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Editorial 6(2): Personal digital assistant or job killer? Generative AI and the teaching profession in higher education

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Introduction

2023 was a busy year for our Journal of Applied Learning and Teaching (JALT). After our inclusion in Scopus in 2022, we were pleasantly surprised that, according to Scopus, we are in the top quartile and even the top ten per cent of education journals according to their CiteScore metric. A JALT article was cited an average of 6.3 times from 2019 - 2022 and, at the time of writing (27 November 2023), 9.2 times in the period of 2020 to 2023. While we are critical of the relentless neoliberal metrification of academic research (Fleming et al., 2021; Brookfield et al., 2023), it is nice to be the new popular kid on the block.

Fame, however, comes with its own problems. In the early years, Jürgen (the first author of this Editorial) distinctly remembers that, with varying success, he begged, pleaded, and cajoled authors into submitting an article to JALT. In these fledgling years, we often found the time to mentor and coach first-time authors and early career researchers extensively (which sometimes included proofreading and reference-fixing, occasionally almost amounting to co-authorship). But things have changed. In the second half of 2023, we have received more than two articles a day on average, and our rejection rate has shot up to more than 90 per cent.

We wish more authors would read and heed the advice on academic writing of excellent authors such as Helen Sword (2012, 2017, 2023) and Dannelle Stevens (2019). Stevens (2019) accurately outlined the primary reasons why journal editors reject articles, including (1) a mismatch with the journal's scope or objectives, (2) inappropriate article format such as being overly journalistic, (3) unsuitable length, (4) non-adherence to journal or academic writing standards, (5) poor language usage including grammatical and punctuation errors, (6) lack of significant content or prolix elaboration of obvious points, (7) inadequate contextualisation for an international readership, (8) weak theoretical framework, (9) shoddy presentation with apparent lack of proofreading, and (10) inclusion of libellous or unethical content.

If 2000 was the year of COVID-19-related research in higher education, 2023 was the year of generative AI. In January, we published one of the first substantial journal articles on ChatGPT and higher education (Rudolph et al., 2023a). Since then, we have fostered a rich dialogue by publishing more than 20 substantial pieces on this pressing subject. Our journal has become a focal point for critical discussions encompassing the potential advantages, challenges, and actionable recommendations concerning the implementation of generative AI technologies such as ChatGPT, as documented in a series of articles (Firat, 2023; Gamage et al., 2023; Ifelebuegu et al., 2023; Limna et al., 2023; Rasul et al., 2023; Rudolph et al., 2023a, 2023b). Furthermore, our contributors have rigorously explored the ethical dimensions surrounding academic integrity and student engagements with AI tools during assessments, providing nuanced analyses of this complex issue (Chaka, 2023; Hassoulas et al., 2023; Ifelebuegu, 2023; Mohammadkarimi et al., 2023; Sullivan et al., 2023). Beyond these spheres, our repertoire has expanded to include discourse on the transformative role of AI in research (Khademi, 2023) and pedagogy (Xames & Shefa, 2023), its application in teaching numerically intensive subjects (Calonge et al., 2023), and the urgency of bridging the awareness gap on generative AI advancements in African countries such as Ghana (Adarkwah et al., 2023). Moreover, we have published Huang et al.'s (2023) framework for machine-human collaboration in educational settings, a methodological paper on an instrument measuring attitudes, benefits and threats toward using AI in higher education (Ahmad et al., 2023), an article on the transparency level of literature reviews on AI in education (Tlili et al., 2023) and two protocol papers for such literature reviews (Ismail et al., 2023; Stracke et al., 2023). In addition, we have published opinion pieces promoting open educational strategies for AI integration (Mills et al., 2023) and presenting critical perspectives that interrogate the influence and trajectory of AI in the higher education sector (Popenici, 2023b; see Popenici et al., 2023). Through these

efforts, we are steadfast in our commitment to fostering a multifaceted scholarly conversation that assesses the evolving landscape of higher education in the AI era.

In our first Editorial this year, we explored graduate employability in the age of generative AI (Rudolph et al., 2023c). Throughout history, societal attitudes towards work have varied greatly, with the poor often subjected to harsh conditions and compulsory labour to maintain order and prevent idleness, as documented in medieval British laws and corroborated by thinkers such as George Orwell (1933). In stark contrast, the affluent classes have sometimes been discouraged from labour, with figures like Bertrand Russell (2004) advocating for reduced work hours to foster personal and civilisational growth through engagement in arts and sciences. In modern discourse, concepts like Fully Automated Luxury Communism (Bastani, 2020) foresee a future where technological advancements significantly reduce or eliminate the necessity for human labour, a vision echoed in various mythologies where work is seen as a form of punishment imposed following a fall from an idyllic state of existence (Rudolph et al., 2023c).

In our aforementioned Editorial, we traced the historical perceptions of work from the times of the Protestant work ethic to the 20th-century revaluation of labour as a form of self-sacrifice (Rudolph et al., 2023c). We spotlighted the stark income disparities of 'bullshit' and 'shit' jobs, as conceptualised by David Graeber (2018), amid rising automation and the advancements in generative AI technologies that threaten to reshape the global job market significantly. The analysis underscores the urgent need to rethink work and life paradigms in the face of potential mass job displacements, exploring alternatives such as Universal Basic Income while casting a critical eye on the impact of AI technologies on education and various professional sectors (Susskind, 2021; Rudolph et al., 2023c).

Large Language Models (LLMs), particularly since the release of ChatGPT in November 2022, have presented both unprecedented opportunities and challenges in knowledge-intensive professions. The latest generative AI systems have demonstrated rapid advancements, possessing unexpected and expanding capabilities, including proficiency in complex, creative, and analytical tasks, a domain previously preserved for highly skilled professionals (Eloundou et al., 2023; Geerling et al., 2023). These developments have intensified the urgency among scholars, organisations, and governments to comprehend the implications of integrating AI into existing work frameworks (Berg et al., 2023).

