authentic assessments, promoting practice-based critical thinking.

## Task / Goal

I set out to achieve three main things with GenAI as part of this module: a) to equip my learners with the most up-to-date awareness of how AI and GenAI tools were transforming marketing, b) to develop skills in the use of GenAI tools and best practices for content marketing, and c) to steer students toward self-discovery and critical thinking regarding the ethical issues involved with GenAI use, consistent with an education model geared toward first-person transformation (Nzembayie & Coghlan, 2024). Hence, students kept a reflective journal throughout the course that captured their thinking and learning journey in real-time.

A final reflective piece involving critical incidents of learning was supposed to distil lessons from their reflective logs as part of a 30% assessment. This also gave me insights into their thinking as most of them engaged with multiple GenAI tools in a marketing context. For instance, although some students had an understanding of and exposure to GenAI, it was interesting to learn how they were yet to make the connection to marketing and the ethical challenges involved.

## Actions / Implementation

I embedded GenAI content in my teaching resources to model best practices for GenAI use. For example, I used illustrative images generated with Midjourney in my slides and AI-generated videos featuring my avatar and cloned voice to spark curiosity and discussion (see figure below).




Fig. 1 AI-generated video using HeyGen.

These discussions explored ethical issues such as deepfakes and subtle reinforcement of biases as shown in a case where image generation AI consistently returned male only candidates for certain roles. Students were asked to reflect on some of the outputs, identifying subtle reinforcement of biases and ethical dilemmas.

These videos created using HeyGen, an AI video creation tool, introduced the role of AI in content marketing and intrigued students about their creation process, prompting classroom discussions even among advanced users. As students developed content marketing strategies for four Irish companies as part of a group project, they used these AI tools and documented their prompts, prompt revisions and AI artefacts to include as appendices in a final report.

I introduced techniques for prompting engineering in class using model prompts that generated various content types. For instance, I generated realistic photos with Midjourney for smart street bins to be included in a blog post or promotional campaign (see Fig. 2), which was one of the four cases the students were working on.



Fig. 2 Photo realistic images of a smart bin on the Streets of London to go with a blog post – Midjourney.

The students learned to write SEO (Search Engine Optimised) blog posts faster by strategically prompting ChatGPT and subsequently personalising the output with market research.




Fig. 3 Student samples of AI-generated video using HeyGen.

## Outcomes

Student engagement and reflection demonstrated real-time transformation, leading to more impactful learning outcomes than would have been possible without GenAI. While students were allowed to use GenAI to enhance the readability of reports, authentic learning was most evident in the student reflections and varied outputs.

There were no credible instances of AI-aided plagiarism, as the high level of authenticity in the deliverables was self-evident. I recognise that GenAI can be used to produce reflective essays.

However, I believe the solution to this challenge lies in the careful design of lessons and activities, with a focus on authenticity. For example, basing tasks on lesser-known Irish companies ensured students genuinely engaged with the project. If they had relied on GenAI, the outputs would have been too generic, prompting face-to-face interviews to verify the work's authenticity—something I highlighted as part of a deterrence strategy at the start of the course.

Additionally, the course design featured three different assessments with various artefacts. A final reflective piece that failed to integrate elements from those activities would have raised concerns—something that did not occur. The assessments included a range of artefacts, such as videos, screenshots, and graphs, showcasing true engagement with the tasks. Therefore, while GenAI was part of the project-based learning process, it was used to complete tasks and improve readability, not to plagiarise.

Guidance on how to critically reflect was also key, and I provided this in the first lesson. I emphasised that reflection should be an ongoing practice, with students documenting their experiences in real time to ensure credibility. This was reinforced in every meeting. Consequently, the assessments clearly showed students engaging in both reflection-in-action and reflection-on-action.

## Reflections

Firstly, not all students had access to cutting-edge GenAI tools or could afford them. Therefore, it is essential to have free versions available. Likewise, I would ask the college to sign up for paid versions of

these tools for students to use next time. There is a danger of unequal access if some students can afford to subscribe to paid versions of these technologies while others can't.

Next time, we will deepen our exploration with technological advances in GenAI – e.g., have students develop custom GPTs to automate several marketing activities. This will certainly require subscriptions, which may not be available. Secondly, while an authentic model of learning based on varied assessment artefacts can help enhance student learning and protect the integrity of business school assessments, grading is extremely time-consuming, in addition to delivery being much more involved. However, seeing students make noticeable transformations in such a short space of time keeps me going.

## Further Reading

Heron, J., & Reason, P. (2008). Extending epistemology within a co-operative inquiry. *The Sage handbook of action research: Participative inquiry and practice*, *2*, 366-380.

Nzembayie, K. F., & Coghlan, D. (2024). Entrepreneurship education as first-person transformation: Interiority as an operationalising mechanism. *Journal of Business Venturing Insights*, *21*, e00471.

Nzembayie, K. F., Buckley, A. P., & Talay, I. (2024). Experiential pedagogies for cultivating entrepreneurial mindsets: Action design learning as tailored framework. *Entrepreneurship Education and Pedagogy*, 25151274241292276.

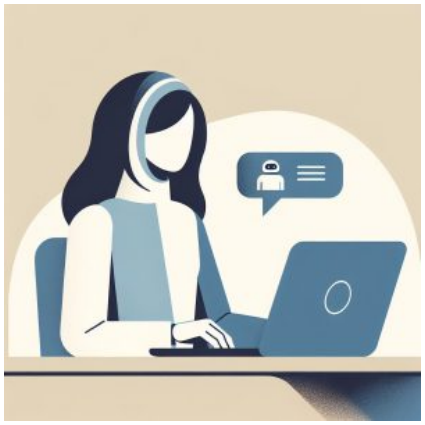
## Digital Resources

- Text generation: https://chatgpt.com/
- Video generation: https://app.heygen.com/home
- Image generation: https://www.midjourney.com/home

## Author Biography

**Dr Kisito F. Nzembayie** is an Assistant Professor in Entrepreneurship and Director of the MSc in Entrepreneurship and Innovation at Trinity Business School, TCD. He holds a PhD in Digital Entrepreneurship and lectures at the nexus between entrepreneurship, digital technology, marketing, and business strategy.

# STUDENT USE OF AN LLM INCREMENTALLY FINE-TUNED TO BEHAVE LIKE A TEACHING ASSISTANT IN BUSINESS AND MARKETING



**Institution:** Dublin City University
**Discipline:** Data Analytics
**Authors:** Alan Smeaton
**GenAI tool(s) used**: Chatbot created for purpose

## Situation / Context

One hundred and forty-three undergraduate students of business and marketing took a module on data analytics and visualisation in early 2024 which covered technical topics including linear regression, significance testing, correlation, p-values, etc. A conversational virtual teaching assistant TA, a chatbot, was created and made available to students anonymously, so there was no tracking of student identity, though the questions they asked, and the replies generated were logged. The virtual TA was hosted on a third-party platform, agenthiost.ai, which acted as an intermediary between students and an underlying large language model (LLM).

## Task / Goal

The aim of this work was to provide an always-available virtual TA and to contribute to the constructivist rather than the instructivist approach to student learning. Students in this course are already able to form their own learning based on interacting with a knowledgeable, reliable, though not always available teaching assistant or lecturer. The virtual TA allows them to ask the questions they would not ask the TA or lecturer directly and to do so in confidence because of the anonymity of the interaction, and at a time that suits them.

## Actions / Implementation

The virtual TA was created using an off-the-shelf LLM (GPT 3.5), which was incrementally fine-tuned each week of the semester on that week's new course materials, including slides, reading materials, transcripts from recommended YouTube videos, text from recommended web pages, assignments, and automatically generated transcripts of recordings of lectures. The audio recordings of lectures included all 150,000 words spoken during 20 hours of face-to-face lectures. This meant that each week the virtual TA would improve its knowledge of the course but would not give answers to questions using materials which had not yet been covered in class.

The virtual TA was prompt engineered to stay within the scope of the fine-tuned materials only and not to answer questions from outside the course. The temperature for the LLM temperature, which is a parameter in the range 0 to 1, which controls the amount of randomness or creativity in the model's response, was set to 0, thus practically eliminating hallucinations. The environment in which the virtual TA was presented had many warnings for students about what it knows and does not know.

Students were advised to always refer to the lecture and other course materials, and not to depend on the virtual TA.

## Outcomes

During the semester and up to the day of the final written exam, 2,787 questions were asked by students and an analysis of a sample of 700 of these found that all were answered correctly from the course materials. In the 24 hours before the final exam, 730 questions were asked and answered.

An analysis of usage indicated that the virtual TA was used for understanding concepts, preparing for the exam and for assignments and that it helped students to ask questions they would not ask the lecturer. Students did not experience any technical issues when using the virtual (bar some issues with response time).

## Reflections

We know that the concept of using GenAI has many positives and negatives, but the challenge is using the right form, configured in an appropriate way, and presented as part of a constructivist way of learning.

Some of the questions asked including requests for worked answers to exam questions which we did not anticipate. Students benefited from the initiative and the methodology can be scaled and replicated to other modules. However, the context of the module and its relevance and appropriateness for such an approach should always be considered. For future iterations of this, and we will be doing this for more than a half-dozen modules in the first semester of 2024/2025, we will include a basic introduction and overview of prompt engineering so all students can maximise their benefits from using the virtual TA.

# Author Biography

**Dr Alan Smeaton** is a Professor of Computing at Dublin City University and a founding co-director of the Insight SFI Centre for Data Analytics. In 2021, he was awarded PFHEA status for his work on the development of pioneering and innovative uses of online resources for student learning over an extended period of time. In early 2024, he was appointed to the Government's Advisory Council on Artificial Intelligence.

# CO-CREATING ASSESSMENT RUBRICS WITH STUDENTS AND CHATGPT IN FILM AND TV




**Institution:** University College Dublin
**Discipline:** Film and Television
**Authors:** Naomi McAreavey
**GenAI tool(s) used**: ChatGPT

## Situation / Context

I first tested this approach in a new module on Shakespeare on Film and Television with 25-30 undergraduate students studying English, Drama and/or Film as part of their BA.

For the final assignment, students were asked to produce an idea for an adaptation of one of Shakespeare's comedies for film or television and include a sample scene. This could be submitted in written form, as a video or as a storyboard. The assignment tested the students' creative and critical engagement with one of Shakespeare's plays, and their ability to address key questions about adapting Shakespeare for a contemporary screen audience.

My (entirely human-created) assignment prompt and template had been available to students from the start of the semester. But I needed a rubric, since I know they can support diverse learners in understanding expectations and setting goals and are particularly important for new and unfamiliar assignment types like this one.

## Task / Goal

Creating rubrics can be involved and time-consuming work. I wanted to see if ChatGPT could make the process quicker, easier, and more efficient. I suspected that this was the type of task that ChatGPT would excel at because, as a predictive model, it is good at organizing information in a structured, clear, and consistent way—probably better than me, in fact.

I wanted to involve my students in the process so I allocated class time to the co-creation of assessment criteria that I would then input to ChatGPT. This exercise would give the students an opportunity to

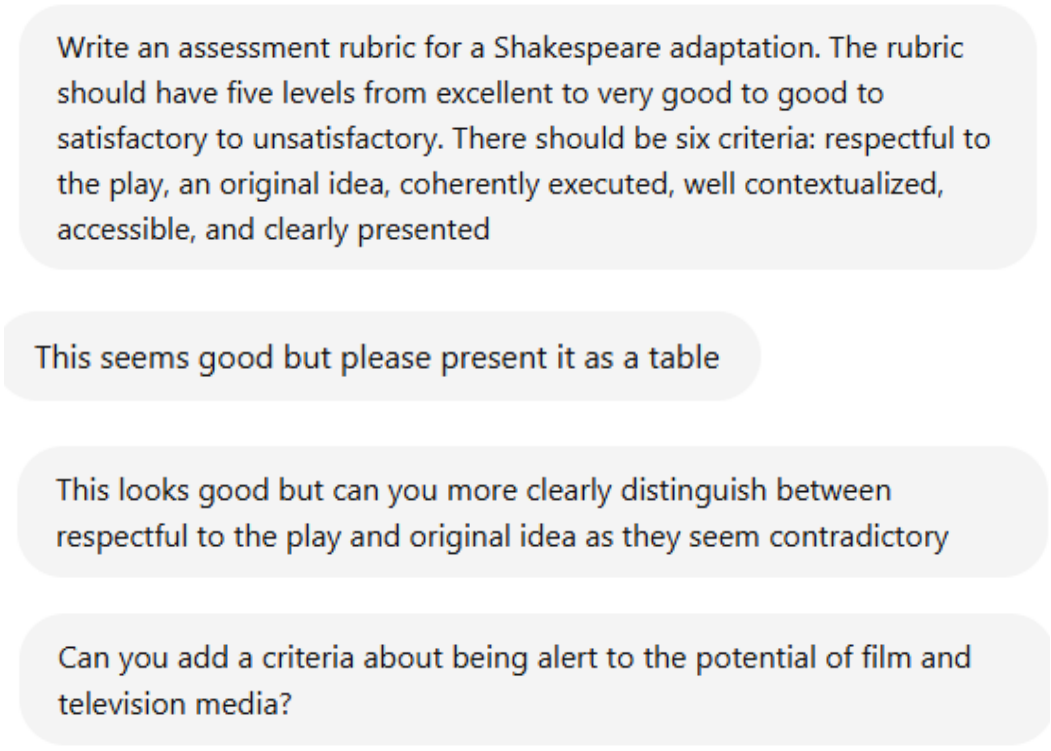
review what they had learned in the module so far and begin to prepare for the final assignment. It would also have the secondary benefit of introducing them to GenAI. After we had agreed on a set of criteria through a combination of group work and class discussion, I told them I would use these criteria to create a draft rubric using ChatGPT and bring it for their approval in the following class.

## Actions / Implementation

After class, I asked ChatGPT 3.5 to create a rubric using the six criteria the students had created and organised across five levels from excellent to unsatisfactory.

As this was my first time using ChatGPT to create a rubric, there were several stages of refinement before I got a rubric that I was happy to bring back to the students. Along the way, I had to specify that I wanted the rubric in table form. I also made various clarifications to distinguish between different criteria, to refine what we meant by a particular criterion, to consolidate overlapping criteria, to add a criterion that I realised had been overlooked in our discussion, and finally, to simplify the now-bloated rubric.

This was all done outside of class and without direct student involvement, although I did share the process with them in the following class. I explained that I had created the rubric with the help of ChatGPT and I showed how I did it using our criteria and what I already knew about creating rubrics. By showing the process of creating and refining the rubric, I was able to demonstrate the importance of precise prompting and the critical evaluation of outputs. The exercise, therefore, not only helped to create a rubric but also provided an opportunity to talk to the students about the benefits and challenges of using generative AI. Below the process of creation in ChatGPT:



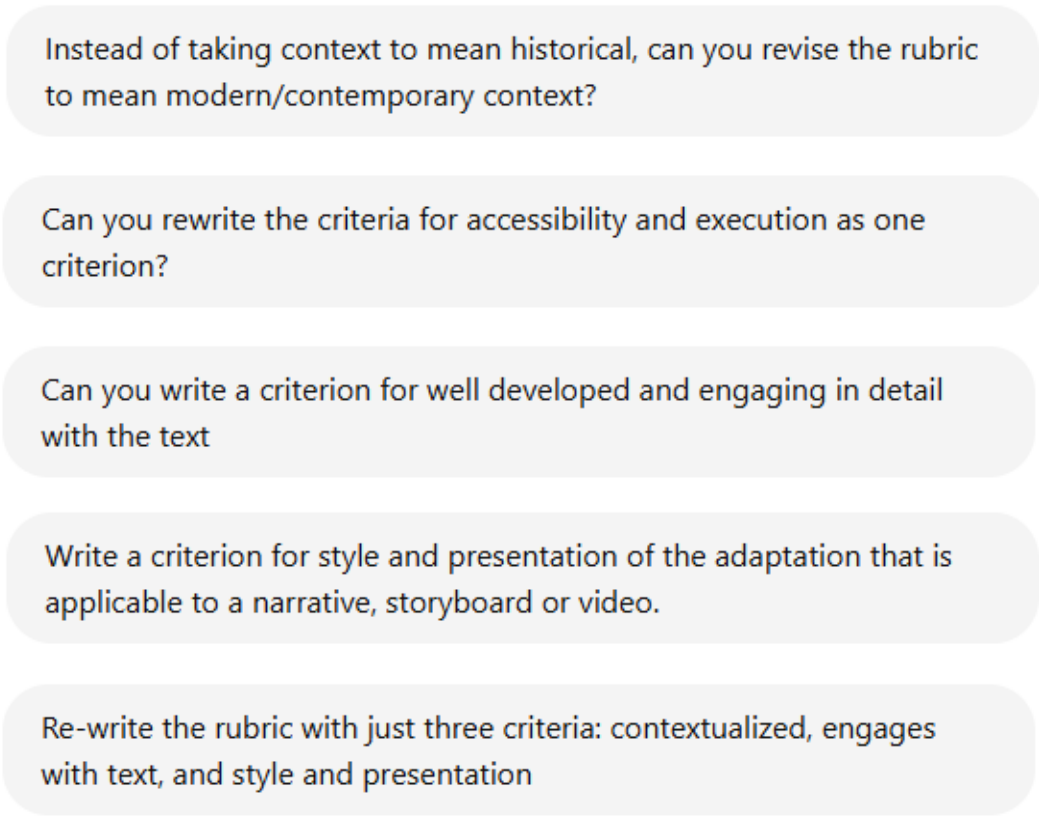



Fig. 1 Instructions in ChatGPT to create the rubric.

## Outcomes

The students found the rubric useful. I also found it helpful when grading and providing feedback on the assignments, and I have been able to reuse the rubric since. ChatGPT thus helped me create a useful and adaptable assessment resource quickly and easily.

Using ChatGPT for this task also gave me an opportunity to explore the tool for an important but onerous task. Through the process, I learned how to use the tool more effectively and efficiently, knowledge that I could then share with my students.

As a novice with no experience creating rubrics with ChatGPT, I did not want to confuse my students by demonstrating the process in real-time. I realise now that this was a missed learning opportunity. Now, I would bring the process into the classroom by creating the rubric "live," with either me or the students leading the process. I learned by doing, so it would be good to give the students this same opportunity to engage with the tools collaboratively in a safe and supported environment.

## Reflections

There is no doubt that I was able to create a rubric much quicker and more painlessly using ChatGPT than I could have done manually. I hope the speed and ease of creating rubrics with GenAI might encourage more lecturers to use rubrics as a tool to support and empower learners.

However, they should be aware that creating a rubric with ChatGPT is far from automatic and requires extensive refinement to improve its accuracy, clarity, and precision. Nevertheless, I still found it much easier to refine an unsatisfactory draft created with ChatGPT than to create a new rubric from scratch.

I would advise others interested in creating rubrics with GenAI to:

- Define the levels (e.g., five levels: excellent, very good, good, satisfactory, and unsatisfactory).
- Decide whether to assign points to each level (e.g. from 4 to 0).
- Ensure the criteria are as precise and concise as possible, as ChatGPT tends to use many categories and sub-categories.
- Ask for the rubric to be set out in table form.

I used ChatGPT, but now that we have institutional access to Gemini or Copilot through an educational licence that provides enhanced privacy settings for staff and students, I would use one of these tools instead in the future.

## Further Reading

Bolton, C. F. (2006). Rubrics and adult learners: Andragogy and assessment. *Assessment Update, 18*(3), 5–6.

Panadero, E., Jonsson, A., Pinedo, L., & Fernandez-Castilla, B. (2023). Effects of rubrics on academic performance, self-regulated learning, and self-efficacy: A meta-analytic review. *Educational Psychology Review, 35*, 113.

Reddy, Y., & Andrade, H. (2010). A review of rubric use in higher education. *Assessment & Evaluation in Higher Education, 35*(4), 435–448.

## Author Biography

**Dr Naomi McAreavey** is a lecturer in Renaissance Literature in UCD School of English, Drama and Film. She is a University for All Faculty Partner who promotes Universal Design for Learning in UCD and a UCD Fellow in Teaching and Academic Development currently working on a project on students as partners. She is also leading a SATLE funded project on the impact of GenAI in Arts and Humanities teaching, learning and assessment.

# IMPROVING VISUAL ENGAGEMENT THROUGH GENERATIVE AI IN MEDIA STUDIES



**Institution:** Maynooth University
**Discipline:** Media Studies
**Authors:** Simon Hewitt
**GenAI tool(s) used**: ChatGPT

## Situation / Context

This showcase focuses on the use of Generative AI (GenAI) supported visual engagement strategies in the BA Media Studies programme, the Media & Cultural Studies pathway of the BA Arts programme, and the MA in Critical and Creative Media programme at Maynooth University. Specifically, I use this approach in our large first-year undergraduate introductory Media Studies module (188 students), for which student participation in lectures can be particularly difficult to generate.

I also incorporate it in a postgraduate methods class for the MA and PhD students from the Department of Media Studies and the School of Modern Languages (15 students). Student participation can be easier to integrate here, but with such a variety of students, the need to provide unambiguous instructions to every student in every context becomes even greater. I have been teaching both modules since September 2023.

## Task / Goal

In my experience, Media Studies students often have a natural inclination toward exploring new technologies like AI. But as per my modules policies, they are forbidden from using GenAI in their module assessments. Therefore, I want to offer concrete examples of ethical AI use to emphasise the benefits of this technology so they might explore it without undermining their capacity to develop their knowledge and critical thinking skills.

I also adopt Fiorella's strategy of 'generative learning' into my teaching practice, which "involves [students] 'making sense' of provided learning material by actively organizing and integrating it with [their] existing knowledge" (2023: 1).

By creating visual engagement through visual puns for my in-class warm-up exercise (Catchphrase

Media), I hoped to reflect the learner's interests, which can be shown to increase generative learning motivation (Fiorella and Mayer, 2015: 719).

I also want to support students who struggle with purely text-based instructions to more easily traverse my Moodle page. Therefore, I use GenAI to create customised section images for my Moodle pages to help guide students to their desired information.

## Actions / Implementation

Generating class participation from 188 first-year undergraduate students can be especially challenging. To motivate engagement, I create visual puns that the students must guess in a fun warm-up game that I include in my slides at the start of class. It is essentially an adaptation of the TV game show, *Catchphrase*. This approach is underpinned by the understanding that learning is a generative process in that it "occurs when learners build connections between the presented material and their prior knowledge (Mayer, 2010: 46)."

The following ChatGPT-generated images are based on examples of popular media, with which many of the students will be familiar, that also relate to that week's topic of "Mediated Communication". See figure below.




**Answers** = Gossip Girl Zoom The Social Network

Fig. 1: Examples of ChatGPT-generated images.

To reinforce ethical GenAI use, I include a slide at the beginning of every lecture before the warm-up game that reads "I created the following images on [date of creation] using ChatGPT and the prompt – create an image (a visual pun) based on the name of popular [insert form of media] that I will use in a trivia round". I also refer back to these images when relevant, e.g., a later lecture discusses gender biases in media, for which I reuse the *Gossip Girl* image.

I also create section images for my Moodle pages using ChatGPT to help guide my students to their desired information. For example, figure below:

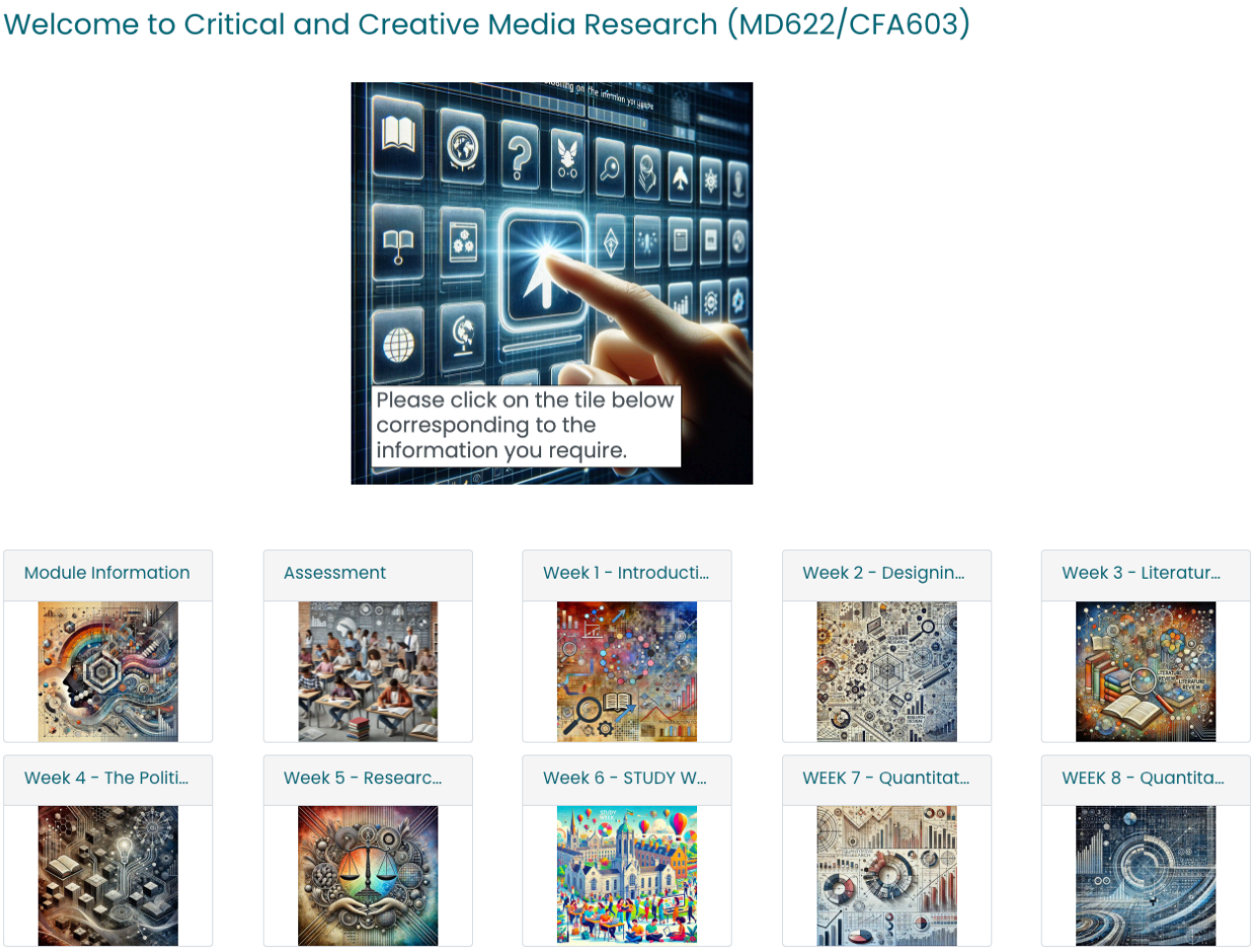



Fig. 2 Example of section images for my Moodle pages using ChatGPT.

This involves using the Grid course format on Moodle and then asking ChatGPT to create an abstract image based on the pre-planned title for each week's classes, e.g., "Literature Review." The image is abstracted because GenAI often returns text within the image, i.e., it will create an image that includes the text "Literature Review."

Since each section is already labelled on Moodle, I did not want it to be labelled twice. The added benefit from a UDL perspective is that ChatGPT auto-includes alt-text that can be read by visually impaired students using screen readers, e.g., "A visual representation of a Literature Review." Some adaptation may be required. For example, the "Please click on the tile below..." text was added via PowerPoint. I also include the note on the ethical use of GenAI within my Module Information section that says, "Note on icon creation: The icons on this Moodle page were created using GPT-4o using the prompt 'create an abstract image that represents [title of icon needed]'."

## Outcomes

As part of the module feedback processes, I use a mid-session informal, anonymous suggestion box, as well as formal end of semester Moodle feedback surveys. The feedback has been overwhelmingly positive**.** The students express great affection for the *Catchphrase* warm-up game and can see its value:

- "The crowd involvement at the start of each lecture was quite enjoyable. It broke the silence of the start of a class and got people chatting."
- "I liked how Simon is able to bring a sense of enthusiasm to the lectures; the [warm-up game] at the start of each lecture was always a great aspect."
- "I really liked the [warm-up game] at the start."

Additionally, I have received comments that my Moodle page is well-organised and easy to navigate. I also received positive comments from fellow staff who have since adopted the same presentation for their Moodle pages.

Overall, these steps have enabled me to reflect the learner's interests by providing fun examples of media that help start that week's discussion while also helping to guide students to their desired information on Moodle. However, more time will be needed to measure the impact of providing concrete examples of ethical AI use. I will, therefore, include a question about this in my upcoming end-of-semester Moodle feedback surveys.

## Reflections

The most impactful feedback I received was about the warm-up game. Many students complained that I was initially too focused on filmic media. Instead, they wanted more examples that reflected their interests, e.g., video games, music, podcasting, and media specific to Ireland. My background as a filmmaker apparently influenced my incorrect assumption that anyone studying media would be interested in cinema to the same extent as I am. I have since adapted my strategy to include a wider variety of examples. I was also surprised that at least one student was hostile to GenAI use – "*Do not use AI. It should not be used at all on campus.*"

My hope is to instil a sense of ethical GenAI use because, as students progress through Media Studies, AI is a transformative technology that they will need to understand.

## Further Reading

Mayer, R. E. (2010). Merlin C. Wittrock's enduring contributions to the science of learning. Educational Psychologist, 45 (1), 46–50.

Fiorella, L. and Mayer, R. E. (2015). Eight Ways to Promote Generative Learning, Educational Psychology Review 28 pp. 717–741.

Fiorella, L. (2023). Making sense of generative learning. Educational Psychology Review, 35, 50.

## Author Biography

**Dr Simon Hewitt** is an Assistant Professor in the Department of Media Studies at Maynooth University. His research focuses on the interstices between media audiences and media industries and the means by which this gap is bridged. His recent works include a chapter for an edited collection from Edinburgh University Press that discusses intermediality in UK scare attractions and an article for *Convergence* on video game and cinematic convergence in the late 1990s.

# GENAI DISPOSITIONS AND LITERACIES: PODCASTING AS PRAXIS WRITING IN MEDIA



**Institution:** Maynooth University
**Discipline:** Writing in Media
**Authors:** Adrian Kirwan
**GenAI tool(s) used**: ChatGPT

## Situation / Context

The activities discussed below took place during the 2023-24 academic year at Maynooth University in a second-year module—Intersections of Science Writing and Media—which seeks to develop transferable writing skills for science students (n=64). The final six weeks of the module are built around the completion of a group podcast assignment which articulates a scientific topic to a public audience.

