

Professional Judgement in the Age of Generative AI

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The emergence of Generative AI (GAI) in education has moved rapidly from a speculative 'if' to now becoming almost ubiquitous. Data indicates that the percentage of teachers using these tools has surged within just two years. Adoption has climbed from 58% in 2025 (National Literacy Trust), to recent data from NEU members (2026) suggesting the figure is now closer to 80%.

Typically, such profound shifts in educational approaches are built around a grounding of evidence. For example, the adoption of the mastery approach influenced by East Asian mathematical methods was prompted by PISA data, indicating that a group of countries within that region were regularly outperforming countries such as England. Therefore, the adoption within English schools had a clear degree of evidence behind it (Jerrim and Vignoles, 2016).

With GAI, the situation is different. While the DfE (2025) endorses GAI use, it simultaneously acknowledges a lack of evidence regarding its impact on teacher development. This suggests a "cart before the horse" approach to innovation. This is translated in the classroom, as despite almost 4 in 5 teachers using GAI, data reveals that 49% of schools lack any formal AI policy, and 57% of state schools do not have a member of staff responsible for monitoring how GAI is used within the school (Latham and Montecute, 2025; NEU, 2026). This means many teachers are using GAI within their practice without the guardrails or policies required for safe and effective use.

This rapid increase in usage indicates that GAI is becoming a permanent fixture in the classroom. As these tools become more sophisticated, they raise important questions about the metacognitive thought processes of the teaching profession. This trend shines a particularly bright light on less experienced staff who may not yet have the "backpack" of tacit knowledge to fall back on when GAI outputs require scrutiny.

The focus must now shift to questions of maintaining, and in some cases rebuilding, professional judgement. In this article, we explore how the convenience of GAI could erode the "hard thinking" essential to meaningful learning and look at how educators can reclaim their professional agency through three approaches— policy, subject discipline and teacher professionalism.

Policy Approach

At Liverpool John Moores University (LJMU), the rapid emergence of GAI presented both opportunities and dilemmas. While the potential for efficiency and innovation was clear, there was also a pressing need to ensure that trainee teachers developed the critical thinking and professional judgement necessary to use GAI responsibly. Within the Primary Education Team at LJMU, we have sought to achieve this by creating a modelled framework for our student teachers to apply, which can help ensure fidelity and consistency along with effective and accurate use of GAI. This is known as the CARE framework.

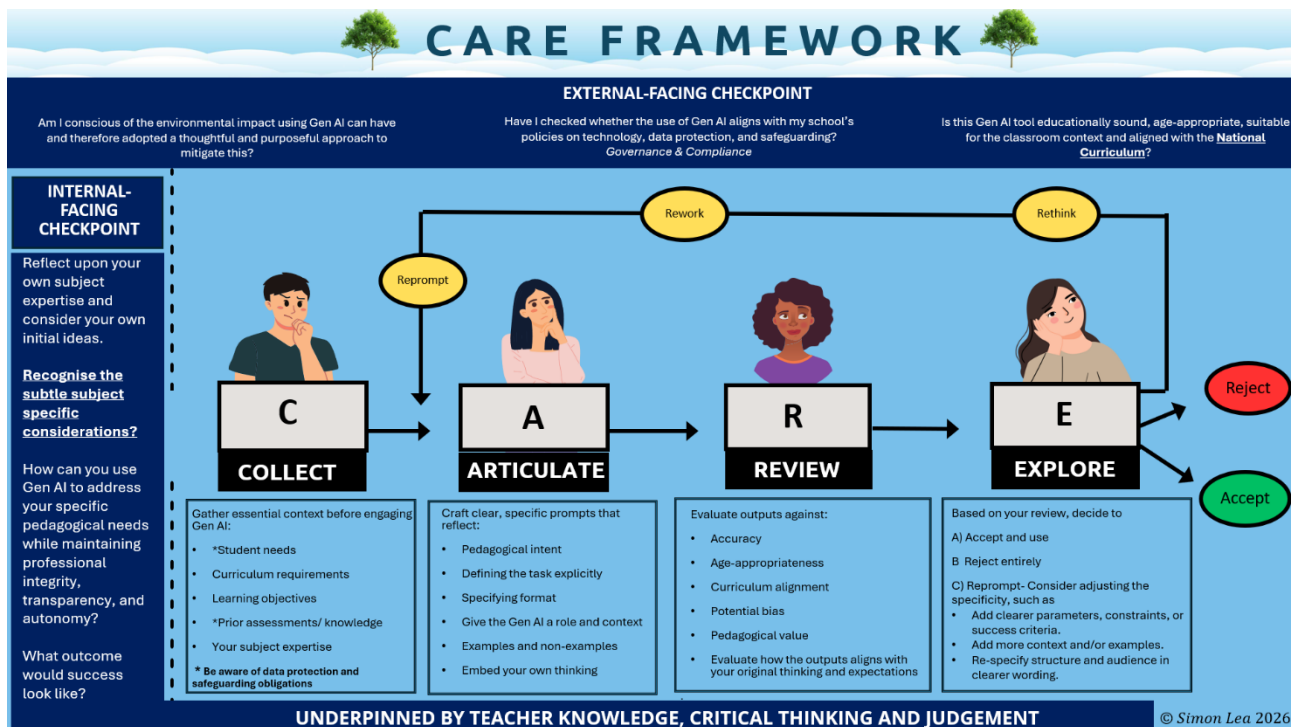
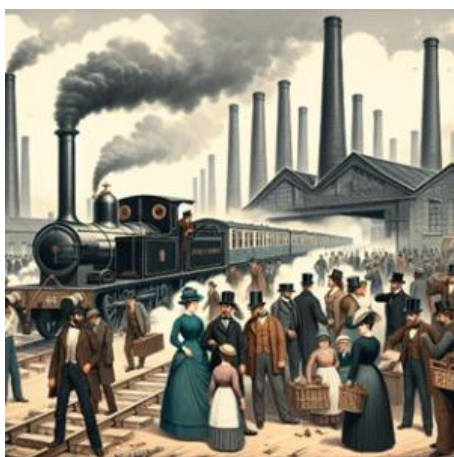