Dell'Acqua et al.'s (2023) study focuses on navigating the 'jagged frontier', a term coined to describe the unpredictable boundary where AI may or may not enhance human performance. The capabilities of AI resemble an invisible fortress wall with uneven battlements, where the AI effortlessly performs certain tasks perceived as complex, such as writing sonnets or idea generation, while surprisingly struggling with ostensibly simpler tasks, such as crafting a 50-word poem or basic mathematical calculations, illustrating a nuanced and unpredictable proficiency landscape within the current boundaries of generative AI (Dell'Acqua et al., 2023). This jagged frontier reveals that AI can significantly augment productivity and quality in certain tasks, reshaping traditional workflows of high human capital professionals. However, it is constantly evolving, making it challenging for professionals to accurately identify the tasks where AI can be beneficial. Furthermore, the opacity of these systems, including their unclear failure points and unexpected abilities, compounds the difficulty in fully grasping their potential and downsides for knowledge work (Dell'Acqua et al., 2023). In Dell'Acqua's (2023) empirical study, consultants using GPT-4 finished 12% more tasks on average, completed tasks 25% more quickly, and produced 40% higher quality results than those without. As generative AI's jagged frontier expands, it is anticipated that AI will have a substantial, albeit uneven, impact on work, necessitating ongoing research to understand how human-AI interaction dynamics will change over time (Noy & Zhang, 2023).

Will generative AI spell the end of the teaching profession?

Before we give our answer to this question, it is worthwhile noting that there have been various trends that have been eroding the teaching profession in higher education prior to the popularisation of ChatGPT and related generative AI. In *The fall of the faculty*, Ginsberg (2011, p. 2) describes the expansion of non-academic personnel via-a-vis academics and bemoans that universities are increasingly "filled with armies of functionaries – the vice presidents, associate vice presidents, assistant vice presidents, provosts, associate provosts, vice provosts, assistant provosts, deans, deanlets, deanlings, each commanding staffers and assistants – who, more and more, direct the operations of every school". Universities across the world in the early 21st century find themselves in a paradoxical position: "Never before in human history have they been so numerous or so important, yet never before have they suffered from such a disabling lack of confidence and loss of identity" (Collini, 2012, p. 5).

Fleming's *Dark academia. How universities die* (2021) discusses the demise of *homo academicus* also in a literal way. One particularly poignant example of the "proletariatisation of academic labour" is the death of 83-year-old adjunct professor Margaret Vojtko who had an onerous workload but barely earned US$25,000 with no healthcare benefits (Fleming, 2021, p. 92). After she was diagnosed with cancer, her health deteriorated, and her ostensibly Catholic employer dismissed her. Medical bills mounted, medicine and electricity ran out, and Prof Vojtko eventually died a lonely death (Fleming, 2021).

In *Artificial Intelligence and learning futures* – a book reviewed in this issue of JALT – Popenici (2023a) observes the denigration of the teaching profession in higher education that goes hand in hand with the devaluation of learning in the neoliberal paradigm, which is obsessed with performance-based accountability and return-on-investments. Consequently, the once cherished ethos of intellectual exploration is unceremoniously side-lined and supplanted with a myopic focus on test performances and tangible outcomes. Higher education's identity crisis is accompanied by an even graver crisis of learning, where students are driven not by the joyous quest for knowledge

but by the pressures of conforming to metric determinants. This erosion of learning – where vibrant curiosity is replaced by crude instrumentalism and sloganeering – stands as a testament to the destructive potential of commodifying education (Popenici, 2023a).

Martin Andrew (2023) tells the story of a learner who discovered her online professor had been dead since 2019. Since the pandemic, there has been an increase in the precarity and casualisation of academic labour, which is undervalued, overused, and stigmatised (Solomon & Du Plessis, 2023). The above-described trends of the fall of the faculty (Ginsberg, 2011), the loss of faith in university education (Collini, 2012), the demise of *homo academicus* (Fleming, 2021), the denigration of the teaching profession and the devaluation of learning (Popenici, 2023a) all precede the rise of generative AI in higher education.

Predictions of technology such as (ro)bots or AI replacing teachers are not new. Throughout the history of educational technology, repeated cycles of high hopes followed by modest impacts underscore the importance of a grounded approach to educational innovation. From Edison's predictions about motion pictures replacing books (Terzian, 2019) to the envisioned role of radio as a 'Master Teacher' (Cook, 1938), television's educational promises (Terzian, 2019), and the advent and challenges of computers in classrooms (Watters, 2021), technology's touted transformative potential often outstripped its actual influence. This recurring optimism, combined with commercial interests, suggests a more complex, non-linear progression of educational technology. Bror Saxberg once quipped that "Technology is just technology" (cited in Rudolph, 2014). We need to avoid both uncritical adoption and outright rejection and acknowledge that no technological 'miracle cure' for higher education exists (Rudolph, 2018; Kefalaki et al., 2021).

Even before the current generative AI hype, there have been predictions that robots (taking the form of AI software programs or humanoid machines) will replace human teachers by 2027 (Houser, 2017). With the recent launches of ChatGPT and a host of other generative AI software, the capabilities of AI technologies appear to be quickly increasing. The debate on AI potentially substituting teachers is intensifying, with the prospect appearing increasingly likely and the media actively discussing this potential shift (Chan & Tsi, 2023; Devlin, 2023). Replacing higher education teachers with machines could be motivated by financial difficulties faced by universities, caused, for instance, by "eye-watering mortgages for shiny new teaching buildings" (Haw, 2019) – Haw (2019) worried that "swapping expensive lecturers for cheap, versatile machines that don't go on strike, don't need sleep, and respond to students within nanoseconds will be hard to resist".

In contrast, a study by the World Economic Forum (2023, p. 6) predicts that by 2027, jobs in the education industry are "expected to grow by about 10%, leading to 3 million additional jobs" for teachers in vocational education and higher education. Predictions about the future are notoriously unreliable. While the above WEF forecast heartens us, we reckon that higher education teachers' full benefit from generative AI will depend on their access to good-enough digital devices, fast internet access, educational technology training and institutional policies. In the near future, many knowledge workers may have an AI 'co-pilot'. Perhaps Stephen Brookfield's tongue-in-cheek 'law of employment' will continue to apply: "act as if you assume you're going to be fired – and you probably won't be" (Brookfield et al., 2023, p. 185).