As the module is focused on writing as a rhetorical practice, students are well positioned to engage with the potential of GenAI focusing on Large Language Models (LLMs) as a writing technology. Initially, groups identified an appropriate topic and completed academic research.

This showcase focuses on the activities following the completion of this research when students produce a draft script for their podcast. It was at this point, over a two-week period that GenAI was introduced and utilised.

## Task / Goal

The purpose of these activities was to train students to critically evaluate the use of GenAI in their writing. This necessitated the acquisition of two core competencies. Firstly, GenAI literacies—ways of doing and knowing, e.g. understanding the affordances and limitations inherent in LLM architecture, successful prompting, etc. Secondly, dispositions—needed to think critically about the issues that create and shape these technologies, including the ethical and legal dimensions of GenAI use, what contexts they are useful in and when it is more appropriate not to use GenAI (this can centre on concerns such as plagiarism;

potential inaccuracies in output; impact on learning; environmental issues; or simply the fact that in many scenarios, using GenAI can be more time consuming than not). Drawing on Southworth et al., (2023), the learning outcomes were:

- Discuss how GenAI technologies work.
- Operate/prompt them effectively.
- Analyse their affordances and limitations.
- Integrate them into the writing process.
- Debate the broader social and ethical considerations of their use.

## Actions / Implementation

The final assessment for this module was a group podcast. As outlined above, GenAI was the focus of the middle two weeks of this part of the course. The core teaching and learning activities were thus:

- Week one, lecture: Introduction to GenAI as a writing technology. This focused on three central learning outcomes: 1) describe the development and architecture of LLMs, 2) discuss the affordances and limitations of LLMs, 3) utilise LLMs. Following this lecture students took part in a tutorial session where they utilised GenAI to produce draft scripts.
- Tutorial. Three key prompting tasks were used: 1) brainstorming and organising, 2) producing text, 3) breaking down writing tasks to enhance GenAI output (see digital resources for worksheet).
- Week two, lecture: The ethics of GenAI. This focused on various ethical concerns raised by these technologies, including ecological, privacy, and copyright concerns; bias; and an overview and critique of current ethical frameworks.
- Tutorial. This consisted of critiquing GenAI output and editing this to produce their podcast script (see digital resources section).

## Outcomes

The introduction of GenAI necessitated a multi-stage approach to the production of the podcast. While some elements remained the same, some changed. Preceding the use of GenAI, the module needed to introduce and discuss podcasting as a genre, and the role of science podcasting, to a public audience, in particular. Students needed to select an appropriate topic and research this, gathering academic sources which would allow them to critique, strengthen and correct potential misinformation from GenAI. Such fundamental knowledge is also a crucial factor in prompting LLMs. Following the production of a script with the assistance of GenAI (ChatGPT), students finally had to record and edit this for the assignment. The podcast script was assessed based on the following criteria: exigence (i.e. the pressing need), which was established, and resolution explored; audience was targeted; appropriate language, etc.; constraints, making use of the affordances of the genre while overcoming the limitations.

## Reflections

The module proved extremely useful in exploring GenAI's potential as a writing technology. The lectures provided a good opportunity to introduce key concepts, affordances, and limitations and begin to introduce core skills/literacies, such as prompting. These blended well with the tutorials, where students gained experience with generating and critiquing GenAI output.

One critical point of feedback from students was how time-consuming it was to produce usable text. Given the context—students had spent a lot of time up to this point thinking about writing and rhetoric—this not only signals the effectiveness of the module as a whole, but points to the need for strong writing instruction. Once students understand what proficient writing is, they are much more capable of critiquing and surpassing the textual output of GenAI.

Future iterations of this course will further explore the use of GenAI for research (compared to other tools) and summarisation (compared to humans).

## Further Reading

Association for Writing Across the Curriculum. (2023). *Artificial intelligence writing tools in writing across the curriculum*.

Miao, F., Holmes, W., & United Nations Educational, Scientific and Cultural Organization. (2023). *Guidance for generative AI in education and research.* United Nations Educational, Scientific and Cultural Organization.

MLA-CCC. (n.d.). *MLA-CCC joint task force on writing and AI.*

Southworth, J., Migliaccio, K., Glover, J., Glover, J., Reed, D., McCarty, C., Brendemuhl, J., & Thomas, A. (2023). Developing a model for AI across the curriculum: Transforming the higher education landscape via innovation in AI literacy. *Computers and Education: Artificial Intelligence, 4*, 100127.

## Digital Resources

Each of the two tutorials made use of a worksheet, these can be located here:

Tutorial one: Introduction to prompting Worksheet

Tutorial two: Editing GenAI workshop

## Author Biography

**Dr Adrian Kirwan** (Critical Skills, Maynooth University) is an historian of science and technology. He has published in numerous national and international journals, as well as recently co-editing the eleventh volume of *The Correspondence of John Tyndall* (University of Pittsburgh Press, 2022). He also has a strong

interest in the Scholarship of Teaching and Learning, particularly in the use of (and discourse surrounding) technologies in higher education. His most recent publication on this subject is 'ChatGPT and university teaching, learning and assessment: some initial reflections on teaching academic integrity in the age of Large Language Models,' *Irish Educational Studies.*

# TESTING THE TURING TEST WITH CHATGPT



**Institution:** University College Cork
**Discipline:** Philosophy
**Authors**: Joel Walmsley
**GenAI tool(s) used**: ChatGPT

## Situation / Context

In 2023 and 2024, as part of a third-year undergraduate module in Philosophy (PH3035: "Philosophy of Artificial Intelligence"), I required that students use ChatGPT as part of their essay assignment. The module is typically taken by approximately 40 BA students from a number of disciplines (e.g., Philosophy, Digital Humanities), as well as a handful of postgraduate students (including the Higher Diploma in Philosophy). One of the requirements for the module is a 2500-word essay, and I have always given students a choice of essay questions, one of which concerns the "Turing Test."

We cover this topic in the lectures, having read Turing's famous 1950 paper "Computing Machinery and Intelligence" together with a variety of secondary literature and in-class discussions. In the last two years, I decided to address the same topic but adjust the way in which students were required to approach it; the appearance of ChatGPT provided a unique opportunity for students to conduct a Turing Test rather than merely read and write about it.

## Task / Goal

My objectives here were four-fold. First, since the module itself concerns (the Philosophy of) AI, the essay assignment seemed like a good opportunity to give students some "hands-on" experience interacting with a current GenAI system rather than simply reading about it.

Second, the assignment provided an introduction to the technology itself by enabling students to learn and demonstrate best practices in using it (as well as exploring its strengths and weaknesses) in an environment where I could guide them in doing so responsibly.

Third, I designed the assignment in such a way that completing it would still meet the learning objectives

for the module by requiring that students engage carefully with the texts, ideas, and debates that we had examined together in class.

Finally, I hoped that this assignment would also be enjoyable. Here, I was inspired by a recent tweet from Andrew Ng (former head of Google Brain), in which he said, "I wish schools could make homework so joyful that students want to do it themselves, rather than let ChatGPT have all the fun."

Taken together, these four considerations, I surmised, would significantly reduce students' ability – or even desire – to use GenAI in a way that would constitute academic dishonesty.

## Actions / Implementation

The specific wording of this particular essay question was as follows:

"Conduct a Turing Test (or, rather, play Turing's 'imitation game') with ChatGPT. Given what Turing says in his 1950 paper do you think that ChatGPT passes or fails? How, and why? What kinds—or topics—of conversation would make it more likely to pass, or more likely to fail? What does this show about the Turing Test? What does this show about ChatGPT?"

I designed questions in such a way as to allow students considerable creative freedom in their approach, whilst also ensuring that the essay topics required engagement with the material we had covered. In conjunction with the ordinary course material – which already gave students some familiarity with GenAI in general, and LLMs in particular – I spent a lecture specifically discussing how ChatGPT works, what its strengths and limitations are, and strategies for using it optimally (and honestly) in this kind of assignment. We went through the handout to discuss the ways that ChatGPT might be used productively, the appropriate ways for documenting that process, and my expectations and goals.

## Outcomes

The resulting essays were a delight to read, and I was pleasantly surprised both by the enthusiasm that the students displayed, and the creative, insightful, and original ways that they had approached the assignment. Students had conducted Turing Tests by focusing on areas as diverse as humour, slang, gender, neurodiversity, morality, sport, cuisine, and perfumery, and demonstrated exactly the kind of understanding and engagement that I was hoping for.

In their course evaluations—in which I asked specifically about the "unconventional" assignment—students were universally positive. One even commented that the thought of "cheating" had not even crossed their mind because the assignment was so much fun to work on.

## Reflections

Having set the assignment this way for two years now, I have had the opportunity to make some changes in light of my experiences. First, I am now much clearer with students about my expectations, and the somewhat novel or unconventional nature of the assignment. I emphasise both that we are all still learning

how best to use this technology, and that, for that reason, I am very open-minded about how they can approach the assignment. An example of this includes confusion on students' parts about how to cite or document their interactions with ChatGPT, so I now stipulate that they must include screenshots either in-text or as a clearly labelled appendix.

The ability to document this kind of process is a valuable skill for them to learn and will surely become even more so in the future. Second, because ChatGPT's model is continually changing (including the expansion of some of its safety features, and its prohibited responses), I found it useful to experiment with ChatGPT myself before setting the assignment: this is something that will need to be done every year, with tweaks to the assignment introduced. For example, if one asks ChatGPT for an opinion, a feeling, or to report its own mental state, it always gives a "canned" or deflationary response, which reminds the end-user that it is "merely" an AI.

To avoid students getting "stuck" on such things, assignment questions can be tweaked to use this kind of response explicitly, in order to prompt further reflection (see, for example, question 2 in the assignment handout, appended).

Naturally, it must be said that my module lends itself well to this kind of approach by its subject matter concerns the Philosophy of AI. One might worry about the extent to which this particular exercise could be applied in other modules and disciplines. However, I have found that the general approach can be adapted to other contexts and to different topics. ChatGPT is very good at coming up with lists and examples, or proposing hypothetical novel cases, or answering in a particular style or voice, and so could usefully inform a range of different subject matters. For example, in another module of mine, students used ChatGPT to develop (and critique) dialogues with characters from the novel *Brave New World* and thereby explore the concept of free will with some success.

Several students also mentioned that brief interaction with ChatGPT could be used for brainstorming or for overcoming writer's block. Care must be taken here, as such usage could limit students' creativity and perhaps inhibit or bypass engagement with an issue; it may be more appropriate for students only to use ChatGPT after they have made an initial foray into the topic with their own brainstorming. Nonetheless, this is something that could be equally well explored and developed in similar assignments by adopting my approach of facilitating, rather than prohibiting, the use of GenAI.

## Digital Resources

UCC Book of Modules Entry for PH3035:
https://ucc-ie-public.courseleaf.com/modules/?details&srcdb=2023&code=PH3035
PH3035 Essay Topics (Appendix): PH3035-essay-topics Joel W

## Author Biography

**Dr Joel Walmsley** is a lecturer and Deputy head in the Department of Philosophy at University College

Cork. His research interests include philosophy of mind (especially cognitive science and AI) and philosophy of science. He is the author of *Mind: A Historical and Philosophical Introduction* (Hackett, 2006), *Mind and Machine* (Palgrave, 2012) and editor of *C.D. Broad: Key Unpublished Writings* (Routledge, 2023).

# USING GENAI FOR CREATING PEDAGOGICAL RESOURCES/MATERIALS IN EDUCATION



**Institution:** University College Cork
**Discipline:** Education
**Authors:** João Costa, João Mota
**GenAI tool(s) used**: ChatGPT (3.5) and Microsoft Copilot (using GPT 4.0)

## Situation / Context

This case study, from an accredited professional degree in Teacher Education, encompasses the design of a set of teaching and assessment resources carefully created and curated to support the delivery of modules across the BEd Physical Education, Sports Studies and Arts (BEDPESSA) degree, namely Pedagogical Foundations (ED1324) and a suite of 4 modules centred on Curriculum-Based Physical Activities (ED1314, ED1323, ED2405, ED2406). The BEDPESSA programme caters to a cohort of 200 future PE and Arts teachers, 50 per year and per module. All modules rest in a new programme structure that was reconfigured during the last accreditation round completed in 2022 and are centred around the implementation of curriculum and pedagogical models for post-primary education classrooms.

## Task / Goal

A challenge we faced while delivering our modules was providing the students with rich, detailed, and authentic accounts/problems of teaching contexts that could be used to guide and scaffold learning and assessment for the students to connect theory and practice in relation to curriculum and pedagogical models in post-primary education. This challenge stemmed mainly from the amount of time necessary to craft and curate these problems until they were ready for application while meeting key pedagogical features of ecological validity and alignment. The use of GenAI provided us with the ability to automatise and standardise most of the crafting process, securing enough time to allow us to centre our efforts on refining the problems and guaranteeing their validity and alignment with the modules' learning outcomes.

## Actions / Implementation

As hinted above, we used Gen AI to develop a set of problems describing realistic educational contexts and the challenges stemming from the implementation of specific curriculum and instructional models (e.g., Flipped Classroom, Adventure Education).

Their use was twofold: 1) in the case of the Curriculum-Based Physical Activities these cases were used as hooks to set class discussion and drive the remainder of the class; while, 2) in the case of ED1324 the cases produced were used as assessment prompts that students had to analyse and discuss showing an understanding of the links between theory and practice of pedagogical models in the classroom.

We prompted ChatGPT (free version using GPT 3.5) and Microsoft Copilot (using GPT 4.0) to design a problem or case scenario that included challenges, common errors, and/or key elements/principles of said models' implementation. Based on reviewing and dissecting the outputs obtained, the prompts were refined towards the least addressed features of the scenarios and then refined manually to align with the particular learning intentions/outcomes of each class/module.

The rubrics were also refined to maximise alignment and validity of the learning and the assessment. The two relevant examples are further explained, considering the generated framework for creating resources using GenAI, presented here under Digital Resources.

For the use of creating learning experiences through scenarios as hooks for class discussion, once it was established the desired output aligned with the Learning Outcomes under the principles of alignment and validity, the following steps were taken:

- prompting ChatGPT to write a problem with a specific pedagogical approach (e.g., Adventure Education) "Write me a problem experienced by PE teachers when using Adventure Education" and assessing the overall quality in terms of validity and authenticity;
- prompting ChatGPT to convert the problem to a case study format "Could you put into a case study format?" as it inherently adopts a clear structure with a Background section and a Problem section; and
- "manually" extracting the most relevant features towards condensing the case study text to the lecturer's personal approach within the session's aims (see sample figure below).

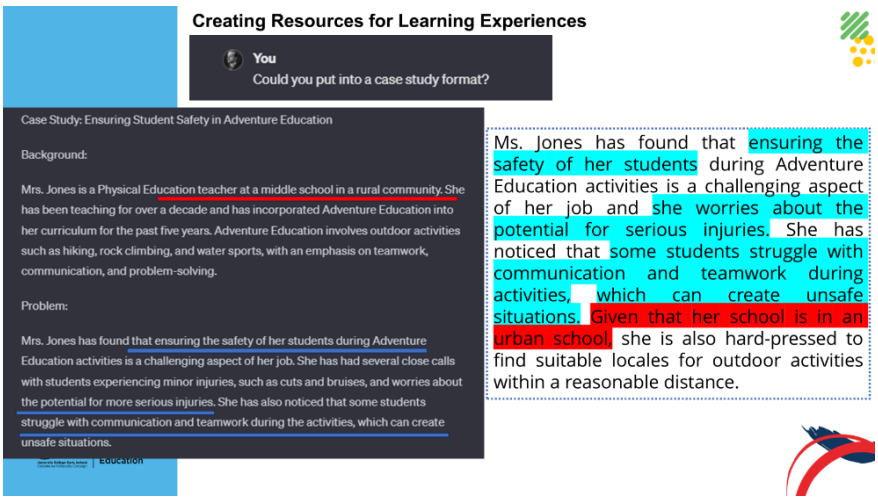



Fig 1. – Full output vs. condensed version of the resource for class discussion. Blue and red highlights identify the core elements used for condensing purposes.

This process was then replicated for the remaining pedagogical models, allowing students to use time and resources efficiently and effectively. To generate case studies as assessment prompts to be analysed by the students, a sample pedagogical model was used to develop and refine a master prompt structure that would then be filled by the remaining pedagogical models (for a total of five).

The first test prompt aimed at generating a case aligned to learning outcomes, namely a) outlining models of pedagogical practice and b) discussing examples of pedagogical practice: "Create a case scenario of teaching through case-based learning, making clear that it is a case-based teaching model, with one good feature and one negative feature".

When assessing the output, it was noted that the generated scenario focused on a third-level setting, thus immediately revealing that the prompt had to specify the secondary-level setting to ensure authenticity and validity: "Refine the case scenario to focus on secondary school and expand the scenario."

Lastly, the refined output still revealed an element in one of the features that was beyond the teacher's control which didn't suit the aim of the assessment relative to the Learning Outcomes, leading to a refinement prompt: "Refine the negative feature to focus on an element that Ms. Garcia could do better in the classroom when implementing the case-based teaching model".

The final output showed sufficient validity and alignment to the intended output and a master prompt was finally tested now with a different pedagogical model aiming to avoid ChatGPT's simply adopting the previous outputs and pushing the test forward: "Create a scenario of teaching in secondary school through problem-based learning, describing the problem-based teaching model, and referring to one good feature and one negative feature in the scenario". Each of the generated cases were "manually" refined for enhanced cultural responsiveness, for example, by changing names to more common Irish names and educational settings, which eventually could have also been incorporated into the master prompt.

In less than one hour, all five cases were generated and condensed to the desired level that was consistent across all pedagogical models (e.g., between 100 and 150 words) and then incorporated into the assignment for students (see sample figure below).

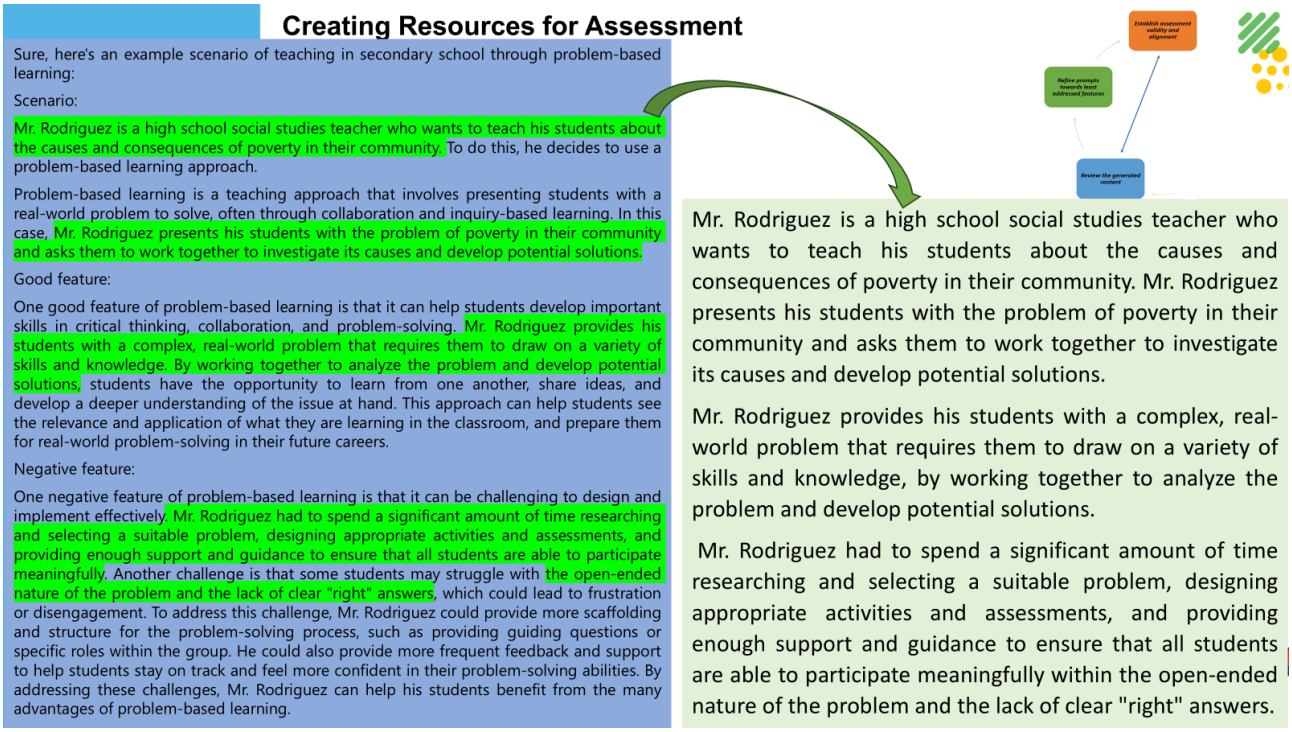



Fig. 2 – Full output vs. condensed version of the resource for assignment (before cultural adaptation). Green highlights identify the core elements used for condensing purposes.

## Outcomes

The outcomes from this practice refer to different elements:

- the actual problems and scenarios for each of the modules that hold ecological validity and alignment to the learning outcomes;
- a conceptual and practical framework that derives from the educational best practice of instructional alignment, embedding principles of using GenAI; and
- a set of pedagogical practices for learning and assessment that embeds the design of GenAI at its core, which can be used to continuously update and improve teaching, learning, and assessment.

The resources were evaluated with peers who reviewed the content and the process, as well as through student feedback on the modular experience. The framework has been evaluated through presenting and piloting with the School of Education during a professional development day.

## Reflections

Given that most of this endeavour was driven by our initial curiosity around the prospective use of GenAI to lighten the load of preparing teaching and assessment resources while ensuring proper validity and alignment of said resources, we were positively surprised by the authenticity of the outputs produced with minimal tinkering, once a pattern of effective prompts was developed that then we could translate to a

conceptual framework. This fact further deepened our conviction that GenAI can be meaningfully used to support the use of problem-based teaching and assessment practices and minimise the upfront time required to prepare resources; all the while maximizing the energy and time available for lecturers to focus on in-class interaction and provision of quality feedback.

For improvement next time, we are thinking of guiding students in adopting the framework as teachers during school placement. There, they can test the extent to which the assessment practices can be addressed through GenAI. As a result, they might identify how the experience can be improved and enhance its internal validity in assessing student learning.

## Digital Resources

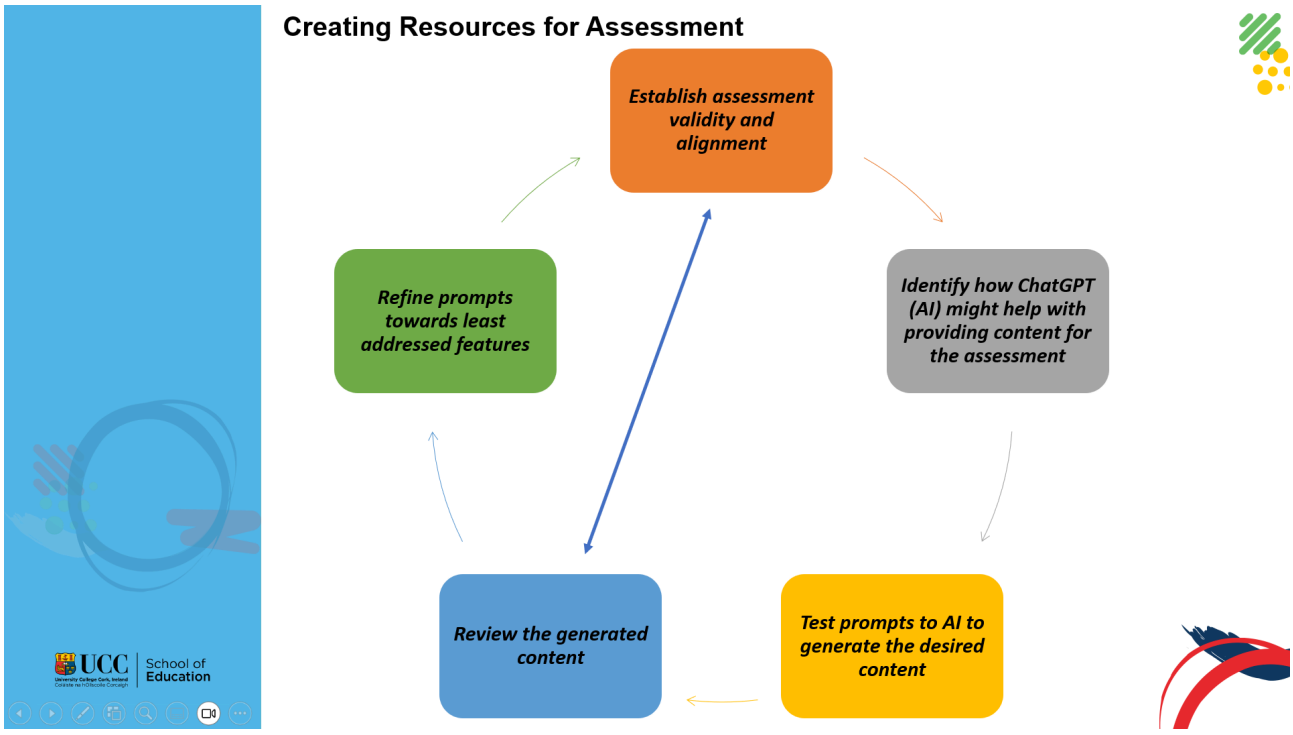



Fig. 3 Conceptual Framework for using GenAI to create assessment resources.

Additional Resource: Mota and Costa_AI in Education

## Author Biographies

**Dr João Costa** is a Physical Education Teacher Educator, holding a Doctorate in Teacher Education from the University of Lisbon in Portugal. His Doctorate was awarded the first prize in Research in Sport Psychology and Pedagogy by the Portuguese Olympic Committee / Millenium BCP Sports Sciences Research Awards in 2017. He currently serves as a Lecturer in Education (Sport Pedagogy) in the School of Education at UCC, for the B.Ed. (Hons) of Physical Education, Sports Studies, and Arts where he takes the roles of Deputy Director and Interim School Placement Coordinator. His research interest focuses on Quality Physical Education, having Co-Coordinated the development of the European Physical Education Observatory for the European Physical Education Association, where he served as Representative for the

South Region of Europe between 2018 and 2023. João is also serving NCCA as Chair of the Leaving Certificate Physical Education Subject Development Group and collaborates in the independent research network of the Global Observatory of Physical Education as a member of the Coordination Team and Research Team.

**Dr João Mota** is from Lisbon, Portugal. He has previously taught for five years at the Faculty of Human Kinetics, his alma mater. He has a Bachelor's degree in Sports Science (minor in Exercise and Health), a Master's degree in Physical Education and a PhD in Education. His research focuses on Physical Literacy, Pedagogy/Didactics of Physical Activities, Educational Assessment and Psychometrics. As part of his PhD, he led the creation and initial validation of the Portuguese Physical Literacy Assessment (PPLA). He has published several articles in international peer-reviewed journals and is an active peer reviewer. He has been involved in various international projects funded by the Erasmus+ program as a researcher-collaborator for the Centre for Education Studies and the UIDEF pole (FMH and IE-ULisboa). His sports background is in Dance, Swimming and Team Handball. When he is not working, he loves exploring the outdoors through mountaineering, hiking, and trail running. He has a strong passion for non-formal education, particularly Scouting—where he actively collaborates as a curriculum developer and adult educator.

# EXPLORING THE USE OF GENAI TOOLS IN PERSONALISING EFFECTIVE SECOND LANGUAGE ACQUISITION



**Institution:** University of Limerick
**Discipline:** Languages
**Author:** Liam Murray
**GenAI tool(s) used**: None specified

## Situation / Context

This experience was implemented in the BA Applied Languages and B.Ed in Modern Languages. 88 students (typically). All students are in semester three of the second year and are also preparing to leave UL for two semesters to go out on work placement in semester four and then on to the ERASMUS study abroad programme in semester five, returning to UL in Semester six. The student profile is mixed with student applied linguists studying with future Modern Language teachers.

This is important to know because sections of our module are designed to help students become more autonomous and self-regulated in their learning. GenAI tools can help a lot in this regard. This module also majorly deals with the evaluation of Technology and Second Language Acquisition, so a range of GenAI tools are evaluated as a matter of course for this module. The overall aim of the module is to help students become optimal language learners with their use of varied apps and technologies, with a high personalisation of the learning experience in the use of Computer-Assisted Language Learning (CALL).

## Task / Goal

Goals: To introduce students to the major pedagogical, professional and research applications of technology in modern languages and to enable students to integrate these into their studies. By the end of the Semester, students will have engaged in practices and reflections on their language learning methods and experiences with technologies, especially GenAI tools, in order to gain a better understanding of themselves as language learners.

Over 12 weeks, the students are introduced to a major theme in CALL in the weekly lecture. Themes include evaluation of GenAI for language acquisition, gamification of learning, Critical Digital Literacies,

and critical pedagogies. Each week in the 2-hour lab session, students are asked to write their reflections on the particular weekly theme in their own blog area contained in our VLE, which is visible to all students in the module. This is important because students are invited to comment on the reflections of other student blogs (minimum six comments) in an "intelligent, engaging and constructive way". Feedback and further discussion are led by the Lab Tutor. This exercise takes up to 30 minutes.

At the end of the semester, the students assess their previously written blog posts, reflect on them, and compile and submit what they believe to be their four best blog posts for evaluation and feedback. Also in the Labs, students are afforded the time and opportunity to assess relevant apps and websites for their language learning and also as prep for their study abroad. One session, for example, on Digital Games-Based Language Learning is always highly engaging and helps to dispel prejudices against gaming for learning and encourages students to open their minds to other opportunities for language and culture acquisition.

The final assessment is a personalised reflective essay (worth 40%) of 2000 words on CALL, answering the current question of "Using AI Tools to Transform my Student Learning Experiences at UL". Week 12 is entirely devoted to class discussion on this topic, looking back over the whole semester whilst the lab sessions allow the prep, structure and part composition of the essay which must include a number of relevant research articles related to GenAI and student (language) learning.

## Actions / Implementation

As part of the module (Technology and Language Learning), students had one face-to-face weekly lecture introducing the main theme of study for the week and one two-hour tutor-guided lab class in which to practise, reflect upon and compose a multimodal blog about the topic at hand.

The primary and overarching theme throughout the module is: GenAI for language acquisition. The range of topics included: CALL (Computer-Assisted Language Learning) and GenAI Evaluation (two weeks at beginning, one final week at the end of the module); Critical Digital Literacies; Machine Translation/GenAI literacy; DGBLL (Digital Games-Based Language Learning.

