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GenAI-first Maths Support at a Regional Australian University

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Abstract

Maths support has long been present in Australian tertiary education, primarily as a physical space staffed by tutors and complemented by asynchronous resources and accessible via integration into course curricula. This format has proved effective in improving student retention and transition (Horrocks et al., 2026) and will only increase in salience as student cohorts diversify. Artificial intelligence (AI) has shown potential for providing low-stakes mathematics and numeracy support that gives immediate, personalised feedback and clarification to students. A trial of generative AI (GenAI) agents as a first point of contact for mathematics support for nursing and education students at Federation University Australia found that students accessed support outside of office hours and during semester periods of highest need, indicating the potential of AI as a just-in-time learning tool. Furthermore, the qualitative data from the agent conversations showed that the agents were being utilised overwhelmingly for learning rather than cognitive offloading.

***Keywords**:* Mathematics support; study support; numeracy; student progression; GenAI; technology-enhanced learning

Introduction

Mathematics and statistics learning support (MSLS) centres, offering optional, low-stakes support supplemental to a student's units and courses, are one of the ways Australian tertiary institutions have offered additional resources for students to meet assumed levels of mathematics and numeracy skills. Traditionally, these spaces have a physical location with staff available to assist most students and providing a safe place to enhance learning. Creating a sense of community and identity for students in these spaces has also led to an increase in student retention and engagement (Fhloinn & Deacon, 2023; MacGillivray & Croft, 2011; Voisin et al., 2023). As these spaces continue to evolve, the design and reach of MSLS centres has been broadened to include hybrid (online and in-person) offerings across institutions. At CQUniversity, the site of one of the earliest formalised MSLS centres in Australia, students have the option for in-person support on its five campuses or via online discussions (Dzator & Dzator, 2020). A recent study from Western Sydney University (Mullen et al., 2025) also highlighted the desire of its students for a hybrid model of maths support to continue beyond the COVID-19 pandemic, which necessitated the provision of online services (Jackson, 2021). Mathematics and statistics support continues to grow in salience as increasing proportions of regional and low socioeconomic status (SES) students enter tertiary study with limited mathematics backgrounds (Australian Mathematical Sciences Institute, 2024).

At the same time, Meanwhile, generative artificial intelligence (GenAI) has attracted attention as a convenient way for students to gain assistance as it is perceived as low-stakes support that is immediate and personalised (Chan & Hu, 2023). Additionally, GenAI numeracy tools have been linked to reduced anxiety and increased confidence in students (Shaker et al., 2026). However, the use of GenAI by students has also been associated with cognitive offloading, the act of shifting cognitive tasks to external aids, limiting opportunities for learning breakthroughs that require applying critical thinking to a problem (Gerlich, 2025). External commitments such as work, which is commonly a priority for low SES students, have been cited as a main reason for using GenAI in completing academic work that is often perceived as "boring and tiring" (Johnston et al., 2024, p. 3). Furthermore, the phenomenon of hallucination, whereby GenAI chatbots confidently state fabrications as facts, is well known and requires the user to have a relatively sophisticated understanding of the content to be aware of its presence (Hoernig et al., 2024).

Federation University Australia is a regional university existing across three main campuses (and online), with its largest campus 110 kilometres northwest of Melbourne. The student profile in 2023 comprised 20% from low SES backgrounds, 44% first-in-family, and 48% regional or remote students (Federation University Australia, 2024), with 32% of 2024 enrolments being external or multimodal (Department of Education, 2025). Stigma in asking for academic support is a concerning issue for marginalised students, whereby help is seen as remedial and therefore help-seeking as implicitly revealing oneself to be academically substandard (Micari & Calkins, 2021). In the past, there had been limited mathematics support provided at the university. This presented an opportunity to form a holistic mathematics support program that was equitable across all locations, personalised and approachable to students, and that suited their unique academic and extra-curricular schedule.