Image 1: CARE framework

The **CARE** framework was developed to scaffold trainee teachers' engagement with GAI in a way that prioritises rigour, reflection and pedagogical integrity. These principles are grounded as both preventative and proactive actions. Without this, concerns grow that the use of GAI could present 'new challenges, such as cognitive laziness, cognitive overconfidence, and unconditional reliance on algorithmic guidance,' (Tezer, 2025, P.3)

To avoid this, the framework is fundamentally underpinned by developing two key steps before using GAI which demands robust metacognition. The students are guided to consider- External (the institution) and Internal (themselves) facing checkpoints. These steps ensure students align GAI with the guardrails set out within school policies and the national curriculum while maintaining ethical accountability. Crucially, this process continues to encourage teachers to lead with their own expertise so that GAI augments, rather than dictates their thinking. The sequence of engagement is vital: if for example, a student teacher asks GAI to generate a lesson from scratch, they could fall into "passive acceptance," lacking the confidence to challenge the output. Conversely, when GAI is used to build upon a teacher's initial ideas, it functions as a tool for enhancement. By remaining the active agent, the teacher retains pedagogical ownership and ensures the final resource is contextually appropriate.

A more specific example could be student teachers becoming seduced by the ease and neat curation GAI can produce. Images are often clean, sharp while also beautified to the viewer. A student who may be teaching a history lesson and looking at steam engines but may well be tempted by the gravitas of generating an image using GAI, but any decision should be grounded in its accuracy and effectiveness. Therefore, the framework encourages the trainee teachers to justify its superior efficacy over traditional or readily available resources. Posing the question is generating an image of an early steam train via GAI (image 2), preferable to utilising real photographs (image 3) that could be found in school archives or through a simple web search? This approach prevents GAI from becoming an uncritical default tool when more authentic or efficient alternatives exist.



Images 2 & 3: A GAI image of early steam engines in England (created by Microsoft Copilot, June 2025) compared to a photograph of early steam engines (found on- <https://www.railwaymuseum.org.uk>)

Once the student teachers have carefully deduced that using GAI will be beneficial, the framework begins with:

Collect, this is where trainees gather essential contextual information: curriculum objectives, prior learning, available resources, and knowledge of pupils. This is vital to the ultimate contextual output, as without important context there is likely to be a more ambiguous nature to the GAI's output, (Sakamoto et al, 2024). This would all be done with careful consideration of GDPR.

Articulate, encourages the crafting of purposeful prompts, including using role-based instructions and multi-shot prompts (examples) to maximise the quality of GAI responses. The word '*articulate*' is important as it sets out the emphasis on communicating our own thoughts and ideas as opposed to merely asking for a response.