Due to the large numbers of students, and in the spirit of UDL, we have a range of assessments, ranging from multimodal blogging to MCQs. Most importantly and as is reflected in the weighting given to it, the final essay, for outside the teaching spaces, amounts to 40% of the final grade. For the last few years, we have been experimenting with various assessments titles and tasks for this reflective essay. Given the prevalence, opportunity and indeed temptation for students to use GenAI in composing the essay, we decided to try to personalise the topic as much as possible. The current title is: "Using AI Tools to Transform my Student Learning Experiences at UL." There is no formal final written examination.

## Outcomes

The outcomes were very revealing and quite rewarding for our students, as evidenced by the content from the student essays, blog postings, and final discussions in Week 12. Eighty-seven out of 88 of the essays discussed the issue of integrating GenAI in various ways in order to become better and more optimal

language learners. Many of the students stated that they are much more informed about the potential of GenAI in their learning, but also the need for them to develop a "critical layer" of assessment for when, where, how and how much of the GenAI tools they could use to help them in their learning and not allow themselves to become lazy in casually using the tools.

The students also revealed a fear of accusations of plagiarism and possible expulsion from the course, which was holding back a great use of GenAI tools. A typical student statement: "I can often forget how much I have used Copilot, but I know that I need to go back over my work both to check my own output and where the AI tool has helped me." Another very typical example: "GenAI tools are very useful for brainstorming ideas at the start, and then I work on them myself with my own ideas" and also "you really need to learn and practise how to write and refine those prompts to take maximum advantage."

## Reflections

With their usual brutal honesty, student feedback was very informative. We learned that for many students last year, prior to the module, they feared using GenAI tools because they might be severely disciplined if they were suspected of plagiarism, had they made any use of GenAI tools in completing any assessments on their course.

We learned that currently, we still need to complete techno-ethical audits regularly across all of our modules until we reach a point of balance with our students on how to integrate these tools effectively so as to become more rounded and better critical thinkers for sustainable learning with GenAI. Techno-ethical audits can take several forms extending beyond the student declaration that this is "all my own work" when submitting a written or multimodal assessment. There can and perhaps should be open and frank discussions with students in class at the beginning, middle and end of the semester on the ethical uses of GenAI tools in their own learning. These can be reassuring and helpful for both students and lecturers.

In this current semester, we have seen a definite change in student thinking and practices. ChatGPT has now become a verb, with certain students declaring that they intend "to ChatGPT a question/topic/issue" in preparing their assignments. So, the change continues, and Tutors need to upskill accordingly. Improve for next time? Full knowledge of AI policies from EU, Irish, University and School/Department/local unit levels and being open and direct with students on this – now central – issue in their learning.

## Digital Resources

Typical resources as examples:

https://feedbackfruits.com/ai-chatgpt-resources-hub#categories

https://poe.com/ (for creating their own customised GenAI chatbot)

https://paradoxlearning.com/resources/

## References:

Hockly, N. (2024). *Nicky Hockly's 30 considerations for using AI*. Cambridge University Press. (In press).

Kew, T., Schottman, F., & Sennrich, R. (2023). Turning English-centric LLMs into polyglots: How much multilinguality is needed? *ArXiv*.

## Author Biographies

**Prof. Liam Murray** is a Professor in French and Language Technologies in the School of Languages Literature, Culture and Communication at the University of Limerick, Ireland and teaches courses on CALL, digital games-based language learning, French civilisation, and media, GenAI in language learning, e-learning, and evaluation.

# CONSTRUCTING IN THE OLD ENGLISH CLASSROOM



**Institution:** University of Galway
**Discipline:** Old English Poetry
**Author:** Frances McCormack
**GenAI tool(s) used**: ChatGPT

## Situation / Context

This is a final-year large-group Old English Poetry course in the Discipline of English. There are approximately 150 students (100 Home Students and 50 Visiting Students). The Home Students complete a midterm essay and final exam, and the Visiting Students write a midterm and final essay.

My teaching philosophy recognises the importance of student investment in the object of study, and I attempt through teaching and assessment to make the learning something in which the students find intrinsic motivation and reward. By examining how knowledge is constructed and the real-world implications of that construction, I can engage the students emotionally; by asking them to critique the construction of knowledge, they can engage critically. It is my intent that this will provide them with some ownership over learning objects and allow them to acquire a deeper level of learning outcomes.

## Task / Goal

This course aims to probe the construction of knowledge in the field of Old English Studies itself. I wanted the students to understand how learning is bounded and often culturally contingent. The GenAI assignment provided students with an opportunity to apply critical thinking to examine the ways in which scholarly shibboleths (such as the assumed veracity of Tacitus' *Germania*) can be passed down, to use their learning to construct their own analysis, and above all to identify and name the skills that they have acquired in their studies. This learning offers students some insight into the fallibility of the scholarly method and the need for active and ethical research, but also the chance to engage with it on their own terms, not as something distal and unfamiliar, but as something through which they may find an entry point rooted in their own emotional engagement.

## Actions / Implementation

The Assessment Guidelines for the Visiting Students were as follows:

1. Ask ChatGPT to write an essay on "The Heroic" in Old English Poetry and to cite three sources.
2. Critique ChatGPT's response (1000 words).
3. Write your own essay on the concept of the heroic in Old English Poetry, making substantial reference to three poems on this module, and citing three scholarly sources (1000 words).

Darvishi et al., (2022), in their review of the use of GenAI to develop peer assessment systems, examine the benefits of peer review activities, from improved comprehension to the development of evaluative judgement and writing skills, and beyond. I first explored these outcomes in a formatively assessed small-group context in a class on The History of the English Language, in which I had asked the students to produce an answer to a question with the help of ChatGPT and to critique and fact-check the same. The results from this pilot experiment demonstrated that students were keenly aware of the skills that they possessed that were not demonstrated by ChatGPT and were able to articulate how those skills could be employed to provide a more cogent and persuasive response to the question.

## Outcomes

In the Old English Visiting Students' assignment, students readily identified inherited scholarly shibboleths. They questioned a priori assumptions; critiqued the evidence, and readings; and produced their own more thoughtful, more research-informed essays with incisive criticism and adept readings of primary and secondary sources. Their critiques of ChatGPT focussed largely on the superficiality of the responses, the uninspiring readings of the poems that resulted, and the lack of engagement with recent discussions in the field.

By contrast, despite us having spent an entire semester addressing some of the untested assumptions and culturally biased readings in the scholarship, the Home Students' exam responses to the question were often quite conservative and tended to repeat said shibboleths. Their exam question had read: ""Beowulf is frequently described as a "heroic poem". Examine the concept of the "heroic" with reference to at least one other text studied in this course and assess how appropriate the term is to describe this text."" In future years, both Visiting and Home Students will complete a final take-home essay similar to that taken by the Visiting Students this year.

## Reflections

Because this was a pilot version of this assignment, I gave students free opportunities about what to critique ChatGPT's responses and how. This worked well, because they often identified in their essay elements of style or argumentation that I could then build on in my own feedback to them. Again, there were broad

perspectives: while most critiqued the heroic as a construct, many developed their own research questions, examining women's grief as a counterpoint, investigating the trajectory of the concept of the heroic in the scholarship, or analysing the construction of the monstrous. In several of the critiques of ChatGPT, students reflected on GenAI broadly and how its uncritical reproduction of scholarly shibboleths can further constrain knowledge. These are questions that are vast and not anything I can speak to in detail here; nor were they an intended purpose of the assignment, but rather a happy outcome.

In future iterations, I will offer thematic essays (on, for example, monsters, the role of women, identity, etc.) to further deepen the level of scholarly and thematic engagement with the material.

In line with the course's learning outcomes, then, this GenAI assignment proved more fruitful than the traditional exam, offering the students the opportunity to critique the construction and reception of knowledge and develop original and informed critical analyses.

## Further Reading

Bekker, C. I., et al. (2023). The happy learner: Effects of academic boredom, burnout, and engagement. *Frontiers in Psychology, 13*, Article 974486.

Darvishi, A., et al. (2022). Incorporating AI and learning analytics to build trustworthy peer assessment systems. *British Journal of Educational Technology, 53*(3), 844–875. https://doi.org/10.1111/bjet.13194

Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development*. Prentice Hall.

## Author Biographies

**Dr Frances McCormack** (she/her) is a lecturer in English at the University of Galway. She is a three-time awardee of the University's President's Award for Teaching Excellence (2010, 2015, 2020) and College Award for Teaching Excellence (2020), and has received the National Award for Excellence in Teaching (2011) and the Teaching Hero Award from the National Forum for the Enhancement of Teaching and Learning in Higher Education (2021). A medievalist by training, she also publishes on modernist literature. She is currently researching emotions and the senses in James Joyce's *Finnegans Wake*.

# HOW SHOULD WE REVISE OUR ASSESSMENT METHODS CONSIDERING THE IMPACT OF GENAI?



**Institution:** Dublin City University
**Discipline:** Political Sciences
**Authors:** Paola Rivetti, David O'Mullane, Rituparna Banerjee
**GenAI tool(s) used**: ChatGPT

## Situation / Context

The project targeted first-year students of International Relations enrolled in the module, Introduction to International Relations and Security, which comprised 203 students in 2023/2024. The students volunteered to participate in weekly laboratories (eight weeks, six sessions per week). An average of 10 students attended each session, resulting in roughly 70 students participating each week, excluding the final week of the semester when attendance lowered.

A team of three educators tutored students: the module coordinator, Paola Rivetti, and two assistants, David O'Mullane and Rituparna Banerjee. During the laboratory sessions, we conducted practical exercises using ChatGPT in a computer-equipped room.

Students could work individually on a computer or collaborate in groups of two to three. They autonomously chose whether to work alone or in groups and selected their group members independently. We used the free version of ChatGPT.

Pedagogically, the exercises were designed to foster a shared understanding between students and educators of how to use ChatGPT and its potential applications for learning about International Relations, building on the module's contents discussed in class. Each exercise was followed by the students' feedback. We conducted an end-of-the-semester survey, receiving responses from 72 students. Ethics approval was granted by DCU Research Ethics Committee. For each session, the team had specific intended learning outcomes, including how to write a good prompt, interact with the machine, and cross-verify information. In the lab, exercises were run with the students under the close supervision of the team members, who could interact with individual students or small groups of two.

From the educators' perspective, the workload involved preparing laboratories, which included identifying in-class exercises relevant to the intended learning outcomes. We also supervised students

during the laboratories, led the sessions and interacted with them during the exercises. Additionally, we assessed the students' performance and the feedback they offered after each laboratory.

## Task / Goal

While significant attention has been devoted to online/blended teaching and related tools, open-access GenAI chatbots and writing programmes have received less attention as instruments that impact our teaching and assessment methods.

The pedagogies of Political Science and International Relations somehow lag behind in understanding and addressing these tools. For those teaching these subjects, it is crucial to come to terms with GenAI and its impact on how we should assess students.

This project aimed to revise the alignment of our understanding of the learning objectives, our teaching, and the most suitable assessment methods in an environment where GenAI is present and utilised regularly. We considered whether to ban it or instead teach students how to use it responsibly and ethically, as well as develop a shared understanding of its capabilities and limitations (if anything at all).

## Actions / Implementation

Each session consisted of three parts: practical exercises with ChatGPT, class discussion about the results, and student feedback.

In Exercise 1, as a starter, we asked students to identify the objectives of the laboratory and what they hoped to gain from it. Responses included learning how to use ChatGPT for IR-related content, which allowed us to both discuss how to discern good scholarship and reflect on the activities that we should prioritize to achieve our goals. After the brainstorming, as Exercise 2, we discussed how to write a prompt, building on the objectives we identified. The authors had prepared a list of characteristics that good prompts should have, and had the students employ them to write their prompt.

During the feedback session, students said that ChatGPT offered high-quality information. To enhance their critical approach, the educators decided to conduct additional exercises focusing on the quality of the results.

In Exercise 3, the students had to draft their own prompt autonomously. As ChatGPT started to generate text, the goal was to interact with and push the machine to generate better information by challenging it with requests for more details, fact-checking the information given, and requesting more examples. The students' observations became increasingly critical: they noticed that the machine could confabulate, deviate from the command given, and fabricate facts and references.

As the semester progressed, the team was able to assign increasingly elaborate exercises to students.

In Exercise 4, the students worked with ChatGPT to identify a good research question for a series of given topics. This exercise offered the opportunity to discuss what constitutes a good research question and reflect on the applicability and practicality of using ChatGPT by examining the quality of the sources and case studies it supplied to answer them.

In Exercise 5, students had to work with ChatGPT to structure an essay. This presented the opportunity to discuss essay writing and an essay's structure with the students. The students identified that ChatGPT tended towards confabulation, fake facts, inaccurate references and reading suggestions, but it provided good general information on how to structure an essay and construct an argument. Both exercises contributed to enhancing the students' critical approach to ChatGPT.

## Outcomes

At the end of each laboratory, students were asked to provide feedback on the utility of the exercises and what they learnt about ChatGPT during the session. At the end of the semester, students were also asked to participate in a short survey reflecting on the strengths and weaknesses of ChatGPT for studying International Relations, and the likelihood of them using it in future as a study aid. Seventy-two students completed the survey.

Generally, we have found that GenAI presents significant limitations, and students should learn how to use it effectively from the beginning of their university careers. Assessment methods should be calibrated not to prevent students from using ChatGPT (although this is a possibility), but to allow them to use ChatGPT only for what it is good for and to teach them how to use it appropriately.

As such, involving students in these pedagogical approaches helps them foster a critical outlook towards AI tools rather than rejecting or embracing them unquestioningly. In the end-of-semester survey, respondents reported scepticism about the tools, which evolved into discovering their potential uses in structuring work and gaining broad insights, primarily in providing non-reflective assistance in research which did not need discernment and critical decision-making.

Overall, while a shift occurred towards acknowledging its utility when employed effectively for academic purposes, many participants reported inaccuracy of information, unreliability, and limited usefulness for targeted and specific tasks; the more specific the task was, the less the GenAI chatbots' reliability.

## Reflections

Beyond the core benefits of student learning, the laboratory offered several secondary advantages. It partially addressed challenges associated with a shortened semester and a large class size, and effectively bridged a technology gap. Finally, the team learned that they, and educators in general, are indispensable because ChatGPT's suggestions are based on probabilistic codes and words, and the machine lacks the nuance, contextual knowledge, and pedagogical consideration that a human educator brings.

Concerns also remain about the risk of language uniformity and standardisation. However, as many survey answers suggest, students will likely continue using ChatGPT, even when aware of its limitations.

We need to adapt our education system to incorporate these technologies. Furthermore, this should encourage institutions to invest money and resources into educating educators and students about GenAI chatbots – something that, unfortunately, is not happening at an appropriate level, raising concerns about the quality of education being provided.

## Further Reading

Rivetti, P., Banerjee, R., & O'Mullane, D. (forthcoming). Testing ChatGPT in IR classrooms: Potentialities, limitations, and what's next. *PS: Political Science & Politics.*

## Author Biographies:

**Dr Paola Rivetti** is an Associate Professor in the School of Law and Government at Dublin City University.

**David O'Mullane** is a PhD candidate in the School of Applied Language and Intercultural Studies (SALIS) at Dublin City University.

**Rituparna Banerjee** is a PhD candidate in the School of Communications at Dublin City University.

# GENAI CAN BE ETHICALLY USED AS A LEARNING AND ASSESSMENT TOOL IN EDUCATION



**Institution:** University of Limerick
**Discipline:** Psychology
**Author:** Tracey Keogh
**GenAI tool(s) used**: ChatGPT

## Situation / Context

GenAI was used as an assessment tool on co-taught modules, biological basis of human behaviour, and biological psychology taught to 2nd-year undergraduate and Master' students. The total number of students was 141 (111 undergraduate students and 30 in the master's programme).

This was the first assessment of its kind within the Department of Psychology, and students voted during the first lecture if they wanted to use GenAI as part of their assessment or not. A great deal of discussion was had this first week on GenAI, previous years' assessments on these modules and the opportunity the students had to inform the department and faculty of the pros/cons of using GenAI as an assessment method.

## Task / Goal

I wanted to determine if GenAI could be used ethically and responsibly as a learning and assessment tool. I opted for this method of assessment after a departmental teaching planning meeting, where we discussed our approach to GenAI. No agreement was given, but what was obvious was a degree of apprehension and uncertainty on how to use GenAI ethically.

From this, I designed an assessment entirely dependent on the students' voting whether or not to use GenAI. This co-creative space for pedagogical design and assessment allowed students to decide on using GenAI as well as when it should be submitted and variations between the two groups, e.g., content included. The aim was that students with the right supports, could use GenAI ethically and responsibly and in doing so, inform staff and faculty members on its utility. This was a great opportunity for staff and students to learn together in real time.

## Actions / Implementation

During the first lecture where the vote took place, time was given to discuss concerns students may have had. It was explained that this was not an assessment to catch anyone out, but an opportunity to inform staff on how GenAI could be used responsibly.

Students were allocated to groups during week two and given a specific nervous system disorder. The brief included that they work in groups using ChatGPT, they decided as a group how much prompt was to be inputted on the groups nervous system disorder. This part of the assessment was not graded and uncontested. From this group meeting, each student then decided if they would use this generated report to help form their approach to writing their own individual report. If they chose to use the GenAI report as a springboard to their own report, it needed to be explicitly stated in the relevant parts of their own report, and the group ChatGPT report had to be included in the appendices. One lecture included a presentation from our technical support officer on how GenAI could be used ethically and another covered writing skills and plagiarism. Weekly support was provided in lectures, during office hours, and online.

## Outcomes

Part of the graded report included a critical reflection. This gave students the opportunity to discuss pros/cons from their own perspective. I reached out to members of staff to see if they had any questions, they wanted to ask the students about their experience.

The composed list was posted on the VLE, informing students they were welcome to provide feedback online, by email or in the final lecture. Students addressed staff questions during the final lecture and responses were noted to feedback to the department. Feedback was encouraged and provided through several means of communication: discussions in lectures, emails, the VLE and the Centre for Transformative Learning module evaluation form, as well as feedback from external examiners.

Student opinions on efficacy varied; some said it made them better researchers, and some noted how flawed the generated content was. Student accountability and engagement were high throughout and evident in the critical reflections.

## Reflections

I learned inviting students into a co-creative space on pedagogical design and assessment increased engagement and accountability for work submitted. I also learned that GenAI can be used ethically and responsibly. Through thorough and detailed communication, creativity was fostered, and students had the opportunity to learn about GenAI while also teaching staff about this particular assessment tool which was equally important.

Surprisingly, much of the feedback from students centred on “time”, in terms of both benefits and barriers. For some, it bridged the gap between the initial brief and the dreaded blank page, for others, it provided rabbit holes of research due to inconsistencies in the generated content. Feedback was varied and

extremely interesting and a valuable asset to determining the utility of GenAI in education as an assessment tool. I didn't expect a high level of accountability, and I would include staff support from the library on future assessments.

## Digital Resources

Guidance & Support offered to students: Because of the co-creative approach adopted, tangible support was provided within the framework of the lectures throughout the semester, as well as the VLE and student office hours. One of our technical officers came to give an 'off-the-cuff' presentation, which was more of a two-way conversation addressing student concerns or queries relating to GenAI and how best to approach the assessment. Brightspace forum was used and monitored to address any additional questions and with the last lecture and email, to garner student feedback on the utility of GenAI as a learning and assessment tool. Questions were generated from discussions with staff within the department of psychology, who were curious as to the efficacy of GenAI in this context. Findings were presented at the Learning, Teaching and Assessment Conference 2024. This has also helped inform the basis of an ongoing study on traditional vs innovative approaches to teaching, learning and assessment in higher level education. Assessment tools have been modified slightly this coming year to the use of Copilot, aligned with institutional policy, additional support documents on using AI e.g., Do's and don'ts; declaration form; sample GenAI checklist for students etc. as well as useful links The Academic Integrity Unit | University of Limerick (ul.ie); Generative Artificial Intelligence | University of Limerick (ul.ie). And given GenAI will be used in some part for the assessment, the content for some of the weeks' lectures will be generated in Copilot and made available to students on the VLE.

Assignment Instructions: F-02 HEI Psychology – additional info – GenAI_Assessment_Brief.

## Author Biography

**Dr Tracey Keogh** is an Associate Teacher in the Department of Psychology at the University of Limerick. I teach biological, clinical, cognitive, research-based, and introductory modules and supervise research projects at undergraduate and postgraduate levels. Her teaching interests involve extending traditional approaches to teaching, learning and assessment, with the inclusion of innovative and interactive methods such as GenAI and game-based learning. Her research interests include understanding the impact of stress on mental and physical well-being; investigating interactions between trauma, addiction processes, and stress-related factors; and assessing student engagement with different teaching, learning and assessment tools, comparing traditional and interactive models which would be beneficial to future curricula and content creation and delivery.

# IS GENAI REPRODUCING OR HELPING TO SOLVE SOCIAL INEQUALITY?



**Institution:** Maynooth University
**Discipline:** Sociology
**Author:** Rebecca Chiyoko King-O'Riain
**GenAI tool(s) used**: ChatGPT

## Situation / Context

This GenAI teaching activity took place in a second-year Sociology module at Maynooth University in the Spring Term of 2024. In this 5-credit module, entitled SO 203: Structures of Inequality, Race, Class and Gender, 174 second-year sociology students were studying social inequality in many social spheres, including in terms of technology. The module had two lectures per week for four weeks (Weeks 1 and 2, and Weeks 11 and 12) and one lecture and one tutorial (small groups of 15-20 students) for eight weeks (Week 3 – Week 10).

While the existing assessment structure for this module had been a standard essay writing 50% and a final examination 50%, I was motivated to pilot this integrated teaching activity in the face of declining student engagement and concerns about the increasing use of ChatGPT by students to write the "traditional" essay.

## Task / Goal

This activity was a pilot test of an alternative teaching and assessment approach that integrates the use of GenAI. The activity begins by conceptualising AI not as a tool for cheating but as a social structure that shapes social interactions and embodies social identities and meanings.

One summative aspect of the assessment activity, which was worth 25% of the overall mark, asks students to evaluate the social inequalities within GenAI. The primary objective of incorporating GenAI within this assessment is that students become more critically reflective regarding equality when using and consuming GenAI in their learning. This is achieved by working collaboratively with students to develop their insights into whether and how (i) structures of inequality (particularly race, class, and gender) are embedded in GenAI and/or (ii) GenAI offers a potential tool to address social inequality.

## Actions / Implementation

- Stage 1: We created scenarios using ChatGPT. We did not ask students to engage with ChatGPT directly, which meant that we were GDPR compliant and did not "feed" ChatGPT more information.

  We asked ChatGPT: "What would be a good job for a young woman?" and "What would be a good job for a young man?"

  We asked ChatGPT to create an image and/or story using the words: Black or White, Knife, Crime.





Fig. 1 Images created by ChatGPT.

- Stage 2: Before we gave students the generated scenarios, we tested their existing uses and knowledge

about AI, particularly their awareness of the bias implicit in ChatGPT through a pre-survey in Week 4 (n=96) in–person tutorials (administered by the tutors) and with pen/paper. Participation was voluntary, and ethical approval/consent was sought.

- Stage 3: In the assessment brief we asked students to do the following**:**
  - Define generative artificial intelligence; discuss how you use AI in your everyday life (10%).
  - Analyse the scenario you have chosen and discuss how you think it was generated (20%).
  - Discuss and analyse the following:

    Relevance – how relevant is the text produced?

    Validity – how valid is the information? How do you know how valid it is?

    Bias – are there any assumptions? Biases? How do you know? (30%)

    Discuss and analyse the advantages and disadvantages of how AI finds information, generates text, and produces 'chats' in terms of equality (30%).

- Stage 4: We carried out a post-survey in Week 9 (n=80) again in tutorials, in–person, to see if attitudes had changed.
- Stage 5: We asked students for their feedback on the assignment in a qualitative discussion within tutorials.
- Stage 6: Data Analysis (still ongoing)

## Outcomes

Preliminary Results:

Students were "surprised" at how much GenAI is actually in their lives. Many have been using it without realising it, and if they used GenAI, they were more likely to think others did as well. Students were also unaware of how biased ChatGPT was in its answers to our questions

Before the activity, they assumed that GenAI was neutral and could be trusted to produce answers to most questions that were valid. After the activity, many students were disappointed to discover how biased ChatGPT actually was and how easy it was to reveal that.

One student wrote:

*"However, it consistently describes the jobs for women with softer language in terms of how, 'fulfilling' and 'creative' they will be, in comparison to describing jobs for men as 'lucrative' and as 'opportunities for advancement'. .... most of the occupations suggested by the AI puts young women into roles where they do the bulk of the emotional labour..."*

## Reflections

We were struck by how many students were not really aware of GenAI's ubiquitous presence in their lives.

We were also surprised and somewhat dismayed that some students, having gone through this exercise, still decided to use GenAI in a negative fashion to write their assignments.

The technical elements of this activity were a bit tricky at times. For example, we had originally wanted to ask students to use ChatGPT themselves to generate scenarios. However, we learned that for reasons of GDPR, we could not ask students to do this.

To get around this issue, we agreed that we (the lecturer and tutors) would generate the scenarios using ChatGPT ourselves and not ask students to do so.

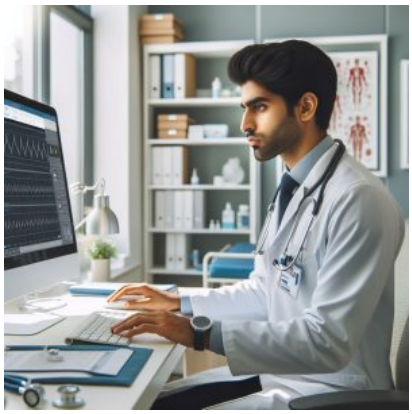
I would do this activity again, but next time, I might not have time for a paper and pen survey. Moving the survey to electronic polling would improve both response and the ease of analysing the data.

## Author Biography

**Dr Rebecca Chiyoko King-O'Riain** is a Professor of Sociology and recipient of an Artificial Intelligence (AI) in Teaching, Learning and Assessment Fellowship at Maynooth University. Research interests are: Asian/Asian American popular culture (K-pop); Critical Mixed-Race Studies; race, beauty, and Japanese Americans; emotions, technology, and globalization. Publications appear in: *New Media and Society, Global Networks, Ethnicities, Sociology Compass, Journal of Asian American Studies, Sociological Research Online* and in many edited books. She is the lead author of *Global Mixed Race* (New York University Press) and sole author of *Pure Beauty: Judging Race in Japanese American Beauty Pageants* (University of Minnesota Press). Her current research explores global interactive forms of digital popular culture in Asia and Europe.

# PART IV
# HEALTH SCIENCES

# EXPLORING NOVEL ASSESSMENT APPROACHES IN HEALTH POLICY MANAGEMENT USING GENAI



**Institution:** Trinity College Dublin
**Discipline:** Health Policy and Management
**Author:** Carlos Bruen
**GenAI tool(s) used:** ChatGPT 3, ChatGPT 4, and Google Gemini

## Situation / Context

We are running the MSc in Health Policy and Management, a new (Sep 2023) postgraduate level programme at the Centre for Health Policy and Management, Trinity College Dublin School of Medicine. This programme has both full-time and part-time students. While the majority of the programme is delivered in person, this is supplemented and supported with live online lectures and curated (short, pre-recorded video to explain a learning activity) sessions designed for flipped-classroom teaching. In 2024-25, 17 EU and Non-EU resident students are registered for the programme.

## Task / Goal

Our assessments combine presentation and take-home assignments. We recognised the risks and opportunities of GenAI with these assessment formats. Taking the position that GenAI is staying with us, we sought to find ways to:

- teach students about GenAI;
- set out a clear policy on the use of GenAI in the context of academic integrity;
- integrate GenAI in assessments in novel ways.

We introduce GenAI from the outset, as part of the learning process and as students and staff begin working together.

The primary goal is to raise critical awareness about GenAI in the context of academic integrity, with secondary goals including skilled and appropriate use and referencing in assessments.

## Actions / Implementation

- Teaching students about GenAI:

We opened the academic year with a session on GenAI (what it is, when it is appropriate/inappropriate to use it, ethical and sustainability issues related to GenAI, and other new AI tools that might be of use (e.g. Elicit – an AI Research Assistant). In research methods training, we look in more detail on alternative AI tools like Elicit for literature reviews/scanning.

- Setting out a clear policy on the use of GenAI in the context of academic integrity:

We included a section in the course handbook that considers the ethical context of GenAI, as well as procedures for declaring where GenAI has contributed to content development within assignments.

- Integrating GenAI in assessments into novel ways:

We submitted a prompt to GenAI on a module-related issue. Students were asked to critique the GenAI output drawing on the relevant literature and class sessions. This is linked to critical thinking learning outcomes at module and course levels. This proved to be a successful way for students to demonstrate their learning and analytic skills and is being continued into 2024-25.

## Outcomes

While we set out guidelines and policies on declaring GenAI use, no student declared their use in 2023-24. Students incoming in 2024-25 have expressed an intention to use GenAI in written assignments, which will provide us with a base for reviewing the policy and student practice from 2025.

We further revised the course policies and guidelines in advance of 2024-25, including updated guidance on how to correctly cite GenAI use in assessments using standardised citation criteria.

Students have spoken positively about the time being given to learn more about GenAI and for our focus on being explicit about its risks and opportunities. This also provides them with an opportunity to see some limitations of GenAI outputs.

## Reflections

This is our second year incorporating GenAI. It is a significant learning curve and was helped by attending presentations and discussions by peers who are grappling with similar issues.

By repeatedly running our draft assignments through GenAI, patterns are emerging in how GenAI structures particular questions. We will need to continue doing this to ensure we are alert to developments in GenAI, including ongoing improvements of GenAI outputs.

# Author Biography

**Dr Carlos Bruen** is Assistant Professor in Health Policy and Management and Course Director of the MSc in Health Policy and Management, Trinity College Dublin. His research and teaching (as module lead/co-lead at postgraduate and doctorate levels) focuses on different dimensions of health systems and policy at national and international levels, including health policy and governance; comparative health systems and policy analysis; and knowledge translation and mobilisation for policy and practice.

# GENAI FOR ASSESSMENT PREPARATION IN NURSING



**Institution:** Dublin City University
**Discipline:** Nursing
**Author:** Amanda Drury
**GenAI tool(s) used:** ChatGPT and APO AI (discontinued)

## Situation / Context

Subject Discipline: Nursing, Year 3, 140 students. Module: General Nursing 3A.

