Are we there yet? Identifying saturation points in generative AI research

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Just over 3 years after the public release of ChatGPT, we revisit the initial research agenda that the then lead editors of AJET outlined in early 2023, and we explore how the five key research areas related to generative artificial intelligence (AI) they identified at the time have been addressed since: sensemaking, assessment integrity, assessment redesign, learning and teaching with AI, and ethics. Significant progress has been made across these areas, evidenced by tailored policy frameworks, sector-wide collaborations and an increasing number of empirical studies. However, given this proliferation of research activity and focus on generative AI, we ultimately ask the question of whether we are reaching saturation point in some areas of generative AI-related research. Drawing on submission trends, we reflect on the value and limits of certain types of empirical evidence within the educational technology field, and tertiary education more generally. Rather than proposing fixed saturation criteria, we call here for reflection and dialogue, for researchers, journal editors and publishers. We argue that while we may not have reached saturation point yet, we seem to be getting close to it in some focus areas and contexts.

Keywords: generative artificial intelligence (AI), educational technology, AJET, AI research, saturation points

Early in 2023, not long after the public release of ChatGPT, the lead editors of AJET (Lodge et al., 2023) wrote an editorial in the first issue of that year in which they mapped out a broad research agenda related to generative artificial intelligence (AI). This was very timely as the tertiary sector was in panic mode in the face of a significant disruption that generative AI could bring to the way it operates. As a way of moving beyond the initial panic, Lodge et al. mapped out five key areas for much needed research into generative AI:

1. *Sensemaking* – This refers to the development of an understanding of how generative AI works, including a conceptual understanding, which has resulted in the design of a number of frameworks, particularly in relation to assessment (e.g., Corbin, Bearman, Boud, Crawford et al., 2025; Furze et al., 2024; Jha & Atif, 2025).
2. *Assessment integrity* – Assessment and assurance of learning quickly became an early sharp focus of the discussion around generative AI, and consequently raised questions about the role of institutions in providing evidence of learning for students and future employers (e.g., Corbin, Bearman, Boud, & Dawson, 2025; Dollinger et al., 2025; Kumar et al., 2024).
3. *Assessment redesign* – A focus on assessment redesign logically flowed out of the concerns about academic integrity, yet assessment redesign also referred to the need for students to demonstrate their ability to use AI responsibly and effectively.
4. *Learning and teaching with AI* – This refers to the potential of generative AI to become part of educators' practice in lesson planning and the generation of learning objects and activities.

5. *Ethics and AI* – This relates both to immediate concerns around biases and errors in factual information that may result from the use of generative AI, as well as broader concerns, such as the environmental impact of running server farms that support the large language models informing generative AI.

While many of the initial papers published at the time this list was written were very much part of sensemaking and developing an understanding of generative AI's impact on learning and teaching, the other four areas pointed more towards a need for greater empirical evidence around effective learning and teaching approaches and in particular assessment.

In a follow-up editorial later in 2023, and as part of an AJET themed issue called "AI in tertiary education: Progress on research and practice", the same lead editors (Thompson et al., 2023) revisited the initial five focus areas and identified that all those areas were still highly relevant, but they also added some nuances. For example, they noted that more work was needed on understanding the skills required to engage with generative AI, not only for teaching and learning but also in professional contexts. In other words, "we need a better understanding of what generative AI use looks like in the professions" (p. 3). An additional area of much-needed research related to policy development and implementation in the tertiary sector, in particular as it related to scaling approaches to generative AI across the sector.

Significant progress has been made since the 2023 editorials. Generative AI policy work, including around scaling, has advanced considerably, both at institutional levels and sector wide, through collaborations with the Tertiary Education Quality and Standards Agency (e.g., Lodge et al., 2025). Liu's two-lane approach (Digitally Enhanced Education Webinars , 2025) has been particularly influential in that respect, as a clear indication that we "can't outrun or out-design AI" in our approaches to assessment (Liu & Bridgeman, 2023). As part of the initial need for sensemaking, others have developed much more detailed, and in some cases "crowdsourced", breakdowns of the "field" of generative AI (Bozkurt et al., 2024) as well as more detailed research agendas (Doğan et al., 2024; Xiao et al., 2025). Again, the aim is to develop an evidence base for the application of generative AI across the tertiary sector. Since the initial emphasis on sensemaking, there has been a widespread identified need for empirical studies to test some of the emerging practice in the other four focus areas, and probably most urgently in assessment.

