The “Humans MATA” Reflection Framework:

Empowering Year 10 Girls to Critically Analyse Their Use of Generative AI Tools

Zoe Steer

Oxford High School GDST, Oxford, UK

Abstract

As students continue to adopt Generative AI (GenAI) tools and technology at an accelerating rate, teachers have an urgent responsibility to guide its use. This requires teachers to support students in ways that empower them to think critically about their use of GenAI tools to support their learning and development, rather than hindering it. This action research inquiry explored how a series of AI literacy lessons and a bespoke framework titled “Humans MATA” empowered Year 10 girls (14–15 years old) to confidently and critically consider their use of GenAI tools. Employing a mixed-methods approach, this study captured student voice in the form of qualitative and quantitative data, fostering an intentional dialogue between student and teacher. The findings demonstrate how AI literacy lessons can develop student understanding and confidence about what GenAI tools are and how they work. Furthermore, the “Humans MATA” framework proved an effective reflective tool that empowered students to critically analyse their use of GenAI technology. However, despite targeted guidance from teachers and schools, some individuals may be less inclined to change their approach to using GenAI tools. These findings suggest that for AI literacy lessons to result in meaningful, long-term behavioural shifts, principles must be integrated consistently across both pastoral and subject-specific domains.

Glossary

Artificial Intelligence (AI): Computer programs that are designed to complete tasks like a human, such as problem solving, learning and understanding language.

Generative AI (GenAI): A type of AI that can create new content such as images, text, video, audio and code based on its prior learning. Gemini, Copilot and ChatGPT are examples of generative AI chatbots.

Machine Learning: A key subset of AI where computers learn from data instead of being directly programmed for each task. For example, machine learning is used in tools like email filters that learn to spot spam by looking at patterns in messages over time.

Deep Learning: A more sophisticated type of machine learning that is layered in complexity and can self-learn the rules.

Large Language Models (LLMs): A type of general-purpose AI designed to understand and generate human-like text. These models are trained on vast amounts of text and can answer questions, summarise information, and even translate languages. They are the basis for AI tools like Copilot, Gemini and ChatGPT.

Prompt: A prompt is the instruction given to generative AI. This is often written text in a conversational style, but a prompt can also contain images or files (Department for Education et al., 2025).

Note: To avoid the anthropomorphism of AI, this report adopts the use of language such as “AI tools,” “AI systems,” and “AI technology” as suggested by Waite (2025).

Empowering Year 10 Girls to Critically Analyse Their Use of Generative AI Tools

Student adoption of GenAI tools is happening at a rapid pace. Teachers and school leaders, therefore, have an urgent responsibility to support students to navigate their use of GenAI technology in ways that support their learning and development, rather than hinder it.

This study investigated the impact of a series of GenAI literacy lessons—culminating in the implementation of the "Humans MATA" reflection framework—on the ability of Year 10 girls to critically analyse their engagement with GenAI tools and technology.

Student voice was central to this action research study and an open and ongoing dialogue with my students was fostered throughout via a mixed-methods approach to data collection. This enabled me to ascertain which elements of the framework had a larger and lasting impact on student decision making and also identified where some students were more reluctant to change their approach.

I designed the "Humans MATA" reflection framework as a four-step approach to encourage students to critically evaluate their GenAI usage. The acronym "MATA" prompted recall of key themes covered during a series of bespoke lessons that focused on: Mindful usage, Approaching with caution, Thinking critically, and Applying agency. My research question was: *How does a GenAI reflection framework empower Year 10 girls to critically analyse their use of generative AI tools?*

Literature Review

The adoption of GenAI technology is happening rapidly and is permeating all aspects of society from business to education (Elliot, 2024; Miao & Shiohira, 2024). In 2024, Deloitte found that 36% of adults in the UK have used a GenAI tool. In a similar survey conducted on children aged 8-17 years old, Ofcom (2025) found that 50% of children said they have used AI tools. Ofcom also notes that the number of teenage children reporting use of AI tools for learning and school work had increased from previous years. With this many children opting to use AI technology, reportedly more than adults, schools play a vital role in ensuring they develop their AI literacy, as well as an awareness of the opportunities and challenges AI tools provide (Department for Education, 2025b; McLoughlin & McMullen, 2024). To do this,

teachers and school leaders must be suitably equipped and empowered to play a proactive role in this process to ensure students have the knowledge and skills to be responsible users and co-creators of GenAI technology (Miao & Cukurova, 2024; Miao & Shiohira, 2024).