General Nursing 3A aims to enable students to develop a critical understanding of nursing assessment skills, and nursing management of physical and psychological problems in the context of acute and chronic health conditions.

The module assessment is summative, consisting of a written case study to describe the nursing assessment and care of a deteriorating patient in a hospital setting; examples of appropriate case studies included shock (e.g. septic, hypovolaemic, cardiogenic or anaphylactic shock), respiratory distress (e.g. due to exacerbation of a chronic breathing/lung condition), or a person living with a physical complication of cancer (e.g. pain, sepsis, dehydration).

The case study was to be based on a case the student had encountered in clinical practice. In year 3 of the programme, students will have completed 40 weeks of placement, with 26 weeks completed in the Summer, Autumn and Spring semesters preceding the delivery of this module.

## Task / Goal

The first running of this Generative AI (GenAI) initiative took place in Spring 2023, following the public release of ChatGPT. The primary purpose of this initiative was to engage students in a critical exploration of academic integrity in the context of artificial intelligence.

The primary goal was to familiarise students with the practical and ethical considerations of artificial intelligence in academic writing. Additionally, this activity marked the beginning of a module redesign aligned with the principles of Universal Design for Learning (UDL).

UDL is an educational framework that promotes inclusivity by offering multiple ways for students to engage with content, process information, and demonstrate learning. It emphasizes three core principles: Multiple Means of Engagement, which seeks to capture and sustain students' interest; Multiple Means of Representation, which ensures content is accessible through varied formats; and Multiple Means of Action and Expression, which offers students diverse ways to communicate their understanding.

In this case study, I examine how specific UDL principles guided the design and delivery of an AI-based learning activity that engaged students in evaluating a GenAI essay against the module assessment rubric. Through the targeted use of UDL principles, I aimed to foster critical thinking, support diverse learning preferences, and enhance students' familiarity with academic standards. Specifically, I focused on engagement by leveraging students' curiosity about AI and academic integrity, on representation by presenting content through various forms (AI essays, written, verbal and visual feedback), and on expression and action by allowing students to critique, discuss, and collaboratively revise the GenAI essays.

## Actions / Implementation

Two GenAI chatbots, ChatGPT and APO AI (APO AI has now been discontinued) were prompted to write four essays related to the assignment brief using a single, low-level prompt in each tool:

- Prompt 1, Essay 1: "Tell me about ABCDE patient assessment."
- Prompt 2, Essay 2: "Present a case study of an ABCDE patient assessment for someone with respiratory distress."

Prior to class, students were given preparatory tasks to engage their interest and scaffold understanding:

- Revisit the Assignment Brief and give particular attention to the Assignment Rubric.
- Review each of the four GenAI essays, with awareness of the assignment brief.
- Share their evaluations of the four essays in three Mentimeter polls.
- In three words, what are your first impressions of the four essays.
- Please comment on 1-2 aspects of this draft essay that have been done particularly well.
- Please identify 1-2 aspects of this draft essay that the author could change to greatly improve their work.

Students examined the essays for content and structure, allowing them to connect the material to their own learning goals and to academic standards. This step engaged students by fostering curiosity about the role of GenAI in academic integrity and by highlighting the practical relevance of the assignment.

Prior to class, the feedback submitted by students in Mentimeter polls was uploaded to the online learning platform for students to review prior to class. During class, the poll results were presented and used to prompt initial discussion before proceeding to the in-class activities.

The use of the Mentimeter results as discussion prompts encouraged students to think critically about quality, clarity, and depth in the GenAI essays. An interrogation of the less common responses prompted students within the class to provide more detailed examples within the essays which could benefit from improvement. Members of the class highlighted examples where concepts were poorly explained or confusing, where information provided lacked sufficient detail, the lack of referencing and citation, and examples of spelling and grammatical inaccuracies.

Finally, students were asked to discuss how the essays could be improved based on a final Mentimeter poll. The discussions following each poll allowed students to expand on their points collaboratively, encouraging deeper engagement.

By addressing the essays' strengths and weaknesses, this exercise supported students to articulate their observations and to identify specific improvements for the GenAI essays via written and verbal means.

The next stage of the in-class activity focused on students' critical evaluation skills. Working in pairs, students were invited to evaluate one of the GenAI essays (Appendix 1), in relation to each point of the assignment feedback rubric. By assessing each rubric criterion, students practised structured critical thinking and reinforced their understanding of academic expectations, actively applying their knowledge and articulating their judgments and reasoning.

The class responses to the assignment rubric evaluation were discussed one by one and compared with the lecturer's evaluation of the essay. During the discussion, an action plan was co-designed, to support editing and revision of the essay during class (Table 1).

| **Rubric Item** | **Issues Identified** |
|---|---|
| 1. Title & Introduction | Title needs to reflect what the assignment is about |
| 2. Assessment & management of the case | ABCDE has not been applied to a case.<br>Limited information is provided about the ABCDE assessment and how specific issues are assessed (e.g. breath sounds, what might you be listening for?).<br>No priorities for care evident. |
| 3. Conclusion | There are no efforts to summarise key information from the assignment or case.<br>There has been no effort to critically reflect on the care provided (e.g. what could have been done better/differently to achieve an earlier intervention or better outcome for this patient?) |
| 4. Referencing | None of the module recommended reading is referenced.<br>None of the references listed exist.<br>There are no citations in the assignment. |
| 5. Presentation, grammar, punctuation, and spelling | Formatting of the assignment is not acceptable.<br>There are efforts to use paragraph structures, and there is a logical flow to the assignment, but it is not sufficiently detailed.<br>There are some spelling errors. |

Table 1 Action Plan to Revise APO AI Essay 1

During the process of revising the essay, students prompted the lecturer on points to correct and strengthen the essay, focusing on presentation, formatting, spelling; titles, subsection headings; citation, checking references and verifying references; application of knowledge – differentiating between personal experience and scholarly evidence; writing concisely and critically, and introducing, concluding, and summarising the essay. This collaborative revision aligned with Multiple Means of Representation, Action, and Expression, as students were actively involved in translating feedback into specific revisions.

## Outcomes

While no formal evaluation was conducted, comparing the responses of the pre-class Mentimeter polls with the discussion and outcomes of in-class activities provided insights into the effectiveness of this initiative.

During discussions of Mentimeter poll results, students' reflections on the GenAI essays provided qualitative data that highlighted both strengths and areas for growth in their understanding of academic writing. The iterative dialogue around rubric-based assessment revealed an improvement in students' critical analysis skills, as they moved from general impressions ("informative," "structured") to critique of the depth, clarity, and citation practices within the essay. This process, grounded in UDL principles, fostered a learning environment where students felt encouraged to actively participate, question, and refine academic writing.

There were three key outcomes of this activity, highlighting the impact of integrating UDL principles in fostering engagement, critical thinking, and self-assessment:

- Students' enhanced understanding of self-assessment and assessor-based assessment: Students gained hands-on experience in applying the module assessment criteria to a worked example, generated via an AI chatbot. Through the discussion and subsequent in-class activities, students deepened their understanding of assessment processes. The Mentimeter polls and discussions provided an informal means to gauge students' evolving understanding as they critically analysed the strengths and weaknesses of the essay, making them more aware of the standards expected in their own assignment submissions. Observations during these discussions suggest that students became more comfortable with assessment, developing a stronger sense of how to evaluate their work in line with academic expectations.

- Creation of an action plan for essay revision: Providing feedback on rubric items to improve the essay gave students a practical framework which students could adapt to support self-assessment and revision of their essays. The collaborative nature of this task, coupled with instructor feedback, provided a structured approach to refining the GenAI essay, leading to the co-designed action plan to revise the GenAI essay.

- Development of a module-specific phrase bank: As students discussed the structuring of academic writing, including assignment purpose, rationale, and case study summaries, a list of phrases were developed by the lecturer to support students in articulating key sections of their work. This module-specific phrase bank became a shared resource, supporting students in clearly expressing their ideas and aligning their language with academic standards. The phrase bank may also serve as a scaffold for future assignments, promoting consistency and confidence in writing.

## Reflections

This initiative underscores the potential and limitations of GenAI in undergraduate academic writing for assessment. The pre-class activities highlighted common misconceptions among students about the reliability of GenAI. Information derived from the Mentimeter polls provided important information to modify in-class activities, prompting more in-depth discussion regarding shortcomings in GenAI for academic writing, and risks to academic integrity.

Through the in-class activities to assess and revise the GenAI essay, students began to recognise that while GenAI could be a useful tool to begin outlining a written assignment, the information generated would not be suitable for final submission and required students to apply their understanding and theoretical knowledge of concepts to enhance the quality of the essay and ensure it meets the standards of assessment. The development of the action plan and phase bank serve as useful tools which students can adapt for use within this and other modules to enhance skillsets related to critical thinking, proofreading, and revision.

In future iterations of this module, I plan to integrate GenAI tools further in teaching through two key activities:

- Students will disclose and critically assess their use of GenAI in assignments: The assessment will require students to generate the essay initially in a GenAI chatbot, and will be asked to submit the version generated, alongside the prompts used to prepare the initial essay. In the final assignment, students will be asked to include a brief critical commentary of the essay produced by the chatbot and provide an outline of the specific revisions made to the essay, including the readings, evidence and information which informed the revisions.

- GenAI case studies for in-class use: During classes, case studies are critical to support students' application of theoretical knowledge to practical cases. I will begin to integrate GenAI case studies for use during class. Students will be asked to prompt the chatbot on the assessment and management of a GenAI case study; the chatbot will tell the students the outcomes of their actions, and students will be facilitated in class to discuss and critique the outcomes of case management within the chatbot.

By integrating UDL principles, this initiative cultivated a flexible, inclusive learning environment that bolstered students' capacity for self-assessment, critical engagement, and academic confidence.

The activity's outcomes indicate that students were more prepared to approach assignments with an evaluative mindset, equipped with a practical toolkit to enhance their work and align it with academic standards. For others who might consider adapting this activity within teaching and learning, careful scaffolding of the process, including structured mechanisms for student feedback before, during and after the activity is essential to ensuring the success of the activity, and allowing real-time alterations in the lesson plan to clarify and address the issues raised by students during the activity.

Polls are available on request from author.

## Digital Resources:

Appendices

## Author Biography

**Dr Amanda Drury** is an Associate Professor in General Nursing in the School of Nursing, Psychotherapy and Community Health, Dublin City University, Ireland. She holds a PhD, MSc in Cancer Care and Postgraduate Diploma in Education from Trinity College Dublin. Her research and teaching interests focuses on the health and well-being of people affected by cancer and chronic diseases. She has expertise in the development and evaluation of education programmes, most recently as the principal investigator of the Advanced Breast Cancer for Nurses (ABC4Nurses) programme.

# LEVERAGING GENAI FOR PERSONALISED GUIDANCE IN LEARNING A NEW PROGRAMMING LANGUAGE IN PHARMACOLOGY



**Institution:** University of Galway
**Discipline:** Pharmacology
**Authors:** Jack McGoldrick, Ronan Fleming
**GenAI tool(s) used:** ChatGPT

## Situation / Context

The project was undertaken by a final year undergraduate student, completing his research project in the discipline of Pharmacology. Only one student was involved in this project. The student was tasked with identifying common biophysical properties of a set of proteins found to be metabolically associated with Parkinson's Disease. This task would involve the student utilising a computer programming language in the form of Python. The student had no prior exposure to computer programming.

## Task / Goal

The project aimed to improve the computer programming skills of the student sufficiently, so that they could complete their project as described. The student had no prior knowledge of any computer programming languages, with their background being in Biology and Pharmacology. ChatGPT was used as a personal tutor to the student throughout the project. The student was encouraged to use ChatGPT for any questions or problems they encountered, including understanding of new syntax, querying for modules/ libraries which may be helpful, understanding error outputs etc. The student also queried ChatGPT for other resources which may have been helpful including books, tutorials, and websites. Programming advice was available to the student including guidance from more experienced PhD students within the project, and their supervisor. The student was hesitant at first, being exposed to a new skill, at a vital time in their undergraduate degree, but embraced the challenge and ultimately succeeded in completing his project.

## Actions / Implementation

The student initially met with their supervisor to get set up and begin their project. The student was introduced to Python and was provided with a few examples of how to start their project. The student was then left to work in their own way, with weekly meetings to track progress.

The student used Jupyter notebook to complete their work. For example, he began by working with data frames which contained initial information on genes of relevance. The student used Python to convert from gene names to relevant proteins produced by the genes. He achieved this via a Python library called 'pandas'. The student leveraged ChatGPT to explain what pandas were, what data types they handled and how data frames could be manipulated using it. The student gained valuable insights into a Python library and applied their new knowledge to their project.

This is just one example of how ChatGPT was leveraged in his project. He also leveraged ChatGPT to help understand coding standards that needed to be followed to ensure reproducibility of his experiments and proper file and data management practices. The student used ChatGPT as a resource to aid in all the new aspects he encountered in his project, which aided him in learning new skills vital to his education.

## Outcomes

The primary outcome was the enhanced rate at which the student was able to learn a new programming language. The student used Python throughout their entire project via numerous routes including conversion of data frames, construction and analysis of protein-protein interaction networks, gene enrichment analysis and statistical analysis. All of this was achieved in a 3-month period, the length of his final year project.

The student became proficient in Python and has even become a member of the research group after completing his degree. ChatGPT played a vital role as a learning resource throughout his project and enhanced the rate at which he was able to learn. Clearly, ChatGPT has a significant use as a learning aid. No formal form of evaluation was carried out due to the nature of the project, but the student performed well throughout the project achieving a high grade.

## Reflections

ChatGPT can be used as a learning resource to aid students in the process of computer programming. This project used Python as the language of choice, but this could be applied to any programming language.

It was not expected that ChatGPT would be so efficient in aiding the student's learning, especially in such a brief time frame. Perhaps, next time a few examples of how to effectively utilise ChatGPT to aid in your learning could be provided to further aid students.

ChatGPT can be used as a learning aid in conjunction with other methods. The student enjoyed their project, particularly learning Python and how it can be used for scientific purposes. The student mentions that ChatGPT is a helpful resource and helped significantly but should not be heavily relied on as it may

be counterproductive if queried for every matter. It should be used as an aid to learn, not a method of bypassing learning.

## Author Biography

**Jack McGoldrick** was the student who completed this research project. He recently completed his undergraduate degree in Pharmacology and is now currently working as a research assistant within Recon4IMD at the University of Galway before starting his PhD.

**Dr Ronan Fleming** is a Senior Lecturer in the College of Medicine at the University of Galway and was the PI on this project. Dr Fleming leads the Systems Biochemistry Group in the University of Galway and is the coordinator of 'Reconstruction and Computational Modelling for Inherited Metabolic Diseases (Recon4IMD), a Horizon Europe Research and Innovation action funded study.

# GENERATIVE AI AS A PROFESSIONAL ISSUE IN PHYSIOTHERAPY - "IT AIN'T WHAT YOU PROMPT, IT'S THE WAY THAT YOU PROMPT IT!"



**Institution:** Trinity College Dublin
**Discipline:** Physiotherapy
**Author:** Cuisle Forde
**GenAI tool(s) used:** Kemtai

## Situation / Context

The role of artificial intelligence in physiotherapy is varied and evolving (Rowe et al., 2022; Simeoni et al., 2021). As an administrative tool, it can be used to help with patient scheduling and as a treatment tool it has been used to monitor exercise (Moscato et al., 2023), correct movements (Francisco and Rodrigues, 2023), individualise resistance to movement and help with clinical reasoning (Wong et al., 2023; Hasan et al., 2023). It is clear that the use of AI is relevant in Physiotherapy and has the potential to help with many challenging tasks physiotherapists encounter on a daily basis. With a view towards tasking students to critically appraise the use of generative AI in their profession, in the academic year 2023/24 we added AI as a topic to our module entitled "Professional issues". As this topic was not previously taught, two years of students were grouped together for a class on this topic. The timetable afforded us one hour of asynchronous online teaching and one hour of live-in-class teaching, but this will likely be increased for future cohorts. There were approximately 75 students in total in the class.

## Task / Goal

The aim of the session was to facilitate an open discussion about the opportunities and limitations of GenAI relevant to Physiotherapists.

Learning outcomes were to:

- identify opportunities that GenAI tools present generally and in the clinical setting;

- discuss the potential for bias, inaccuracy, misinformation, and ethical issues.

This was the first year we were integrating this topic into the module, so it has not yet been aligned with assessments, and the LOs were deliberately "low" on Bloom's hierarchy. During the summer months, the curriculum will be reviewed, and greater clarity will likely emerge regarding the LOs related to this topic within the module.

This topic was added as we are aware that GenAI is used in clinical practice and is increasingly relevant to the clinical professions, including Physiotherapy. We feel that as educators we need to equip our students with the best chance to enhance patient care, and AI is now part of that! Furthermore, as with any skill, using Generative AI effectively requires specific knowledge and practice- something which was not previously covered in our course.

## Actions / Implementation

Students were asked to perform a SWOT analysis before the class (asynchronous online activity) outlining the opportunities, risks, strengths, and weaknesses of AI for the profession of Physiotherapy. This task resulted in many interesting observations and insights. One common theme mentioned was the opportunity presented by GenAI to aid clinical reasoning and differential diagnosis. It is worth noting that clinical reasoning and differential diagnosis are difficult high-level skills required of students. It is, therefore, unsurprising that students would be thankful for support from something like a GenAI platform to tackle such tasks.

On this basis, during the live class, a well-known GenAI platform was asked to "propose possible Physiotherapy diagnosis" for a complex case study. The case study chosen by the academic included covert red flags (i.e. serious issues that should never be missed in a clinical setting) and resulted, by design, in a contentious issue arising around the ability of the Gen AI platform to appreciate and understand the professional remit of a Physiotherapist – which was subsequently debated in class.

Specifically, the issue was around the fact that when the GenAI platform was asked to propose a diagnosis for a Physiotherapist, the potential presence of serious pathology was not mentioned, however, if the word Physiotherapist was omitted from the response, the platform immediately alerted the reader to the potential presence of a life-threatening pathology. Continuing the conversation with the software platform, we asked why this information was omitted when being asked by a Physiotherapist. The response was that it was not within a Physiotherapists professional remit to diagnose such diseases. While this is true, it is certainly within our professional remit to refer our patients to other professionals and to ensure we work in the best interest of our patients, neither of which would have happened if we had relied only on the initially generated answer. The most interesting part of this exercise was arguably the difference in response when the prompt was altered by one word emphasizing the importance of wielding GenAI with care. This case study proved to showcase both the potential of AI to be a help and its bias and potential to negatively impact on treatment/care.

Moving on from the case study, we discussed academic integrity and outlined the impact of plagiarism through GenAI use at third level on the wider profession of Physiotherapy. We asked students to contribute

to the solution for this issue especially when it comes to take-home assignments – interesting and wide-ranging comments and opinions were shared on this topic.

We then began to move – literally. Students tried a GenAI exercise program (see resources below), which corrects movements in real-time and provides feedback to the person exercising as well as to the therapist prescribing the exercise. Students used live polling throughout this session and when asked if they could see a use for a program such as the Gen AI exercise program in their clinical practice, they agreed that they could.

We ended the live class by discussing whether, as a profession, we should contribute to the content that GenAI uses, and if so, how. We questioned if it was possible for us to alter algorithms and questioned who or what was really leading to the outcomes produced. That is unfortunately all we managed to cover in an hour but as part of the SWOT analysis conducted prior to class students proposed many ways with which we could incorporate AI into our curriculum, such as asking an AI bot to pretend to be a patient and then have a conversation with that patient (the transcript of this conversation could then be assessed by the academic).

## Outcomes

There was no summative evaluation of the session, but live poll contributions, online discussion board posts, and live class contributions indicated a high level of engagement. Some students reached quite an impressive depth of thinking/consideration, while others enjoyed the lighter side of the topic!

## Reflections

I learnt that students can and will tell us how to integrate AI into the curriculum and what they need to know if we simply ask them the correct questions. Next year, I will dedicate more time to this topic, and we will be able to teach one year group at a time (as this will not be the first year of this topic being introduced). Smaller numbers will also help facilitate better in-class debates and discussions.

## Digital Resources

https://kemtai.com/—When I asked, the company agreed to give me a trial version of this software so that I could share it with students. That worked really well!

## Author Biography

**Dr Cuisle Forde** is an Assistant Professor in the Discipline of Physiotherapy, at Trinity College Dublin. She graduated with a BSc in Physiotherapy from Trinity College Dublin in 2008. Having been awarded a Trinity scholarship during her undergraduate career, and an Irish Research Council scholarship to conduct

a PhD, she began work on her doctoral thesis the following autumn, which she completed in 2012. During her doctoral studies, Cuisle investigated the efficacy of active video games as a form of exercise for children who have cystic fibrosis and those attending weight management clinics. She also examined the capability of an active video game to be used as a tool to estimate cardiorespiratory fitness. She completed a Diploma in Statistics and was also involved in research projects investigating arterial stiffness and physical activity in adults. After spending some time working clinically and lecturing in critical thinking in Kosovo, Cuisle returned to Dublin in September 2013 to begin a postdoctoral research fellowship in the Discipline of Physiotherapy, at Trinity College Dublin. With an interest in technology and innovative teaching methods, Cuisle helped develop the Online Postgraduate Certificate and Diploma in Clinical Exercise and is now the coordinator for this course. Her latest publications investigate the efficacy of e-learning for the acquisition of clinical competencies.

PART V

# GENAI TO SUPPORT THE RESEARCH PROCESS

# SCIENTIFIC PLANNING AND PROPOSAL WRITING USING GENAI IN RESEARCH



**Institution:** University College Cork
**Discipline:** Research
**Author:** Susan Joyce
**GenAI tool(s) used**:ChatGPT

## Situation / Context

BC6004 is a postgraduate optional module aimed for students in higher degrees (Masters or PhDs by research). It aims to teach students the finer points of why, how, and what are important in the gathering and constructing of scientific information for theses, publications, and grant proposals. The classes are interactive and require continuous work submission and reflection.

CHAT (ChatGPT) is a GenAI tool that can be applied to scientific writing, information gathering, and reassembly. We applied it in the mid–phase of the module as a tool of support, but with caution, during these interactive small group (six students) 5×4-hour learning sessions. The benefit of fact and reference collection, formation of a good knowledge base, review of a scientific subject to include opinions, hypotheses and to identify gaps in the (higher level) learning is encouraged.

A summary title is formed. AI–generated information and tools are independently applied and compared on the topic in class.

## Task / Goal

The primary aim was to ensure awareness of the correct and incorrect use of GenAI to support scientific writing. A secondary aim was to ensure that EU and International postgraduate students were aware of the pitfalls and benefits of utilising a commonly used GenAI resource correctly. A third aim was to ensure awareness and insight into the debate on the topic of GenAI and its future uses.

In this small group learning setting, students used their selected and thoroughly researched topics and titles. They applied the resource over one session, interactively with the GenAI and in real-time. Each student applied the tool to their own pre-researched work and discussed the positive and negative outcomes collectively. The time for this session was three hours.

## Actions / Implementation

The students constructed a name and an abstract, without GenAI, based on prior knowledge and referenced material; they were limited to 200 words.

Most students were over the word limit and had not constructed an acronym. Our first act was to use the abstract to generate a title for the proposal and examine whether it reflected the main aim and abstract contents. As scientists, we tend to apply titles that are overly detailed when a simpler title could suffice.

The abstract was applied to generate an acronym for each proposal in real-time. For example, the title "Development of an RNA expression system for tackling HER2 Cancer" returned a very apt acronym of RNA HERo. Following this, we tried the following:

- Requested that the abstract be condensed to 200 words and explored whether the relevance was maintained for each of the 6 individual students.
- Submitted the title and asked ChatGPT to generate an abstract for the topic without supplying any input information.
- Submitted the technical WPs and asked for Table construction.
- Wrote a request for a letter of Support and submitted it for different levels of formality to ChaGPT.

## Outcomes

The GenAI tool–generated titles were collectively examined and discussed relative to the student's proposed original title. With two exceptions the GenAI generated were deemed appropriate and, in some cases, better.

The GenAI–generated acronym for each project was really spot on – this delighted the students- as one could spend a lot of time thinking about a suitable acronym, GenAI–generated numerous options.

Within-word-limit abstracts were GenAI constructed from the input. In discussions, some important points could be misrepresented or indeed, lost. However, the group agreed that GenAI–generated abstracts were useful and could be improved further by individual review.

Each student submitted the GenAI–generated title, requesting the tool to generate 200 words on the subject. Students rejected this approach based on the inaccuracy of facts and of referencing, collectively deciding that it was too general to provide real topic insight. Students developed trust in their own intellect and ideas rather than GenAI–generated information. They concluded that the GenAI tool was useful as a text, tone and grammar rearrangement tool, a supporting tool rather than an intellectual connecting tool, for the whole work package.

The students agreed that the tables were constructed excellently.

In discussions on writing a Letter of Support, students agreed that GenAI opened other unconsidered avenues that could be included in the letters so that GenAI could be delivered here.

## Reflections

As a group, in discussion and real-time application, the students and I realized and concluded that: original scientific thinking is not a function of Chat GPT. This tool is no substitute for thought and reflection in generating original work, ideas, and hypotheses. However, students concluded that reorganisation, condensing, and getting perspective on Letters of Support, acronyms and general time-saving tasks demonstrate its excellence in its application as a GenAI tool.

However, we all agreed that human writer information scoping, gathering, and analysis were essential in advance to optimally apply GenAI for beneficial outcomes. The aim was to inform students on the benefits and pitfalls of specific GenAI usage in a science context, for proposal, paper, and award writing.

The students and I appreciated and acknowledged GenAI's time-saving ability and its potential benefits for neurodiverse individuals, those for whom English is not a first language, and native English speakers themselves.

## Author Biographies

**Dr Susan Joyce** is the Director of MRes Programme and PI and a Senior Lecturer at the School of Biochemistry and Cell Biology at the University College Cork.

# AI AND THE INFORMATION SEARCHING PROCESS



**Institution:** University College Cork

**Discipline:** Information Searching in the Library

**Authors:** Stephanie Chen, Virginia Conrick, Breeda Herlihy, Ronan Madden, Ben Williamson

**GenAI tool(s) used**: ChatGPT and Copilot

## Situation / Context

University College Cork Library provides a range of supports for learning & teaching within UCC, including digital and information literacy teaching, delivered through open workshops, embedded sessions within course programmes and modules, and through the provision of asynchronous content.

Recently, a small Library team was formed to explore how the Library would address the use of generative artificial intelligence (Gen AI) in learning and teaching. As a first step, the team devised and delivered a new workshop (Artificial Intelligence and Searching for Information) open to all staff and students in the University. This workshop focuses on how large language models (LLMs) can be used effectively as part of the information/literature search process. It is an opportunity to discuss the potential uses of AI with staff and students and to consider how the tools might be maximised while also raising awareness of the limitations and the importance of critical appraisal. Importantly, the session is in tune with and complementary to other initiatives in UCC, such as the "Toolkit for the Ethical Use of Gen AI." Between February and December 2024, the workshop attracted over 120 attendees.

## Task / Goal

As this is a new offering from the Library, team members have worked together as a learning group to develop workshop content. Our overall aim is to ensure learners understand how tools like ChatGPT and CoPilot can be used appropriately, effectively, and reflectively for the search process. Attendees will recognise both the potential of tools in supporting their academic work and the caveats that apply. Our goals include:

- Raising our own and our colleagues' awareness and capability with Gen AI.
- Learning from discussions with the attendees, both staff and students, about their experiences using Gen AI, and through working with them during the hands-on section. This means that we actively encourage input from the attendees, emphasising that we ourselves are not AI "experts", and that the sessions are a learning process for all.
- Using the insights gained to continue improving the workshops, ensuring the content and delivery are current and relevant, while also helping us understand how the responsible use of Gen AI will become a core element of our overall Library teaching and learning offerings.

## Actions / Implementation

To date, we have delivered the workshop to both staff and students within the University. We have also delivered it to Library and University colleagues as part of continuous professional development, and to the public as part of Cork's Lifelong Learning Festival. The ninety-minute session includes discussion, demonstrations, and hands-on exercises, including approaches like that outlined by the CLEAR framework (Lo, 2023). The workshops have been delivered in person within the Library, and we are currently developing an online offering. For the discussions, we ask learners:

- Have you been using AI tools like ChatGPT?
- What are your views on how AI tools can be best applied?
- What do you see as potential risks?

The "hands-on" element focuses on prompting that is CLEAR: Concise, Logical, Explicit, Adaptive, and Reflective. We explore how critical appraisal techniques should be applied to information obtained from Gen AI tools. We also examine how the use of LLMs might be applied to an information-seeking model: Kuhlthau's 'Information Search Process' (2008).
The learning outcomes for the session are:

- Describe in simple terms what large language models (LLMs) like ChatGPT and Copilot are and how they work.
- Describe some of the potential uses, while being conscious of the limitations.
- Apply prompts in a structured way to obtain the best information for your needs.
- Evaluate the information obtained through AI tools.

## Outcomes

The discussions and hands-on activities we have facilitated have been an invaluable part of the learning process, both for attendees and for the Library team involved. The range of participants' familiarity with LLMs has been interesting: many have had very little experience, while some are very frequent users e.g.,

for language translation, writing code. At the end of the session, we ask attendees to complete a short evaluation form, including:

- overall rating;
- whether or not they would recommend the session to others;
- the strengths;
- areas for improvement;
- any other comments.

The feedback has been very encouraging. For example, the average overall rating from 55 student (mostly postgraduate) responses has been 4.7 out of 5. A perceived strength is the blend of advice, discussion, and hands-on prompting practice during the session. Participants value the opportunity to discuss ethical concerns and to hear other viewpoints. The feedback from staff has been similarly positive; for example, an appreciation for the particular focus on applying LLMs to the information search process. This feedback has given the team confidence to continue to develop and refine the content. While we do not always have the answers to everything that arises during a session, we are building our knowledge and experience. The group meets regularly to reflect on our progress. Building our knowledge also helps us to integrate Gen AI into the Library's "regular" digital and information literacy offerings.

## Reflections

It is clearly vital that we continue to learn and actively keep up to date on developments in this rapidly evolving area. Even between sessions, the AI landscape changes quickly, and this will continue. We will need to continually adjust our offering as people's experience of using Gen AI continues to evolve over time. The work we are doing is becoming a basis for additional sessions that we can offer.