In 2025, a pilot of Cogniti at Federation University Australia presented an opportunity to trial an innovative approach to mathematics and statistics support involving GenAI. Cogniti is a GenAI platform designed by educators at the University of Sydney with the aim of supporting specific AI-enabled learning activities embedded in the learning management system (LMS). Cogniti agents were developed targeting the two largest disciplines in need of numeracy support at Federation University Australia: education (for the numeracy component of the compulsory Language and Numeracy Test for Initial Teacher Education [LANTITE]) and nursing (for medication calculations). These agents were designed in collaboration with the teaching academics concerned and were made available to students on their respective unit's LMS, and to education students in a dedicated LANTITE LMS. Additionally, a suite of traditional asynchronous resources was provided through the Maths & Stats Support Centre (MSC) website, including downloadable helpsheets, worked examples, and staff-recorded tutorial videos. Significantly, human tutors remained available at set times throughout the week during the semester, both face-to-face and online, on a drop-in basis.

This paper reports on our evaluation of this pilot, using data from Semester 2, 2025. The novelty of this GenAI-first approach means our research questions seek to address the following: How do students at a regional Australian university experience GenAI tutors as a form of mathematics and numeracy support, and do these tutors enable or inhibit student engagement with the broader mathematics support ecosystem? In what ways do students use them as learning tools, and to what extent are they used simply for cognitive offloading?

Literature Review

The development of MSLS in Australia was a key institutional response to greater diversity in the mathematics backgrounds of incoming students and increasing quantitative demands across disciplines. MacGillivray (2008) led and documented the evolution of MSLS from remedially perceived drop-in services to institution-wide, embedded, discipline-responsive support. MacGillivray's work highlights the importance of curriculum alignment, collaboration with academic staff, and normalising help-seeking to reduce stigma, which are aspects shared with the then growing adoption of transition pedagogy (Kift, 2015).

The advent of readily available GenAI in recent years has raised the question of whether this technology can be effectively utilised in mathematics and statistics support services. Though early GenAI models performed comparatively poorly at mathematics (Frieder et al., 2023), successive generations have demonstrated progressive improvement (Georgiou, 2025). The potential for providing easily scalable, personalised learning support via an internet connection raises the possibility of a transformative enhancement of mathematics and statistics support environments. Chatbots can be tailored to very specific curriculum needs, providing individualised and immediate feedback to students (Fuchs & Aguilos, 2023; Lim et al., 2025), while also being available institution-wide at any time of the day (Escalante et al., 2023) and for any length of time (Lo et al., 2024). This capacity supports the possibility of strong alignment with best practice principles, such as those developed by MacGillivray (2008). Other documented advantages of GenAI-powered maths tutors include giving students the ability to choose the pace and style of their learning (Cai et al., 2024), improving motivation (Hsu, 2024), reducing anxiety (Wu et al., 2024), and helping students create a supportive learning environment (Teich et al., 2024). Help-seekers may also value the non-judgemental nature of interactions with GenAI, with studies reporting that students felt they could ask questions they would be ashamed to ask a human tutor (Jin et al., 2023; Shen et al., 2025).

Disadvantages of GenAI tutors have also been identified that should be considered before including them in mathematics and statistics support offerings. These include the lack of human interaction both between learner and educator (Limna et al., 2023; Wardat et al., 2023) and amongst learners, a beneficial feature of many physical maths hubs (MacGillivray & Croft, 2011). A sense of belonging and strengthening identity as a member of a learning community have been shown to be critically important for success in higher education, particularly for disadvantaged groups (Kearney, 2019; Kift, 2015; Wilson et al., 2016). There is also widespread concern that students will use GenAI simply for cognitive offloading, and thus will fail to develop the skills identified in the intended learning outcomes (Lodge, Yang, et al., 2023, Vargas-Murillo et al., 2023).

Still contested is whether GenAI tutoring can support the development of self-regulated learning, a key aim of higher education, particularly in the age of GenAI (Lodge, de Barba, & Broadbent, 2023). A systematic literature review by Lo et al. (2024) located a number of studies arguing that GenAI tutors can support self-regulated learning. Lim et al. (2025) also suggest numerous mechanisms through which GenAI could potentially do so, particularly formative assessment. Others have argued that adaptive learning technologies have a deleterious effect on self-regulated learning, specifically because they take over monitoring of learning and decision-making about adaptation (Molenaar, 2022).

