

**Co-Creating Confidence: Exploring AI as a Catalyst for Self-Regulated and  
Reflective Learning in Year 12 Psychology**

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**Abstract**

The integration of artificial intelligence (AI) into classroom practice presents new opportunities to enhance how students receive feedback and develop as autonomous learners. This action research project investigated the impact of Bloom AI as a Socratic tutor on the confidence, motivation, and self-regulated learning habits of 17–18-year-old girls in a Year 12 Psychology classroom and home learning environment while preparing for final examinations. The project was aimed at exploring how AI-powered, dialogic questioning could enhance learners' metacognitive awareness and autonomy by replicating the cognitive prompts and scaffolding of one-to-one tutoring. Data were collected through baseline and follow-up surveys, focus group interviews, and platform usage analytics, capturing both the quantitative patterns of AI interaction and the qualitative reflections of students' perceived growth. Findings revealed that immediate, conversational feedback fostered greater self-efficacy, reduced exam-related anxiety, and encouraged deeper engagement with content through self-questioning and reflection. The evidence suggests that AI Socratic tutoring can serve as a valuable pedagogical partner, supporting not only knowledge acquisition but also the development of independent, confident learners. This initiative aims to extend the use of Bloom AI across year levels and subject areas at St Hilda's School, with the broader goal of inspiring educators in girls' schools globally to leverage AI as a tool for empowerment, agency, and authentic learning.

## **Glossary**

**Bloom AI:** An AI-powered chatbot that I trained on the Year 12 Psychology QCAA syllabus.

The platform provides back-end analytics to track student engagement, usage patterns, and learning progress.

**Socratic tutor:** An instructional approach that guides students through active dialogue, prompting deeper thinking, encouraging critical reflection, and requiring students to justify their reasoning. This method supports the development of critical thinking skills through questioning rather than direct instruction.

**Self-Regulated Learning (SRL):** A metacognitive process in which students take active control of their learning by setting goals, monitoring progress, and adjusting strategies to enhance understanding and achieve desired outcomes.

## **Co-Creating Confidence: Exploring AI as a Catalyst for Self-Regulated and Reflective Learning in Year 12 Psychology**

AI is rapidly evolving, and its intersection with education has become increasingly critical for teachers, students, and schools to understand. As educators, our responsibility extends beyond delivering subject matter; we must also equip students with the critical thinking and digital literacy skills necessary to navigate, evaluate, and ethically engage with emerging technologies. By integrating AI meaningfully into learning environments, teachers can model adaptive, future-focused practices that prepare students for academic success and life beyond school. At St Hilda's School, our 2025 teaching and learning focus centred on feedback: specifically on how teachers deliver it and how students receive, interpret, and apply it across learning tasks and in formative and summative assessments. This focus became the catalyst for exploring how AI could enhance the feedback process, offering timely, personalised, and inclusive support for students.

As an early adopter of educational AI tools, I was eager to partner with Bloom AI to develop a customised Socratic tutoring agent designed to prompt reflection, guide understanding, and strengthen self-regulated learning (SRL). Reflecting on my practice teaching Year 12 students in the lead-up to their final external examinations, it became evident that many sought additional support outside class time to clarify knowledge gaps, practise past papers, and seek feedback via email after school hours.

The integration of an AI-powered Socratic tutor presented an opportunity to mitigate these demands by providing 24/7 access to personalised, responsive feedback, thereby enhancing students' independence and maximising the value of in-class lessons. Guided by these reflections and a passion for embedding meaningful AI use within my teaching practice, this study was designed around the following research question: How does the integration of

Bloom AI as a Socratic tutor strengthen self-regulated learning strategies for Year 12 Girls studying Psychology?

From here, I collaborated with Bloom AI to develop a Socratic tutor trained specifically on the Queensland Year 12 Psychology syllabus, allowing students to engage with curriculum-aligned content in an interactive way. I worked closely with students to guide them in how to use the platform effectively. This was done by focusing on prompting, question design, and understanding the tutor's role in supporting their learning rather than simply providing answers. The students' maturity, engagement, and curiosity throughout the process were exceptional, as was their commitment to using Bloom AI thoughtfully and contributing valuable feedback through the survey process.