Education cannot afford to be a passive testing ground for GenAI use. As our understanding of the risks associated with GenAI technology continues to grow, we must ensure that children are empowered to make informed decisions about when and how they engage with GenAI tools (Department for Education, 2025b; McLoughlin & McMullen, 2024; Miao & Shiohira, 2024). Teachers have an urgent responsibility to educate students on the use of GenAI and the concerns associated with it; one such concern being that of human and systemic bias (Cornell University, 2024). Bias in AI systems and technology exists in many forms and mirrors the biases that are present in society.

As a teacher of girls, the notion that outputs from AI tools can reinforce gender biases against women are alarming in their own right (UN Women, 2025). However, these concerns are exacerbated by findings from research conducted by Harvard Business School which found women are 25% less likely to use AI tools than men (Blanding, 2025). This AI gender gap could result in further negative consequences for women in terms of career advancement, as well as a lack of female representation and input into the development of AI technologies (Blanding, 2025). In addition, it is estimated that women currently make up only 30% of the AI workforce globally (Constantino, 2024; UN Women, 2024). These findings are alarming and efforts to rebalance AI gender gap must start now. The girls' school space has a crucial role to play; if we fail to act in supporting girls to develop their critical thinking, awareness, and confidence when using GenAI tools it is conceivable that it will become a force for widening gender inequality in both society and the workforce of the future (Constantino, 2024; Miao & Shiohira, 2024; UN Women, 2024).

Throughout 2025, the UK Government's Department for Education (DfE) updated policies and provided papers, support, and training materials that stressed the importance of adopting responsible and evidence-informed approaches to the use of GenAI tools within education (Department of Education 2025a, 2026b; Department for Education et al., 2025).

The DfE made it clear that teachers have a responsibility to empower students to adopt a critical approach to GenAI use; however, there is currently little in the way of literature, guidance, or teaching resources exploring what teaching children about the opportunities and challenges of GenAI should look like. The need for teachers to be equipped to teach AI literacy is well documented, but how this is effectively integrated into general and subject-specific curricula remains to be seen (Cornell University, 2024; Department for Education, 2024, 2025a, 2025b; Department for Education et al., 2025; Dwivedi, 2023; McLoughlin & McMullen, 2024; Miao & Cukurova, 2024).

If we are to equip students to use GenAI critically they must be taught about challenges and risks presented by GenAI tools and be able to think discerningly about their use, prompts, and outputs (Cornell University, 2024; Department for Education et al., 2025; Dwivedi, 2023; Gašević et al., 2023; McLoughlin & McMullen, 2024; Miao & Shiohira, 2024). The challenges that students must be made aware of are numerous. They include: potential exposure to harmful, incorrect, or misleading information; data protection breaches and intellectual property infringement; risks associated with anthropomorphism of AI tools; environmental and sustainability issues; and concerns surrounding academic integrity and the bypassing of genuine, deep learning (Cornell University, 2024; Department of Education, 2025a, 2025b; Department of Education et al., 2025; Dwivedi, 2023; Gašević et al., 2023; McLoughlin & McMullen, 2024; Miao & Cukurova, 2024; Miao & Shiohura, 2024). Exposure to harmful, incorrect, or misleading information covers a wide range of concerns including those associated with bias, hallucinations, and deep fakes. Students must develop an awareness of the inherent bias that LLMs could perpetuate based on the data that has been input to train these tools (Cornell University, 2024). This will enable them to be better equipped to detect bias in GenAI outputs, whilst also encouraging them to use prompts that reduce bias.

Another challenge for students is the output of incorrect or misleading information, commonly referred to as hallucination. Hallucinations are often subtle and difficult for non-experts, such as student learners, to detect (Department for Education et al., 2025).