The use of GenAI tutors also poses ethical challenges, with some students having concerns about the social, economic, and environmental implications of GenAI (Quince & Nikolic, 2026) that may impact use. Providing access to GenAI through an institutional platform such as Cogniti (which is housed within a university's information technology security environment) may address privacy concerns and provide equity of access through free provision to all students. However, the tendency of GenAI to reproduce social biases learnt from myriad everyday internet texts (Ofosu-Asare, 2026) may manifest itself even in maths tutors. Furthermore, the environmental costs associated with cooling GenAI data centres (Daniel et al., 2026) are incontrovertible and may dissuade some students from using artificial intelligence (AI) tools. A recent review of literature on the ethics of AI in higher education (Nguyen, 2025) concluded, among other determinations, that GenAI should complement and not replace traditional teaching, should not degrade academic integrity, and should nurture not harm the development of critical thinking.

Equity of access and support for diverse learners have also been identified as key ethical principles for GenAI use in higher education (Nguyen, 2025). The potential for GenAI tools to improve participation for equity groups has been identified, for example, through developing language skills and critical thinking (James & Andrews, 2024) or providing low-cost alternative learning resources for students with disabilities, where there are teachers shortages (Mimoudi, 2025). Improved accessibility is not a foregone conclusion, however. A recent study examining the effect of intelligent tutoring systems on Australian secondary school mathematics learning found that availability of such tools only exacerbates existing disadvantage based on socioeconomic status and rurality (Hannan & Eynon, 2025). These authors and others have argued that positive outcomes regarding equity and inclusion will require clear institutional guardrails, for example, ensuring GenAI learning activities are constructed such that they respect culture and identity, are inclusive, nurture critical reflection, and enable genuine choice (Ballantyne et al., 2025). At the practical level, the implementation of effective frameworks that ensure GenAI tools enhance accessibility and inclusion will benefit from insight into actual student interactions with educational chatbots. The results of this study therefore provide a timely contribution to the discussion concerning whether and how GenAI can improve mathematics, statistics, and numeracy support.

Method

Resource engagement data (views and unique users) were obtained from Moodle analytics for the relevant unit LMS, allowing for a comparison of access to AI-related and non-AI-related materials. Timestamps of student interactions with the agents were obtained from conversation logs on the Cogniti platform. Attendance at synchronous in-person drop-in sessions, providing students with an alternative to AI tutoring which was central to the pilot design, was also recorded across the semester. However, only a few students (n = 5) made use of this service, perhaps due to the novelty of the MSC as a service. For this reason, our analysis focused on the other components of support.

In order to evaluate the functioning of the two numeracy support agents, NiNA (numeracy in nursing agent) and EdNA (education numeracy agent), the conversations with students were analysed line by line. By far the most common interaction involved the agent setting practice questions to prepare students for their forthcoming assessments (medication calculation tests for nursing students; the LANTITE numeracy test for education students) and the students attempting to answer, then receiving feedback on their answers, or guidance if unable to answer. All mathematical calculations, by both agents and students, were checked for correctness.

The development of the NiNA and EdNA agents used an iterative prompt engineering process before being deployed into each unit. Rather than treating the agents as static tools, the design of NiNA and EdNA involved multiple rounds of testing and refinement in collaboration with the academic staff responsible for their respective units. Applying this consultative approach resulted in agent responses that were not only mathematically accurate but contextually appropriate to the conventions of nursing and teacher education, respectively. Stakeholder engagement informed the design decision to incorporate a Socratic tutoring approach: agents were explicitly prompted to guide, rather than give correct answers, through questioning and scaffolded reasoning, where this was reasonably achievable. Once deployed, the agents were continually monitored on a weekly basis, allowing emerging issues to be identified in a timely manner. When mathematical or contextual errors were detected in the agent conversations, these were escalated to the relevant teaching team for further adjudication. Agent prompts were also revised midway through the semester in response to patterns observed in student interactions, which allowed for responsive feedback based on how students were actually engaging with the agents.