We are considering splitting the content into two workshops. One session would provide an overall introduction to appropriate and ethical applications of AI in the information search process, while the other would focus more specifically on effective prompting. As instructors, we have felt that we are compressing large amounts of content into a ninety-minute class. At times, sessions have felt a little rushed.

We can also leverage what we have been doing to create online content that can be made available on the University VLE and the Library website. As AI becomes a regular part of the search process, we need to embed it in all our learning, teaching and research supports. Additionally, the knowledge that we are accumulating has enabled us to participate in dialogue with colleagues in UCC, and with colleagues in other University libraries, who are also seeking to implement offerings in this area.

## Further Reading

Kuhlthau, C. C., Heinström, J., & Todd, R. J. (2008). The 'information search process' revisited: Is the model still useful. *Information Research*, *13* (4), 13–14.

Lo, L. S. (2023). The Art and Science of Prompt Engineering: A New Literacy in the Information Age. *Internet Reference Services Quarterly*, *27* (4), 203–210.

## Digital Resources

Selected examples used for prompting exercises:

- Donald's Problem: General Inquiry (ChatGPT)
- Ireland Housing Policy Overview (ChatGPT 4.0)
- Ireland Housing Policy Overview (ScholarGPT)
- Circular Economy Overview (Consensus)

## Author Biographies

**Stephanie Chen,** Learning & Teaching Librarian at University College Cork Library.

**Virginia Conrick** (retired) formerly Academic Success Librarian at University College Cork Library.

**Breeda Herlihy,** Quality and Planning Coordinator at University College Cork Library.

**Ronan Madden**, Learning & Teaching Team Lead at University College Cork Library.

**Ben Williamson,** Learning & Teaching Librarian at University College Cork Library.

PART VI

# SCIENCES, TECHNOLOGY & ENGINEERING

# CODE COMPAIRE IN COMPUTER SCIENCES



**Institution:** Trinity College Dublin
**Discipline:** Computer Sciences
**Authors:** Jonathan Dukes, Béibhinn Nic Ruairí
**GenAI tool(s) used:** GitHub Copilot, and ChatGPT 3.5 turbo

## Situation / Context

Students often only see their own work in response to a learning activity or assessment, and will eventually receive feedback when sufficient time and resources are available. Peer assessment and group activities can expose students to other responses and provide alternative sources of feedback, but these activities require substantial organisational effort.

Generative AI can produce multiple, diverse responses for the same activity or assessment, including responses with desired characteristics (e.g., verbose, concise, incomplete, flawed). This showcase describes an easily deployed activity where students work independently to compare AI-generated responses with their own responses and, while doing so, are invited to reflect on the quality of the AI responses and their own work.

A group of eight first-year Computer Science students in Trinity College Dublin trialled the comparison activity in March 2024. The context for the activity was a programming task using the Java programming language with which students were familiar. The study was not conducted in the context of any specific module.

## Task / Goal

The primary goal was to design an activity that would encourage novice programmers to reflect on their own solution to a programming task and, more broadly, their competency with computer programming, through comparisons with alternative solutions. These alternative solutions should differ from each other with respect to qualities or features of interest (e.g., efficiency, complexity, completeness, use of specific programming paradigms).

The comparison activity was motivated and influenced by the work of Nicol (2021) on comparison

processes and "internal feedback", defined by Nicol as "new knowledge that students generate when they compare their current knowledge and competence against some reference information."

A secondary goal of the activity was to expose novice programmers to the capabilities of generative AI coding assistants, such as GitHub Copilot, as well as their deficiencies.

## Actions / Implementation

A prototype web-based tool to support the comparison activity was developed by a final-year Computer Science student. The comparison tool prompted students to formulate their own solution for a programming task and then used generative AI to create two alternative solutions, which were presented side-by-side with the student's solution for easy comparison.

After comparing their own solution with the AI-generated solutions, students were asked to score their work against a rubric and write two short statements (2–3 lines each) describing (i) the differences between their own work and the alternative solutions and (ii) what they learned and (iii) what they might do differently given a similar task. These reflective statements have been identified as a critical step in comparison activities (Nicol, 2021).

The OpenAI GPT-3.5-Turbo Large Language Model (LLM) was used to dynamically generate alternative solutions. Prompt engineering was used to "encourage" the generation of diverse solutions with specific features. The generated solutions were tested for correctness so students would not see programs that did not function correctly (or did not function at all). Working solutions were then automatically evaluated with respect to qualitative measures (e.g., similarity, complexity) and two dissimilar solutions were selected and presented to the student through the web interface.

## Outcomes

All students who participated in the trial either agreed (n=two) or strongly agreed (n=six) that comparing their own solutions with alternative solutions was a good exercise when learning how to program. When asked whether the differences between the two AI-generated solutions were useful for understanding alternative approaches to solving a problem, seven out of eight students agreed (n=six) or strongly agreed (n=one) with this. When asked whether they would make use of the comparison tool in an introductory programming course, five students either agreed (n=four) or strongly agreed (n=one).

Adopting the Generative AI comparison activity would require relatively minor effort on the part of educators. It could be adopted as a supplementary component of an existing activity or as a stand-alone activity. Even without the support of technology (e.g., the web-based tool described here), students could be given simple instructions, including sample prompts to manually generate responses using services such as ChatGPT, a template for scoring responses and prompts for reflective writing.

## Reflections

GenAI is well-suited to comparison activities. In other circumstances, we might be concerned about the capacity of GenAI to produce flawed responses to a prompt but, for our comparison activity, we are actively encouraging such behaviour.

We have been encouraged by the responses of participants in our small-scale study and by the capacity of LLMs to produce responses with characteristics that we believe will be beneficial in comparison activities.

In this study, we did not analyse (or record) how students scored their own responses or the generated responses for the programming task. Nor did we record students' reflective statements. Such an analysis should be considered in a larger-scale study.

This study has also only explored GenAI for comparison activities in the context of computer programming education. Analogous comparison activities should be explored in other disciplines.

## Further Reading

Nicol, D. (2021). The power of internal feedback: exploiting natural comparison processes. *Assessment & Evaluation in Higher Education*, *46* (5), 756–778.

## Digital Resources

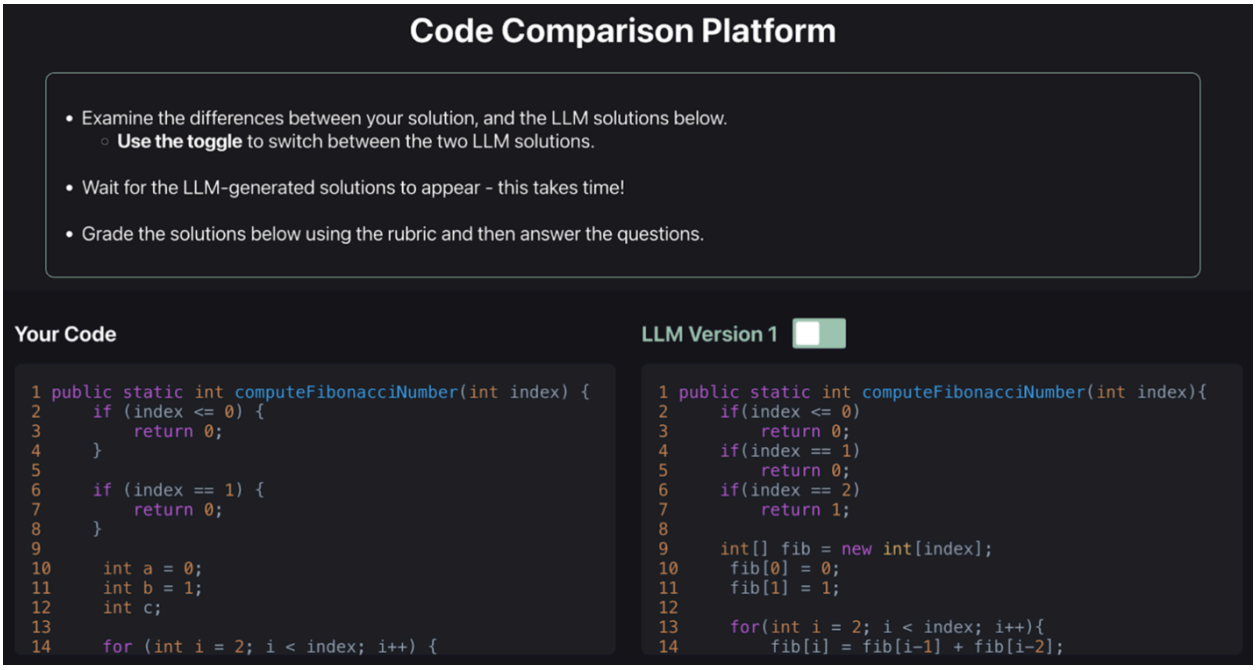



Fig. 1: Prototype code comparison tool – comparing student's solution with an AI-generated alternative solution. The student can switch between the two AI-generated alternative versions.

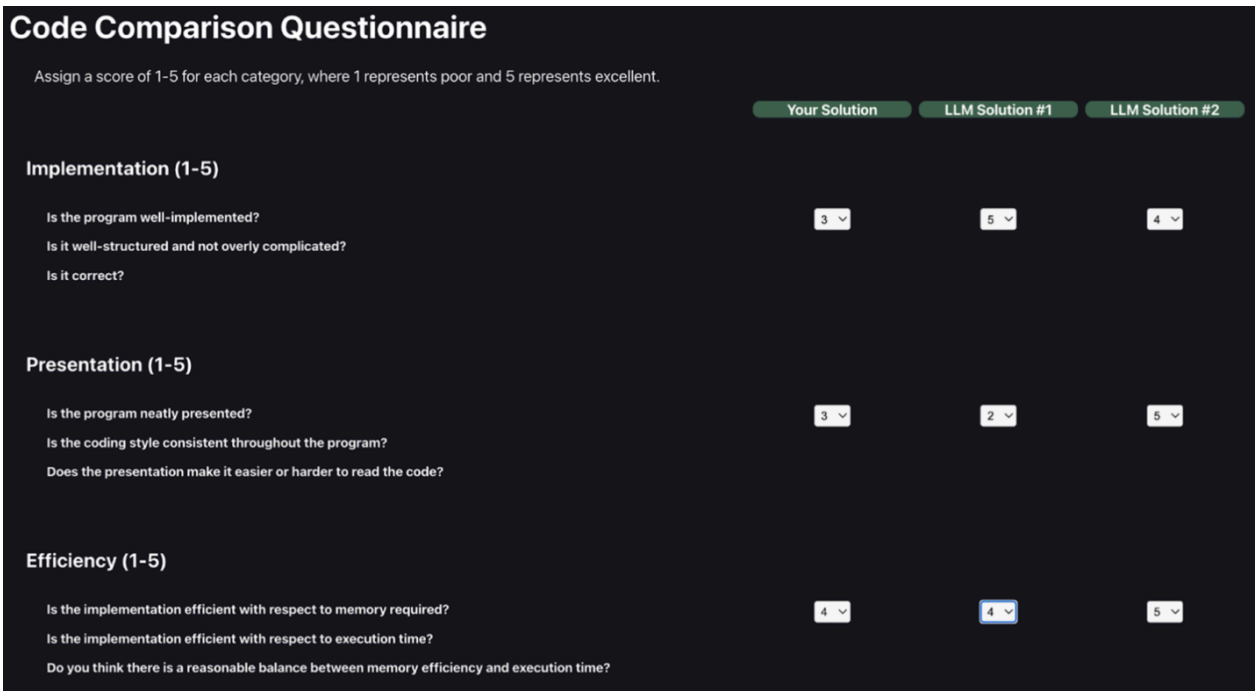



Fig. 2: Prototype code comparison tool – rubric used by students to score their own solution and the two AI-generated alternative versions.

## Author Biographies

**Béibhinn Nic Ruairí** studied Computer Science at Trinity College Dublin, completing a capstone project in 2024 on the topic of "Inner Feedback for Novice Programmers through Comparisons with AI-Generated Solutions".

**Dr Jonathan Dukes** is a lecturer in Computer Science at Trinity College Dublin. He is a past recipient of a *Trinity Excellence in Teaching Award* and is interested in applications of GenAI in computer science education and the effects of GenAI on learning and assessment of novice programmers.

# PROVIDING "HANDS-ON" EXPERIENCE IN ASSESSING GENAI WORK TO DEVELOP AWARENESS IN STUDENTS



**Institution:** Dublin City University

**Discipline:** Interdisciplinary Electronic Engineering and the School of Law & Government

**Author:** Leah Ridgway

**GenAI tool(s) used**: ChatGPT

## Situation / Context

BSc Global Challenges at Dublin City University is an interdisciplinary course run by the School of Electronic Engineering and Law & Government. The activity in this case study was run in a seminar setting with first-year students in a small class of seven students. Within the "Shaping Global Leaders" module, students must complete a series of reflective portfolio pieces using the Driscoll Reflective Framework (2007). The example here is around reflecting on teamwork, resulting in this activity being suitable for any discipline where professional development, teamwork and reflective learning are part of the curriculum.

## Task / Goal

My own pedagogy has been influenced by my disciplinary background as an engineer and my own constructivist views, resulting in my desire to empower students to engage with and explore new technologies and tools and not shy away or ban their usage. I wanted students to see the advantages and the limitations of GenAI, but more importantly, to understand the design process of using prompts and reviewing and refining responses as part of an engineering design cycle rather than treat the technology as something that is taboo to discuss in an educational space. Collectively, as a society, we adapted to the introduction and adoption of calculators, so how do we learn to work with this newer tool?.

It was key for students to develop their own awareness of the best use cases for the technology. In this module, I presented a "good" and "bad" example of using the technology to enable a class discussion on the technology's merits and limitations.

In the "good" example, developing case studies is an appropriate use of GenAI tools as the prompt

design is the vital part of the content; our role here is to be the editor for a piece of fiction which needs to fit a brief that we provide. This example demonstrates to students how using critical reading and editing skills is an important part of the work – the human-supervised part. The GenAI can create what it wants, whereas we are responsible for the quality assurance. The key distinction lies in the fact that we remain actively involved in the process rather than outsourcing it and relinquishing our responsibility.

The contrast of a "bad" example of GenAI was provided by asking students to assess a reflective piece that had been fully outsourced with no editing, by providing the coursework instructions as the prompt. The aim was to get students to discuss the work and assess it against a rubric so they could get a lecturer's perspective on why these pieces are not academically strong and apply this understanding to their own work in the future.

## Actions / Implementation

I used GenAI to produce group work case studies which discuss different types of group dynamics that may occur and sample student submissions reflecting on experiences of group working. These were discussed in class, and then students provided feedback and graded the sample reflections against a rubric.

- The "good" usage example:

The prompts used to generate the case studies, and the refinement process were discussed as an adapted model of engineering design. Here, the design is prompt design; the prototype is the GenAI output; this is evaluated and then improved upon if needed. The prompt design was discussed in the context of thinking of the required outputs and including these within the prompts. For example, "the group in the case study should have five students". The following is an example of one case study design.

Prompt:

*Write a case study which discusses a team of five university students working on a project together where there is one member of the team who does not contribute. The project is a semester-long group project, and the students are from different programmes.*

The response produced a case study where a student named Emily was highlighted as "the team's weakest link", giving a list of her "shortcomings" and the consequences for the team. We discussed that the framing of the output was blaming one student without exploring the possible reasons for their behaviour. The chat was extended with the following:

Prompt:

*Why did Emily act this way?*

The response produced a list of examples, one of which was incorporated into the next prompt. This was selected because as part of the design, we wanted to discuss solutions to create groups that work.

Prompt:

*Write a case study which discusses a team of five university students working on a project together where there is one member of the team (named Emily) who does not contribute. The project is a semester-long group project, and the students are from different programmes. Emily finds it difficult to attend group meetings and*

*complete work on time because she has a job outside of college. Also, include hypothetical emotional responses from the rest of the group to the challenges.*

The result was discussed as a case study in class for the actions the group members could take to ensure the overall success of their project and work with Emily to find solutions.

- The "bad" usage example:

The second generated piece was designed to be a "bad" usage example. This was an un-engineered response to supplying the coursework briefing, in which students were asked to reflect on their experiences of starting university.

The students were asked to read the work, which was presented as anonymised student work, and grade it against the rubric that would be applied to their own work. Initially, the work seemed good, but when scrutinised against the rubric categories in more detail, the weaknesses became clearer. The rubric required clear, specific examples and actions, which were not evident in the sample work. After this exercise, the work was unmasked as being produced by GenAI, followed by a discussion on the relevant distinguishing features which would identify it as such. The fundamental nature of GenAI as a language model and not a replacement for personal experience, reflection and analysis was discussed.

Our class discussion focused on the outputs of the reflective sample work being generic and inauthentic when analysed against the rubric and not satisfying the requirements for the best grades. This challenged students' views as to the realities of the technology and how to recognise its limitations.

The two different document types were used to hold a group discussion on the strengths and weaknesses of the sample work and of using GenAI tools for more speculative writing and editing.

## Outcomes

Students were empowered to discuss GenAI and the appropriateness of its usage in different contexts by providing a "good" and "bad" example. During the session, the group co-created an updated rubric based on their grading of sample work created by GenAI, which would be applied to their own work. This emphasised the importance of authenticity and specific examples.

## Reflections

The process employed made it easier for students to discuss the work's strengths and weaknesses because it was created using GenAI rather than anonymised student work.

From my own perspective, I learned that first-year students could find it hard to discern the quality of GenAI-produced outputs initially. The use of the rubric grading and related discussion facilitated students' development of more sophisticated analysis skills related to their writing.

## Further Reading

Driscoll, J. (Ed.). (2007). *Practising clinical supervision: A reflective approach for healthcare professionals*. Edinburgh: Elsevier.

## Author Biographies

**Dr Leah Ridgway** is an Assistant Professor in the School of Electronic Engineering at Dublin City University and is part of the Centre for the Advancement of STEM Teaching and Learning (CASTeL). They are a Senior Fellow of Advance HE and have more than a decade in teaching within engineering. Leah's research interests are in engineering education within the university sector using a qualitative and quantitative approach to investigate how students learn.

# FROM ESSAY TO POSTER: EXPLORING A NEW FORMAT FOR AN ENERGY MODULE ASSIGNMENT



**Institution:** University College Dublin
**Discipline:** Energy Systems
**Authors:** Paul Cuffe, James O'Donnell, Jiajing Li
**GenAI tool(s) used:** ChatGPT, Midjourney and DALL.E

## Situation / Context

In March of 2024, we redesigned one essay assignment (worth 10%) for the UCD module Energy Systems in Buildings I (MEEN30130). Most students in this module are in their 3rd-year of studying Structural Engineering with Architecture. This module had traditionally contained an at-home essay assignment, where students would, over the course of several weeks, research and write a technical essay on a given topic within building energy use. Topics might include building energy flexibility, prefabrication, Building Information Modelling, Internet-of-things, and so on.

Like many colleagues across the academy, we were both impressed and worried to witness the rapid escalation in the ability of tools like ChatGPT to conjure credible-seeming scholarly prose ex-nihilo. Rather than leaving the assessment strategy in MEEN3010 exposed to AI plagiarism, we decided to shift the focus towards a more authentic and interactive learning activity.

We tasked 36 undergraduates with the creation of A1-size posters on several predetermined topics in building energy management that they could select from. These posters were to be presented to a panel of experts during an in-person poster session, at which students would have to field technical questions on their particular topic. This presentation and Q&A session together account for 70% of the component grade, further ensuring that students have genuinely acquired the knowledge, rather than unreflectively using GenAI tools.

However, while students were prohibited from using conversational AI chatbots like ChatGPT to create text content or technical diagrams for their posters, they were encouraged to use AI tools like Midjourney and DALL.E to create graphics to enhance their posters. We felt that this retains an open-mindedness about the role and value of GenAI without violating the integrity or authenticity of the assignment.

## Task / Goal

In short, we engaged with generative AI for two main reasons:

First and foremost, we aimed to prevent students from completing their work unreflectively or dishonestly by using ChatGPT or its ilk; we sought to uphold academic integrity in the first instance. This assignment used to be a take-home essay in the past, accounting for 10% of the total grade. Our prior research (Cuffe et al., 2023) indicated that such tasks are among the most susceptible to dishonest use of GenAI, with students more likely to resort to chatbot tools, thereby failing to meet their learning objectives. In this case, we adopted assessment styles like presentations and oral questioning that are less vulnerable to AI plagiarism, allowing us to more directly assess students' achievement of the learning objectives.

Secondly, we intended to nurture students' understanding and critical thinking regarding GenAI tools. This move was designed to help students identify the advantages and limitations of AI, which will prepare students for a future where GenAI is an integral part of professional and creative processes: encouraging the use of generative text-to-image covered this aspect.

## Actions / Implementation

In this assignment, we asked students to design posters to display their research findings, participate in a presentation, and then answer a rigorous series of probing questions posed by academics with subject-area expertise. The assessment rubric for this assignment is divided into four parts: poster design accounts for 10% of the component grade, content, and scholarly references for 20%, and presentation along with response to the questions (i.e. oral examination) for 70%. In designing this assignment, we adopted a moderately open attitude to GenAI. We integrated it by allowing students to use text-to-image tools like Midjourney and DALL.E for certain graphic designs, while strictly prohibiting the use of GenAI chatbots to generate technical diagrams or textual content. Moreover, we informed students about the severe errors and hallucinations that ChatGPT can make in citations, encouraging them to genuinely learn rather than simply relying on GenAI tools.

Out of 36 students, 29 submitted their posters on time. We printed all the posters and asked the students to stick them to the classroom walls during a timetabled presentation session. Subsequently, six academics were responsible for orally examining the students by inspecting their posters in situ and asking relevant questions. The atmosphere during the presentations was surprisingly active and energetic, with the students being remarkably familiar with the content and diagrams on their posters. The face-to-face questioning eliminated the risk of cheating with GenAI and provided the students with additional insights and inspiration. Each student was orally examined for a duration of 10 to 15 minutes. The intensity of the questioning undoubtedly compelled students to deepen their understanding of the relevant topics.

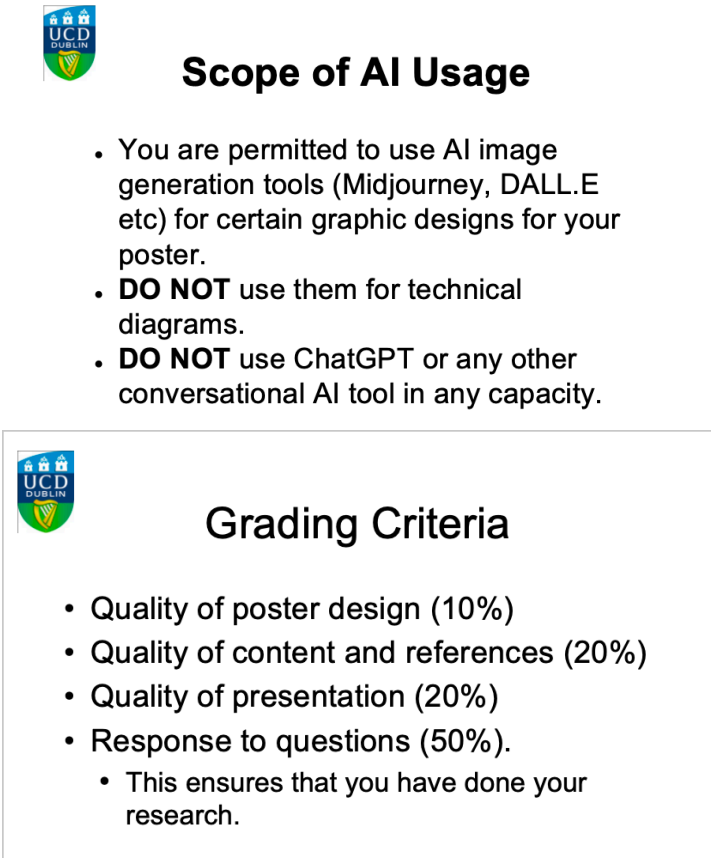



Fig 1. Screenshots of assignment requirement slides

## Outcomes

This intervention brought **n**umerous benefits. First, we successfully prevented students from thoughtlessly or dishonestly using GenAI by implementing an oral presentation session, thus ensuring the authenticity of their learning. Secondly, many students found designing posters to be fun and creative, which encouraged them to explore the energy system in Ireland. By visualising their research findings, students were able to reinforce their understanding of related topics.

Additionally, during the presentations, students had the valuable opportunity to learn from their peers. By showcasing their posters to one another, they could understand the research outcomes from others and get more inspiration. These are transferable skills with increasing professional relevance.

The Q&A session provided the assessors with an opportunity to verify the students' understanding directly, which also enhanced communication between teachers and students. Furthermore, by encouraging the use of GenAI image generation tools, students developed critical thinking about AI after interacting with it in a low-stakes way. They realised the limitations of GenAI and generally preferred to display accurate images with reliable sources.

## Reflections

In the final submissions, only one student used DALL.E to generate graphs for her poster (as shown

below), surprisingly revealing that students might not be as keen on using GenAI tools as we had anticipated. When asked why they didn't use AI tools, many students mentioned they didn't know how to use them properly, as there was no specific guidance in the course on how to design with AI. Meanwhile, most of them were dissatisfied with their attempts and chose to use templates or images found on Google instead. Therefore, if there is another opportunity, we might consider providing samples of AI designs to assist students better, and to show how to prompt image generation tools. On the other hand, many students reported that generating images with AI is costly because this is not a feature of free AI tools.

It is easy to fear that all students are AI wizards, deploying all kinds of tools against any non-invigilated assessment. Our experience here shows that such paranoia is not realistic; if you want students to use Midjourney, those software skills need to be taught and scaffolding, just like any other computing exercise in an engineering module.

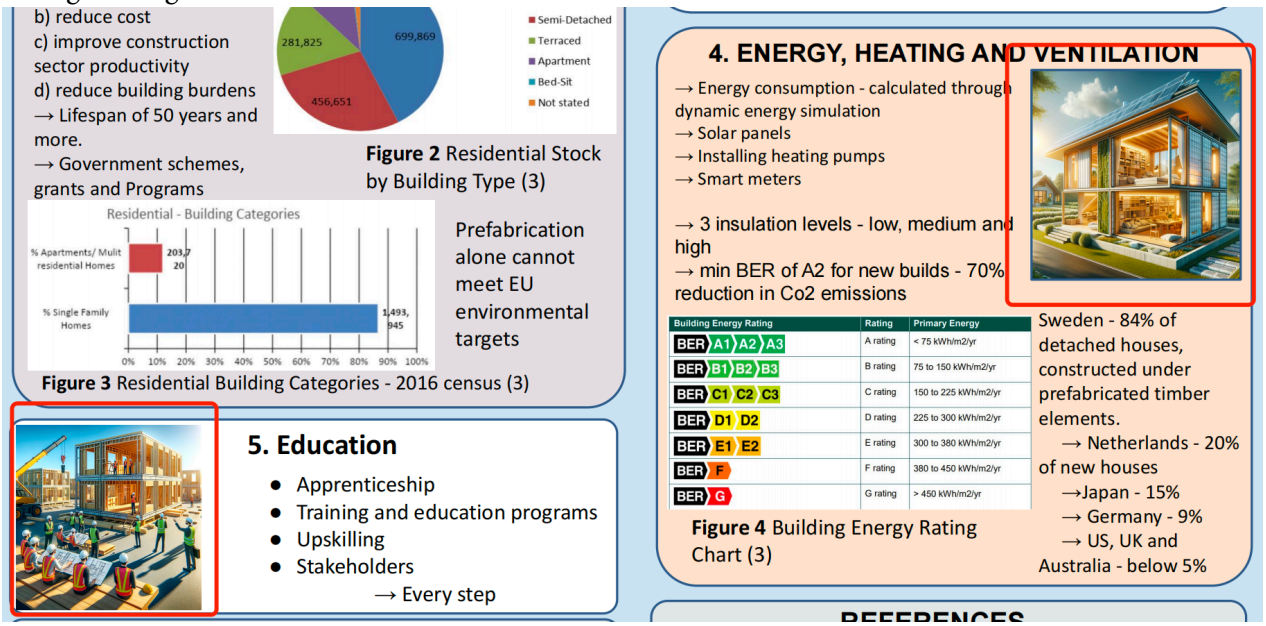



Fig 3. An example of a student using text-to-image AI tools to design decorative graphics for their posters.

## Further Reading

Cuffe, P., Healy, J., Doheny, E., Nola, K., Hickey, A., & Ó Faoláin, C. (2023, September). Academic dishonesty facilitated by AI chatbots: Gauging the exposure of modules within UCD College of Engineering & Architecture. *UCD Internal Report*.

## Digital Resources

https://drive.google.com/drive/folders/1xK9bvr7u_h7GxFN7HPpDZ8q0dFHTDdWA?usp=sharing

# Author Biographies

**Dr Paul Cuffe** is currently an assistant professor at the UCD School of Electrical & Electronic Engineering, from which he received B.E. and Ph.D. degrees in 2009 and 2013, respectively. He delivers 50% of the content of MEEN30130, focussing on the role of electricity in buildings.

His core research interests are in the optimization and analysis of electrical energy systems, with an emerging interest in the potential for blockchain smart contract instruments to disrupt energy marketplaces. He is a member of the UCD Energy Institute.

**Dr James O'Donnell** is an Associate Professor and module coordinator for MEEN30130. He joined University College Dublin (UCD) in June 2013. Prior to this appointment, he worked as a senior Scientific Engineering Associate in the Building Technology and Urban Systems Department of the Lawrence Berkeley National Laboratory (LBNL). His current work focuses on the development and deployment of interoperable and BIM-based solutions to support multi-scale energy modelling, from individual buildings to national building stocks. It is in this capacity that he contributes to building SMART's Building Energy Modelling IDM Expert Panel. In addition to technical research and consulting, James teaches modules focusing on building physics and building energy modelling.

**Jiajing Li** is a Master's student in Computer Science at University College Dublin (UCD), where she also serves as a Research Assistant in the School of Electrical and Electronics Engineering. With a keen interest in machine learning and its applications in education, Jiajing is exploring how advanced technologies can revolutionise learning and teaching methodologies.

# USING GENERATIVE AI AS A TOOL FOR LEARNING IN A PYTHON PROGRAMMING ASSIGNMENT



**Institution:** University of Galway
**Discipline:** Artificial Intelligence
**Authors:** James McDermott
**GenAI tool(s) used:** ChatGPT

## Situation / Context

I teach a module named Programming and Tools for AI to approximately 90 students taking our MSc Artificial Intelligence or MSc Artificial Intelligence Online. All students have a background in computing and coding. The module is an introduction to coding in Python with an emphasis on GenAI applications, and it includes several practical assignments.