Review is a critical step, where trainees apply their teacher knowledge, spanning subject, pedagogy, and curriculum, to evaluate the GAI's output.

Explore invites them to accept, reject or engage in iteration (rethink, reword, reprompt) thus reinforcing the idea that GAI is a thinking partner, not a replacement for professional judgement. This structured approach ensures that GAI use is not passive or automatic, but intentional.

We would encourage staff and institutions to carefully consider developing a formal policy and framework. Such a move provides the necessary guardrails and protections for staff, while an agreed manifesto ensures a sense of consistency across the profession. By establishing these boundaries, schools can protect the integrity of their teaching while still creating the space to explore the genuine opportunities that GAI offers.

Looking through a subject-specific lens

At LJMU, we believe that while there are certain commonalities across primary subjects, our trainee teachers must understand that each discipline requires a distinct pedagogical approach. Without this focus, we risk losing sight of the unique disciplinary value that each subject provides. To address this, we have evolved the CARE framework to help our trainees navigate these unique landscapes and recognise that GAI is not a "one size fits all" solution.

For instance, our students are encouraged to apply a critical lens to GAI output based on the specific demands of the curriculum, these could include:

- **Mathematics:** Trainees might check for alignment with school calculation policies and specific methods. The importance of GAI recognising conceptual and conditional understanding rather than just offering a procedural "shortcut" to an answer.
- **Humanities:** This requires a focus on cultural sensitivity. Trainees should recognise Western-centric biases in training data and actively identify the marginalised voices or local perspectives that GAI may have omitted.
- **English:** Here, the focus might focus on the "soul" and subtext of a genuine author. We ask our students to consider if the GAI is pushing a generic style that reduces creativity or misses a text's specific sense of place.

A more specific example of this could be within the teaching of history, we encourage our trainee teachers to be particularly alert to bias, hallucinations, and anachronisms. This is necessary because AI-driven educational platforms are often built on algorithms that reflect dominant Western perspectives. Such a bias can lead to local or global histories being marginalised or presented in reductive, simplified ways (UNESCO, 2025)

While GAI can collate vast amounts of data at speed, this efficiency does not guarantee the accuracy or relevance of its responses, with significant concerns regarding the presentation of entirely fabricated material. Often described as 'hallucinations,' these inaccuracies can be particularly persuasive, making it difficult for an uncritical user to distinguish between historical fact and plausible-sounding fiction (Nah et al., 2023).

The limitations of these tools become particularly evident when looking at GAI imagery. In images 4 and 5, we can see issues that undermine historical integrity:

- **Persistent demographic bias:** There is a common representation of historians as white, middle-aged men. This often relies on outdated stereotypes, such as the universal inclusion of glasses, beards and tweed clothing which subtly suggests who is "allowed" to be an expert in the field.
- **Spelling and graphic errors:** Basic literacy errors in generated text and graphic distortions, such as figures on fire and with anatomical anomalies, remain common.
- **Jarring historical anachronisms:** GAI often struggles with chronological accuracy. For example, a depiction of the 1666 Great Fire of London might incorrectly feature the version of St Paul's Cathedral built in 1675, or include modern roadside signage.



Image 4: Four separate prompts requesting an image of a historian (created 2025 using Google Gemini)



Image 5: Prompting for images of the night of the Great Fire of London (generated using Microsoft Copilot in 2025)

Compare this with Art and Design, the lens would focus on avoiding mere technical execution to a deep ethical and subjective consciousness. Maximising GAI's potential in this field requires the student to act as a "moral curator" who respects the sanctity of the creative process. This means recognising that while GAI can mimic aesthetics, it lacks the lived experience of the "artist's journey." To use GAI responsibly is to recognise the tension between innovation and intellectual property, ensuring that the GAI is used to explore new horizons rather than to bypass the hard-earned skills of human creators or infringe upon their copyright. Below are examples of key considerations for our student teachers to consider.

- Be aware of cultural bias, discriminatory outputs, and copyright concerns in GAI-generated artwork, ensuring respectful and ethical use of artistic references and styles.
- Use GAI purposefully and critically: avoid replacing the development of personal art skills, modelling, or demonstration, and ensure GAI-generated images support rather than confuse artistic understanding.
- Use GAI to encourage diverse interpretation and inclusive participation, while promoting sustainable use through carefully considered prompts and avoiding overly rigid teaching approaches.

These examples highlight why a "subject-specific" approach is essential. A teacher without deep subject knowledge might overlook these errors, but by using the CARE framework they are equipped to be alert to these disciplinary specific cornerstones and use them as a point of critical discussion.