Outcomes of practice questions were coded into three categories. Firstly, the student answered correctly unaided. Secondly, the agent guided the student to the correct answer, typically by breaking the problem down into smaller steps or providing explanations of concepts. Thirdly, the student initially answered incorrectly but was guided to the correct answer by the agent. During analysis, it became apparent that after a student had struggled with a question (i.e., required assistance or initially answered incorrectly), the agents often asked follow-up questions of the same type. This behaviour was not explicitly directed by the agent prompt: we presume it to be the result of general large language model training. Follow-up questions and their outcomes were also tracked.

The remaining practice question outcomes were coded into four further categories. Firstly, agents occasionally divulged the answer if after several turns of conversation, the student had apparently become stuck. Secondly, occasionally, the student simply gave up before the solution was reached. Thirdly, on a very small number of occasions, the agents made mathematical errors, which were coded as "false positives" when an incorrect student response was adjudged correct by the agent. False negatives, when the agent appeared to imply that a correct answer was wrong, were not coded separately, rather they were coded as the student having reached the correct answer. In the case of false negatives, the agent nearly always either discovered its own error, sometimes in the same turn, or acknowledged its error in the ensuing conversation with the student. Fourthly, EdNA occasionally "jumped the gun" (pre-empted the final step of a calculation) while stepping a student Socratically through a solution and completed the final line of arithmetic itself, instead of prompting the student to carry out this last step. The reason for this unintended behaviour is not known and is recognised as undesirable for our purposes, but for completeness, these outcomes were also included in the results. Steps have been taken to avoid this behaviour in future iterations. We acknowledge that the distinction between this undesirable "jumping the gun" and providing worked solutions to students who had become stuck may appear arbitrary. In order to minimise subjectivity, two of the authors (Bridge and Camacho) met to discuss and agree upon the coding of these two categories in each case. For all other codes, categorisation was an objective and reproducible process (Did the student arrive at the correct answer? If so, was this preceded by tips from the agent or incorrect attempts from the student?) and was carried out by one researcher only. Practice questions not attempted by the student were not coded.

Apart from setting and answering practice questions, there were several other types of interaction. Also included in the results were students asking topic questions (e.g., "help me to understand unit conversions", NiNA Student 20), students entering their own practice questions, and agents prompting reflection (e.g., "How do you feel about converting decimals to fractions now?", EdNA). Directions to ask regular reflection questions were included in the prompt engineering of both agents.
The research was approved by Federation University Australia's Human Research Ethics Committee (approval number 2025/120).

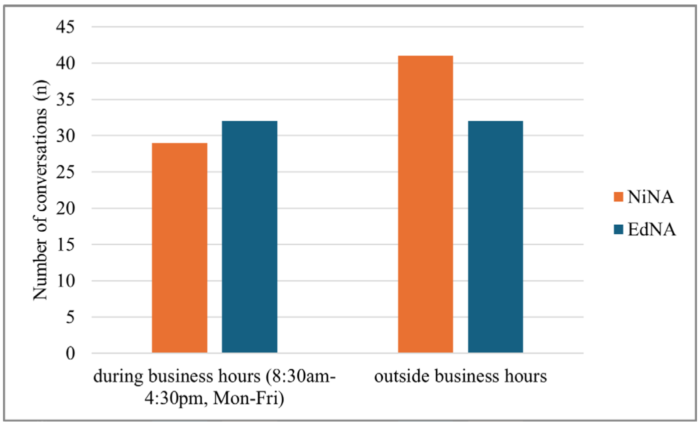
Results

In Semester 2, 2025, there were 70 student conversations with NiNA across three nursing units and 64 with EdNA (after opt-outs were removed, in accordance with our ethics approval). Access times (Figure 1) demonstrate a high rate of out-of-hours access: 58.6% (41) for NiNA and 50% (32) for EdNA, underscoring the need for flexible, on-demand support, particularly for nursing students in clinical placements. The higher engagement with NiNA in after-hours contexts possibly reflects the visibility and seamless integration of being directly embedded in the unit LMS it supported, whilst EdNA was available to students seeking LANTITE assistance on a separate, dedicated LMS.