Recently, Corbin, Bearman, Boud, Crawford et al. (2025) have outlined a research agenda specifically focused on assessment after AI. Founded on four fundamental principles that relate to contextualised meanings around generative AI, contextualised meanings around assessment itself, continuities in assessment practice, and issues of inclusion, equity, ethics and social justice, they have identified six domains for assessment-related research in the context of generative AI: (1) Why do we assess? (2) Who should be involved in assessment? (3) What can and should we be assessing? (4) How and when should we assess? (5) What are the appropriate sites of assessment for which purpose? and (6) What if …? While focused specifically on assessment, and therefore restricted to key proposed research areas 2 and 3, this agenda has broader applicability to evaluating emerging empirical research related to generative AI in a structured manner. Corbin and Walton (2025) have similarly outlined a research agenda specifically related to generative AI summarisers, which is an example of work related to key proposed research area 4. Consequently, what we see is a subdivision of sorts where more specialised areas of generative AI in learning and teaching become the focus of research.

As the current AJET lead editors, we have seen a steady increase in submissions of research papers to AJET in recent years (e.g., a 48% increase from 874 submissions in 2024 to 1,296 in 2025 (Corrin, Han, Deneen, & Huijser, 2025). This increase in submissions is continuing into 2026 with current forecasts indicating we will receive over 1,700 submissions. In 2025, 43% of submissions related to generative AI in some way, and many of them have heeded the call for empirical research in the five areas initially identified in Lodge et al.'s (2023) editorial. This is good news for the sector as it provides us with an increasing empirical evidence base around generative AI-related practice that can subsequently inform the questions in each of Corbin, Bearman, Boud, Crawford et al.'s (2025) six domains. However, the sheer volume of studies and submissions raises a larger question about saturation points of specific study areas

and foci. Or to put it differently: when do we reach saturation on the topic of generative AI in tertiary education?

Context is important in answering this, as reflected in Corbin, Bearman, Boud, Crawford et al.'s (2025) four principles. However, many submissions focusing on generative AI-related practice in specific micro-contexts often produce very similar results. This is what tends to happen during the first wave of empirical research after a disruptive event, and the COVID-19 pandemic was a good example of that (Corrin et al., 2021; Zhang et al., 2022). The challenge in relation to these smaller-scale studies is to determine when enough is enough, especially when the findings only confirm what we already know, rather than adding to that knowledge.

Large-scale research studies that have wider applicability and can be generalised across different contexts and across the broader tertiary sector take considerable time to set up, with corresponding demands around data analysis and write-ups. That the bulk of the initial flurry of small-scale case studies is in relatively small contexts is therefore hardly surprising. This is further driven by "publish or perish" pressures, which may incentivise experienced researchers in tertiary education to push out early smaller-scale papers rather than commit to the scope of larger project management and reporting.

There is definitely value in small-scale studies, especially in the initial period when empirical outcomes are still relatively scarce. Furthermore, some such smaller-scale studies may offer significant value if they focus on a novel aspect of generative AI practice, or if the specific context calls for a unique application of generative AI in the learning and teaching environment. However, as more and more studies appear, and as we evaluate this increasing volume of generative AI-focused papers, such novel aspects are becoming increasingly rare. This raises questions about whether we have reached a saturation of particular types of studies with similar methodologies and results, and how much more we need, as a field (of educational technology) and as a tertiary education sector.