Students must be encouraged to adopt a critical approach and conduct reliability checks using other sources, rather than assuming GenAI outputs are infallible (Cornell University, 2024). Another concerning challenge is the human-like way in which GenAI tools respond to prompts and interact with users. This can encourage people, particularly children, to attribute human traits and emotions to GenAI technology and form incorrect mental models about AI tools and systems (Department for Education et al., 2025; Waite, 2025). This anthropomorphism of AI technology has the potential for children to overestimate the capabilities of GenAI tools and form peer-like attachments to them (e.g. chatbots), increasing the likelihood of harmful or unintended influence (Department for Education et al., 2025; Waite, 2025). Teachers must ensure students are aware of these risks and understand the value of human independent thought (Dwivedi, 2023). Students must also understand that AI tools produce outputs based on mathematical algorithms, patterns, and probabilities, and are not human (Department for Education et al., 2025; Waite, 2025).

The body of research suggests that teachers and school leaders have an urgent responsibility to educate children on the use of GenAI tools. Girls, in particular, need a tailored approach to prevent the AI gender gap from widening further and instead move towards rebalance (Constantino, 2024; Miao & Shiohira, 2024; UN Women, 2024). Concerns have been raised for many years about female voices being muted in co-educational school settings and throughout society as a result of gendered stereotypes (Gilligan, 1982; Standard, 2025). Efforts to combat this issue continue and the Girls' Day School Trust (GDST) highlights the importance of girls' schools in addressing this in their *Designing the Future of Girls' Education Framework* (Purvis, 2024). It states that girls must be "encouraged and taught to speak up, speak out, and actively subvert unhelpful stereotypes" (Girls' Day School Trust, as cited in Purvis, 2024, p.46). Following the widespread emergence of GenAI tools, we must extend this notion beyond the realm of the classroom and society and also encourage girls to use their voices to challenge GenAI technology and its outputs. Girls' schools must seek to proactively teach and empower girls to retain and develop their voices and not hand them over to GenAI tools.

This research project explored how a series of lessons on AI literacy, culminating in the launch of an AI reflection framework, empowered Year 10 girls to adopt a critical approach when making decisions about whether and how to use GenAI tools. It involved the explicit teaching of AI literacy to enhance girls' awareness of what GenAI tools are, how they work, and the opportunities and challenges they present. Girls were supported to develop their critical thinking and evaluation skills surrounding usage, prompt creation, and the critical evaluation of outputs. It was hoped that, through this project, girls would understand the importance of human agency and feel empowered to decide if, when, and how, to use GenAI tools safely and effectively.

Research Context

This action research inquiry was conducted at a private girls' day school in Oxford, UK. The school is made up of a pre-prep, prep, and senior school and has approximately 800 pupils on roll from 4 to 19 years old. The participants in this study were 18 Year 10 girls aged 14 to 15 years old. Year 10 students were selected as staff were informally aware that many of them were independently opting to use GenAI tools for academic and non-academic purposes, but they were yet to have any formal in-depth teaching from the school on the topic.

The participants were selected as they formed a cohesive tutor group who registered together daily and attended pastoral and social-emotional lessons as a group. In addition, I was the biology teacher for this group in the previous academic year, during which time they attended most academic lessons as a group. This research commenced at the start of a new academic year, thus having pre-established rapport with students was important to encourage more open dialogue and ensure the collection of more nuanced, meaningful data.

Student participation in this study was voluntary and their responses were treated as confidential. Parents and students were provided with detailed descriptions of the rationale and methods of data collection, processing, analysis, and storage. Parents were written to, and received, an opportunity to opt out on behalf of their child. Students were also able to opt out of having their data collected, without needing to notify me or provide reasons. No

parents or students opted out of the project. One student did not participate in the data collection due to being absent from both lessons in which the questionnaires took place.

As part of Questionnaire 2, all students were invited to volunteer to participate in a further focus group. Four students volunteered and additional parental permission was sought so that focus group discussions could be audio recorded and subsequently transcribed. For this, written parental permission was requested and willingly provided for each of the four students.

During data processing, responses from each student were given a unique number and de-identified before data analysis took place. In addition, no identifying information was shared with my mentor, critical friend, or included in the research report. All data collection was done using school approved systems and stored in my school Google Drive. This ensured my research practice was strictly in accordance with school policy and General Data Protection Regulation (GDPR).

The Action

My action involved two key elements: a series of AI literacy lessons focused on GenAI technology, and the implementation of a bespoke framework designed to support students with their continued, independent use of GenAI tools. The action and data collection took place over ten weeks during the first term of the academic year. The AI literacy lessons and “Humans MATA” framework were introduced to students over a series of lessons delivered to all students in Year 10, including the research participants’ group.