These conversations also require contextualisation with respect to the university's schedule. Figure 2 shows that most of the interactions with NiNA were situated early in the semester (before Week 1–Week 2), which was when the units introduced medical dosage calculations. One nursing unit, Nursing Unit 3, was run during a teaching period outside standard semesters, hence the conversations with NiNA that transpired before the semester began. The increase in usage during and after the mid-semester break (mid-semester break–Week 8) corresponded with the lead-up to the practical assessments that required the application of medical dosage formulas.

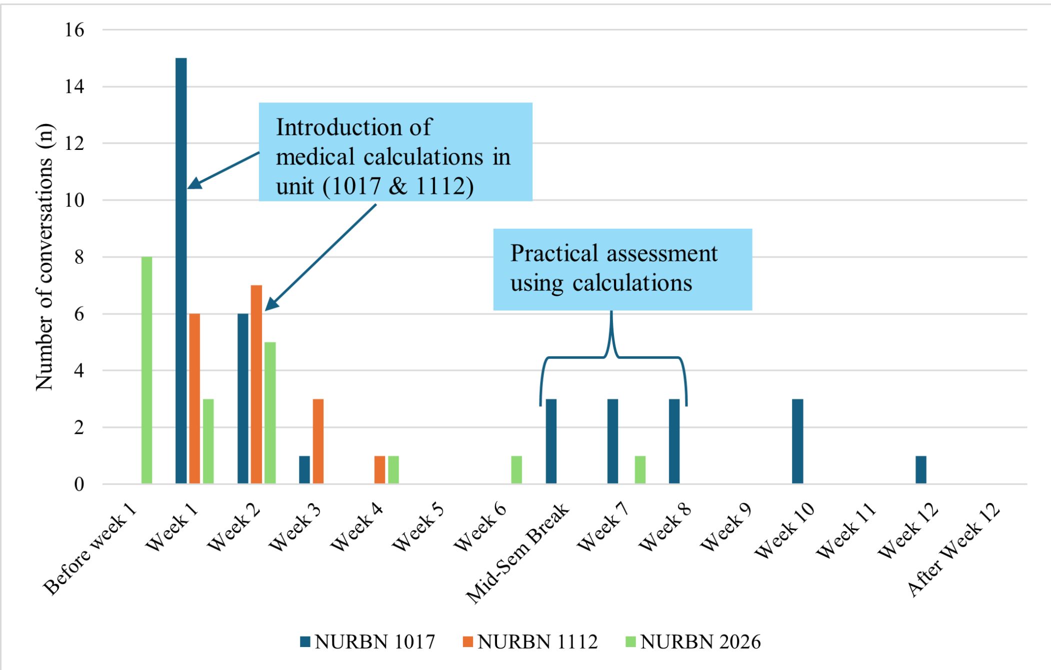
Figure 1

Student Access Times for EdNA and NiNA During Semester 2, 2025



Note. Left panel: Access times of students for EdNA during Semester 2, 2025. Right panel: Left panel: Access times of students for NiNA during Semester 2, 2025.