Generative AI as teacher's assistant

The developments in the generative AI space are progressing at a dizzying speed, and the following thoughts about how teachers can benefit from using generative AI will consequently require constant updating. It should, however, be obvious that provided that teachers know how to use generative AI in a critically informed way, substantial productivity gains are possible.

Higher education teachers can use generative AI for brainstorming like other knowledge workers. Depending on the appropriateness of the results for the teacher's purposes, prompts can be refined and repeated, thus churning out multiple ideas within a few minutes. It is noteworthy that GPT-4, in particular, scored very highly on various creativity tests, exceeding 91% of humans on an Alternative Uses Test for creativity and 99% on the Torrance Tests of Creative Thinking (Haase & Hanel, 2023; Shimek, 2023).

When getting ready to delve into a new subject or staying current with recent literature, tools like Chat PDF and Claude 2 may be beneficial for summarising and analysing articles or books. Claude 2 users can input up to 100,000 tokens (equivalent to 75,000 words or hundreds of pages of technical documentation or a book) in a single prompt (Anthropic, 2023). While in the ideal world, we may prefer to read everything by ourselves, sometimes it may not be possible, and then these tools provide a solution superior to not reading. For instance, Jürgen has asked GPT-4 to organise and summarise student feedback based on Stephen Brookfield's Critical Incident Questionnaire (Brookfield et al., 2023). While it may take a human teacher an hour to organise and summarise 100 student responses, GPT-4 can do this in less than a minute. Then, the teacher can spend a couple of minutes editing and double-checking the text before sharing it with the students.

Another popular use of GPT-4 and other chatbots is the drafting of coherent text based on one's own notes or extracts from other sources. GPT-4 and other chatbots can produce drafts for blog posts, essays, speeches, lectures, scripts, and other texts. These texts can improve with a good prompt (we have found it quite useful to tell GPT-4 that it is a Professor of Higher Education when asking it to draft text). Generative AI can be used to suggest how to improve our texts and employ different academic writing styles. It can also be used to combat writer's block and to draft emails.

Combining the functions of brainstorming, summarising, and drafting may lead to significant productivity gains not only in administrative and research-related work but also in teaching-related processes such as creating teaching and learning activities, lesson plans and curricula. Generative AI

can also be used for data visualisation – creating figures, charts and graphs. Various AI-driven tools, such as Appy Pie's Free AI Graph Maker, Chartify.ai, and Graph Maker, allow users to produce custom graphs quickly without the need for coding skills. Another tool, VizGPT, provides a chat interface for users to generate and modify data visualisations using natural language queries (Mikami, 2023). We should also mention that there are more than 700 plugins for GPT-4 – while we have not tried them all, there are a few which appear to be particularly useful: for instance, Wolfram for mathematics, Vox Script and Video Insight for summarising long YouTube videos, Show Me for creating diagrams, Zapier for automating workflows, and Ask Your Pdf for analysing long texts.

For PowerPoint presentations, instead of time-consuming searches for Creative Commons images, one can use Midjourney's "describe" feature. By uploading a base image to Midjourney, the software suggests prompts for similar visuals. Tweaking these prompts can produce unique and intriguing images quickly, enhancing the presentation's appeal (Mollick, 2023a). To exemplify productivity gains with another Microsoft application, Excel, GPT-4's Code Interpreter tool can be used to craft a five-year revenue projection for a hypothetical startup in a usable CSV file that is easy to verify (Mollick, 2023a). Microsoft has recently incorporated Copilots into the premium version of its office-work software, Microsoft 365, and the lines between what humans and AI do will blur further. They may transform their users into virtual cyborgs.

There is also a fast-increasing number of AI tools for video creation. They can be differentiated into three broad categories: Video editors with AI editing tools, generative text-to-video apps, and video productivity apps (that create content for multiple marketing channels and platforms) (Rebelo, 2023). For instance, Runway can be used to experiment with generative AI and Visla to turn a script into a video (Rebelo, 2023).

Teachers can consider using generative AI intentionally as a 24/7 virtual tutor, which helps students practise their skills, for instance, when learning a new language (Ifelebuegu et al., 2023). More generally, Mollick (2023b) has seen seven different types of generative AI applications in the classroom: "AI-tutor, for increasing knowledge, AI-coach for increasing metacognition, AI-mentor to provide balanced, ongoing feedback, AI-teammate to increase collaborative intelligence, AI-tool for extending student performance, AI-simulator to help with practice, and AI-student to check for understanding" (see Mollick & Mollick, 2023).

A generative AI function that we remain sceptical about is grading students' assignments and providing feedback (Baidoo-Anu & Owusu Ansah, 2023). While students can use generative AI, such as GPT-4, to seek feedback on their work, it could also be used for formative assessments. However, we think that marking and grading students' work (unless it is programmable tasks such as multiple-choice questions) should remain the domain of human teachers. Are these the famous last words?

Finally, the conversational character of generative AI, such as GPT-4, may be helpful as it is good for dialogically thinking through one's ideas. While we are fully aware that generative AI is *not* sentient and of our tendency to anthropomorphise chatbots, it is ironic that precisely this anthropomorphising with a 24/7 digital personal assistant can be fruitful. Higher education teachers may achieve significant productivity gains provided they have access to the right hardware and software, good Internet speeds and training and tech support. However, if we blindly take what generative AI offers, there is a high chance that it will be bad or mediocre at best. Teachers' and students' critical thinking remains of key importance. We must never outsource critical thinking to generative AI.

Generative AI tools, like ChatGPT, threaten to disrupt education. However, this may not be due to their intelligence but rather our flawed education systems that undervalue human intelligence (Luckin, 2023). Mistakenly, generative AI is perceived as more intelligent than it is; it lacks understanding, merely producing text based on probabilities (Chomsky et al., 2023). Its assessment performance reveals the tests' focus on information memorisation over knowledge comprehension. To outpace AI, education must evolve, emphasising human intelligence's uniqueness. Instead of mere rote learning, curricula should prioritise critical thinking and interpretation within traditional subjects while integrating critical AI literacy. To ensure AI enhances our lives, we must challenge tech giants' profit motives, discern which intellectual tasks we delegate to AI, and safeguard our unique human traits for future generations.