One such focus of a large number of current submissions may be captured under the broad umbrella of technology acceptance studies. This includes survey-based, small-scale studies that use long-established technology-acceptance models, such as the technology acceptance model (Al Azawei et al., 2017) and related models such as unified theory of acceptance and use of technology (Yueh et al., 2015). These models are not new, but they are now commonly applied to the introduction of generative AI. Not surprisingly, other journals have noticed this as well, and some have even asked whether technology acceptance models are still fit for purpose (O'Dea et al., 2025). We are not suggesting a blanket dismissal of studies that use technology acceptance models, as some of them still add significant value, especially when conducted in a specific context or with particular cohorts of students. Our purpose is rather to point out the necessity to start asking questions of when we reach a saturation point of studies with a particular focus, or when there is nothing more to add in terms of empirical evidence for a particular practice.

If we consider what AJET has published historically (Corrin, Han, Huijser, & Deneen, 2025; Han et al., 2025; Huijser et al., 2025), there are instances where saturation points have been reached for specific topics and areas of research. For example, many technology acceptance model-based studies qualify for that level of saturation in a general sense as related to educational technology research. The question here is about generative AI studies. For example, how many more studies do we need that ask cohorts of students about their use of generative AI for various assessment tasks? Or how well students respond to generative AI chatbots implemented as learning supports in classes? Have we reached saturation point of perceptions of generative AI use in that respect? Is there anything new to add? Again, this is not an attack on studies that have this focus, but rather queries how, as a field and sector, we can ensure that research matters and is adaptive to changing needs.

As noted, the research agenda outline by Lodge et al. (2023) is useful in this respect, as in this example, the focus is on empirical data related to research areas 2 (assessment integrity), 3 (assessment redesign) and perhaps even 4 (learning and teaching with AI) and 5 (ethics and AI). Similarly, in Corbin, Bearman, Boud, Crawford et al.'s (2025) focus areas, this may relate to areas 3 (what to assess?), 4 (how and when

to assess?), and perhaps 6 (what if …?). Such agendas thus help us in the sensemaking process, and identifying saturation points for empirical data is definitely part of that process.

In some ways, this is jumping the gun a little. For example, if we look at what we actually published in AJET in 2025, there does not appear to be a saturation of AI-related papers. Out of 36 papers published in AJET in 2025, 13 (or just over one third) have an AI focus. Currently, there are nine papers in early release, and four of those have an AI focus. This does not seem out of sync and seems reasonable given the continued centrality of generative AI in everyday discussions about learning and teaching, especially when the focus is educational technology. However, as AJET editors, we see a considerable increase on the horizon of generative AI-related research, and some of that covers very similar terrain. Of the 513 submissions received so far this year, 50% relate to AI, which is a 7% increase on 2025 AI-related submissions. In that context, it is important to start considering when saturation points may be reached, and what the criteria should be to arrive at fair decisions about that.

Of course, AJET does not exist in isolation. We are part of a broader ecosystem of educational technology-related academic publishing, which in turn feeds into the broader academic field of learning and teaching in the tertiary education sector. This is especially significant when it comes to a disruption such as generative AI, which is not isolated to the educational technology field but instead affects all aspects of tertiary education. It is no coincidence in this respect that the Tertiary Education Quality and Standards Agency's approach in response to that disruption has been to gather experts from across the sector as part of an iterative approach to developing guidance around the use and impact of generative AI. "Iterative" is the operative word here, which is relevant to our question around saturation points. We could in this editorial attempt to come up with a set of criteria to ascertain whether a particular research area of method in relation to generative AI has reached saturation point. However, that would firstly be impossible, as the criteria would be fluid and forever in need of adjustment, and secondly, it would be undesirable as it would not take account of the specific contexts in which the research was conducted, nor the value judgements that individual journals need to make about when enough is enough for them: context is everything in that respect. Thus, this editorial is about raising the question of saturation points related to generative AI research, as a call for reflection and dialogue, for researchers, journal editors and publishers. As the current AJET lead editors, we have certainly begun to reflect on this, but the saturation points may be differently positioned in other educational technology journals, and in tertiary education focused journals more broadly.

So, are we there yet? Have we reached saturation point yet? In a general sense, the answer is "no", but in some focus areas and contexts, we are definitely getting close.

Author contributions

Henk Huijser: Conceptualisation, Investigation, Writing – original draft, Writing – review and editing; **Linda Corrin**: Writing – review and editing; **Chris Deneen**: writing – review and editing; **Feifei Han**: review and editing.

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