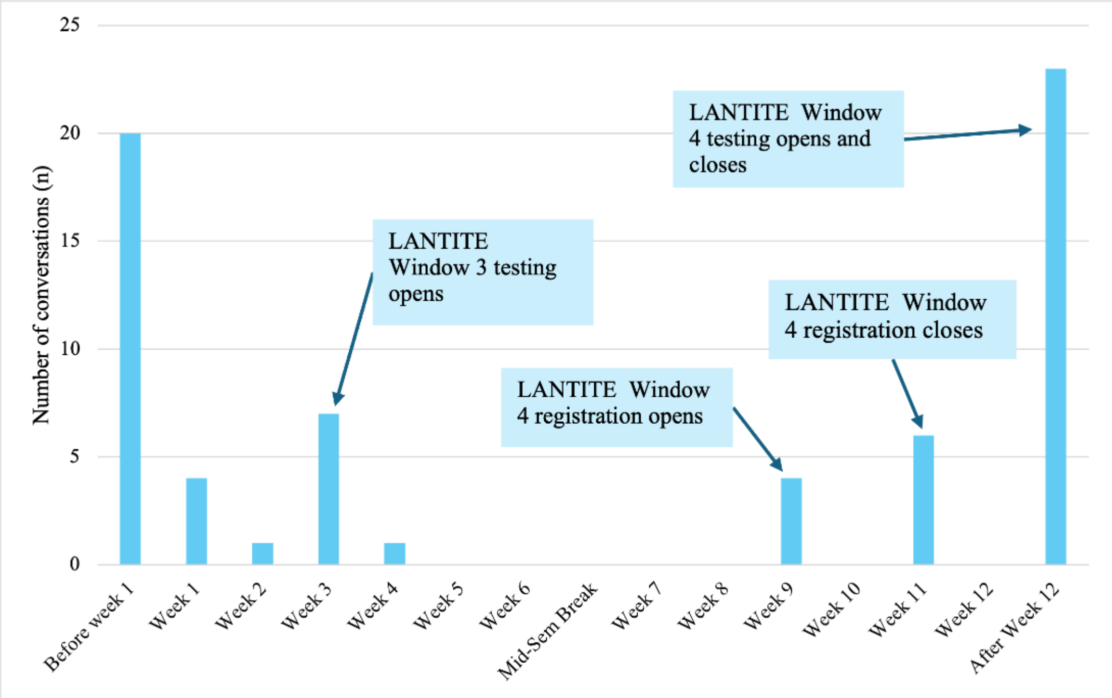
Figure 2
Student Conversations With NiNA During Semester 2, 2025 for Three Nursing Units



The just-in-time nature of support is also noticeable with the timing of students' conversations with EdNA, as shown in Figure 3, which highlights an alignment with the LANTITE testing schedule. The increases in student engagement coincided with the LANTITE testing windows opening (Week 3 and after Week 12) and the LANTITE registration windows opening (Week 9) and closing (Week 11). This reinforces the role of EdNA as an on-demand informational and academic support resource that is often utilised due to assessment proximity.

Figure 3

Student Conversations With EdNA During Semester 2, 2025 Aligned with Key LANTITE Testing and Registration Periods



In addition to the agents providing academic support, traditional resources (such as downloadable help-sheets, videos, and tutorial recordings) were integral components of all units and pages previously mentioned (except for Nursing Unit 2) as the addition of NiNA in that unit was ad hoc). Table 1 shows the uptake of AI-related and non-AI-related resources among the 334 participants that engaged with content provided by the MSC during this study. Helpsheets and exemplars, which included recordings of a mathematics tutor explaining the content, had the highest uptake of non-AI-related resources, which underscores the continued importance of traditional forms of academic support.

Detailed qualitative analysis of the conversations between students and agents was also carried out. About half of the students only had short interactions, which may suggest they were engaging with the agent out of curiosity. The rest had substantial conversations, often working through multiple practice questions; one EdNA user entered 364 conversation turns into the chat window. Table 2 summarises the outcomes of practice questions posed by the two agents. For both agents, a small majority of cases involved students correctly answering the questions unaided, perhaps indicating the use of the tools for checking competence and confidence building. However, for the remainder of the practice questions attempted, large proportions of students were guided to the correct answer (43.6% for NiNA, 30.3% for EdNA), with only small percentages of students giving up before finding out the correct answer. False positives in both cases highlight the care that must be taken with GenAI tutors, though it must be acknowledged that human tutors' error rates are unlikely to be zero.

Early in the analysis, we noticed that if a student had initially struggled with a question (i.e., asked for help or initially got it wrong), then often the agents would subsequently ask a follow-up question about the same concept. Of 41 follow-up questions attempted with NiNA and 54 with EdNA, students correctly answered 73.2% (30) and 59.3% (32) unaided, respectively, further illustrating iterative engagement and a learning process rather than one-off answer seeking.