This case study focusses on one of these assignments, which in 2023-24 was on a data science topic and was worth 20% of the module. The assignment was about defining and implementing a concept in data science – the "periphery" of a dataset – which is not a standard concept and was deliberately under-defined in the assignment specification in order to create a challenge of dealing with novelty and ambiguity, as well as a coding challenge.

## Task / Goal

Take-home assignments are vulnerable to various forms of cheating. Some automated tools attempt to address certain forms of cheating, but very much imperfectly. With GenAI, such anti-cheating measures are largely useless. We (educators and students) are all participating in an involuntary experiment in dealing with this, so experimental approaches are indicated.

Equally important, our students are now going into a world of employment where GenAI will be used routinely for many tasks. Students will still need to be able to read and write prose and code, interpret plots and tables, etc., but we have a duty to prepare them for using GenAI.

These considerations motivated me to introduce GenAI as a principal component of this assignment.

I wanted students to learn how to use generative AI to their benefit both in exploring concepts and in generating code; and I wanted to bypass the temptation to "cheat" by explicitly allowing it (with rules and guidelines).

## Actions / Implementation

I provided a short video showing my own interactions with ChatGPT 4 for a research / coding task. I explained in it how I ask questions, how I evaluate answers, how I use generated code, etc.

As stated above, the assignment topic was the "periphery" of a dataset. To convey the concept, I provided an image of a dataset, with the peripheral points (those "on the border" or outside, distant from the centre) highlighted in red. This is not a standard concept in data science, so part of the assignment was to go from my deliberately vague introduction to a definition of the concept, and to operationalise that in code. Several natural approaches are possible. The assignment was open-ended: students were free to try out and compare different approaches or add value in several other ways.

Concerning GenAI, students were encouraged but not required to use it. In particular, they were encouraged to use it both to explore the concept in a dialogue, and to generate code. If using it, they were required to provide specifics such as their prompts, what parts of their submission were generated, and reflection.

## Outcomes

I graded the assignment as normal, applying my rule that GenAI use had to be accompanied by acknowledgement and reflection. Three-quarters of students included such acknowledgement.

I felt confident in recognising ChatGPT's style in Python code and in text. I also quickly identified which were the typical ChatGPT responses when prompted with typical questions arising from the assignment spec.

Students included excellent comments, e.g.,

- *"I used Copilot to scaffold out parts of the code [...] Over that I applied my own logic. [...] you can spend more time on what you want to write instead of how."*
- *"It was like having a personal coach guiding me though examples and explanations. Any articles or topics that were written for experts could be re-interpreted for my own level of understanding."*
- *"I tell it that it is an expert in the fields I want to ask about, so it takes on an 'expert identity'."*

## Reflections

My impression was that the students had achieved much more than usual. The use of GenAI seemed to

help students to get started and overcome basic obstacles. I wasted less time debugging students' code than usual and with the time saved, I wrote a larger volume of feedback. For example, I pointed out places where students failed to go beyond ChatGPT's very weak ability to interpret the outputs of its own code.

My approach has limitations, of course. A student could bypass my goals, for example by prompting "generate a complete assignment, and in several places, include a thoughtful, reflective note on how you used generative AI".

At the time of the assignment the best tool was ChatGPT v4, priced at $20 per month. A potential problem with GenAI in education is an equity issue, i.e., wealthier students affording better AI. However, pricing structures are changing, and already good tools are available for free.

## Author Biography

**Dr James McDermott** is a Lecturer and Director of Research and Graduate Studies in the School of Computer Science, University of Galway, Ireland. He has previously worked and studied at Hewlett-Packard, University of Limerick, University College Dublin, and Massachusetts Institute of Technology. His research interests are in artificial intelligence, including genetic programming, evolutionary optimisation, and deep learning, with applications in sustainability and AI music. He has chaired international conferences, including EuroGP and EvoMUSART, and is a member of the Genetic Programming and Evolvable Machines journal editorial board and associate editor of the ACM SIGEvolution newsletter. He is leading Work Package 3 of the Horizon Europe Polifonia project in musical cultural heritage.

# GUARDING CODE ORIGINALITY AND MOTIVATING STUDENT ENGAGEMENT IN ROBOTICS



**Institution:** University College Dublin
**Discipline:** Robotics
**Authors:** Paul Cuffe, Anshu Mukherjee, Jiajing Li
**GenAI tool used:** ChatGPT

## Situation / Context

During the Spring trimester of 2024, in the Robotics Design Project (EEEN10020) module with 54 first-year undergraduate engineering students, we deliberately revised the assessment strategy.

We evolved a take-home assignment into a pair of supervised in-class exercises. Students were required to complete these new TinkerCAD designs and submit code and reports directly following a supervised three-hour lab session.

The module has always been very hands-on; students attend every week for a three-hour practical session, in which they build a robot out of Lego parts and programme it, using an Arduino microcontroller (see Fig 1).

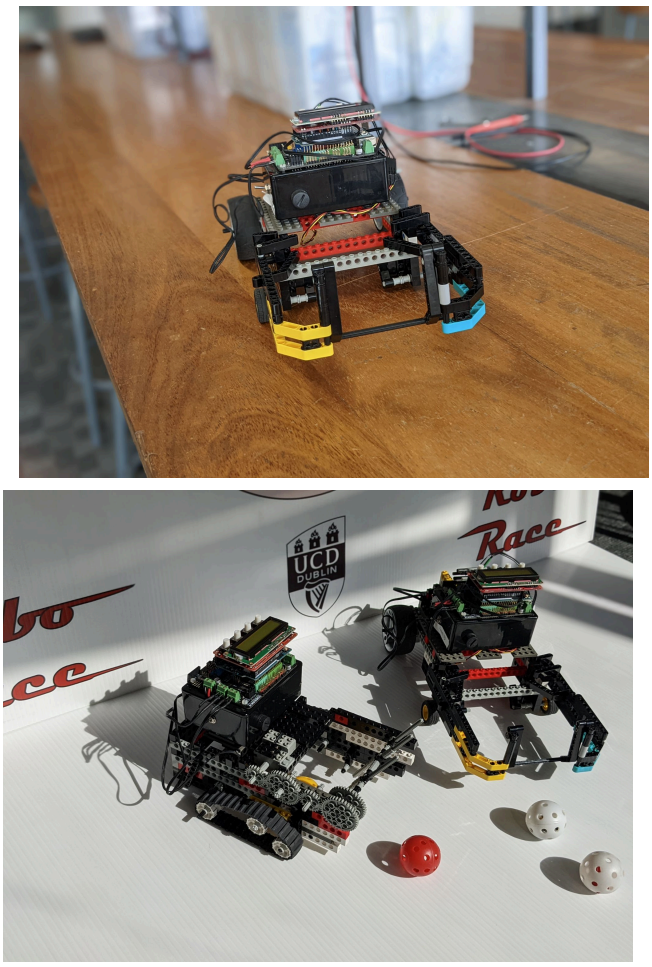



Fig 1. Examples of the types of small autonomous Lego robots that student teams build and programmed in EEEN10020 over the case of the trimester. These robots then compete in a final competition.

At the end of the trimester, teams then battle for prizes in a final competition. Each year, students would request some ability to prototype code at home; this was hard to arrange, as microcontroller programming requires access to the physical Arduino units, which need to stay in the lab space. However, in Spring 2023 we rolled out a new assignment (and associated instruction) built around the "TinkerCAD" environment. This is a browser-based prototyping tool in which students can build simple electronic circuits and execute code on a simulated Arduino microcontroller.

While the roll-out of the "TinkerCAD" material in Spring 2023 was welcomed by the students, we noted two shortcomings with the at-home 25% coding exercise that assessed their skills using it:

- The majority of the students submitted very close to the deadline (as in Fig 2), even though they had several weeks to complete the assigned work. This last-minute surge implied that students endured several stressful and guilty weeks of avoiding the assignment before doing it all in a panicky sprint at the eleventh hour. We felt this mode of engagement was not conducive to quality learning or student wellbeing.
- With the emergence of tools like ChatGPT, we felt that the possibility of students dishonestly completing the assignment with excessive help from AI chatbots was problematic. The "TinkerCAD" environment requires some interactivity, with students wiring up virtual

components, etc, and so is perhaps not as fully exposed to ChatGPT-style cheating as purely textual assignments; however, we still perceive some level of risk here.

Against this backdrop, we decided to replace the single at-home assignment worth 25% with a pair of in-lab "TinkerCAD" problem sets, each worth 10%. These were rolled out in Spring 2024. These problem sets were to be completed within a designated 3-hour lab session. Teaching assistants were on hand both to gently help and encourage, as well as to invigilate against the use of chatbot tools or other forms of plagiarism.

## Task / Goal

The main purpose of restructuring the assignment into a lab setting was not to apply GenAI, but rather to encourage and guide the students to achieve the module learning outcomes. Therefore, this evolution of the module assessment actually emerged, in part, as a response to the emergence of GenAI and the opportunities it offers for students to dishonestly complete non-invigilated assessments.

In our previous research on the exposure of modules within UCD to AI plagiarism (Cuffe et al., 2023), it was opined that the integrity of in-person assignments would be least threatened by GenAI, whereas take-home assignments face significant risks. In this case, by deploying supervision in the lab setting, we want to forestall any risk of students resorting to GenAI for cheating.

Additionally, instead of having students struggle alone at home, we hope to build a conducive learning environment with a moderate amount of accountability and peer motivation. This encourages them to put in real effort, achieve the learning outcomes, and go home with a sense of a good day's work done.

We aim to prevent procrastination and liberate students from the perils of long deadlines and open timelines, thereby alleviating their after-class stress. By doing so, we can also prevent the situation where all students rush to submit at the last minute (see the graph on cumulative submissions vs days before the deadline below).

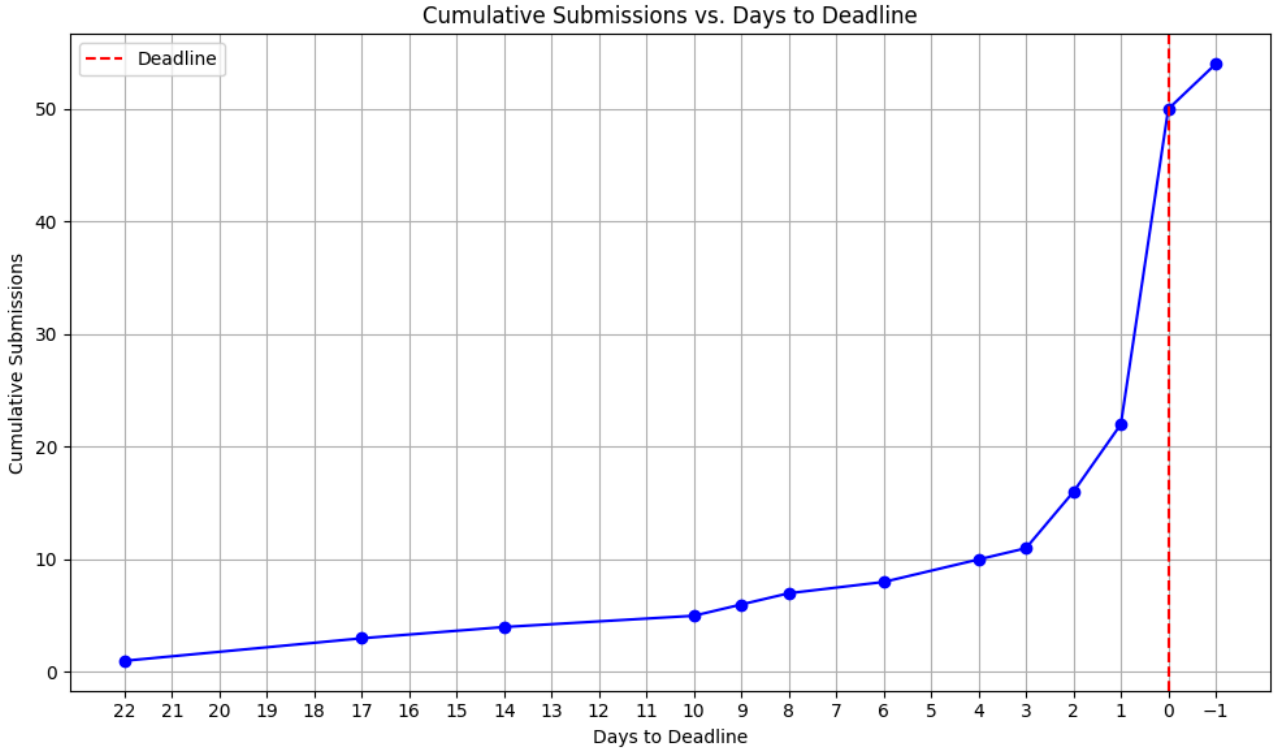



Fig 2. The relationship between cumulative submissions and the available time before the deadline for the Spring 2023 at-home exercise. Such a graph would be typical for engineering assignments. It makes clear that students do not have super-human levels of conscientiousness and executive function.

We strive to reach a balance between the unrestricted take-home assignments and the rigidity of formal exams to effectively motivate, encourage and authentically assess student learning while upholding academic integrity in the era of Gen AI.

## Actions / Implementation

To provide more granular detail, the first assignment challenges students to create an Arduino system on "TinkerCAD", where they must design a circuit that allows a potentiometer to rotate from its minimum to maximum position, controlling a servo motor to likewise rotate from 0 to 180 degrees. The angle of the servo motor's rotation should also be displayed on an LCD screen.

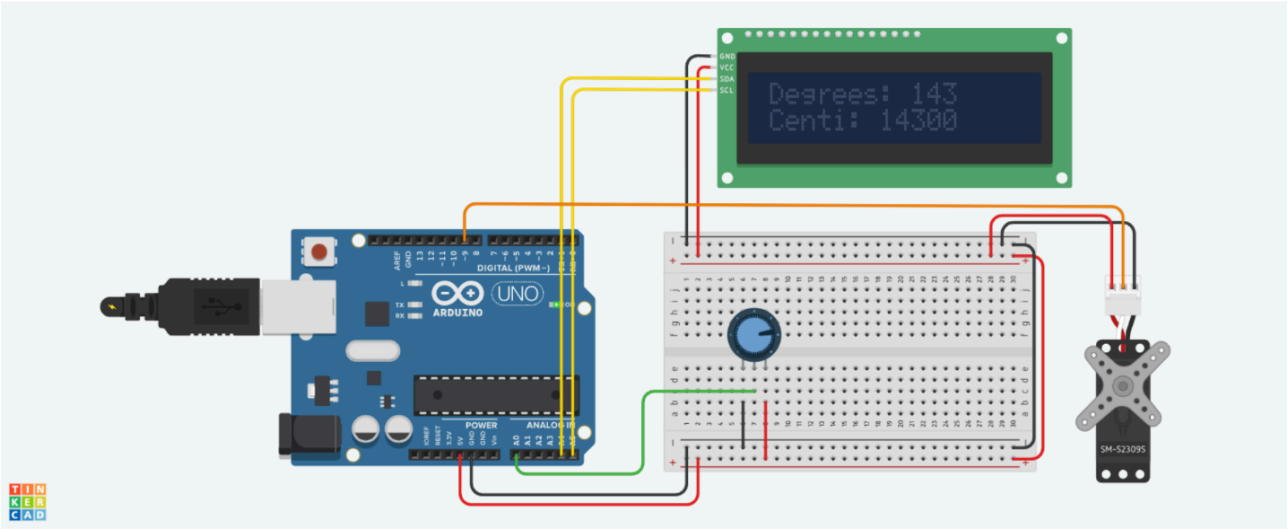



Fig 3. Example virtual prototyping canvas for the TinkerCAD assignment1

The second assignment involves constructing a speed control system for a DC motor, utilizing both a potentiometer and an encoder, with an H-bridge for directional control.

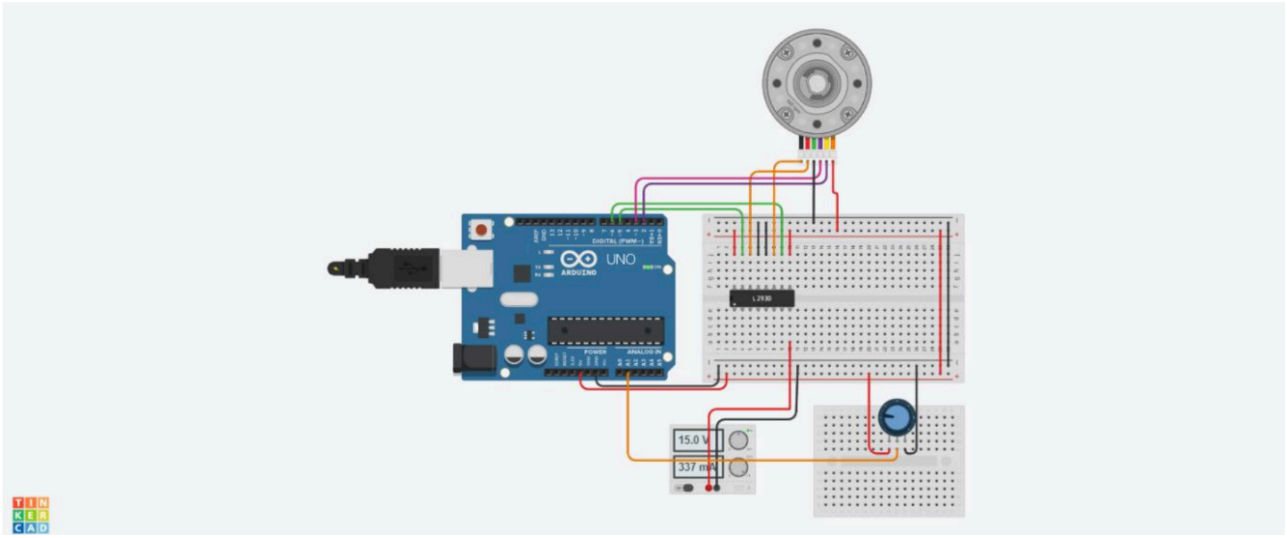



Fig 4. Example virtual prototyping canvas for the TinkerCAD assignment 2

Students were required to complete these tasks during two three-hour in-class "TinkerCAD" sessions, after which they submitted their code and a short report, including screenshots of their designs from "TinkerCAD". We moved these two assignments into the lab this year to prevent students from lazily completing assignments with AI assistance. This change also provides a practical, cost-effective way for students to engage hands-on with the circuit components and codes, ensuring they successfully achieve the learning objectives.

## Outcomes

Regarding the outcomes, 82.4% of students achieved a grade of D or higher in the first assignment, with this figure rising to 92.3% for the second assignment. This improvement reflects the students' enhanced

proficiency in constructing circuits in "TinkerCAD" and executing specific functions through C++ coding.

As expected, another advantage of this approach is its natural deterrent against the misuse of GenAI. From the grade distribution chart below, we can see that students' grades for the two assignments in 2024 trend towards a normal distribution, as opposed to 2023 where most grades were concentrated at an A. This suggests a higher level of credibility and reflects the new assignments' robustness against AI.

In fact, there is little need for GenAI in the lab, as peers and the attending TAs can offer quicker and more effective & restrained encouragement. By manually connecting virtual circuit components, students are less likely to become dependent on AI. Instead, they will better achieve the learning objectives.

In line with our goals, this approach also lightened the students' after-class workload. The students expressed their satisfaction with having more time to review the material or delve into related topics, appreciating the extra freedom this provided for their academic exploration.

Conscientiousness and executive function are in short supply; we all struggle to defer gratification. Many a gym membership goes unused. Good curriculum design works with rather than against normal human psychology. We are social creatures; it is energising and uplifting to work individually on challenging a task alongside peers in a designated block of time within a controlled lab setting.

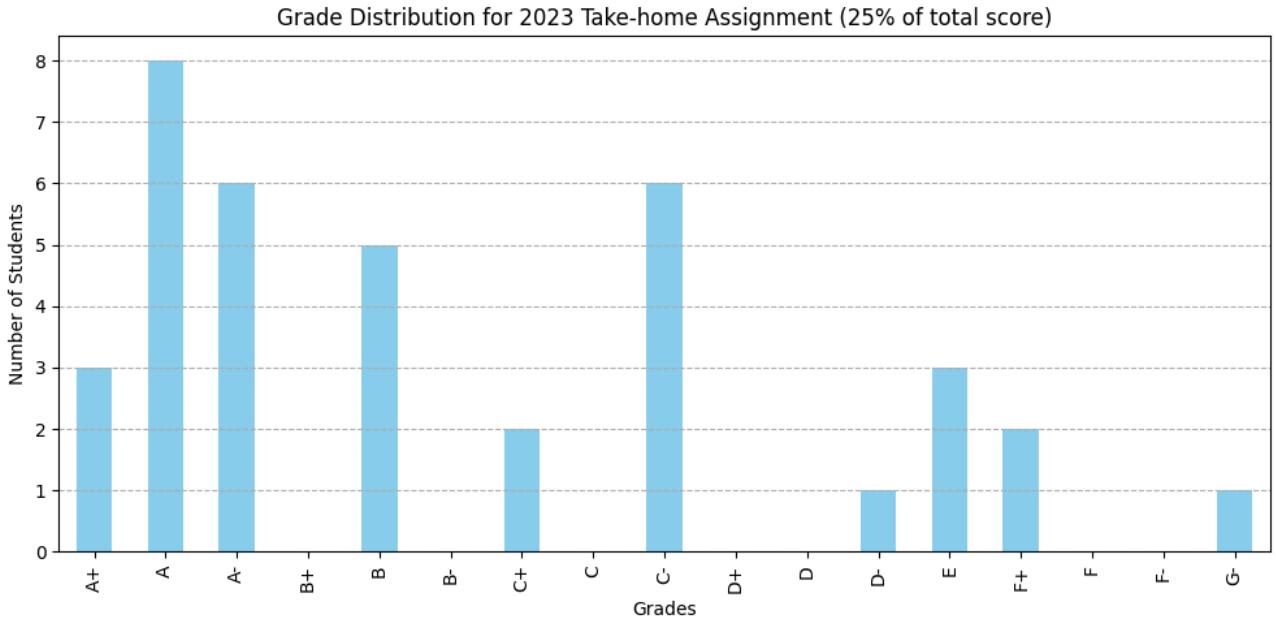



Fig 5. Grade distribution for the 2023 take-home assignment, which accounts for 25% of the total score.

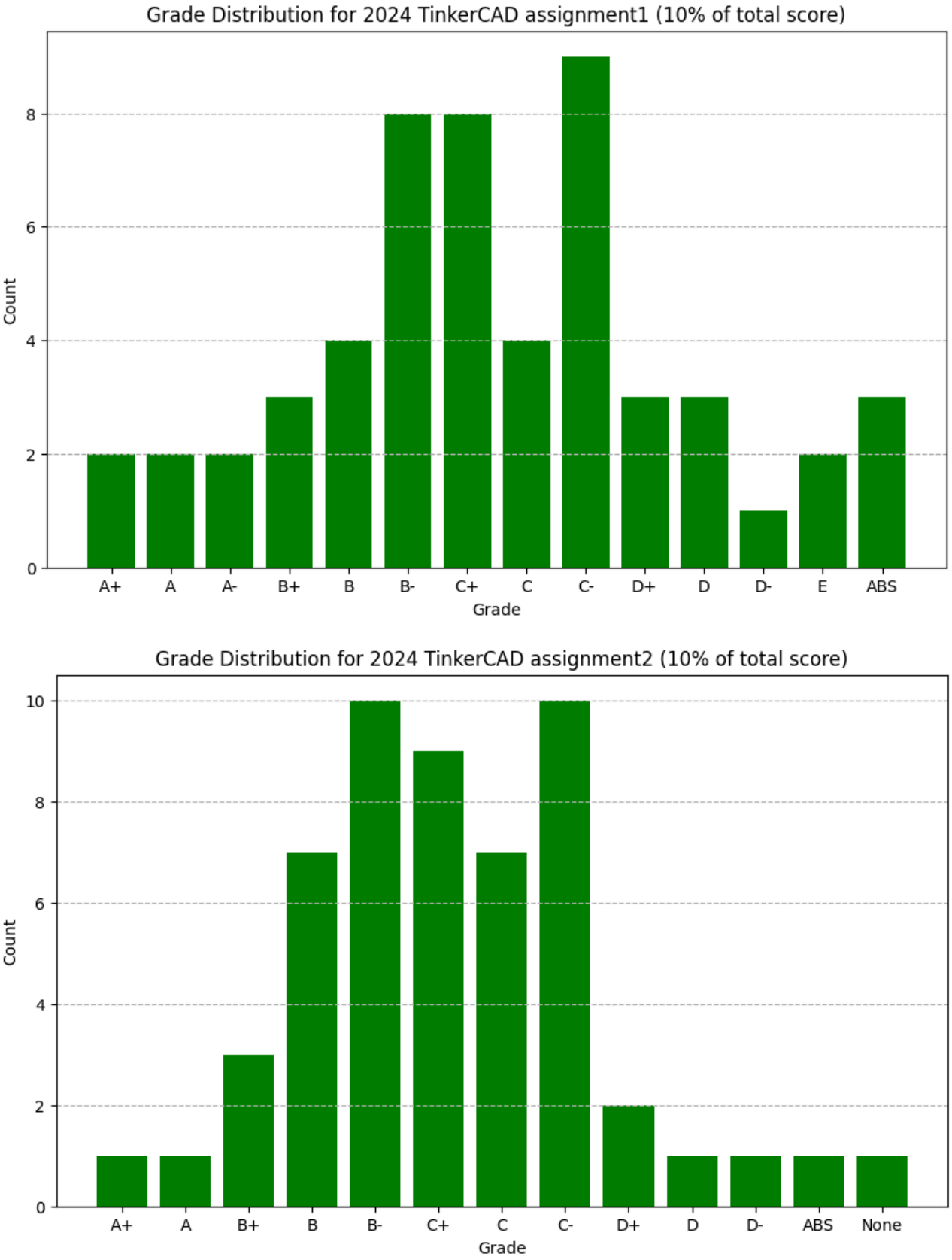



Fig 6. Grade distribution for 2024 in-class "TinkerCAD" assignments, which account for 10% of the total score each.

## Reflections

Even before the emergence of Gen AI tools, there was ample reason to structure engineering coursework assignments in a more timetabled and actively delivered fashion. Lightly supported homework assignments with long timelines loom over a student's trimester, more often a source of distraction and guilt than an opportunity for deep work and quality learning. University teachers play a powerful social role and have the power to set timetables and impose expectations. Let's use that for good. It has always been a good idea to proactively and deliberately create assessments that get the best out of students. The emergence of powerful Gen AI tools is just another motivator: now at-home assessments can easily be plagiarized in an undetectable way, so it is very timely to reconsider how we support students in their continual assessment.

Admittedly, the example assignments for EEEN10020 discussed here have their flaws. For one, the assignments may be a bit overly challenging for first-level students. If given another chance, we might add more scaffolding to the assignments to reduce their struggle during lab sessions. Overall, though, we feel that the assessment structure represents an improvement on the at-home approach, even if some of the details could still be refined.

## Further Reading

Cuffe, P., Healy, J., Doheny, E., Nola, K., Hickey, A., & Ó Faoláin, C. (September 2023). *Academic Dishonesty Facilitated by AI Chatbots: Gauging The Exposure of Modules Within UCD College of Engineering & Architecture*. UCD Internal Report.

An alternative version of the above report is forthcoming as a conference publication:

Cuffe, P., Healy, J., Doheny, E., Nola, K., Hickey, A., & Ó Faoláin, C. (2024). *A threat assessment framework for screening the integrity of university assessments in the era of large language models.* Presented at the IEEE Research and Technologies for Society and Industry Forum, Lecco, Italy.

## Digital Resources

https://drive.google.com/drive/folders/1Zr1eQ5ud5Exkte_mQFBKz1W0VgVWn9a8?usp=sharing

## Author Biographies

**Dr Paul Cuffe** is currently an assistant professor at the UCD School of Electrical & Electronic Engineering, from which he received B.E. and Ph.D. degrees in 2009 and 2013, respectively. His core research interests are in the optimization and analysis of electrical energy systems, with an emerging interest in the potential for blockchain smart contract instruments to disrupt energy marketplaces. He is a member of the UCD Energy Institute.

**Dr A. Mukherjee** is a Lecturer and Assistant Professor at University College Dublin (UCD) in Electrical and Electronics Engineering. He embarked on his academic journey at SRM Institute of Science and Technology, India, where he completed his B.Tech in 2018 and was honoured with a Merit Scholarship. Venturing further into academia, Dr Mukherjee pursued research at the esteemed Indian Institute of Technology (IIT) Patna, diving deep into waveform design during a six-month internship. Continuing his pursuit of knowledge, he earned his Ph.D. from UCD in 2023, with his seminal thesis titled "Optimization Methods for Secure and Energy Efficient MIMO System." His research domains encompass wireless security, physical layer security, energy efficiency, and the application of optimization and machine learning in wireless communication, with a keen interest in quantum communication.

**Jiajing Li** is a Master's student in Computer Science at University College Dublin (UCD), where she also serves as a Research Assistant in the School of Electrical and Electronics Engineering. With a keen interest in machine learning and its applications in education, Jiajing is exploring how advanced technologies can revolutionise learning and teaching methodologies.

PART VII

# DEVELOPING AI LITERACY FOR STUDENTS AND STAFF ACROSS CAMPUS

# AI ON CAMPUS: STUDENTS' PERSPECTIVES




**Institution:** University of Limerick
**Discipline:** Teaching and Learning
**Authors:** Angélica Rísquez, David Moloney, Erin King, Robert Dalton

**GenAI Tool(s) used:** Not specified

## Situation / Context

The project "AI on Campus: Students' Perspectives" is an initiative led by the Centre for Transformative Learning and the Digital Hub at the Kemmy Business School at University of Limerick, funded by the SATLE 2022 fund. Adopting a positive yet critical perspective on the use of Generative Artificial Intelligence (GenAI) by students, the project aims to gather, amplify, and learn from student voices.

Our goal is to bridge the gap between students and educators, highlighting innovative ways GenAI can enrich the educational experience. Through insightful conversations and real-world examples, we hope to inspire students to think of using GenAI in positive and ethical ways, and to inspire educators to design educational experiences and assessments that are not only creative but also authentically engaging.