Using Mertler's (2020) action research framework enabled me to systematically investigate the impact of AI on girls' learning, motivation, and confidence, as well as their developing understanding of themselves as learners. This process not only deepened my insight into how AI can enhance feedback and self-regulation but also influenced my pedagogical approaches, prompting me to rethink how feedback is designed, delivered, and discussed. The outcomes of this project have informed the development of my school's AI guidelines, steered professional learning for staff, and contributed to broader discussions about ethical and effective AI use in education. I aim to share these findings with the wider educational community and explore how Socratic-style AI tutoring can be integrated across subject areas. By sharing my research and insights, I hope to encourage educators in girls' schools globally to explore how AI can foster learner agency, self-regulation, critical thinking and authentic learning in an ever-evolving digital landscape.

## Literature Review

The current educational context is becoming increasingly shaped by digital innovation, with the delivery and timing of feedback emerging as critical factors influencing student growth (Hattie & Timperley, 2007; Kehrer et al., 2013). Immediate, personalised feedback delivered through AI, holds great potential for enhancing learning behaviours, academic regulation and SRL in girls facing high expectations and academic pressures (Guo, 2021; Spencer et al., 2016). This review explores how an AI-powered Socratic tutor can impact secondary school girls by promoting metacognitive engagement, fostering confidence and developing motivation for learning through timely, constructive feedback (Plank et al., 2014). Drawing on research in educational technology, cognitive psychology, and gender-based learning, I aimed to examine how the intersection of AI and feedback acts as a catalyst for meaningful learning and autonomy. With a focus on the all-girls schooling environment, where students often strive for high achievement while managing stress and peer comparisons (Spencer et al., 2016), this investigation considered how AI innovation using Bloom and evidence-based feedback strategies can empower students to become resilient, reflective and self-regulated learners (Paechter et al., 2020; Satir & Korucu, 2023)

Feedback is recognised as one of the most powerful influences on learning achievement (Hattie & Timperley, 2007). Effective feedback reduces the gap between current and desired performance. Kehrer et al. (2013) demonstrated that immediate feedback during homework tasks improves student performance and prevents the reinforcement of misconceptions: “Specifically, immediate feedback, while students complete homework leads to better learning than waiting until the next day to receive that same feedback” (p. 544). Recent developments in AI allow for personalised, immediate feedback. Türker and Kahraman (2024) assert that AI-supported tools provide learning material ideas based on their personalised needs. The process of students using these materials and the experience of

creating them with artificial intelligence-supported software can trigger their learning motivation” (p.20). Their study highlights AI’s potential to deliver feedback that is timely, contextual and aligned with learners’ developmental needs, thus reducing cognitive overload and promoting retention. When aligned with SRL principles, AI tools support goal setting, self-monitoring and strategy adjustment (Hattie & Timperley, 2007). Satir and Korucu (2023) show that AI systems like ChatGPT have the potential to increase learner engagement and independent inquiry. AI can act not just as a corrective tool, but also as a facilitator for independent learning, especially when feedback encourages curiosity-driven exploration (Guo, 2021). These capabilities are valuable during high stakes learning periods such as exam preparation, where metacognitive agility is essential.

While feedback enhances SRL broadly, its effects may differ across learners. These differences matter when designing feedback systems that aim to promote autonomy. In high-pressure academic settings, feedback must empower rather than overwhelm. Paechter et al. (2020) caution that inequitable feedback practices can widen gender gaps. In contrast, feedback that affirms competence and encourages curiosity can counter these trends. Guo (2021) argues that SRL development for girls must account for both cognitive and affective dimensions, balancing challenge with support. She notes, “being aware of gender differences in students’ SRL is crucial for research and educational practitioners to make them better able to identify and cope with the learning needs of individual students” (p.17).

SRL is a cyclical and dynamic process involving goal setting, monitoring, reflection, and the adjustment of learning strategies in response to feedback and self-evaluation (Guo, 2021). Its development is strongly influenced by the type and timing of feedback, which can either empower learners or foster dependency. As students engage in tasks, their ability to detect errors, revise strategies, and reflect on progress is essential to academic success and long-term autonomy (Hattie & Timperley, 2007). Guo (2021) found that girls are more likely

than boys to rely on external feedback for guidance, and they also show heightened emotional responses to negative feedback: “because of female students’ low expectations of themselves and learned helplessness, they may be more susceptible to demotivation in SRL because of low grades” (p.16). These differences matter when designing feedback systems that aim to promote autonomy. In all-girls schooling environments, AI tools must provide formative and affirming cues that build confidence without fostering over-reliance (Guo, 2021).