Table 1

Moodle Analytics Demonstrating Access Trends of Users Across AI-related and non-AI-related resources

Unit	Only accessing AI-related resources	Only accessing non-AI-related resources	Accessing both resources	Total unit participation rate
Nursing Unit 1	45	50	41	25% (136/543)
Nursing Unit 2	N/A	N/A	62	10.9% (62/568)
Nursing Unit 3	9	56	39	14.9% (101/678)
LANTITE	7	15	13	4.3% (35/809)

Table 2

Outcomes of All Practice Questions Attempted by Students

Outcome	NiNA	EdNA
Student gets answer correct unaided	51.7%	57.0%
Student guided to correct answer by agent (after asking for help or saying, "I don't know")	23.8%	14.8%
Student initially gets answer wrong, but then is guided to correct answer by agent	18.6%	14.0%
Agent eventually gives the answer when it is clear the student is stuck	1.2%	1.5%
Student gives up	2.3%	3.8%
False positive (agent hallucinates a wrong answer as correct)	2.3%	0.3%
Agent "jumps the gun" and completes working instead of student (usually the final arithmetic in the working)	N.A.	8.7%

Regarding discussions that did not revolve around the agent setting practice questions, in the 70 conversations with NiNA, students asked 20 topic questions, entered their own practice questions 17 times, and there were 17 cases of the agent prompting reflection. In the 64 conversations with EdNA, there were 43 topic questions, 47 own practice questions entered, and 76 instances of the agent asking reflective questions. The agents were generally able to incorporate reflective feedback into further tutoring conversation, as the following interaction demonstrates:

> NiNA: You've now answered four questions. Reflecting on these, how confident do you feel about performing dosage calculations? Do you find this method useful for your studies?
>
> NiNA Student 31: no
>
> NiNA: I'm here to help improve your experience and understanding. Could you share what aspects you're finding challenging or what might help you feel more confident with dosage calculations? We can focus on those areas or try a different approach to learning.
>
> NiNA Student 31: different approach
>
> NiNA: Let's try a different approach by using visuals or real-world examples to explain dosage calculations.
>
> [The student works through examples in which NiNA encourages visualisation.]
>
> NiNA: Do you find this visual approach of imagining the fluid distribution helpful for understanding the calculation? Would you like to explore more calculations or focus on refining this approach?
>
> NiNA Student 31: yes

In general, the conversations were characterised by a high level of positivity on the part of the agent, and constructive engagement from the student. For illustrative purposes, Figure 4 provides a selected example of a student learning moment, at the same time demonstrating the dialogic, Socratic nature of the conversations between agent and student.

Figure 4

An Example of a Learning Moment in a Conversation with NiNA

Note. A screenshot of a chat conversation between a nursing student and the NiNA AI tutoring agent.

Discussion

Overall, the majority of students accessed the NiNA and EdNA agents outside of business hours at times that suited their unique schedules. Furthermore, embedding the GenAI agents within the units in the LMS allowed students to access support at key points in the semester. This pattern suggests that students were utilising GenAI tutors as a form of just-in-time learning support, accessing assistance when it was most relevant to their immediate study needs, which is an important factor contributing to persistence and engagement (Kift, 2015; Tinto, 2012).

The findings from the pilot also highlight the importance of multimodal academic support. Moodle analytics showed that while AI-related resources were accessed frequently, conventional materials including helpsheets, exemplars, and recordings still attracted the highest overall engagement. This suggests that an optimal way to leverage GenAI in optional tertiary support environments is to integrate AI within a broader suite of academic support options rather than as a singular solution to assist students in their learning. This outcome is in alignment with previous studies which, in similar contexts, have highlighted the need for a “multiple-approaches philosophy” (McWilliams & Allan, 2014, p. 16) for support services, ensuring resource provision is “multilayered and multi-modal” (Barber, 2020, p. 63). Continuing to provide access to non-AI-related resources and human tutors also ensures inclusivity for students who may object to using AI for perceived ethical reasons, providing further justification for the multimodal provision of support.