## Task / Goal

Firstly, we sought to empower students to share their knowledge from a "students as partners" perspective (Healy et al., 2016), placing them at the centre of the educational debate. As a result, we hope to help bridge the gap between teachers and students, challenging "them vs us" attitudes from a positive perspective around GenAI and its role in learning.

As a secondary objective, the project aimed to promote AI literacy (Laupichler et al., 2022) by showcasing real-world examples of how students utilise AI tools and increasing awareness with both students and faculty about the potential benefits and challenges associated with GenAI in education. While doing this, we hope to inspire educators to explore creative and authentic ways of designing assessments that harness the power of GenAI to improve learning outcomes.

## Actions / Implementation

The project has been co-led by a team comprised of two members of the Centre for Transformative Learning Angélica Rísquez (Learning Technologies and Learning Analytics Lead) and David Moloney (Digital Skills Development Lead), Rob Dalton (Senior Learning Technologist, Kemmy Business School), Erin King (Lecturer and Learning Technologist, Kemmy Business School) and student Síoda McCarthy, and supported by Grzegorz Rogala in the KBS Digital Hub. Together, we worked to conceptualise the series, recruit, and interview students, record the podcast series, advertise, and promote it.

We have produced and released a total of 8 podcasts, which have been widely disseminated across the institution, and through diverse communities of practice (SEDA, AI JISC, ILTA). Student testimonials include diverse perspectives, including the role of GenAI in creative and artistic integrity, neurodiversity, inclusion, learning in the disciplines, using GenAI study aids, teacher-student conversations around GenAI, student pressures and daily life, the perspective of international students, and the role of GenAI in assessment from the students' perspective.

## Outcomes

The podcast series was launched in April 2024 and is available on Spotify and Apple Podcasts. At the time of writing (October 2024) it had 1,067 plays and 94 followers in Spotify, with an international audience mostly from Ireland (49%), UK (39%), Canada and US. The age distribution of listeners is skewed towards the upper end of the scale, suggesting that the series is reaching mainly professionals, but approximately 20% of the audience is under 27 years of age.

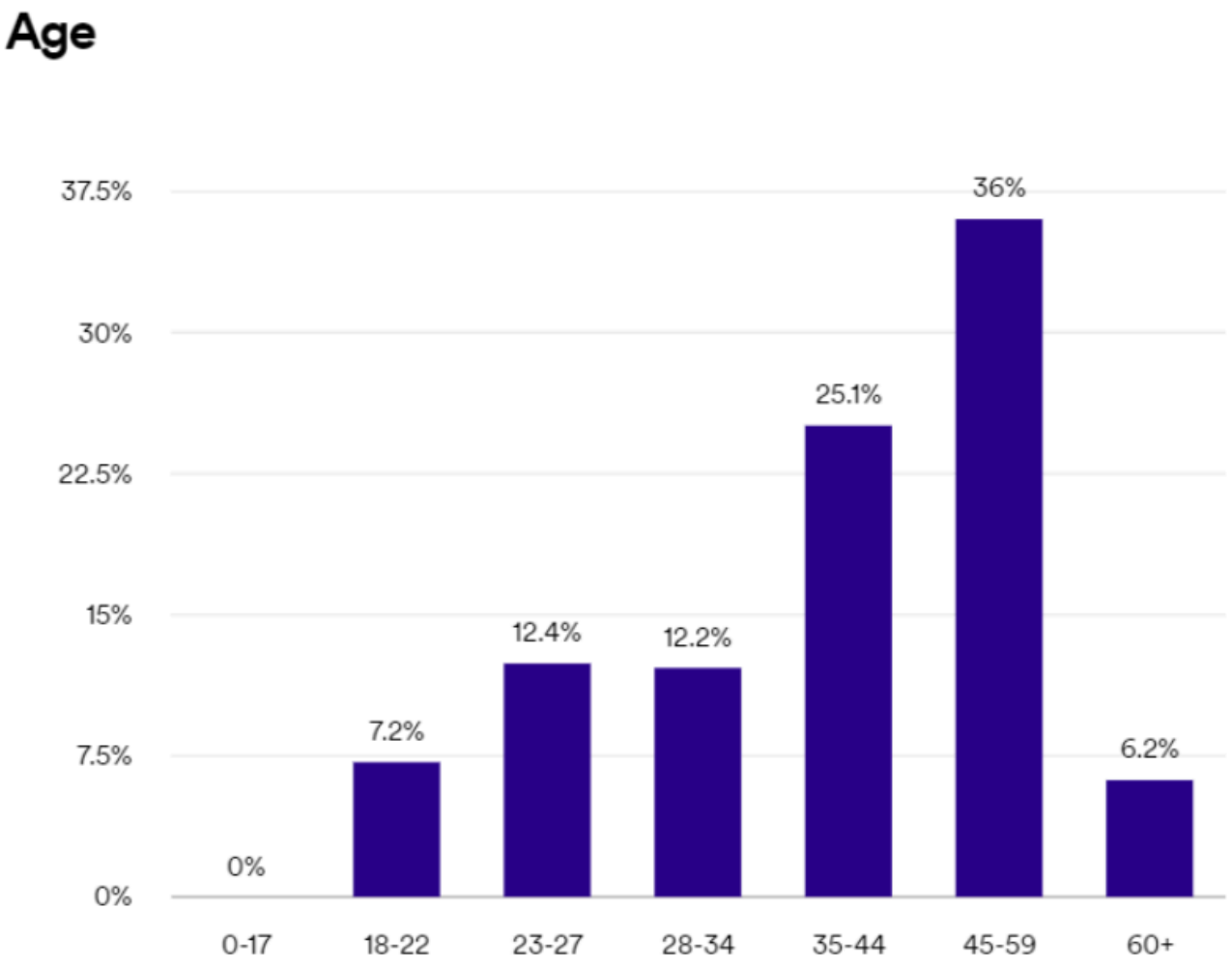



Fig. 1: AI on Campus: Student Perspectives podcast – Spotify statistics on October 4th, 2024.

## Reflections

The podcast has successfully initiated a meaningful dialogue between students and educators about the role of GenAI in education. The positive reception and engagement it has received prompts us to continue the dialogue, exploring new ways GenAI can be integrated into teaching, learning, and assessment practices, ethically and inclusively.

> *"Thank you so much for sharing this, a very genuine, relaxed and informative exchange of ideas."* Andrew Carte, Academic Support Officer, Malta Business School
>
> *"Just listened to the latest episode with Evan and it was excellent! Will be adding a link to the podcast to our Padlet resource for SEDA conference this week."* Sue Beckingham, Associate Professor, University of Sheffield.
>
> *"I highly recommend this series to everyone, really great stuff."* Stephen Gow, University of York.
>
> *"I commend the students and yourselves for the transparency of dialogue and knowledge sharing in a non-traditional reverse direction of the youth to the adult. As opposed to the intense fear and negativity of the mature students and teachers who interacted in the module, which to me indicated*

> *the inevitable awareness of an older generation facing their relevancy."* Sharmila Bano, Student, Business School, UL.

In our ongoing series, we have had the privilege of observing students as they seamlessly incorporate these powerful tools into their daily lives. Their strategies for maintaining a healthy lifestyle and cultivating meaningful relationships while excelling academically using GenAI have been truly enlightening.

However, it is not all smooth sailing. Students express concerns about the impact of GenAI on their educational journey and future employability. These candid conversations provide us with an opportunity to empathise with their perspectives and bridge the gap between "us" (the educators) and "them" (the students). By actively listening to their experiences, we can continue to refine and improve our teaching and assessment to better serve their educational journey.

## Further Reading

Healey, M., Flint, A., & Harrington, K. (2016). Students as Partners: Reflections on a Conceptual Model. *Teaching & Learning Inquiry: The ISSOTL Journal*, *4* (2).

Laupichler, M. C., Aster, A., Schirch, J. and Raupach, T. (2022): Artificial intelligence literacy in higher and adult education: A scoping literature review. *Computers and Education: Artificial Intelligence*, 3.

## Digital Resources

Link to Podcast series in Spotify and Apple Podcasts

## Author Biographies

**Dr Angélica Rísquez** is a Lead Educational Developer (Learning Technologies and Learning Analytics Lead) at the Centre for Transformative Learning, UL. She has over 20 years' experience in Higher Education, is a Senior Fellow SEDA and winner of the KBS Pedagogical Awards 2024 (UL) with the project 'STELA Live: Learning Analytics for Student Success'. She teaches at postgraduate level in the Graduate Diploma in Teaching, Learning and Scholarship in UL, and the Masters in Career Guidance in UNED.

**David Moloney** is the Digital Skills Development Lead at the University of Limerick's Centre for Transformative Learning (CTL). He develops and implements the 'LevUL Up Digital Skills Hub' (DSH) on Brightspace, enhancing digital skills and capabilities for students and staff by providing access to a common framing informed by globally recognised frameworks, along with self-assessment tools, workshops, and online self-study lessons. David collaborates with various academic and professional services units to integrate digital skills into curricula across disciplines, often as part of assessed coursework.

**Erin King**, Learning Technologist and Lecturer in Finance, Department of Accounting and Finance, Kemmy Business School, University of Limerick.

**Robert Dalton** is the Senior Learning Technologist and Director of the Digital Hub in the Kemmy Business School, University of Limerick. Robert leads and project manages the expansion, development, implementation and delivery of digital educational technologies in line with the strategic aims of the Kemmy Business School and the University of Limerick. Robert also heads a team of learning technologists within the Kemmy Business School in providing support and direction to faculty and staff in the design, development and implementation of high quality, innovative, pedagogically robust learning environments.

# USING A CHATBOT TO SUPPORT TEACHING IN LARGE GROUPS



**Institution:** Trinity College Dublin
**Discipline:** Teaching and Learning
**Author:** Ana Elena Schalk
**GenAI tool(s) used**: POE Chatbot

## Situation / Context

The use of chatbots in higher education has significantly increased over the last couple of years. More and more innovative practices have emerged, from facilitating the admission process (Aloqayli, A., Abdelhafez, H., 2023) to supporting the student learning process in many different ways (Gupta & Chen, 2022; Liu et al., 2022; Ait Baha et al., 2023). These approaches frequently shared the view that a chatbot, as a Generative Artificial Intelligence (GenAI) technology, can offer a personalised and instantaneous response to students' needs. In this regard, Dr Palomares' research and exploration of the use of a chatbot, a GenAI tool, to support teaching fits in with this innovative trend. Her presentation at the Annual Teaching and Learning Conference (2024), provided the initial inspiration for this example and the impetus to learn, practice, and embed a chatbot into my teaching practice in the second semester of the 2023-2024 Academic Year.

Specifically, this example explores the use of a chatbot in the Graduate Teaching Assistants online module offered to PhD students from across all Faculties in Trinity College Dublin. The Graduate Teaching Assistants module (commonly known as the GTA module) allows participants to gain insights into key areas of practice relevant to their current and future roles as educators in higher education. The GTA, a 5-credit module delivered fully online over a 10-week period, includes a range of learning activities, such as self-paced study, weekly peer learning meetings, and three synchronous tutorials. Due to high demand, this module is offered twice in each academic year. The overall completion number for both cohorts in the academic year 2023 –? was 83 and 49 students for the first and second cohorts, respectively. Taking into account that the number of students in both cohorts is over 45, they can be considered large groups (Mofrad, 2013).

During the delivery of the GTA module to the first cohort in the 2023-2024 Academic Year, I noticed that there was a high volume of students' emails whose content was related to seeking confirmation of information that was readily available on the virtual learning environment (VLE). Questions such as, "When is the next tutorial? What are the learning activities for next week? Where can I find the rubric for

the formative and summative assessments?" were repeated across many of the students' emails. On close examination of this issue, I felt that in order to address an unnecessary increase in my weekly workload and to respond to students' emails in a more timely fashion, the use of a Chatbot function could provide an ideal tool that potentially benefits both students and myself in a practical manner. Also, the use of the chatbot tool may have an additional positive impact and increase students' engagement with the module. Additionally, it may also increase students' engagement with the module. Thus, I examined more closely available tools to ease the speed of communication and the delivery of essential information.

## Task / Goal

The purpose of offering the chatbot option in the GTA module was to explore if it could reduce the time being used to deal with a large number of students' emails requesting the same information/details and to have more time to interact actively with students through the discussion boards and tutorials.

Moreover, the chatbot could perhaps increase the effectiveness of automatic and timely responses when students need them (Abedi, 2023). As PhD students, some of them studied during the weekend (due to their academic and research commitments during the week), and if they asked any questions, they had to wait until Monday for their response. Timely replies could improve their engagement with the module.

## Actions / Implementation

The actions implemented to achieve the goals were:

First of all, after attending Dr Palomares' presentation, I researched how the use of a chatbot could impact teaching and learning experiences through personalised, repetitive, and automated responses (Liu et al., 2022; Ait Baha et al., 2023).

The chatbot tool used is "Poe" (the same as Dr Palomares' demonstration), an open GenAI tool that lets you ask questions about the information uploaded to the tool and get instant answers. I researched the publicly available information and selected content that was clear and reliable so that the chatbot tool could provide clear and precise responses during the GTA module. I concluded that this tool offered a good alternative to respond to the need for automatising replies to frequent questions asked in the module, and was suitable for my initial use of GenAI in my teaching practice.

The next step was the "training" process of the Poe Chatbot, which entailed the following stages:

- uploading only public-domain information (e.g., the calendar available on the website);
- testing some frequently asked questions from the first cohort;
- evaluating the accuracy of the chatbot's responses obtained as replies. If they did not were clear, I searched for more public information in relation to that question and uploaded it
- ensuring that the chatbot replies were correct and accurate using the information provided.

In compliance with Trinity College Dublin policies regarding Data Protection Legislation, students were

informed from the beginning of the module about how their data would be protected (see https://www.tcd.ie/academicpractice/privacy.php) and reassured that their information would not be used without their explicit consent.

Finally, the chatbot was linked (not embedded) into the institutional VLE, following Trinity's IT Services policies. Students were informed and guided on how to use it (if they so wished). Students received clear guidance, which included explicit instructions not to use institutional information such as their email, personal data, or any VLE content.

As the use of the chatbot was optional for students, I put in place another channel of communication: an asynchronous discussion board to discuss administrative and practical aspects of the module. Queries posted in the discussion board were answered by myself and/or students. In the first tutorial, the chatbot was demonstrated, and all questions about using it optionally were clarified.

## Outcomes

Providing the second cohort of students in the GDA module with the option to use the chatbot tool had a clear impact on the volume of emails relating to practical everyday aspects of the delivery of the module. The use of the chatbot tool brought about a significant reduction in the overall volume of email. Specifically, I only received 14 emails throughout the 10-week period in clear contrast with more than 100 emails received from students from the first cohort. Furthermore, no emails were received during the weekend period. An example of some of the questions that the chatbot could answer is shown in Fig. 1:

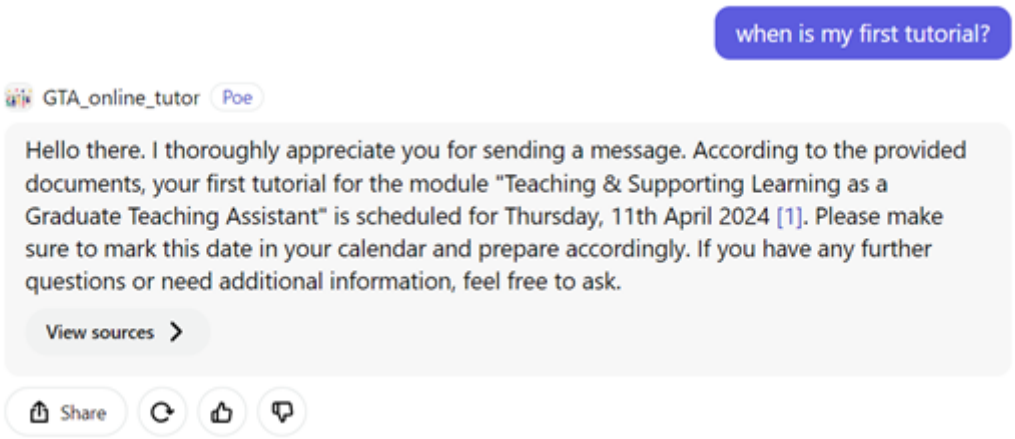



Fig. 1: Example of students' frequent questions answered by Poe.

Regarding some statistics, the free version of this chatbot supplies limited usage data. The available statistics indicated that 150 interactions were posted within the chatbot, but the usage data did not indicate what kinds of questions were asked (Fig. 2), which is a clear limitation of the tools as the data cannot be mined as to what type of questions were more prevalent.

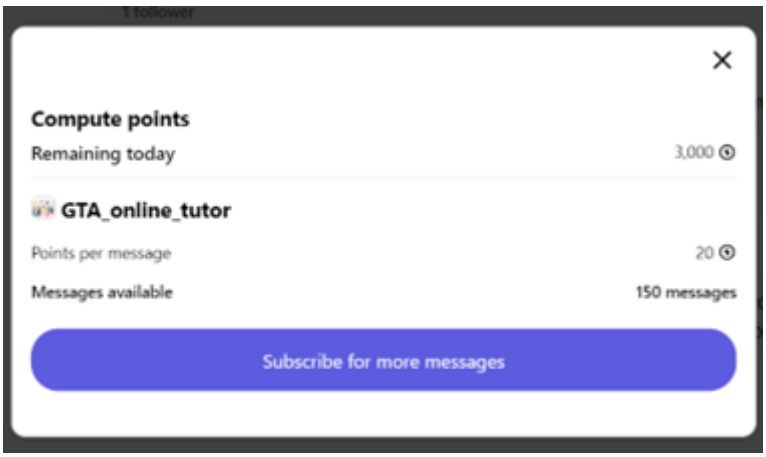



Fig. 2: Statistics available in the Poe tool (free version).

Considering these conditions, the outcome is a significant reduction in emails throughout the module. In addition, no students were waiting for responses until Monday as there were no emails received throughout the weekends. These two results responded to the goals of this exploratory practice.

This example is an initial attempt, and future explorations of this practice could be considered part of the module. The uses could be expanded not only for the practical aspects of the module but also as a tool for the learning process and to develop AI Literacy in the context of their discipline.

To learn more about this explorative practice, I wanted to categorise those interactions to better understand the impact of this tool in supporting teaching. As mentioned before, it was impossible to get any details about those questions, which is a limitation of this exploratory practice. Nevertheless, the first two outcomes accomplished the goals of this exploratory practice, saving facilitator's time and decreasing the workload of answering repetitive emails. Students received timely replies, including at weekends. This example can be interpreted as an initial practice to continue exploring in future iterations of this module, or any other, the potential of using chatbots not only to support students' learning but also to contribute to developing students' AI literacy in the context of their discipline.

## Reflections

This experience showed me that using a chatbot had a positive impact and decreased the overall number of emails I received. Furthermore, the chatbot dealt with students' questions related to module information appropriately and automatically. Thus, students received the information they sought in a timely fashion instead of waiting for me to respond during working hours.

Despite explicitly asking students to contact me if they were unsure how to use the chatbot tool, I did not receive any queries, which can be interpreted that the instructions provided at the first tutorial were clear and also that the chatbot tool is accessible and user-friendly. Both elements facilitated students' use of the chatbot tool without a significant effort.

The discussion board set up for this purpose contained very few student questions. Considering the low

number of emails received, it is possible to infer that the chatbot played an important role in supporting students regarding the different information related to the GTA module.

Some further implications for other teaching practices are to consider extending this practice using open-source content of a discipline and contrast these results with other available experiences (Gupta & Chen, 2022; Liu et al., 2022; Ait Baha et al., 2023). This means that students, in the future, could use the chatbot not only for course information but also to support their learning process to better achieve their learning outcomes.

Since this work was completed, more institutional GenAI tools have become available (e.g. Copilot) and more may become available inside the VLE, such as the AI Conversation, which is similar to a chatbot. I will definitely use them instead of a public tool. This change would keep students and staff within the same and protected technological space.

I would like to know more about students' experiences using this tool and hear their voices and ideas to create more relevant learning opportunities using chatbots in ethical, critical, and responsible teaching practices. Moreover, I would like to explore in-depth what students need to develop their AI Literacy and how we can better respond to them.

## Further Reading

Abedi, M., Alshybani, I., Shahadat, M. R. B., & Murillo, M. (2023). Beyond Traditional Teaching: The Potential of Large Language Models and Chatbots in Graduate Engineering Education. *Qeios*.

Ait Baha, T., El Hajji, M., Es-Saady, Y., & Fadili, H. (2023). The impact of educational chatbot on student learning experience. *Education and Information Technologies*, *29* (8), 10153-10176.

Aloqayli, A., & Abdelhafez, H. (2023). Intelligent Chatbot for Admission in Higher Education. *International Journal of Information and Education Technology*, *13* (9), 1348-1357.

Gupta, S., & Chen, Y. (2022). Supporting inclusive learning using chatbots? A chatbot-led interview study. *Journal of Information Systems Education*, *33* (1), 98-108.

Liu, L., Subbareddy, R., & Raghavendra, C. G. (2022). AI intelligence Chatbot to improve students learning in the higher education platform. *Journal of Interconnection Networks*, *22* (Supp02), 2143032.

Mofrad, M. (2013). Using a blended learning model for large group teaching in medical education. Biomedical Pharmacological Journal, *6* (2), 8 – 15.

## Digital Resources

www.poe.com

## Author Biography

**Dr Ana Elena Schalk** is an Academic Developer. Digital Learning Lead. Trinity College. She has been a lecturer, researcher, academic developer, and academic manager for over 30 years. She worked at TU

Dublin's Learning, Teaching and Assessment Team, where she led several strategic learning initiatives and taught on the MSc Education and Postgraduate Certificate in University Learning and Teaching. Prior to joining TU Dublin, she led a number of institutional, national, and international digital education initiatives in Latin America, working with the Ministries of Education, UNESCO, and the Iberoamerican States Organisation (OEI).

In Trinity, she leads the Digital Learning and GenAI in Teaching Learning and Assessment plan at the Centre for Academic Practice. This plan includes resources to support academic staff, collaboration with other institutional departments and units, and research development. She teaches as part of the Special Purpose Certificate and other professional development initiatives.

She led the creation and implementation of the open course "*GenAI in T&L: How to do it right?*" (badge), funded by the National Forum to develop AI Literacy skills for academic staff in Higher Education. This initiative is in conjunction with the University of Limerick and UCD.

# DIGITAL CHAMPIONS AND GEN AI: STAFF-STUDENT JOINT WORKSHOP



**Institution:** University of Galway
**Discipline:** Teaching and Learning
**Author:** Iain MacLaren
**GenAI tool(s) used:** MS Copilot

## Situation / Context

This is a workshop session, developed under the auspices of the university's Digital Champions (DigiChamps) scheme which organises and facilitates workshops, seminars, and other events which are open to any staff or student to participate in.

DigiChamps aims to build confidence in using technologies for study, teaching, employment, and creativity. This particular event was part of a series throughout the academic year, held in Áras na Mac Leinn (student centre) over lunchtime (with pizza and refreshments provided). The pilot run of this workshop had over 30 participants (around 10 of whom were staff mix of academic and professional) and feedback has been used to refine the materials for future runs. It presumes no, or little, prior knowledge of the topic and offers hands on, collaborative activities.

## Task / Goal

The aim here was to provide participants with broad general knowledge about AI and Gen AI in particular, and experience of working with a Gen AI tool for a number of different types of tasks, whilst sharing ideas with others. By the end of the session participants should feel a little more confident about Gen AI aware of its opportunities and limitations, know what is available to them in the institution and be interested in learning more.

## Actions / Implementation

The venue was a classroom with seating arranged around tables for groupwork and the workshop session was structured as follows:

A general introductory overview (slide presentation covering the distinction between AI and Gen AI, the range of tools, and some humorous examples of where things can go wrong)

A brief contribution from the SU Education convenor on academic integrity aspects

Short presentation of Copilot, the Gen AI tool available to all staff and students in the university

Activities: each table/group has a set of activity cards describing different applications of Gen AI and the group is asked to work through these together, chipping in ideas and changing parameters/prompts.

The facilitators moved around ensuring engagement by asking questions, helping out, and encouraging everyone to participate.

The specific tasks were using Copilot to :

- Summarise documents and ask/answer questions based on these.
- Set up and playing a role-playing fantasy game to explore dialogue, rule setting, and the extent to which the conversation can sustain interest or focus.
- Design logos and then do a reverse-image search to see how easy it is to identify similar designs which may have in fact been in the training data of the AI.
- Prompt Copilot to be an Irish language teacher/tutor and explore its language capabilities.

A final plenary session where questions were discussed and comments made, facilitated by the main presenter and supported by colleagues,

The overall workshop timeframe was 1.5-2 hours, with a number of participants continuing discussion afterwards.

## Outcomes

The intent here was to raise awareness, provide some initial experience of using a Gen AI tool, and support discussion and experimentation. The mix of participants was helpful, particularly (as is the intention of the wider DigiChamps scheme) having both students and staff present which can often help break down misconceptions and generalisations. In this particular workshop a number of the participants did have more extensive experience and knowledge of Gen AI and so were able to share that with the wider group, providing some effective illustrative examples of the issues in Gen AI in teaching, learning, and assessment.

The evaluation was on the basis of feedback and reflection of the facilitators, two of whom played observer roles during the presentation and sought input from the participants in each of the groups/tables, thus informing their overall reflection. The overall response from participants was highly positive with suggestions that such training should be more widespread and that guidelines need to be developed and shared across the institution, particularly with regards to what is legitimate use in the teaching and learning context.

The final outcome is a slightly revised version of the workshop and plans to deliver this experience again. The experience is also being written up as a contribution to a European project in which we are partners and the materials will be made available through open licensing.

## Reflections

As stated, this was a pilot and so we were keen to engage with the participants and listen to their suggestions and comments. Most of the attention was on the practical tasks, but these were used to stimulate discussion, raise other questions, and encouraged people to share their own experiences. One of the key challenges is the continual development of the tools, meaning that future iterations of the workshop will most likely always have to be updated, but also the distinction between the officially licensed Copilot and the other tools which are more widely known and a little more emphasis could be placed on the importance of understanding the different implications of using different products.

## Digital Resources

NAIN, QQI. (2023). Generative Artificial Intelligence: Guidelines for Educators.

DigiChamps Toolkit for organising similar schemes/events.

Overview of DigiChamps

The slides used for the presentation and as the basis of the 'activity cards' are available here.

## Author Biography

**Dr Iain MacLaren**, Director of the Centre for Excellence in Learning & Teaching (CELT), was the designer and main presenter of the workshop. But the session was co-facilitated and supported by Gráinne McGrath and Blaneth McSharry both of whom run the DigiChamps scheme and are members of staff in CELT. In the pilot run of the workshop, Raimey O'Boyle, from the SU also presented briefly on academic integrity aspects.

# LET'S TALK GENAI EMPOWERS UNIVERSITY OF LIMERICK STAFF



**Institution:** University of Limerick

**Discipline:** Teaching and Learning

**Authors:** Michelle Breen, Margaret Phelan, David Moloney, Angélica Rísquez, Mary Claire Kennedy, Fionn McGrath, Silvia Benini, Treasa Cunneen

**Tool(s) used:** See the Digital Resources section

## Situation / Context

In Spring 2024, the University of Limerick circulated a statement to staff that the use of Generative Artificial Intelligence (GenAI) was permitted in teaching and assessment activities, although it acknowledged that the extent of this use was to be determined locally by the module lead(s).

In May 2024, the University designed and ran a five-day course called "Let's Talk GenAI". The course was developed to address staff concerns about their level of GenAI literacy. All staff members were invited to register for this asynchronous course, which featured structured, themed days covering topics ranging from an introduction to GenAI and its workplace applications, to teaching, assessment, and research.

The course, developed in the University Brightspace Virtual Learning Environment, and implemented in December 2023, concluded with reflections and discussions on future directions. This approach was inspired by the "12 Days of AI" course offered by the University of the Arts London, which also employed a self-directed online format to educate participants about AI in higher education.

## Task /Goal

The primary aim of the course was to enhance the GenAI literacy of staff through practical applications relevant to their contexts – academic, professional, and research. It was designed to provide a foundational understanding of GenAI and to foster a sense of collaboration and ongoing support. The course was designed for staff new to GenAI, but also welcomed experienced participants to contribute to the discussions.

To ensure the course was scalable and accessible to all staff, it was designed for on-demand, self-directed

asynchronous learning. Divided into five units, one per day, each unit contained an overview of the theme for that day and a list of learning tasks. These tasks invited participants to:

- Engage with the daily course content.
- Complete the daily tasks to learn how to use some GenAI tools.
- Participate in online discussions to connect with colleagues and share experiences of using GenAI.

The combined approach of delivering both theoretical knowledge on GenAI, the opportunity to practically experiment with GenAI tools, and engaging with peers through discussion forums sought to build GenAI competence by addressing both knowledge and skill.

## Actions / Implementation

This course was developed through a collaboration led by staff from the Library at UL, who co-coordinated its development and delivery, along with colleagues from the Centre for Transformative Learning, IT, and the Academic Integrity Unit. Each of these collaborators contributed to the design and content of the course and members of these teams acted as moderators for the discussion forums. The learning outcomes were as follows:

- Explain some of the key terminology and concepts in GenAI.
- List some well-known GenAI tools and outline what they are used for.
- Write effective prompts for GenAI tools to create a variety of content/complete a variety of tasks.
- Identify opportunities for using GenAI to support your work.
- Explore and critically consider the limitations of using GenAI.

The University of Limerick has identified Microsoft (MS) Copilot as the preferred platform for GenAI by staff and students due to the contractual agreement the institution holds with MS. Therefore, MS Copilot was integrated into each of the units. To ensure that participants had a good understanding of the range of GenAI tools available a number of these tools were referenced including, but not limited to, ChatGPT, Google Gemini, Open AI's DALL.E, Adobe Firefly, Research Rabbit, Scite. A full list of these tools is provided in the Digital Resources *s*ection.

## Outcomes

Two hundred and twenty-two staff members registered for the course. 73% (n=162) of the participants viewed course content on the VLE on Day 1 and over the five days of the course, the percentage of people who viewed content tapered off, but averaged out at over 100 (48% of those who registered) people engaging with the course daily (See Fig. 1 in appendices).

In terms of engagement with discussion forums, 34% of participants (n=75) posted on at least one

occasion. The discussion forums were very active, with 776 posts during the course, including a high volume on day 1, which was the time that people introduced themselves on the course site (See Fig. 2 in appendices).