GenAI Literacy Lessons

Six 30-minute lessons took place during the first term of the academic year with the whole Year 10 cohort in attendance as part of their weekly pastoral lesson slot. I delivered the lessons using presentation slides and worksheets developed in response to the UK Government guidance and key research literature focusing on AI in education (Cornell University, 2024; Department for Education, 2024, 2025a, 2025b; Department for Education et al., 2025; Dwivedi, 2023; McLoughlin & McMullen, 2024; Miao & Cukurova, 2024). The lessons included teacher explanations, video clips, and examples of GenAI outputs (e.g., to

illustrate concerns surrounding bias and hallucination). Student engagement was maintained through paired discussions, whole cohort discussions, and worksheets that included a range of questions to monitor and support progress during the lessons.

The "Humans MATA" Framework

At the end of the AI literacy lessons, the "Humans MATA" framework was introduced to students as a way to prompt their recall and guide their thinking on the key themes covered during the lesson series. I designed the "Humans MATA" framework using my findings from the research literature focused on the challenges associated with GenAI tools. The acronym, "MATA" aims to encourage students to use a four-step approach to critically evaluate their GenAI usage as follows:

(1) **Mindful** usage (academic integrity, learning integrity, environmental sustainability)

(2) **Approach** with caution (personal information and intellectual property, effective prompting)

(3) **Think** critically (output evaluation, bias, anthropomorphism)

(4) **Apply** agency (user confidence and agency)

Towards the end of the GenAI literacy lessons, students were invited to enter a competition to design a logo that would represent the "Humans MATA" framework. The winning entry was selected in agreement with the Head of Year 10 (see Figure 1). This was subsequently printed onto stickers for students to place on their digital devices to remind them of the steps they could take when critically evaluating their GenAI usage.

Figure 1

Humans MATA Student-Designed Logo and Reminder Sticker for Student Devices

Data Collection

Throughout this project I collected qualitative and quantitative data via a mixed-methods approach. This enabled the polyangulation of data, as recommended by Mertler (2019), to ensure trustworthiness and validity. I utilised the following data collection techniques: questionnaires, classroom observations, student reflection journals, and focus groups. The majority of data collected were qualitative in the form of responses to open-ended questions that prioritised and captured student voice. In addition, observations and journals were used to gain further insight into the student experience.

To inform the development of the GenAI literacy lessons and the GenAI reflection framework, students completed an initial questionnaire. This was completed using Google Forms and consisted of nine open-answer questions and six closed questions. Students completed the form individually without discussion with their peers. This enabled me to collect rich qualitative data that were essential to establish students' initial understanding of GenAI tools including how they work, the benefits and challenges associated with them, and why and how they were using them. Qualitative data collection continued throughout the project duration via teacher observations and student reflection journals.

Towards the end of the project students completed a second questionnaire and optional focus group. The first five sections of Questionnaire 2 included the same questions as in Questionnaire 1. This enabled student answers to be compared to ascertain if and how their understanding and usage had changed. The final section of Questionnaire 2 asked students to reflect on the GenAI lessons and the "Humans MATA" framework. It included four Likert scale questions and one open question. By collecting qualitative data throughout the project duration, it enabled me to explore how student use of GenAI tools and technology developed over time to ascertain whether they became more critical in their approach. In addition to qualitative data, some quantitative data were obtained through the use of closed or Likert scale questions, as included in both questionnaires. These were primarily used to ascertain which GenAI tools students used and how frequently, so that this could be tracked over the course of the project.

At the end of the project, students had the opportunity to take part in a focus group. Four students participated and their responses were audio recorded and later transcribed. Questions were semi-structured to allow flexibility for seeking clarification whilst fostering a natural style of conversation in the hope of uncovering unexpected insights.

Data Analysis

My data were analysed using the inductive approach described by Mertler (2019) and centred on organising, describing, and interpreting. Quantitative data were summarised and reported as raw data, rather than descriptive statistics, because the sample size was small (18 students). Qualitative data were coded and analysed using a thematic analysis approach (Mertler, 2019). The first step involved reading questionnaire responses, student journals, focus group transcripts and other qualitative data to identify and label initial categories based on emerging ideas. Where appropriate, categories were then linked to look at relationships between them and group codes into themes based on emerging patterns. This led me to identify core themes that I then integrated into a coherent narrative form to develop conclusions that answered my research question. Findings were presented as core themes and include quotations to authentically exemplify these themes through student voice. Both positive and negative findings have been reported to ensure student voices are accurately presented. My critical friend was also consulted to review and evaluate my process and findings.