Motivation and confidence are closely intertwined with how learners respond to academic challenges and feedback. Spencer et al. (2016) and Guo (2021) note that girls often internalise failure as a reflection of inherent ability. Constructive, process-focused feedback helps to shift students’ mindsets from performance to learning orientation. Constructive, non-judgemental AI feedback can shift learners from a performance to a mastery orientation that emphasises effort, strategy, and progress. This fosters resilience and intrinsic motivation - key foundations for sustained SRL.

Plank et al. (2014) highlight that girls value feedback that makes them think and prompts explanation or elaboration to foster deeper learning. Socratic questioning, particularly “why” and “how” prompts, supports metacognitive development and learner agency. Guo (2021) warns that even process praise can be misinterpreted by girls as evidence of inadequacy, underscoring the need for feedback that promotes confidence, not just correction. This is even more specific for those students studying in STEM, as Paechter et al. (2020) state, “especially girls are doubtful of their self-efficacy in STEM and rely on interactions with the teachers and on their assessments of their ability” (p.3).

The all-girls school context provides a unique opportunity to examine the intersection of AI feedback and SRL development. These environments are often characterised by high academic expectations, relational trust and internalised pressure to perform. Spencer et al. (2016) found that girls with a “beyond-the-self” orientation who link academic effort to

broader purpose are more resilient under stress. Feedback that affirms personal meaning and invites exploration may help girls move from performance based to purpose driven learning.

Designing AI feedback systems for all-girls classrooms requires attention to identity, motivation and emotional safety. Research suggests that AI tools have the potential to either reinforce or mitigate gender disparities, depending on how feedback is designed and delivered (Guo, 2021; Paechter et al., 2020). Feedback should be dialogic, not directive, encouraging student voice and reflection. As Plank et al. (2014) describe, “feedback that was considered the most useful was that framed as a dialogue between themselves and the teacher” (p. 99). They further emphasize that comments incorporating prompts and reminder cues supported greater progression in learning, an approach that closely aligns with the interactive and responsive dialogue enabled by AI tools. Satir and Korucu (2023) argue that AI should promote independent inquiry and resilience, not automate correctness. In this way, AI enhanced feedback can extend, not replace, human elements of teaching, offering feedback that builds both capability and confidence.

Despite the known benefits of feedback in promoting SRL, Guo (2021) notes that “few studies have investigated the gender differences in teacher feedback in the past few decades” (p.5), highlighting a gap in the research. At the same time, AI is rapidly reshaping educational practice by offering immediate, personalised, and accessible feedback that aligns with individual learning needs (Türker & Kahraman, 2024). AI-powered Socratic tools have the potential to deliver the kind of timely, dialogic feedback that students find most beneficial. AI can also help overcome common barriers to help-seeking, as many students report being “too frightened to ask questions” or “uncomfortable disclosing a lack of understanding in front of peers” (Plank et al., 2014, p107). By creating a private, non-judgmental space for interaction, AI tutors may alleviate these concerns while scaling responsive, differentiated support. This project aimed to explore how AI-generated feedback can empower girls in their

final years of schooling by supporting SRL, building confidence, and mitigating stress, addressing the relative lack of gender-specific research on how girls engage with AI.

### **Research Context**

St Hilda's School is a Pre-Prep to Year 12 day and boarding school located on the Gold Coast in Queensland, Australia. The school caters to approximately 1300 girls (St Hilda's School, 2026) aged 4 to 18 years old and demonstrates consistently strong academic outcomes, alongside a commitment to innovation and supportive learning environments.

My research project was conducted with a class of thirteen Year 12 girls, enrolled in the subject of Psychology in Semester Two of the 2025 school year (June – November). As a senior subject, Psychology was timetabled nine 55-minute lessons across a ten-day cycle, providing consistent and meaningful time for implementation. This was most beneficial to the study, as students were actively preparing for their end-of-year external exams, an ideal context to explore the potential benefits of AI-assisted learning.

This class was a great sample for the study. There was only one Year 12 Psychology class at the school in 2025, ensuring that no other students were disadvantaged by not having access to the AI tool. Additionally, I had taught this group in the previous year, which allowed for strong pre-existing rapport and trust, key factors in ensuring student engagement and quality data collection. The students were highly motivated to prepare for their exams and contribute to the research through active participation and honest feedback.