Teacher approach

The current technological shift is distinct from previous digital milestones. During the rise of search engines, finding information still required a certain mental resistance; users had to sift through disparate sources, evaluate credibility, and reconstitute information into a preferred manner. This "friction" ensured that the user remained an active participant in the process.

However, research by Sparrow, Liu, and Wegner (2011) suggests that even early forms of digital interaction began to change our cognitive habits. Their study on the "Google Effect" found that when people believe information will be available for later retrieval, they are less likely to remember the facts themselves, instead prioritising memory for where information can be found. With GAI, this

process may become more complex. By delivering polished, ready-to-use responses, it could encourage a shift from using tools to support thinking towards relying on them to carry out aspects of thinking on our behalf. Reduced cognitive engagement may contribute to more superficial understanding and retention (Kosmyna et al., 2025). At the same time, emerging research suggests digital technologies do not simply replace human cognition, but reshape how remembering, synthesis, and judgement are distributed across people and tools (Fawns, 2025). Rather than replacing thinking entirely, GAI may increasingly reorganise how professional expertise, reflection, and decision-making are developed and exercised.

Using GAI to address workload demands is recommended by the UK Government (DfE, 2025) to ‘free up teachers’ time, allowing them to focus on delivering excellent teaching’. Saving time is one of the main celebrated attractions, with examples around reducing lesson planning time (EEF, 2024; DfE, 2025), however, it is important to note that it is too early to know if this translates into improved teaching and learning over a consistent and sustained period.

The DfE’s *Planning and Resources Review Group* (2016) drew an important distinction between producing detailed lesson plans and the cognitive process of planning itself, arguing that “planning is essential for good teaching” and should be understood as a core element of professional thinking rather than a bureaucratic exercise. Effective planning requires teachers to sequence learning, anticipate misconceptions, and align pedagogy with curriculum intent — a process that strengthens both subject knowledge and pedagogical fluency. Crucially, there is a difference between lesson planning and the production of written lesson plans: the former is central to pupil progress and involves conceptual iteration, while the latter can too easily become little more than evidence for accountability processes.

While generative AI may reduce workload, over-reliance on it, risks reducing that conceptual iteration and deliberate professional decision-making with curated performance delivery (Jose et al., 2025). In doing so, teachers may lose valuable opportunities for reflection, adaptation, and intellectual struggle that underpins professional growth. The danger is not simply poorer lesson plans, but the gradual erosion of the internalised expertise developed through the often-messy process of planning, teaching and refining practice and ultimately the impact this might have within the lesson themselves.

An example could be found in the teaching of English when using a modelled write. The temptation to request GAI to create a modelled write is obvious: it will save time and likely produce something coherent. But while GAI excels at delivering a polished final product, its efficiency can undermine the pedagogical power of the struggle. Effective modelled writing is not meant to be a fluid, seamless performance; rather, it is an important dance between inspiration, impasse, and resolution.

When a teacher relies on AI-generated text, they risk playing a passive role, bypassing the conscious decisions regarding sentence structure, vocabulary, and punctuation that students need to see. Authentic modelling requires the teacher to externalise their internal deliberation, showing that writing is often a messy process of confusion and correction. This is not to say that GAI cannot be used effectively, but doing so requires a confident and knowledgeable teacher to actively scrutinise and unpick the curated GAI version. We believe this brings us back full circle to developing an effective framework, as a teacher could use GAI to develop the modelled write, but the cognitive engagement came from the teacher who has **deliberately and consciously** lead the process and can therefore model it to the children with honesty and integrity.

Conclusion

GAI must remain a tool that works on our terms. We cannot risk outsourcing the essential human elements of thinking, learning, and emotion. Rather than exhausting ourselves trying to adapt to a constantly shifting technological landscape, we must recognise that education's truest value is intrinsic. Now more than ever, our focus must remain steadfastly human: cultivating the critical minds, purposeful lives, and deep connections that no machine can replicate. As GAI becomes ubiquitous, institutions and policies must equip teachers with the critical reflection needed to command these tools effectively. While many schools have yet to formalise GAI policies, the priority is clear: GAI must support teacher expertise, not replace it. We must ensure that commercial interests do not overshadow the "human craft" of education, the honesty, vulnerability, and deep student knowledge that defines great teaching (Selwyn, 2025). As GAI becomes increasingly embedded within education, we must remember who should be playing the tune — and who should be doing the dancing.

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