Discussion of Results

AI Literacy Lessons Develop Girls' Understanding of, and Confidence in, GenAI Tools

The research demonstrates that teachers and school leaders have an urgent responsibility to educate children on the use of GenAI tools (Cornell University, 2024; Department for Education, 2024, 2025a, 2025b; Department for Education et al., 2025; Dwivedi, 2023; McLoughlin & McMullen, 2024; Miao & Cukurova, 2024). Analysis of the pre-and-post qualitative data suggests that student understanding of GenAI tools improved following a series of GenAI literacy lessons. At the beginning of the project, Questionnaire 1 (n=18), revealed that 11 students demonstrated limited prerequisite understanding of

GenAI's functions. Most students referenced their ability to help people with research or ideas and/or that GenAI tools can "generate answers." Two students stated they did not know how GenAI tools worked and only one student was able to provide an accurate and detailed explanation at this stage.

When asked to outline their understanding after the series of lessons in Questionnaire 2 (n=16), 11 students were able to provide accurate and detailed explanations incorporating multiple key words (e.g. prompt and source). This suggests student knowledge had improved, and they felt more empowered to share their understanding of what GenAI tools are and how they work. In addition, five students explained how the outputs of GenAI tools rely on patterns and probability. One student wrote, "AI that generates content based on a prompt input by the user…. They predict the probability of the next word in the output." Data collected at the end of Questionnaire 2 supported these findings; when reflecting on their progress, 12 students "Agreed" or "Strongly Agreed" that they felt confident in their ability to explain what a GenAI tool is. Four students selected "Neutral." Fourteen students "Agreed" or "Strongly Agreed" that they understood the basic principles of how developers train GenAI tools. This suggests that students felt more confident and empowered to navigate their use of GenAI tools in an informed and critical way.

Students also expressed how they felt about using GenAI tools. The findings from both questionnaires showed a similar distribution in the number of students presenting a balanced view and those presenting a one-sided view. In Questionnaire 1, 11 students demonstrated a balanced, somewhat cautious stance. Three students mentioned only positive views on using GenAI tools such as "it makes it easier for me to do my work," while three students remained neutral without providing reasons. Whilst the distribution of views was similar in Questionnaire 2 to Questionnaire 1, the reasons students provided were more developed, suggesting improvements in their awareness and understanding. In Questionnaire 2, 10 students demonstrated a balanced view by identifying at least one benefit and one drawback; for example, "I think we should use them to an extent where it doesn't hinder your learning." Three students acknowledged only positive feelings about

GenAI tools, and one student acknowledged only negative feelings about GenAI tools. The most frequent concerns associated with the technology were overreliance, the potential to hinder learning, and output inaccuracies. One student said, “I feel confident that I know when to use them … making sure that it doesn’t do all the critical thinking for me.” This exemplifies feelings of empowerment and student awareness of the importance of thinking critically when using GenAI tools.

Observations and focus group responses corroborated the questionnaire findings. When reflecting on their progress, Student 3 said “I think I developed a deeper understanding now compared to the baseline stuff. I know more details now.” This sentiment echoed my own informal observations. I observed several instances where students expressed surprise at new information, suggesting the lessons filled significant knowledge gaps. These findings are consistent with the research literature emphasising the urgent importance of the need for students to be supported to develop their awareness of GenAI tools so that they can be empowered to make informed decisions about their usage (Department for Education, 2025b; McLoughlin & McMullen, 2024; Miao & Shiohira, 2024). For girls, this is even more important to ensure proactive steps are taken to bridge the AI gender gap and teach and empower girls to use their own voices, rather than GenAI outputs (Blanding, 2025; Constantino, 2024; Purvis, 2024; Stannard, 2025; UN Women, 2024).

Reflection Frameworks Support Girls’ Critical Analysis of AI Tools

In both questionnaires, students were asked to share their perspectives on the benefits and limitations of GenAI tools. In Questionnaire 1, 11 students noted that GenAI tools “save time thinking of ideas or where to start” and five stated that they make tasks easier. By Questionnaire 2, students mentioned a more diverse range of benefits; while seven still valued timesaving, others noted that these tools “generate new content” or gather data from “many sources.”