Overview of the issue

Our issue kicks off with Martin Andrew's invited Commentary "Come to the Cabaret: Voices from the modern university". In his creative contribution that pushes the boundaries of traditional academic writing conventions, Andrew's article creates his own cabaret songs that reflect on the modern university, drawing inspiration from the satirical Kabarett performances of the Weimar Republic in 1920s Germany. Using poetic enquiry, the study contrasts the university's contemporary culture with historical expressions, particularly the subversive tones of the Kabarett. The research employs a critical lens reminiscent of Puck from Shakespeare's *A Midsummer Night's Dream*, highlighting the absurdities of today's higher education institutions.

Andrew's Commentary is followed by 24 research articles, ranging from topics such as the impact of (generative) AI on higher education to contract cheating, academic dishonesty, student resilience, international student employability, learning styles, teaching method preferences, a critically reflective teacher journey, a combination of design thinking and project-based learning, explorations of NVIVO (a qualitative data analysis software) and UTAUT2 (the second iteration of the Unified Theory of Acceptance and Use of Technology) and students' multidimensional learning outcomes.

We start the research article section with nine manuscripts on the hot topic of AI in higher education. First, Huang et al.'s paper, "Educational futures of intelligent synergies between humans, digital twins, avatars, and robots – The iSTAR framework", presents the innovative iSTAR framework, a pivotal model for human-machine collaboration in education. This framework, standing for Intelligent human-machine Synergy in collaborative teaching with digital Twins, Avatars/Agents, and Robots, introduces the DELTA dimensions — Design, Ethics, Learning, Teaching, and Assessments — which are instrumental in forging safe, ethical, and responsible learning environments. The iSTAR framework reimagines the relationship between humans and AI in education as a dynamic ecosystem, offering comprehensive guidelines for synergistic interactions between educators and machines.

Second, Tlili et al.'s "Speaking of transparency: Are all Artificial Intelligence (AI) literature reviews in education transparent?" evaluates the transparency of AI-in-education-specific literature reviews. Literature reviews are crucial for generating new theories and trend identification, and their lack of transparency might compromise findings. Tlili et al.'s findings expose methodological gaps and aim to improve AI education research transparency, trustworthiness, and efficacy.

Ismail et al.'s study, "Artificial Intelligence in higher education: A protocol paper for a systematic literature review," complements Tlili et al.'s work by proposing a longitudinal review method for generative AI chatbot research in higher education. This method aims to develop an open-access database for academic use and adaptability across various fields. Similarly, Stracke et al.'s paper aligns with these approaches, introducing a standardised protocol for AI in education (AI&ED) reviews. This protocol, which, like Ismail et al.'s contribution, is grounded in PRISMA guidelines, enhances the reliability and replicability of reviews, focusing on AI's role in learning, teaching, and literacy. It's exemplified through a review of ethical and trustworthy AI&ED literature, with future applications planned for diverse AI&ED areas and longitudinal trend analysis.

A fifth AI-specific study by Hassoulas et al., "Investigating marker accuracy in differentiating between university scripts written by students and those produced using ChatGPT", investigates marker accuracy in differentiating student work from ChatGPT-generated content. OpenAI's ChatGPT is reshaping higher education assessment, prompting varied institutional responses. Markers from a medical school struggled to recognise ChatGPT-generated scripts. Hassoulas et al.'s research underscores the need for responsible AI integration in assessment and redefining academic misconduct.

A sixth AI-related article by Adarkwah et al., "Awareness and acceptance of ChatGPT as a generative conversational AI for transforming education by Ghanaian academics: A two-phase study", highlights the importance of increasing technology awareness among African scholars to harness innovative tech for efficiency. It examines the slow adoption of digital transformation in Ghanaian education using ChatGPT as a case study. The study reveals limited knowledge among Ghanaian academics about ChatGPT and AI-powered chatbots, emphasising the need to promote tech awareness in African countries like Ghana to transition from 'laggards' to 'early adopters' in line with innovation theory. Policymakers and educators are urged to play a role in fostering technological awareness.

In a seventh AI-related study, "Detecting AI content in responses generated by ChatGPT, YouChat, and Chatsonic: The case of five AI content detection tools", Chaka tested five AI content tools on ChatGPT, YouChat, and Chatsonic responses. Copyleaks AI Content Detector and OpenAI's AI Text Classifier performed best, but GPTZero misidentified translated ChatGPT responses as human responses. Current tools struggle to detect AI-generated content effectively, adversely impacting efforts to combat AI-generated plagiarism.

In an eighth research article on AI and higher education, Mohammadkarimi examines "Teachers' reflections on academic dishonesty in EFL students' writings in the era of artificial intelligence". The study found mixed perceptions. While some participants acknowledged AI benefits, concerns about academic integrity prevailed. Teachers saw AI negatively affecting honesty and skill growth. The need to detect AI-generated work and address ethics was stressed. Training and support were highlighted to manage AI-related dishonesty, urging institutions and policymakers to establish ethical AI guidelines for higher education.

To assess attitudes towards AI in higher education, a ninth article by Ahmad et al. developed an ABT (Attitudes, Benefits, Threats) instrument and surveyed students and teachers in 11 Asian and African countries. Using Google Forms for data collection, they analysed responses through factor analysis. The preferred model, out of six, explained 55.6% variance and comprised three factors: Attitude (15 items), Benefits (6), and Threats (14). The model's reliability and validity were confirmed for evaluating attitudes towards AI tools in an educated demographic.

Lawson and Martella's article, "Critically reflecting on the use of Immersive Virtual Reality in educational settings: What is known and what has yet to be shown?" shifts the focus from AI to the burgeoning field of immersive virtual reality (IVR) in education. The authors delve into the increasing global interest in IVR, highlighting its affective impact, notably in boosting student motivation and its debated cognitive benefits, with mixed results in learning effectiveness. Lawson and Martella's reflective piece underscores the research void in IVR's pedagogical applications and advocates for more comprehensive studies to resolve its inconsistent educational outcomes. The goal is to refine IVR's integration into educational frameworks.