To uphold ethical standards around consent, privacy and data use, written permissions were obtained from students and all parents/guardians prior to commencing the project. The letter of consent detailed the nature and timeline of the project, outlined how the AI tool would be used, and clarified the steps taken to ensure student anonymity. It also explained what data would be collected and how it would be stored and shared, and guaranteed confidentiality of the data throughout.

## **The Action**

This research project was centred around examining the impact of AI as a Socratic tutor on students' SRL, motivation and metacognitive reflection in Year 12 Psychology. The students were active participants in the action, using Bloom AI to guide their independent revision and deepen their understanding of Psychology. I had trained the AI agent on the specific syllabus content, key terms, and cognitive verbs aligned with the external examination requirements. Prior to implementation, students participated in two instructional sessions introducing the purpose and nature of a Socratic tutor, platform navigation, use of the workspace to engage with mandatory readings, and use of Bloom's question-and-response feature.

To establish baseline measures, students completed an initial online survey containing both Likert-scale and open-ended questions exploring their study habits and motivation, confidence and self-efficacy, help-seeking and feedback preferences and the use of AI tools. Baseline qualitative data were also collected through small group interviews, allowing for richer insight into students' prior experiences with AI tools and self-regulation strategies. Following this, students were encouraged to integrate Bloom AI autonomously into their study routines. Their interactions with the platform were not prescriptive, allowing for natural variation in usage according to individual learning preferences and revision schedules. I monitored usage analytics through the Bloom AI dashboard, including frequency and duration of engagement and types of questions posed. These data points provided insights into students' behavioural patterns, persistence and evolving questioning which were influenced by both class-based revision lessons and independent revision.

Throughout the implementation phase, I distributed three additional online surveys designed to capture students' ongoing experiences, evolving perceptions and self-reported learning gains. These instruments provided longitudinal data to triangulate with usage

analytics. To deepen understanding, I also conducted semi-structured interviews to gain reflective commentary on how students perceived the Socratic dialogue with Bloom AI, and how questioning techniques prompted deeper analysis and independent reasoning. Together, these actions represented a holistic, iterative intervention integrating AI-mediated Socratic dialogue into authentic learning contexts.

### **Data Collection**

Over the course of the fifteen-week project, I employed triangulation techniques to gather both qualitative and quantitative data from a variety of sources. The primary focus was to capture student voice, feedback, and perceptions in alignment with their use of Bloom and their academic performance. To achieve this, I utilised multiple data collection methods including interviews, online surveys, usage analytics from Bloom, classroom observations and academic results.

Each method provided unique insights into students' learning processes, confidence and growth. For example, surveys and interviews revealed the nature of the students' interactions with Bloom and the types of conferences they were engaging in. These findings also directly informed teaching practice, helping to shape revision lessons based on emerging patterns in student understanding and gaps in knowledge. The AI data became a formative tool guiding us to use our face-to-face time more strategically.

I used baseline and initial use surveys to gather qualitative insights into students' motivation, confidence and approaches to learning. Students reflected on the clarity and usefulness of AI-generated feedback, how Socratic questioning supported their understanding of complex concepts, and whether it influenced their study habits, stress levels or confidence in ability. Their responses also explored broader perceptions of AI in education, and its potential to enhance critical thinking, personalise learning, and empower them as independent, reflective learners.

During the revision period, while not in timetabled lessons, students completed a survey to capture how they were using Bloom to support study and manage exam preparation. They reflected on the frequency and purpose of their use, the value of AI feedback, and how it shaped their motivation and self-regulation leading up to mock exams. Following these exams, a subsequent survey invited students to evaluate Bloom's overall impact on their learning and performance, comparing AI feedback with teacher feedback and considering its influence on preparedness, reflection and autonomy. Together, these surveys provided valuable insight into how immediate, AI-driven feedback shaped students' motivation, engagement, and self-regulated learning across the revision and assessment cycle.

Alongside these qualitative measures, quantitative analytics from Bloom were extracted to corroborate and contextualise students' self-reported experiences, providing objective data on usage patterns to support their survey responses. Observations and group interviews further documented the girls' learning journey, highlighting emerging themes and capturing student voice.