When asked about the drawbacks of GenAI tools, students demonstrated a more comprehensive awareness in the second questionnaire. Eight students mentioned environmental concerns and output accuracy, compared to only four mentioning the

environment in the first survey. I identified four new themes in the Questionnaire 2 responses: bias, intellectual property/copyright, the loss of critical thinking, and instant gratification. One student observed,

> [The GenAI tool] prevents people from thinking critically since everyone is so used to instant gratification… people have forgot how to actually use their brains to do the hard thinking.

Student self-reflections confirmed this improved awareness with 15 out of 16 students reporting confidence in explaining GenAI limitations. This echoes the sentiment presented in the research literature about the vital role that teachers and schools play, through bespoke projects such as this, in ensuring students develop their awareness of the limitations of GenAI tools (Department for Education, 2025b; McLoughlin & McMullen, 2024).

At the end of the project, 15 students “Agreed” or “Strongly Agreed” that the “Humans MATA” framework would help them to critically analyse their use of GenAI tools. When asked to outline how, most students mentioned that it would make them pause before using a tool to decide if it was necessary. One student commented: “When using GenAI tools I will think about what information is okay to disclose about myself and think appropriately.” Another student said:

> [I will] rethink if I actually need to use the tool or if it is just easier to use the tool.
> Making sure that I double check the answers on trusted websites such as the BBC.
> Not over relying on the tools and using it as more of an outline or a starting point.

Focus group responses echoed these reflections; students said they would now prioritise effective prompting, protect personal information, and reduce their reliance on GenAI tools for school work. The framework prompted students to “become more cautious” and “question” the technology more than they previously would have. This is an interesting example of how risk aversion, as frequently and predominantly observed in girls, can be a positive thing whereby girls may have a tendency to exercise caution when it comes to using GenAI technology (Andreoni et al., 2019).

The overall findings indicate that by utilising the framework, students were more able to adopt a critical thinking approach when using GenAI tools. This is promising and offers a practical approach that could be used in girls' schools to explicitly teach and support girls in navigating the AI space. In doing so, it could make progress towards combating the gender bias in AI, whilst ensuring girls feel empowered to retain and develop their own authentic voices as the broader societal use of GenAI outputs continues to grow (Blanding, 2025; Constantino, 2024; Purvis, 2024; Stannard, 2025; UN Women, 2024).

Girls' Individual Use of AI Tools can be Difficult to Shift Despite Targeted Guidance

In both questionnaires and the focus group, students provided open insights into their usage of GenAI tools and the "Humans MATA" framework. This fostered an open dialogue between students and teachers in navigating the AI frontier together. Whilst students showed evidence of adopting some of the guidance provided, this was not the case in all areas. Individual usage patterns were seen to be largely fixed, particularly in terms of student preferences towards certain GenAI tools. In Questionnaire 1, every student reported using ChatGPT at least once. Google Gemini, Microsoft Copilot, Claude, and SnapChat (GenAI features) were also popular tools. While the number of students using Microsoft Copilot increased between Questionnaires 1 and 2, students did not explicitly attribute this to improved understanding of intellectual property and the school's paid subscription, despite being advised of these factors. This highlights how individual usage patterns can be challenging to shift, even with a targeted framework and teacher guidance. This also exemplifies a challenge associated with increased risk aversion in girls, whereby girls may be more inclined to continue using a GenAI tool and approach they are most familiar with (Andreoni et al., 2019).

ChatGPT remained the most popular tool because it was the first tool students encountered and they found it easy to access. Some students adopted a task-specific approach, using ChatGPT for summarising and Google Gemini for research. The popularity of ChatGPT was echoed in the student reflection logs. Despite providing limited data, all of the 10 entries recorded by students noted ChatGPT as the tool they had used. Of the six

detailed examples provided, four students used ChatGPT to support them with school work, while two used it for purposes not related to school. Although I encouraged participation, students found the reflection logs cumbersome. Student 3 noted: “after you use it, it's like a bit of a hassle to go and find the log and write in it.”