The next article by Gamage et al., "Contract cheating in higher education: Impacts on academic standards and quality," switches the focus from using AI for cheating purposes (with reference to Mohammadkarimi's earlier-discussed piece in this issue) to that of humans. Gamage et al. explore students' motivations, deterrents for contract cheating, and assessment design's impact on authentic learning. As universities shifted to online learning and

assessments during the recent COVID-19 pandemic, global contract cheating has been on the rise. Despite preventive measures like authentic assessments and tools, no single solution is able to guarantee academic integrity. Gamage and co-authors argue that a global movement is needed to address this ongoing issue. Relatedly, Goegan et al.'s study "Preservice secondary teachers' beliefs about academic dishonesty: An attribution theory lens to causal search" delves into academic dishonesty among preservice secondary teachers. Context influences their perceptions of dishonesty, with descriptive scenarios evoking more robust responses than isolated behaviours. Goegan and co-authors' research sheds light on the less-explored 'why' behind academic dishonesty.

Owan et al.'s contribution discusses their Persistence to Publish Questionnaire (PPQ), which offers a reliable measure of academics' persistence in publishing in Scopus-indexed journals. Created through a thorough process including content validity and pilot testing, the PPQ was tested with 262 academics from various fields at two Nigerian universities. It uses Exploratory and Confirmatory Factor Analysis to identify five factors: manuscript preparation, submission, revisions, handling rejections, and dealing with delays. Demonstrating strong internal consistency and construct validity, the PPQ may serve as a valuable tool for enhancing research productivity and quality in academia.

Ahmed-Shafi et al.'s research article, titled "Learning in a disrupted environment: Exploring higher education student resilience using the dynamic interactive model of resilience", explores the insights gained into how systems (people, institutions, and societies) cope during disruption (COVID-19). The research was conducted at a university in the South West of England. It employed a mixed-methods approach to examine students' responses and coping strategies amid COVID-19 disruption and factors influencing their resilience.

Calonge et al.'s "Should I stay or should I go? International students' challenges and opportunities to secure employment in their host country after graduation. A scoping review using PRISMA" examines challenges and opportunities for international students seeking post-graduation employment. International students are often motivated to seek job opportunities yet frequently struggle to find employment in host countries, facing lower rates as compared to their local peers.

Alptekin et al.'s research, "An analysis of the learning styles in online environments of graduate students studying distance education," analysed learning styles in the context of a Turkish university's distance education non-thesis Master's programme. Their findings suggest that learning styles do not significantly differ based on sex, income, or device use. Age influences visual, aural, and active learning levels. Retired students showed lower audio-visual and active learning levels. Higher technology use efficacies correlated with increased logical learning levels. Students with extensive daily device use exhibited higher independent learning levels.

Freire et al.'s "A systematic review of graduate training on cultural competence" examines scholarship from the past decade on graduate training for culturally competent mental health care, focusing on marginalised individuals (based on race, gender, and sexual orientation). The review adopts a holistic view of cultural competence, acknowledging clients within their cultural contexts and recognising power dynamics. Recommendations include refining cultural competence concepts, developing innovative training methods, and enhancing evaluation tools.

Ambe et al.'s "Sociodemographic factors and teaching method preferences among university academics: Implications for effective curriculum implementation" explores the teaching method preferences of 400 university academics and their sociodemographic factors' influence on these preferences in Nigeria. Results showed no significant connections between factors like gender, academic faculty, and teaching experience with teaching method preferences.

Lorenz and König's study "Engaging students through messaging applications in foreign language learning", investigates undergraduates' experiences with eStudentMentors using WhatsApp and Telegram for German language learning at a Singaporean university. Lorenz and König's research found that social perceptions and pressures outweighed perceived benefits, challenging Social Exchange Theory.

Kamali's autoethnographic narrative, "Metamorphosis of a teacher educator: A journey towards a more critical self", traces the author's journey from a non-critical to a critical teacher educator. Data from personal sources like diaries and feedback highlight the factors shaping thoughts and practices. The study underscores how voice, agency, and transformation into critical teacher educators are achieved.

Amaral and Gamez's article "Exploring the synergistic effects of combining design thinking and project-based learning in a blended course" details the creation and execution of a Brazilian project that blends design thinking and project-based learning. Data from multiple sources revealed that design thinking helped address community challenges, motivating learning and problem-solving, and combining approaches fostered project management and interdisciplinary learning.

Limna's study examines "The impact of NVivo in qualitative research: Perspectives from graduate students". Qualitative interviews reveal that NVivo, a qualitative data analysis software, enhances research efficiency, collaboration, and outcomes. Or's "Examining Unified Theory of Acceptance and Use of Technology 2 through Meta-analytic Structural Equation Modelling" analyses empirical studies in education using One-stage Meta-Analysis and Structural Equation Modelling (OSMASEM). OSMASEM enables researchers to explore UTAUT2's technology acceptance and use trends without replicating studies.

While JALT focuses on higher and adult education, we occasionally publish other educational research as an exception. Owan et al.'s study "Predicting students' multidimensional learning outcomes in public secondary

schools: The roles of school facilities, administrative expenses and curriculum", builds on prior research by examining how school facilities, administrative expenses, and curriculum impact students' cognitive, affective, and psychomotor learning outcomes in Nigeria. Their findings inform educational quality enhancement strategies.

Owan et al.'s study concludes the research section, which is followed by an interview with an educational thought leader, "A critical perspective on generative AI and learning futures. An interview with Stefan Popenici". The interview focuses on Popenici's discussion of his research on AI's impact on higher education. Themes from his book *Artificial Intelligence and learning futures*, including eugenics and systemic racism, are explored. Popenici critiques the power of technology and its role in higher education's identity crisis. Amongst other things, Popenici and his interviewers explore the challenges and opportunities of higher education brought upon by AI.