### **Data Analysis**

The data collection techniques generated a substantial amount of narrative information for analysis. Using Mertler's (2020) inductive approach to data analysis of "organise, describe and interpret" (pp. 173-177), I identified themes within students' responses. This process involved examining data that aligned with the research focus; how AI-powered feedback influenced motivation, engagement, and learning behaviours, while also attending to perspectives that challenged or diverged from these patterns. This model of analysis provided deep insight into the evolving perceptions of the girls as learners, revealing how their confidence, agency, and self-regulation developed throughout the implementation of Bloom.

## **Discussion of Findings**

Through my engagement with the data, I discovered four interconnected themes showing how students experienced and engaged with AI Socratic feedback. Together, these themes demonstrate a progression from surface-level use of AI toward deeper metacognitive engagement, increased confidence and greater learner agency. The findings are presented below and explored in relation to student voice, platform analytics, survey data and relevant literature.

### **Receiving Immediate, Explanatory Feedback Strengthens Confidence and Reduces Procrastination**

Students consistently reported that Bloom's instant, syllabus-specific feedback boosted their confidence and reduced anxiety across all phases of study. What began as frustration with not receiving direct answers immediately, evolved into appreciation for what students called the "Socratic push." They recognised that this questioning approach encouraged deeper thinking, reinforced learning and reduced procrastination. Student 1 stated, "It doesn't give me the answer right away. At the beginning it was annoying, but now I realise I'm learning so much more." From the baseline survey, 12 out of 13 students stated that immediate feedback would make them study more often, and by the post-mock exam stage, every participant agreed that Bloom motivated them to engage in study more readily. Students attributed reduced procrastination and increased motivation to immediacy and clarity of the feedback they received. Student 11 stated, "It is supportive and given me more confidence and I'm not as stressed knowing I have something that can help me when I get stuck" while Student 8 said, "I was more motivated to complete practice questions because I got feedback really quickly."

These findings align closely with the work of Hattie and Timperley (2007) and Kehrer et al. (2013), who identify immediate, explanatory feedback as one of the most powerful

influences on learning achievement, particularly when it closes the gap between current and desired outcomes. Similarly, Türker and Kahraman (2024) highlight that personalised, AI-supported feedback enhances motivation and retention by providing contextual and timely responses. Taken together, these findings demonstrate that Bloom's Socratic feedback builds confidence not through direct instruction, but by encouraging reflection and active thinking. The process of not receiving immediate answers initially generated frustration but ultimately developed into a deeper understanding of concepts and a stronger sense of control over learning.

### **The Availability of a Socratic Tutor Builds Independence While Complementing Teacher Presence**

Students emphasised that while their teacher remained irreplaceable, Bloom effectively filled critical gaps when the teacher support was not available. Having an always accessible Socratic tutor fostered independent problem-solving, sustained motivation at home and provided a sense of security that reduced reliance on waiting for teacher feedback. Pre and post-implementation surveys revealed that prior to Bloom's introduction, 8 out of 13 students studied fewer than two hours per week and cited distractions, confusion and lack of immediate help as barriers. Following implementation, 10 out of 13 students described being more motivated to study, with 9 out of 13 students now studying at least four or more hours per week. As Student 8 reflected, "I used to stop revising when I got confused, but now I can just ask Bloom." Student 7 added, "You can use it anywhere if the teacher is not available, and we can ask it questions and it will give the same answers she would."

Although students valued Bloom's immediacy and accuracy, the teacher remained the preferred source of feedback. Student 4 explained during a focus group interview, "I still like when my teacher explains it. Bloom is close, but not quite the same." In line with this, 6 out of 13 students reported teacher feedback as more helpful than AI, peer or self-generated

feedback. This suggests that Bloom strengthened autonomy and persistence, yet students continued to draw confidence and reassurance from the teacher's relational and contextual expertise.

These findings align closely with Satir and Korucu (2023), who argue that AI should enhance independent inquiry rather than simply deliver answers. Similarly, Plank et al. (2014) found that dialogic feedback is more effective when framed as a conversation, mirroring students' experiences of Bloom's 24/7 responsiveness and the conversations with the teacher. Guo (2021) further emphasises that girls often seek and rely on teacher validation; therefore, an AI that offers emotionally safe and immediate support may reduce help-seeking anxiety without diminishing the value of human connection.