All participants reported using GenAI tools for school work, while 16 also used it for purposes, such as trip planning, summarising TV shows, or asking “curious questions.” Examples of uses for school work included: research, generating practice questions, explaining concepts, and generating ideas. Usage frequency increased over the course of the project; in Questionnaire 1, 10 students used GenAI less than once a week, but by Questionnaire 2, this number dropped to six. Three out of the four focus group participants reported using GenAI approximately three times per week. This increase in student GenAI usage is consistent with the national trends observed by Ofcom (2025). This shift likely reflects growing popularity and trust in GenAI tools; consequently, further research in this area is essential.

Conclusion and Implications

The need for teachers to provide targeted teaching and guidance to support students in navigating their use of GenAI technology remains clear. In girls’ schools, there is an even greater need and urgency as we work to bridge the AI gender gap and empower girls to continue to use and develop their own authentic voices. This project established a strong foundation for approaching this by integrating AI literacy into the pastoral curriculum. As a result, student awareness of what GenAI tools are and how they work improved, as did the girls’ confidence. Students responded positively to the sessions and found the “Humans MATA” reflection framework empowering as a mechanism for prompting critical thinking. To reinforce these habits, students received a student-designed logo of the framework in the form of a sticker, which remain prominently displayed on their digital devices as a permanent reminder and a practical tool for ongoing reflection.

While reflection frameworks like “Humans MATA” foster open dialogue between students and teachers, it is clear that individual usage patterns can remain difficult to shift.

Students demonstrated a strong preference for using ChatGPT over other school-approved GenAI tools. While the reasons behind this warrant further investigation, findings suggest it may stem from the tool's perceived popularity and its status as the first GenAI tool students experienced. Additionally, despite improvements in awareness, the frequency of student usage appeared to increase over the duration of this project. This highlights that short-term awareness is not enough; sustained intervention is required to drive genuine behavioural change.

Furthermore, tailored, student-centred, and subject-specific approaches will be essential to further develop student engagement with GenAI tools. Data from questionnaires, focus group discussions, and teacher observations highlight how students started this project with differing levels of baseline knowledge and confidence. During the focus group, one student mentioned gaining prior awareness of GenAI "dangers" through news media, while another frequently discussed the topic at home. Others started with limited knowledge but demonstrated significant growth. Consequently, I recommend that schools should move beyond general pastoral teaching to also provide students with targeted GenAI guidance that is integrated directly within individual subject-specific domains. In girls' schools, this must also be centred on bridging the AI gender gap and empowering girls to continue to develop and use their own authentic voices, rather than relinquishing them in favour of the outputs of GenAI tools.

Reflection Statement

Completing this action research inquiry as part of the Global Action Research Collaborative (GARC) with the ICGS has been an immensely valuable experience. The theme, *Navigating the AI frontier in Girl's Schools*, could not be more timely and pressing. The research literature is clear that teachers and school leaders have an urgent responsibility to guide students to develop the skills necessary to think critically and confidently about their use of GenAI tools, but specific training and resources about how to do this are still lacking. This project provided me with the opportunity and support to explore how this could be achieved in my own context. Despite being a biology teacher, I opted to approach this from the lens of pastoral teaching as it was clear that our Year 10 students needed support to develop their baseline understanding of the benefits and challenges presented by GenAI technology. Students embarked on this project with very different prior knowledge of the limitations of GenAI tools. By the end, students appeared more confident and aware of the need to pause and think before and whilst using GenAI tools. The "Humans MATA" framework serves as a valuable reminder for supporting them with this as they continue to use GenAI tools independently. We now plan to share this more widely within our school community. As an additional next step, I am also looking forward to exploring how GenAI tools can be used to enhance learning specifically within my own subject area, biology.

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References

Andreoni, J., Di Girolamo, A., List, J. A., Mackevicius, C., & Samek, A. (2019). Risk preferences of children and adolescents in relation to gender, cognitive skills, soft skills, and executive functions. *Journal of Economic Behavior & Organization*, 179, 729–742. https://doi.org/10.1016/j.jebo.2019.05.002

Blanding, M. (2025, February 20). *Women are avoiding AI. Will their careers suffer?* Harvard Business School. https://www.library.hbs.edu/working-knowledge/women-are-avoiding-using-artificial-intelligence-can-that-hurt-their-careers

Constantino, T. (2024, November 12). Women make up 29% of the AI workforce — here's how to fix it. *Forbes*. https://www.forbes.com/sites/torconstantino/2024/11/12/women-make-up-29-of-the-ai-workforce---heres-how-to-fix-it/