Three EdTech articles bring us back to this issue's dominant AI theme, which has so far been exemplified by nine research articles and the educational thought leader interview. First, Ifelebuegu et al.'s contribution examines the role of AI in education, particularly chatbots, highlighting their benefits, like personalised learning and administrative ease, alongside challenges such as job displacement and misinformation. It explores AI's impact on research and collaboration. Ethical concerns, including data privacy and the digital divide, are also addressed. The paper emphasises the need to balance AI and human elements in education and calls for robust ethical frameworks for AI use in educational settings.

Second, Calonge et al.'s EdTech article "Enough of the chit-chat: A comparative analysis of four AI chatbots for calculus and statistics" returns us again to the topic of generative AI and higher education. The authors compare AI chatbots (ChatGPT, GPT-4, Bard, and LLaMA) for mathematics and statistics education. Their research highlights chatbots' potential positive impact on higher education transformation. Third, Gamage et al.'s contribution, "ChatGPT and higher education assessments: More opportunities than concerns?", addresses the increasing use of AI tools like ChatGPT and their near-human writing capabilities. This has raised concerns about student cheating in assessments. The paper investigates why students are tempted to cheat, the challenges in detecting AI-generated content, and the potential of AI to improve the assessment of higher-order thinking skills among academics.

The EdTech section is followed by Chen's case study, "Mentoring international postgraduate students and early career researchers through transnational telecollaboration: a supervisor's autoethnography". He discusses the challenges international students face pursuing Higher Degrees by Research (HDR) in Australia.

Furthermore, the issue contains four opinion pieces. The first opinion piece is Popenici's paper titled "The critique of AI as a foundation for judicious use in higher education," which addresses the challenges posed by integrating Artificial Intelligence (AI) in education after the launch of ChatGPT. Beyond the AI hype and marketing, it critically examines potential risks, ethical considerations, and practical applications. The analysis encompasses AI's ethical implications, effects on higher education teachers, students, and learning, and long-term societal consequences, seeking ways to utilise AI beneficially.

As AI and chatbots like ChatGPT advance, educators assess their benefits and risks in online assessment. While AI offers personalised learning, its use challenges assessment legitimacy and integrity. Ifelebuegu's opinion piece "Rethinking online assessment strategies: Authenticity versus AI chatbot intervention" examines AI's impact on authentic online assessments, highlighting issues with current testing validity due to AI misuse. He emphasises the importance of authentic assessments that foster higher-order skills, resisting AI influence. However, AI can aid assessment automation, personalisation, and collaboration. Ifelebuegu's contribution advocates rethinking and improving online assessments in the AI era for greater authenticity and resilience against malpractice.

Next, Martin Andrew's "Neo-neoliberalist capitalism, intensification by stealth and campus real estate in the modern university in Aotearoa/New Zealand" critiques higher education and vocational training reforms in Aotearoa/New Zealand. Andrew explores the origins and manifestations of neoliberal ideology in the country's tertiary education. Neoliberal policy's work intensification and *responsibilisation* impacts academics adversely. Examining universities' finances and property portfolios, the article explores higher education issues in the age of 'neo-neoliberalist capitalism'.

In the issue's final opinion piece, Gilmore critically reflects on his personal educational experiences, recalling supportive and unsupportive educators. Gilmore's opinion piece "The (academic) road less travelled: From dropout to recovery" offers personal academic redemption and hope for those who have faced similar challenges. It emphasises recovery and eventual success as a response to those who doubted our potential. Rahimi's brief paper "Developing and analysing an authentic technical proposal writing assignment through the lens of an authenticity framework: Implications for practice" explores the use of an authentic assessment framework in the analysis of a technical proposal writing assignment in an undergraduate engineering course.

Finally, we come to the book review section, which contains two detailed discussions by Rudolph. The first review assesses Popenici's *Artificial Intelligence and learning futures*. Popenici challenges the idea that AI is a universal solution. Although the book predates the generative AI craze, Rudolph argues that this is an important, rich and challenging book as it discusses 'intelligence' and 'artificial intelligence' in a historical and critical higher education context. Rudolph's second review is about *Learning intelligence: Innovative and digital transformative learning strategies*, edited by Kumaran Rajaram and co-authored with Samson Tan. The book focuses on guiding complex learning in the digital transformation and innovation era. It is recommended for its thought-provoking content and broad coverage of higher education teaching and learning topics in the digital age.

References

Adarkwah, M. A., Amponsah, S., van Wyk, M. M., Huang, R., Tlili, A., Shehata, B., Metwally, A. H. S., & Wang, H. (2023). Awareness and acceptance of ChatGPT as a generative conversational AI for transforming education by Ghanaian academics: A two-phase study. *Journal of Applied Learning and Teaching, 6*(2), 78-93. https://doi.org/10.37074/jalt.2023.6.2.13

Ahmad, M., Alhalaiqa, F., & Subih, M. (2023). Constructing and testing the psychometrics of an instrument to measure the attitudes, benefits, and threats associated with the use of Artificial Intelligence tools in higher education. *Journal of Applied Learning and Teaching, 6*(2), 114-120. https://doi.org/10.37074/jalt.2023.6.2.36

Andrew, M. (2023). Neo-neoliberalist capitalism, intensification by stealth and campus real estate in the modern university in Aotearoa/New Zealand. Journal of Applied Learning & Teaching, 6(2), 393-401. https://doi.org/10.37074/jalt.2023.6.2.16

Anthropic. (2023, May 11). *Introducing 100K context windows*. https://www.anthropic.com/index/100k-context-windows

Baidoo-Anu, D., & Ansah, L. O. (2023). Education in the era of generative artificial intelligence (AI): Understanding the potential benefits of ChatGPT in promoting teaching and learning. *Journal of AI, 7*(1), 52-62.

Bastani, A. (2020). *Fully automated luxury communism*. Verso Books.

Berg, J., Raj, M., & Seamans, R. (2023). *Capturing value from Artificial Intelligence*. Academy of Management Discoveries.

Brookfield, S. D., Rudolph, J., & Tan, S. (2023). *Teaching well: Understanding key dynamics of learning-centered classrooms*. Routledge.