### **Using Bloom AI to Structure Study Materials and Prompt Thinking Encourages Self-Regulation Strategies**

Students' engagement with Bloom evolved significantly over the course of the project. Bloom platform analytics showed that initially, most girls used the AI tutor for basic study tasks such as creating palm cards, summarising content, and clarifying definitions. Over time, and with some direction, their interactions became more purposeful and complex. They began refining their prompts to request harder questions, made deeper connections between theory and mandatory readings and explored real world applications of concepts. This progression illustrates Bloom's potential to support the development of planning, monitoring and metacognitive processes: all of which are core elements of self-regulated learning.

Baseline survey data indicated that only 5 out of 13 students reported knowing how or what to study, yet after consistent use of Bloom, all participants indicated that it had changed the way they approached revision. Students described during interviews how they experimented with prompt detail, using Bloom to quiz them, generate examples, and highlight gaps in understanding. Student 3 said, "I started giving Bloom more detail in my prompts to

get deeper answers” while Student 2 reflected, “I enjoyed figuring it out myself, it made me question and understand better.” By the post-mock exam phase, 9 out of 13 students were intentionally using Bloom to plan their revision schedules and test their understanding: Student 5 stated, “I’m going to use it to ask me practice questions, quiz my learning and make it apply real-world scenarios to help me remember answers more.” Students also reported broader cognitive and emotional benefits. All participants agreed that Bloom changed how they study and helped them manage exam stress more effectively. Student 4 noted, “It allowed me to work smarter instead of harder because it helped me just get the info I needed instead of looking through a million pages of readings.”

Some students, however, expressed concerns about potential over reliance on the technology. As Student 6 reflected during a class discussion:

I have used it a couple of times to explain content, but I don’t want to overuse it and not be able to think for myself. I don’t find a need to use it when I can usually figure out content by myself with the help of the teaching PPT and using my own notes.

This search for balance highlights growing autonomy alongside self-awareness, with findings strongly aligning with those of Guo (2021), who conceptualises SRL as a cyclical process of goal setting, monitoring, and reflection: processes clearly enacted through Bloom’s Socratic questioning. The progression in students’ prompting mirrors what Plank et al. (2014) and Satir Korucu (2023) describe as dialogic questioning leading to deeper engagement and independence.

### **Developing Prompt Literacy Through Socratic Dialogue Expands Students’ Sense of Agency in Learning**

In the lead up to their external exam, Bloom analytics showed how students began deliberately experimenting with how they interacted with Bloom, using increasingly targeted prompts, requesting specific forms of feedback, and asking the AI to challenge their thinking.

This progression from basic queries to strategic questioning demonstrates the development of prompt literacy, a skill that empowers students to steer conversations and direct their own learning. Classroom observations indicated that through this process, Bloom evolved from being viewed as a study tool to being a cognitive partner, one that enabled agency, autonomy and intellectual risk taking. Students described clear emotional and behavioural shifts as their confidence and motivation grew. Many felt less stressed, more focused and more willing to sit with cognitive discomfort during the study process. Student 2 reflected, “It’s supportive and given me more confidence. I’m not as stressed knowing I have something to help when I get stuck.” For others, Bloom’s availability and responsiveness reduced procrastination and provided a sense of security, reinforcing their independence and belief in their own ability to problem-solve. This emerging sense of Bloom as a dialogic thinking partner was reflected in their preference for reciprocal intellectual exchange rather than simple answer provision. Student 6 said “It would be good if its responses were more human-like, so that it feels like I’m actually talking to someone and having a conversation about the topics like we do in class.”

These findings strongly align with those of Plank et al. (2024), who found that feedback which prompts explanation and elaboration fosters deeper learning and agency, mirroring the way students used Bloom as a thinking partner rather than an answer provider. Spencer et al. (2016) similarly propose that reflective struggle builds academic resilience, suggesting that the metacognitive growth observed in this study may be nurturing a beyond-the-self orientation toward learning.

Darvishi et al. (2024) reinforce these findings by framing prompt construction as a form of epistemic authorship, a process whereby learners actively co-construct knowledge through intentional dialogue with AI. This conceptualisation reflects students’ evolving behaviours with Bloom through their deliberate refinement of prompts and pursuit of deeper

explanations and reflects a transition from AI as an instructor to AI as a collaborator.