Cornell University. (2024). *Ethical AI for teaching and learning* | Center for Teaching Innovation. Cornell University. https://teaching.cornell.edu/generative-artificial-intelligence/ethical-ai-teaching-and-learning

Deloitte. (2024). *Over 18 million people in the UK have now used generative AI | Deloitte UK*. https://www.deloitte.com/uk/en/about/press-room/over-eighteen-million-people-in-the-uk-have-now-used-generative-ai.html

Department for Education. (2024). *Use cases for generative AI in education user research report*. https://assets.publishing.service.gov.uk/media/66cdb078f04c14b05511b322/Use_cases_for_generative_AI_in_education_user_research_report.pdf

Department for Education. (2025a, January 22). *Generative AI: product safety expectations*. GOV.UK. https://www.gov.uk/government/publications/generative-ai-product-safety-expectations/generative-ai-product-safety-expectations

Department for Education. (2025b, January 22). *Generative artificial intelligence (AI) in education*. GOV.UK. https://www.gov.uk/government/publications/generative-artificial-intelligence-in-education/generative-artificial-intelligence-ai-in-education

Department for Education, Chiltern Learning Trust, & Chartered College of Teaching. (2025). *Using AI in education settings: support materials*. Gov.uk. https://www.gov.uk/government/collections/using-ai-in-education-settings-support-materials

Dwivedi, Y. K. (2023). “So what if ChatGPT wrote it?” Multidisciplinary perspectives on opportunities, challenges and implications of generative conversational AI for research, practice and policy. *International Journal of Information Management*, *71*,102642. https://doi.org/10.1016/j.ijinfomgt.2023.102642

Elliott, D. (2024, October 3). *A short history of AI in 10 landmark moments*. World Economic Forum. https://www.weforum.org/stories/2024/10/history-of-ai-artificial-intelligence/

Gašević, D., Siemens, G., & Sadiq, S. (2023). Empowering learners for the age of artificial intelligence. *Computers and Education: Artificial Intelligence*, *4*, 100130. https://doi.org/10.1016/j.caeai.2023.100130

Gilligan, C. (1982). *In a different voice.* Harvard University Press.

McLoughlin, N., & McMullen, S. (2024). *Exploring AI with children & young people*. https://www.barnardos.ie/wp-content/uploads/2024/10/Barnardos-OSP-Report-Exploring-AI-with-Children-and-Young-People.pdf

Mertler, C. A. (2019). *Action research: improving schools and empowering educators* (6th Ed.) Sage.

Miao, F., & Cukurova, M. (2024). AI competency framework for teachers. In *UNESCO eBooks*. UNESCO. https://doi.org/10.54675/zjte2084

Miao, F., & Shiohira, K. (2024). AI competency framework for students. In *UNESCO eBooks*. UNESCO. https://doi.org/10.54675/jkjb9835

Ofcom. (2025). *Children and parents: media use and attitudes report*. https://www.ofcom.org.uk/siteassets/resources/documents/research-and-data/media-literacy-research/children/childrens-media-use-and-attitudes-report-2025/childrens-media-literacy-report-2025.pdf?v=396621

Purvis, P. (2024). *Designing the future of girls' education classroom, curriculum & culture a GDST insights report and framework*. https://www.gdst.net/wp-content/uploads/2025/06/GDST_InsightsReport-24.10.25-UPDATED.pdf

Stannard, K. (2025). *Why (and how) girls thrive in girls-only schools*. https://issuu.com/royalhighschoolbath/docs/why_and_how_girls_thrive_in_girls-only_schools_

UN Women. (2024, June 28). *Artificial intelligence and gender equality | UN Women – Headquarters*. UN Women – Headquarters. https://www.unwomen.org/en/articles/explainer/artificial-intelligence-and-gender-equality

UN Women. (2025, February 5). *How AI reinforces gender bias—and what we can do about it | UN Women – Headquarters*. UN Women – Headquarters. https://www.unwomen.org/en/news-stories/interview/2025/02/how-ai-reinforces-gender-bias-and-what-we-can-do-about-it

Waite, J. (2025, June). *Early research themes for teaching about AI*. The Chartered College of Teaching. https://my.chartered.college/impact_article/early-research-themes-for-teaching-about-ai/