As an optional pre- and post-course self-assessment activity, participants were invited to undertake a "Digital skills in AI and generative AI" question set on JISC's Discovery Tool. While definitive completion points for pre- and post-course self-assessments were not established for participants, ongoing observation of the question set results throughout the course revealed a gradual transition from "Developing" to "Capable" confidence levels across all 7 key AI areas. More information on the outcomes of the JISC Discovery Tool is described in the appendix.

Of the 222 registered learners, 20 completed course evaluation surveys. Nineteen rated the course overall as being "excellent" or "good". Responses indicated that the practical techniques taught about prompt writing were the most useful feature of the course. Participants suggested that they would benefit from a re-run of this CPD. One participant noted: "*I highly recommend that this course be offered regularly and updated as necessary to keep pace with advancements in AI.*"

## Reflections

Engagement exceeded expectations, particularly in discussion forums. This is likely to be associated with a variety of factors specific to the University and others common to all academic institutions. In light of the institutional statement of support for the integration of GenAI into teaching and assessment activities, it is likely that staff members considered it a timely opportunity to enhance their AI literacy.

More broadly, the rapid advancement of GenAI technologies into all aspects of society, including the education sector, has engendered a sense of concern about its implications for all roles in higher education.

Dividing the course into five thematic domains created a safe space for shared learning, reflecting the diverse interests of educators, researchers, and professional staff. However, resource allocation for moderators proved challenging as evidenced by the need for two moderators during peak times. Targeting specific groups, such as educators or researchers, for deeper explorations could enhance relevance and engagement while potentially addressing resourcing implications. Incorporating a live webinar event may provide further opportunities for engagement and discussion on an ongoing basis, while offering the course outside of term times may facilitate greater engagement from academic staff.

## Further Reading:

JISC (no date) *JISC Discovery Tool*. Accessed: 30 September 2024.

University of the Arts, London (2023) *The 12 Days of Ai. A self-directed online course to learn about AI in Higher Education*. Accessed: 30 September 2024.

# Digital Resources

The following table describes how the course was delivered and lists, by audience type, the AI tools that were spotlighted during the course. Day 5 was all about reflection, so it did not introduce any technologies not previously listed here.

| Day 1 Intro to GenAI | Day 2 GenAI at work | Day 3 GenAI for Teaching & Assessment | Day 4 GenAI for Research |
|---|---|---|---|
| Microsoft Copilot<br>OpenAI's ChatGPT<br>Google Gemini<br>Meta's Llama<br>Siri<br>Alexa<br>Amper Music<br>Jukebox<br>Suno<br>Pictory<br>Synthesis<br>VEED<br>Hour One<br>HeyGen<br>Stable Diffusion<br>Open AI's DALL.E, Midjourney<br>Adobe Firefly | Microsoft Copilot<br>OpenAI's ChatGPT | Was not heavy on tools on Day 3 but referred to the NAIN Guidelines and the JISC primer<br>Microsoft Copilot | Research Rabbit<br>Scite<br>Elicit<br>SciSpace<br>Silatus<br>Semantic Scholar<br>Jenni.ai<br>Hugging Chat<br>Rayyan<br>Claude |

The University of Limerick's "Let's Talk GenAI course" (2024) is licensed under a CC BY-NC-SA 4.0 license https://creativecommons.org/licenses/by-nc-sa/4.0/.

On request, educators can be provided with an exported version of the course with licensed materials such as journal articles, book chapters and embedded content such as LinkedIn Learning videos removed. This can be exported as either a Brightspace-compliant package or a VLE-independent package for use in other VLEs.

Due to compatibility issues, some rework/reformatting of the materials would be required, and we expect a 90-day turnaround on requests for a copy of the course. Due to the dynamic nature of GenAI and its rapid development, the content of this course will need to be reviewed and updated as it was taught online in May 2024. If individuals wish to reuse the course or aspects of it, they should contact the lead educational technologist, the Digital Learning Specialist at UL Library, Margaret Phelan (Margaret.Phelan@ul.ie).

# Author Biographies

**Michelle Breen** is the Head, Learning & Engagement, Glucksman Library, University of Limerick. She and her team in the library at UL support student learning through programme-integrated instruction

in digital information literacy. Michelle's research and projects reflect her keen and active interest in skills development in higher education.

**Margaret Phelan** works in the role of Digital Learning Specialist in the Glucksman Library in the University of Limerick (UL). In this role Mags collaborates with Library staff to develop the digital information skills of library users to enable them to access, visualise, engage with, and experience library collections, technologies and services, and to create and share scholarly content. Prior to working in UL Mags worked in various roles to support technology-enhanced learning in Mary Immaculate College (MIC) Limerick, Maynooth University and Technological University Dublin (TUD).

**David Moloney** is the Digital Skills Development Lead at the University of Limerick's Centre for Transformative Learning (CTL). He develops and implements the 'LevUL Up Digital Skills Hub' (DSH) on Brightspace, enhancing digital skills and capabilities for students and staff by providing access to a common framing informed by globally recognised frameworks, along with self-assessment tools, workshops, and online self-study lessons. David collaborates with various academic and professional services units to integrate digital skills into curricula across disciplines, often as part of assessed coursework.

**Dr Angélica Rísquez,** Learning Technologies and Learning Analytics Lead, Centre for Transformative Learning, University of Limerick. She is a Lead Educational Developer (Learning Technologies and Learning Analytics Lead) at the Centre for Transformative Learning, UL. She has over 20 years' experience in Higher Education, is a Senior Fellow SEDA and winner of the KBS Pedagogical Awards 2024 (UL) with the project 'STELA Live: Learning Analytics for Student Success'. She teaches at postgraduate level in the Graduate Diploma in Teaching, Learning and Scholarship in UL, and the Masters in Career Guidance in UNED.

**Dr Mary Claire Kennedy** is an Associate Professor and Academic Integrity Lead, Academic Integrity Unit, University of Limerick.She has experience in supporting students and academics in upholding academic integrity and managing academic misconduct cases. She holds a BSc (Pharm) from Trinity College Dublin (TCD). She was awarded an MPharm from the Royal College of Surgeons in Ireland in 2010 and completed her PhD with the School of Pharmacy and Pharmaceutical Sciences, TCD in 2015. Moving to the University of Leeds in 2015, she was Programme Lead for Independent and Supplementary Prescribing for Pharmacists, Nurses and Allied Health Professionals in the School of Healthcare and was appointed Academic Integrity Lead during her time with the school. She completed an M(Ed) with the University of Leeds in 2020 and became a Senior Fellow of the Higher Education Academy (or Advance HE).

**Dr Fionn McGrath** is an Academic Integrity Educational Developer, Academic Integrity Unit, University of Limerick. He is the newly appointed Educational Developer in Academic Integrity (2023). His background is primarily in philosophy, he holds a particularly strong interest in social theory, technological change, and education. He holds a BA in Philosophy and Sociology (Joint Honours, UCC '07), a MA in Philosophy (1st, UCC '08) and a PhD in Socio-Political Philosophy (UCD '19). He also holds a H. Dip in Data Analysis (NUIG '21). Fionn has held numerous teaching and research roles across a broad range of disciplines including sociology, political science, and computer science in UCC, UCD, Trinty and NUIG. His most recent role was as a lecturer and teaching assistant in Business Information

Management, with a focus on data, decision making and organisational transformation in the Department of Management and Marketing in UL's Kemmy Business School.

**Dr Silvia Benini** is an Academic Integrity Educational Developer, Academic Integrity Unit, University of Limerick. She holds a PhD from the University of Limerick. She has been involved as senior researcher and educational developer in various national and international projects related to Education and Technology, Modern Languages, Digital Citizenship and Artificial Intelligence. She has been working as lecturer on different topics including Language and Technology, Digital Literacies, Language Learning Strategies, Academic English, Corpus Linguistics and Games Analysis to both undergraduate and postgraduate students as well as module designer and lecturer in Italian Language and Culture. She is an executive committee member of IRAAL (Irish Association for Applied Linguistics), member of the LITHME-WG5COST Action and member of CALS (Centre for Applied Language Studies).

**Treasa Cunneen** is the Head, Enterprise Architecture, Information Technology Division, University of Limerick. With over 20 years of experience across multiple sectors, including financial, not-for-profit, and consulting, Treasa specializes in aligning technology strategies with institutional goals to enhance operational efficiency and support academic excellence. Treasa holds a degree from the University of Limerick in Computer Engineering and has a proven track record of successfully managing complex projects, fostering cross-departmental collaboration, and driving innovation through cutting-edge technologies

# Appendices

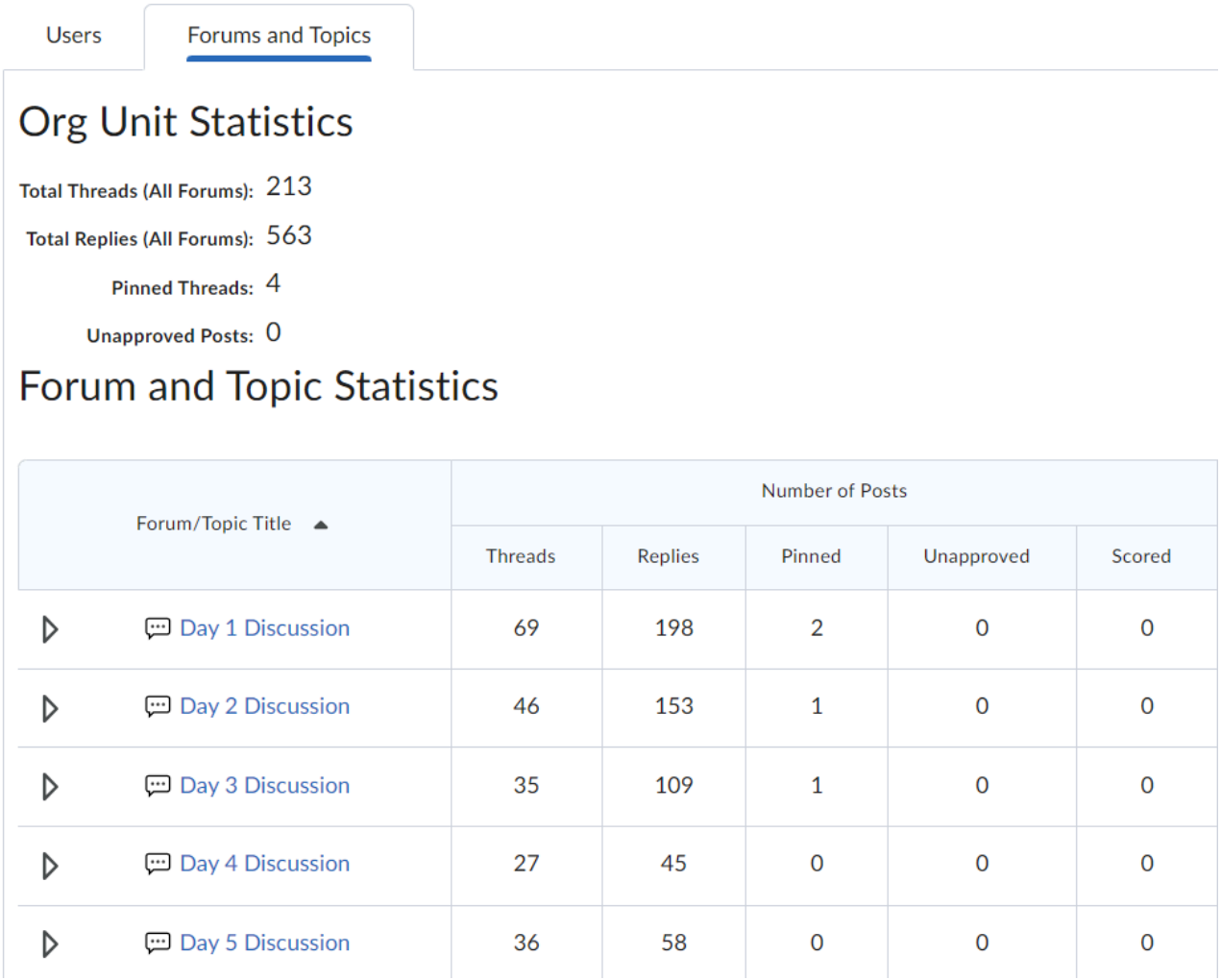
Content | Users

| Total Number of Users | Users Who Have Visited Content | Average Time Spent on Content |
|---|---|---|
| 222 | 173 | 10:10:07 |

Expand All  Collapse All

| Content | Available To | Users Visited | Average Time Spent |
|---|---|---|---|
| **Module 1.** Course Introduction | 222 | 161 | 0:04:40 |
| **Module 2.** Day 1: Introduction to GenAI | 222 | 162 | 0:32:57 |
| **Module 3.** Day 2: GenAI at Work | 222 | 120 | 0:37:04 |
| **Module 4.** Day 3: GenAI for Teaching and Assessment | 222 | 100 | 0:30:57 |
| **Module 5.** Day 4: (Gen)AI for Research | 222 | 84 | 0:24:03 |
| **Module 6.** Day 5: Reflections and Moving Forward | 222 | 73 | 0:19:51 |

Fig. 1: Let's Talk GenAI Course Content Statistics.



Users | Forums and Topics

## Org Unit Statistics

**Total Threads (All Forums):** 213

**Total Replies (All Forums):** 563

**Pinned Threads:** 4

**Unapproved Posts:** 0

## Forum and Topic Statistics

| Forum/Topic Title | Number of Posts | | | | |
|---|---|---|---|---|---|
| | Threads | Replies | Pinned | Unapproved | Scored |
| Day 1 Discussion | 69 | 198 | 2 | 0 | 0 |
| Day 2 Discussion | 46 | 153 | 1 | 0 | 0 |
| Day 3 Discussion | 35 | 109 | 1 | 0 | 0 |
| Day 4 Discussion | 27 | 45 | 0 | 0 | 0 |
| Day 5 Discussion | 36 | 58 | 0 | 0 | 0 |

Fig. 2: Let's Talk GenAI Discussion Forum Statistics.

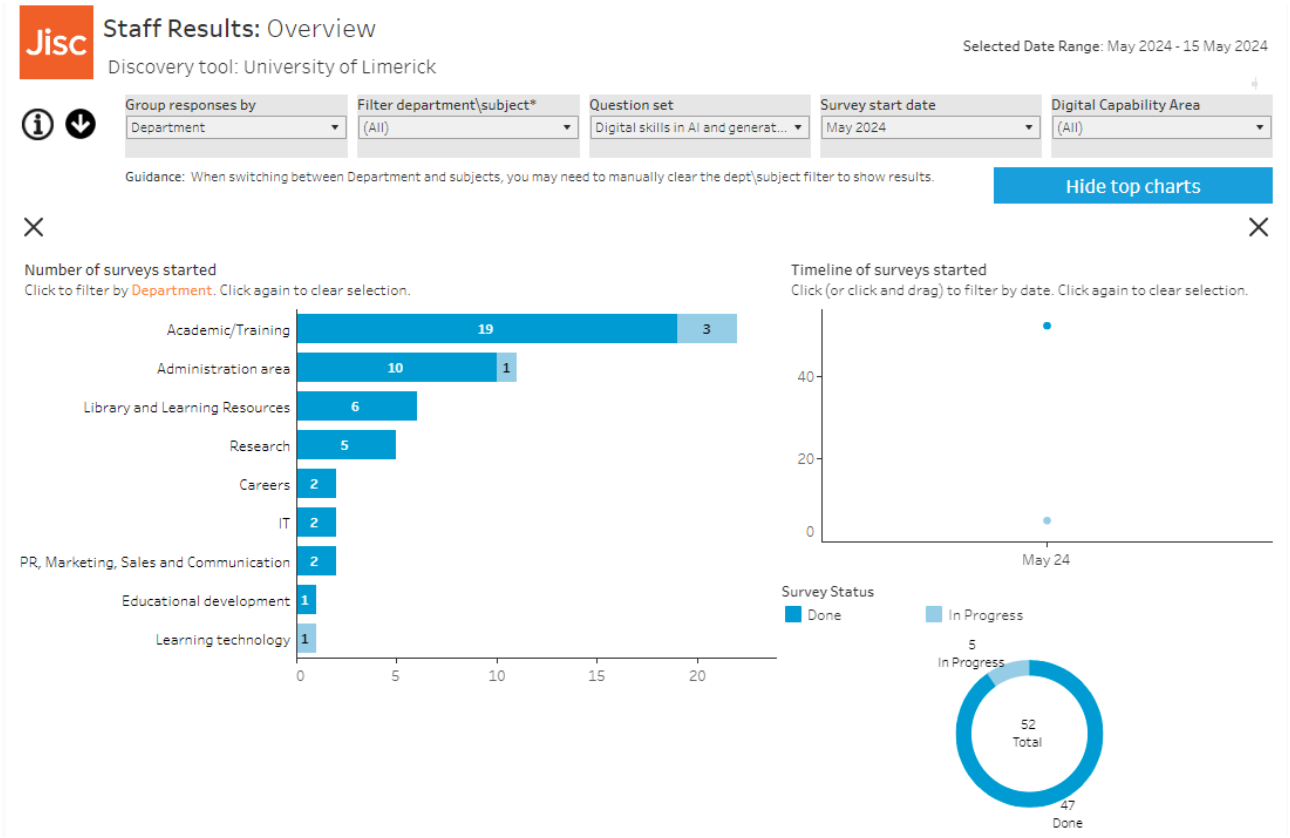



Fig. 3: Completion numbers of the 'Digital skills in AI and generative AI' question set, May 2024.

*Fig. 3* indicated that there were 47 unique completions of the 'Digital skills in AI and generative AI' question set recorded by the tool on 15 May 2024.

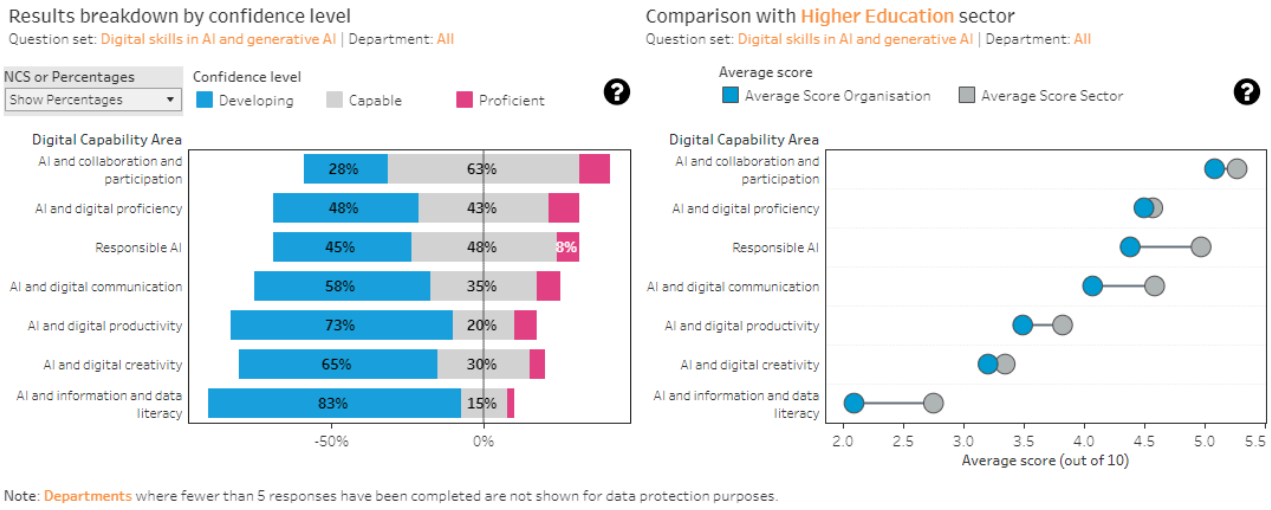



Fig. 4: Results breakdown by confidence level and Comparison with the Higher Education Sector.

Ongoing observation of the question set results throughout the course revealed a gradual transition from "Developing" to "Capable" confidence levels across all 7 key AI areas – collaboration and participation, digital proficiency, responsible AI, digital communication, digital productivity, digital creativity, and information and data literacy.




Fig. 5: Heatmap of Responses by 'Departments' that had more than 5 completed responses.

The heatmap (*Fig. 5*) displays the average score per "Department" (with more than 5 completed responses) for each of the 7 key AI areas. The collaboration and participation area achieved the highest average score, while information and data literacy recorded the lowest. Among departments, the "Administration area" had the highest average, whereas "Research" scored the lowest.

# USING GENAI WITH TEACHING STAFF ON A SPECIAL CERTIFICATE IN TEACHING, LEARNING AND ASSESSMENT



**Institution:** Trinity College Dublin
**Discipline:** Professional Development
**Author:** Caitríona Ní Shé, Ana Elena Schalk
**GenAI tool(s) used**: ChatPDF, POE Chatbot

## Situation / Context

The Special Purpose Certificate (SpCert) in Teaching, Learning and Assessment for Academic Practice is a flexible, research-informed, practice-based programme for Trinity staff involved in teaching and/or supporting teaching and learning. During the academic year 2023-24 three 5 ECTS credit Level 9 modules were run as part of this programme. *Perspectives on Teaching and Learning in Higher Education*, and *Assessment & Feedback in Higher Education* were run in Michaelmas term, with 17 and 20 participants completing the respective modules. In Hillary term, 18 participants completed the *Curriculum Design in Higher Education* module. A total of 55 participants were part of this example. The format of each of the modules is similar, there are generally 6 synchronous (mostly in-person) sessions of 2.5 hours spread over an 8-week period, with learning activities to be completed pre and post sessions. Attendance and engagement with the activities is required as part of successful module completion. An assignment, worth 100%, is due approximately three weeks after the end of the module.

During the modules participants had at least one opportunity to "try out" a GenAI tool and several opportunities to discuss their use within higher education. In total, 55 SpCert participants had the experience of exploring how to use GenAI tools to support their learning process.

## Task / Goal

By September 2023 discussion within higher education teaching and learning communities on the use of GenAI broadly focussed on the possibilities that participants were using these tools to assist with

assignments. Trinity College Dublin, like many other higher education institutions, had focussed initially on designing approaches to ensuring academic integrity in the light of the release, and widespread use, of ChatGPT3. The main aim of integrating GenAI tools into the SpCert modules was to explore teaching staff's familiarity with the tools and the possible impacts on their academic practice. We had two main goals:

- Provide the participants with an opportunity to use a GenAI tool to support their learning within the confines of the module's learning environment
- Enable participants to reflect on this experience, identifying opportunities and challenges of using these tools within their own practice.

We considered the integration of GenAI tools in this way as tipping our toes into the water to gauge the temperature with a view to further immersion in 2024-25. Data was processed in compliance with Data Protection Legislation and Trinity College policies. In order to adhere to copyright, all material uploaded to the GenAI tools were either public domain or openly licensed.

## Actions / Implementation

Within the context of the three SpCert modules we used two different GenAI tools.

- ChatPDF

As part of the *Assessment and Feedback in Higher Education* module participants were asked to pre-read an article on and to discuss the opportunities and challenges of assessment that were identified in this article. Subsequently, in class, the participants uploaded the article to ChatPDF and obtained a summary of the article. They then compared their understanding of the article, from their own pre-read of the article, with that provided in the ChatPDF summary.

In a scheduled in-person session of the *Perspectives on Teaching and Learning in Higher Education* module participants were asked, in pairs, to upload an article to ChatPDF on learning theories and to ask the bot to describe the four learning theories. They were then asked to select one of the learning theories and skim the article to determine how accurate they considered the summary from ChatPDF.

In the *Curriculum Design in Higher Education* module participants were encouraged to use ChatPDF, where relevant, when completing pre-reading for a session.

- POE bot

A purposely designed POE bot, where a selection of the learning materials were uploaded, those publicly available or openly licensed, was made available within the *Curriculum Design in Higher Education* module's Virtual Learning Environment (VLE). The use of the POE bot was first explored in class and then made available for the remainder of the module. Participants were encouraged to ask the

POE bot questions that related to the elements of curriculum design that were under consideration each week.

In all three modules the activities led to discussions on participants experiences of using the tools, and the positives and negatives associated with embedding these types of tools within their own practice.

- GenAI in Teaching & Learning

Throughout the three modules we discussed the opportunities and challenges that the range of GenAI tools available to students might bring to our teaching practice. For example, within the *Assessment & Feedback in Higher Education* module we focussed on the need to emphasise academic integrity, in light of possible GenAI use, and ensure that our assessment strategies support assessment integrity.

## Outcomes

As outlined above, the use of the tools within the modules was discussed within the in-person sessions, in conjunction with their use. For the two modules held in Autumn 2023, most of the participants had not used a tool like this before, however within the *Curriculum Design in Higher Education* module, held in Spring 2024, half of the participants had previously explored the use of GenAI. Similarly, the Autumn 2023 participants expressed mixed emotions as to both their willingness to use the tools and their effectiveness, whereas the participants from Spring 2024 were more open to the possibilities that correct use of GenAI could benefit both them and their students. This is to be expected as the awareness and use of GenAI has continued to increase since the first release of ChatGPT3 in November 2022.

One of the outcomes of the discussion on ChatPDF was the fact that it identified three rather than four learning theories from one of the uploaded articles. This enabled participants to consider the limitations of GenAI tools. On the other hand, many of the participants found that ChatPDF provided them with material that they would be able to use when framing responses to discussion threads within the SpCert modules, thus useful as a time saving device.

With regard to POE most of the participants considered that they could see value in using such a tool in their own practice. However, amongst the disadvantages is the learning curve necessary to use them effectively, and the possible necessity of asking students to create accounts.

## Reflections

- Many academics had not engaged with GenAI with respect to teaching and learning prior to attending this module. This could be for a variety of reasons: absence of an institutional position regarding using (or not) GenAI in teaching and learning, lack of time to try new tools, lack of AI Literacy skills, or simply concerns about the impact of these technologies within Higher Education.
- Many academics were unaware of the power of GenAI tools to both summarise and write.
- Most academics found it very useful to explore GenAI in the context of the modules.

- Some academics are willing to investigate how they might incorporate GenAI into their teaching but would require technical support to do this.
- Having to register for GenAI can inhibit participants willingness to engage with these tools and discourage them to use them with their own students.
- There is considerable work required from the educator in preparing a useful closed bot to support learning.
- It is imperative to gather the activity usage data from the VLE, Blackboard, at the close of the module as retrieving such data from Blackboard is limited to 180 days post module completion.

Next time – future iterations of the SpCert:

It is likely that the dissemination of the Trinity Institutional Statement regarding using GenAI for teaching and learning in the 2024-2025 academic year, could motivate participants to try GenAI in their teaching and learning.

Resources are now available for academic staff to support their efforts to embed these technologies into their practice. Thus, participants might be eager to explore further the use of GenAI in their teaching and learning processes; hence we should take this a step further, i.e. ask them to use one as part of the learning design experience.

As institutionally supported GenAI tools such as Copilot (and other AI tools developed within the institutional tools, i.e., the VLE chatbot and AI for Instructional Design) become available to all teaching staff, we should focus on exploring the potential of these tools.

## Further Reading

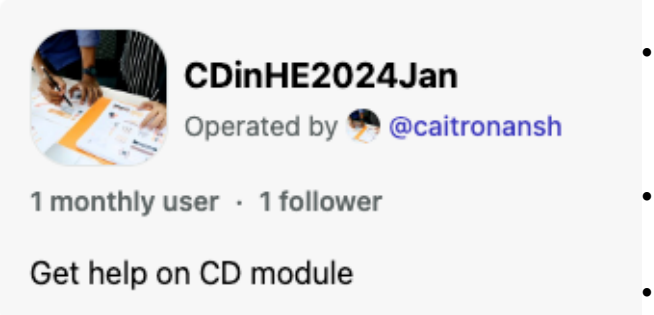
**References Used in Class**

Bloxham, S. (2014). Assessing assessment: New developments in assessment design, feedback practices and marking in higher education. In H. Fry, S. Ketteridge, & S. Marshall (Eds.), *A handbook for teaching and learning in higher education: Enhancing academic practice* (4th ed., pp. 107–122). Routledge.

Carlile, O., & Jordan, A. (2005). It works in practice but will it work in theory? The theoretical underpinnings of pedagogy. *Emerging Issues in the Practice of University Learning and Teaching, 1*, 11–26.

## Digital Resources

- ***Example of the in class activity*** entailed: the use of a Bot that we developed for this part of the module on POE.




- This AI tutor CDinHE2024Jan has a knowledge base related to the publicly available resources that are used on this module.
- In this task your are asked to use the tutor, as a group at the tables to:
- Investigate what is involved in the curriculum model that you have been given
- Be ready to outline how you might use this model/framework in your practice, and why!
- The AI tutor is easy to use, just click on the link above and keep asking questions!
- Note: Do not upload documents to an AI bot unless the document is publicly available.

## Author Biographies

**Dr Caitríona Ní Shé** is an Academic Developer. She has a role in Academic Practice involving the development and delivery of evidence–based professional development for academic staff within Trinity, and contributing to funded projects on educational developments, such as the HCI initiative. Caitríona has worked in higher education across a variety of roles since 2008. Her most recent prior role was as an Education Developer for Professional Development in the National Forum, she managed and evaluated the rollout of the National Forum's suite of digitally badged professional development courses and supported the upgrading of the Open Courses platform. Prior to this, Caitríona designed, developed and implemented a short course for online educators as part of the #openteach project, led by DCU. In 2021 Caitríona completed her PhD on the use of technology-enhanced resources to support formative assessment in undergraduate Mathematics. Her current work is focused on curriculum design, encompassing aspects such as sustainability in the curriculum.

**Dr Ana Elena Schalk** is an Academic Developer. Digital Learning Lead. Trinity College. She has been a lecturer, researcher, academic developer, and academic manager for over 30 years. She worked at TU Dublin's Learning, Teaching and Assessment Team, where she led several strategic learning initiatives and taught on the MSc Education and Post Graduate Certificate in University Learning and Teaching. Prior to joining Tu Dublin, she led a number of institutional, national, and international digital education initiatives in Latin America, working with the Ministries of Education, UNESCO, and the Iberoamerican States Organisation (OEI).

In Trinity, she leads the Digital Learning and GenAI in Teaching Learning and Assessment plan at the Centre for Academic Practice. This plan includes resources to support academic staff, collaboration with other institutional departments and units, and research development. She teaches as part of the SpCert and other professional development initiatives.

She led the creation and implementation of the open course "*GenAI in T&L: How to do it right?*" (badge), funded by the National Forum to develop AI Literacy skills for academic staff in Higher Education. This initiative is in conjunction with the University of Limerick and UCD.


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