Additionally, Darvishi et al. highlight the importance of low-stakes cognitive rehearsal spaces where learners feel safe to experiment and fail productively: an experience echoed in my students' descriptions of Bloom as "supportive" and "non-judgmental."

### **Conclusion**

These findings suggest that Bloom contributed to a hybrid feedback ecosystem, one in which AI and teacher feedback coexisted to promote independence and emotional reassurance for girls. The availability of a Socratic tutor empowered students to self-manage their learning, while teacher interaction remained central for mentorship, warmth, and care. This blended approach represents an important piece in balancing technological efficiency with human interaction.

The evidence positions Bloom as an AI-driven metacognitive scaffold that facilitates the development of advanced study strategies and self-regulated behaviours. By engaging in iterative questioning, reflection and refinement, students moved from passive recipients of feedback to active agents in their own learning. This provides insight into how structured prompting can foster both cognitive autonomy and confidence in learning environments. These insights indicate that prompt literacy may represent a contemporary form of metacognitive agency, one that bridges traditional feedback theory with digital pedagogy. Bloom's Socratic questioning not only scaffolded conceptual understanding but also empowered students to co-regulate their learning through intentional dialogue.

Finally, it is important to acknowledge student achievement in the Psychology external examination. Within this cohort, two of the thirteen students achieved a score of 45 out of 50, with the lowest score being 35 out of 50. While these results were not generally higher than those of previous year's cohorts, overall subject performance exceeded the state average. These outcomes indicate a strong level of academic attainment across the group. However, it

is essential to emphasise that academic performance was not the primary focus of this action research project. Rather, examination outcomes were viewed as a secondary and indirect consequence of the development of self-regulation strategies, increased metacognitive awareness and more purposeful engagement with learning. The central aim of the project was to support students in becoming more confident, independent and strategic learners using Socratic, AI-mediated feedback. From this perspective, the academic results serve to contextualise the findings, but do not define the success of the intervention.

### **Reflection**

My findings add something new to what we know about feedback. They suggest that when Bloom AI deliberately delays giving answers and instead adopts a questioning approach, students move from just looking for quick answers to developing deeper thinking skills and lasting motivation. This form of scaffolded feedback supports the development of metacognitive awareness and sustained motivation, transforming surface-level engagement into more intentional and self-directed learning.

One of the most meaningful aspects of this project was listening to student voice and observing the growth in students' awareness of themselves as learners. Overtime, students became increasingly reflective about how they studied, how they responded to challenge, and how they could use feedback more strategically. Conversations about the role of AI in education were rich, with students thoughtfully considering how these tools may shape their future study pathways and careers.

I extend my sincere thanks to the ICGS, my GARC Research Advisor Núria Tapias Nadales and the GARC Cohort 2026 fellows. Being part of a global network of educators so deeply committed to girls' learning, growth, and wellbeing has been both affirming and inspiring. I am grateful to my school-based mentor, Majda Benzenati for her thoughtful feedback, critical lens and big-picture perspective throughout the project. Her

guidance provided both challenge and reassurance at key moments. I also extend my thanks to St Hilda's School Principal, Virginia Warner for enabling my participation in the GARC program, supporting my aspirations and championing action research through the Athena Scholarship Program. A special acknowledgement goes to Gary Liang, developer of Bloom AI, whose collaboration, responsiveness and behind-the-scenes support were instrumental in bringing this project to life.

Finally, I would like to thank the thirteen Year 12 Psychology students who graduated in 2025. They were an exceptional group of young women to work with. Their willingness to take intellectual risks, engage thoughtfully with Bloom, and show up with honesty, humour and persistence made this project what it was. I am incredibly proud of what we have achieved together. I am deeply grateful for the commitment, curiosity, and openness this group of students brought to the action research process, which made the project both impactful and mutually enriching.

In 2026, the implementation of Bloom AI is being extended beyond its initial context to additional faculty areas and year levels within the school. This expansion includes work with Year 11 students in Literature and Modern History, where Bloom AI is being explored as a Socratic tutoring tool to support learning in subjects with substantial writing and analytical demands. These pilot applications are examining how AI-mediated, question-driven feedback can enhance students' disciplinary thinking, writing processes and engagement across different curricular contexts. Looking ahead, there is potential for Bloom AI to be implemented at a full-cohort level, accompanied by structured support for teachers to integrate the tool intentionally and to strengthen students' metacognitive awareness, confidence and capacity for self-directed learning.

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