Chaka, C. (2023). Detecting AI content in responses generated by ChatGPT, YouChat, and Chatsonic: The case of five AI content detection tools. *Journal of Applied Learning and Teaching, 6*(2), 94-104. https://doi.org/10.37074/jalt.2023.6.2.12

Chan, C. K. Y., & Tsi, L. H. (2023). *The AI revolution in education: Will AI replace or assist teachers in higher education?*. arXiv preprint arXiv:2305.01185.

Chomsky, N., Roberts, I., & Watumull, J. (2023, March 8). Noam Chomsky: The false promise of ChatGPT. *The New York Times*. https://www.nytimes.com/2023/03/08/opinion/noam-chomsky-chatgpt-ai.html

Collini, S. (2012). *What are universities for?*. Penguin.

Cook, L. (1938). *Community backgrounds of education: A textbook and educational sociology*. Macmillan.

Devlin, H. (2023, July 7). AI likely to spell end of traditional school classroom, leading expert says. *The Guardian*. https://www.theguardian.com/

Eloundou, T., Manning, S., Mishkin, P., & Rock, D. (2023). *Gpts are gpts: An early look at the labor market impact potential of large language models*. arXiv preprint arXiv:2303.10130, 2023.

Firat, M. (2023). What ChatGPT means for universities: Perceptions of scholars and students. *Journal of Applied Learning and Teaching, 6*(1), 57-63. https://doi.org/10.37074/jalt.2023.6.1.22

Fleming, P. (2021). *Dark academia. How universities die*. Pluto Press.

Fleming, P., Rudolph, J., & Tan, S. (2021). 'Never let a good crisis go to waste'. An interview with Professor Peter Fleming on dark academia, the pandemic and neoliberalism. *Journal of Applied Learning and Teaching, 4*(2), 110-120. https://doi.org/10.37074/jalt.2021.4.2.14

Gamage, K. A., Dehideniya, S. C., Xu, Z., & Tang, X. (2023). ChatGPT and higher education assessments: more opportunities than concerns?. *Journal of Applied Learning and Teaching, 6*(2), 358-369. https://doi.org/10.37074/jalt.2023.6.2.24

Geerling, W., Mateer, G. D., Wooten, J., & Damodaran, N. (2023). ChatGPT has aced the test of understanding in college economics: Now what?. *The American Economist,* 05694345231169654.

Ginsberg, B. (2011). *The fall of the faculty*. Oxford University Press.

Graeber, D. (2018). *Bullshit jobs. A theory*. Allen Lane.

Haase, J., & Hanel, P. H. (2023). *Artificial muses: Generative artificial intelligence chatbots have risen to human-level creativity*. arXiv preprint arXiv:2303.12003.

Hassoulas, A., Powell, N., Roberts, L., Umla-Runge, K., Gray, L., & Coffey, M. (2023). Investigating marker accuracy in differentiating between university scripts written by students and those produced using ChatGPT. *Journal of Applied Learning & Teaching, 6*(2), 71-77. https://doi.org/10.37074/jalt.2023.6.2.13

Haw, M. (2019, September 6). Will AI replace university lecturers? Not if we make it clear why humans matter. *The Guardian*. https://www.theguardian.com/education/2019/sep/06/will-ai-replace-university-lecturers-not-if-we-make-it-clear-why-humans-matter

Houser, K. (2017, December 12). The solution to our education crisis might be AI. *Futurism*. https://futurism.com/ai-teachers-education-crisis.

Huang, R., Tlili, A., Xu, L., Ying, C., Zheng, L., Metwally, A. H. S., ... & Bonk, C. (2023). Educational futures of intelligent synergies between humans, digital twins, avatars, and robots-the iSTAR framework. *Journal of Applied Learning & Teaching, 6*(2), 28-43. https://doi.org/10.37074/jalt.2023.6.2.33

Ifelebuegu, A. (2023). Rethinking online assessment strategies: Authenticity versus AI chatbot intervention. Journal of Applied Learning and Teaching, 6(2), 385-392. https://doi.org/10.37074/jalt.2023.6.2.2

Ifelebuegu, A. O., Kulume, P., & Cherukut, P. (2023). Chatbots and AI in Education (AIEd) tools: The good, the bad, and the ugly. *Journal of Applied Learning and Teaching, 6*(2), 332-345. https://doi.org/10.37074/jalt.2023.6.2.29

Ismail, F., Tan, E., Rudolph, J., Crawford, J., & Tan, S. (2023). Artificial intelligence in higher education. A protocol paper for a systematic literature review. Journal of Applied Learning and Teaching, 6(2), 56-63. https://doi.org/10.37074/jalt.2023.6.2.34

Kefalaki, M., Diamantidaki, F., & Rudolph, J. (2022). Editorial 5(SI1): Technology and education. Innovation and hindrances. *Journal of Applied Learning & Teaching, 5*(S1), 6-11. https://doi.org/10.37074/jalt.2022.5.s1.1

Luckin, R. (2023, July 14). Yes, AI could profoundly disrupt education. But maybe that's not a bad thing. *The Guardian*. https://www.theguardian.com/

Mikami, K. (2023, August 17). Is there AI that can make charts and graphs? *EcoAGI*, https://ecoagi.ai/topics/AIGC/is-there-ai-that-can-make-charts-and-graphs

Mills, A., Bali, M., & Eaton, L. (2023). How do we respond to generative AI in education? Open educational practices give us a framework for an ongoing process. *Journal of Applied Learning and Teaching, 6*(1), 16-30. https://doi.org/10.37074/jalt.2023.6.1.34

Mohammadkarimi, E. (2023). Teachers' reflections on academic dishonesty in EFL students' writings in the era of artificial intelligence. *Journal of Applied Learning and Teaching, 6*(2), 105-113. https://doi.org/10.37074/jalt.2023.6.2.10

Mollick, E. R. (2023a, August 13). Automating creativity: There is now strong evidence that AI can help make us more innovative. *One useful thing*. https://www.oneusefulthing.org/p/automating-creativity

Mollick, E. (2023b, June 12). Assigning AI: Seven ways of using AI in class. *One useful thing*. https://www.oneusefulthing.org/p/assigning-ai-seven-ways-of-using

Mollick, E. R., & Mollick, L. (2023, March 17). *Using AI to implement effective teaching strategies in classrooms: Five strategies, including prompts*. http://dx.doi.org/10.2139/ssrn.4391243

Noy, S., & Zhang, W. (2023). *Experimental evidence on the productivity effects of generative artificial intelligence*. SSRN: https://ssrn.com/ abstract=4375283

Orwell, G. (1933). *Down and out in Paris and London*. Penguin

Popenici, S. (2023a). *Artificial Intelligence and learning futures: Critical narratives of technology and imagination in higher education*. Routledge.

Popenici, S. (2023b). The critique of AI as a foundation for judicious use in higher education. *Journal of Applied Learning and Teaching, 6*(2), 378-384. https://doi.org/10.37074/jalt.2023.6.2.4

Popenici, S., Rudolph, J., Tan, S., & Tan, S. (2023). A critical perspective on generative AI and learning futures. An interview with Stefan Popenici. *Journal of Applied Learning and Teaching, 6*(2), 311-331. https://doi.org/10.37074/jalt.2023.6.2.5

Rasul, T., Nair, S., Kalendra, D., Robin, M., de Oliveira Santini, F., Ladeira, W. J., ... & Heathcote, L. (2023). The role of ChatGPT in higher education: Benefits, challenges, and future research directions. *Journal of Applied Learning and Teaching, 6*(1), 41-56. https://doi.org/10.37074/jalt.2023.6.1.29

Rebelo, M. (2023, August 2). The best AI video generators in 2023: Use these tools to create, edit, and enhance videos with AI. *Zapier*. https://zapier.com/blog/best-ai-video-generator/

Rudolph, J. (2014). *Massive Open Online Courses (MOOCs) as a disruptive innovation in higher education?* M.Ed. dissertation, University of Adelaide.

Rudolph, J. (2018). A brief review of Mentimeter – A student response system. *Journal of Applied Learning & Teaching, 1*(1), 35-37. https://doi.org/10.37074/jalt.2018.1.1.5

Rudolph, J., Tan, S., & Tan, S. (2023a). ChatGPT: Bullshit spewer or the end of traditional assessments in higher education?. *Journal of Applied Learning and Teaching, 6*(1), 342-363. https://doi.org/10.37074/jalt.2023.6.1.9

Rudolph, J., Tan, S., & Tan, S. (2023b). War of the chatbots: Bard, Bing Chat, ChatGPT, Ernie and beyond. The new AI gold rush and its impact on higher education. *Journal of Applied Learning & Teaching, 6*(1), 364-389. https://doi.org/10.37074/jalt.2023.6.1.23

Rudolph, J., Tan, S., & Aspland, T. (2023c). JALT Editorial 6(1): Fully automated luxury communism or Turing trap? Graduate employability in the generative AI age. *Journal of Applied Learning and Teaching, 6*(1), 7-15. https://doi.org/10.37074/jalt.2023.6.1.35

Russell, B. (2004). *In praise of idleness and other essays*. Psychology Press.

Santandreu, D. C., Smail, L., & Kamalov, F. (2023). Enough of the chit-chat: A comparative analysis of four AI chatbots for calculus and statistics. *Journal of Applied Learning and Teaching, 6*(2), 346-357. https://doi.org/10.37074/jalt.2023.6.2.22

Shimek, C. (2023, July 6). AI outperforms humans in creativity test. *Neuroscience News*. https://neurosciencenews.com/ai-creativity-23585/

Solomon, S., & Du Plessis. M. (2023). Experiences of

precarious work within higher education institutions: A qualitative evidence synthesis. *Frontiers in Education, 8,* https://doi.org/10.3389/feduc.2023.960649

Stevens, D. (2019). *Write more, publish more, stress less!* Stylus.

Stracke, C. M., Chounta, I.-A., Holmes, W., Tlili, A., & Bozkurt, A. (2023). A standardised PRISMA-based protocol for systematic reviews of the scientific literature on Artificial Intelligence and education (AI&ED). *Journal of Applied Learning and Teaching, 6*(2), 64-70. https://doi.org/10.37074/jalt.2023.6.2.38

Sullivan, M., Kelly, A., & McLaughlan, P. (2023). ChatGPT in higher education: Considerations for academic integrity and student learning. *Journal of Applied Learning and Teaching, 6*(1), 31-40. https://doi.org/10.37074/jalt.2023.6.1.17

Susskind, D. A. (2021). *World without work: Technology, automation and how we should respond.* Penguin.

Sword, H. (2012). *Stylish academic writing*. Harvard University Press.

Sword, H. (2017). *Air & light & time & space. How successful academics write.* Harvard University Press.

Sword, H. (2023). *Writing with pleasure.* Princeton University Press.

Terzian, S. (2019). The history of technology and education. In J. L. Rury & E. H. Tamura (Eds.), *The Oxford handbook of the history of education* (pp. 554-567).

Thio, S. Y. (2023, February 24). ChatGPT: Has artificial intelligence come for our jobs?. *The Business Times*, https://www.businesstimes.com.sg/opinion-features/chatgpt-has-artificial-intelligence-come-our-jobs

Tlili, A., Huang, R., Mustafa, M. Y., Zhao, J., Bozkurt, A., Xu, L., ... & Burgos, D. (2023). Speaking of transparency: Are all Artificial Intelligence (AI) literature reviews in education transparent?. *Journal of Applied Learning and Teaching, 6*(2), 44-55. https://doi.org/10.37074/jalt.2023.6.2.15

Watters, A. (2021). *Teaching machines: The history of personalized learning.* MIT Press.

World Economic Forum. (2023). *Future of jobs report 2023*. https://www3.weforum.org/docs/WEF_Future_of_Jobs_2023.pdf

Xames, M. D., & Shefa, J. (2023). ChatGPT for research and publication: Opportunities and challenges. *Journal of Applied Learning and Teaching, 6*(1), 390-395. https://doi.org/10.37074/jalt.2023.6.1.20