The qualitative data obtained from the conversations of both agents provides more insight into how students engaged with GenAI as a means of support for learning. Most interactions resulted in students either arriving at correct answers independently or reaching them through scaffolded feedback provided by NiNA and EdNA. In several cases, students demonstrated iterative learning patterns, in which they initially made errors then refined their understanding following AI-generated feedback. These findings indicate that both agents encouraged active learning and reflection rather than passive answer seeking. This type of student engagement with intelligent tutoring systems suggests that adaptive feedback mechanisms can support cognitive development and increase confidence in academic performance (Mann & Willans, 2020; Steenbergen-Hu & Cooper, 2013).

From a student success perspective, our results indicate that GenAI can contribute to improved academic transition and retention outcomes. Both agents extended the reach of the MSC beyond standard operating hours and provided a low-barrier entry point to assistance. This accessibility is especially important for regional and first-in-family students, who often face competing commitments or hesitation in seeking face-to-face help. That one student totalled 364 entries is a powerful indication of the potential for AI tutors to remove social barriers: it is hard to imagine the same student feeling comfortable doing the same when seeking human support. Embedding the agents directly within the unit LMS further normalised the use of academic support, aligning with transition pedagogy principles that emphasise early and contextualised support that can play a key role in supporting first-year student transition (Kift, 2015; McCarten et al., 2025). Overall, the combination of AI-enabled and traditional supports represents an evolving model of academic assistance that is responsive, inclusive, and scalable, while maintaining human oversight and pedagogical intent.

Our analysis of the conversations between students and GenAI tutors showed that students were not using the agents for cognitive offloading (Lodge, Yang, et al., 2023), with very few cases of students directly seeking the answer to a question (in these instances, the agent would politely refuse). Rather, students were using the agents for their intended purpose: to develop numeracy skills for compulsory external (invigilated) tests. The propensity of the agents to pose follow-up questions of the same type after students had struggled with a similar question, and to invite and act on feedback on the practice questions set and the tutoring approach being pursued, are consistent with adaptive learning strategies (Molenaar, 2022). Addressing Molenaar's (2022) fears regarding offloading of self-regulation, overwhelmingly the sessions were student-guided, with students frequently asking topic questions, entering their own practice questions, or having a clear idea of topics they wanted to focus on. Help-seeking in itself is recognised as an element of self-regulated learning (Karabenick & Berger, 2013). Broadbent and Lodge (2021) argue that help-seeking can be an element of all three phases of self-regulated learning (Zimmerman, 2002).

Limitations

We recognise the limitations of a study of a relatively small-scale pilot in a single institution. A further limitation is that effect on learning was not measured independently through assessment results, and there was no control group: precluded by the opportunistic nature and small scale of our study. However, our very detailed textual analysis, we hope, provides justification for further piloting of a GenAI-first approach to mathematics and statistics support, and inspiration for more rigorous research into the effectiveness of this novel approach.

Conclusion

Our study has demonstrated the significant potential for GenAI tutors as a key facet in mathematics support. Students predominantly engaged with GenAI tutors to prepare for key assessments, which were invigilated, rather than for cognitive offloading. This was evidenced by conversations with the tutors that were used to build confidence and iteratively develop understanding. Students also exhibited behaviour conducive to self-regulated learning: entering topic-level conceptual questions and their own practice questions, and engaging with agent-prompted reflection. The availability of GenAI tutors outside of regular office hours enhanced access for students who would otherwise have been constrained by normal staffing hours and campus location. Whilst some students chose to exclusively use the AI-related resources, the tutors did not operate in isolation nor inhibit other modes of support. Moodle analytics showed continued engagement with conventional resources, affirming that GenAI tutors can be one of many components within a broader, multimodal support ecosystem rather than a complete replacement. This GenAI-first model, which embeds AI agents directly within unit LMSs, maintains human availability, and preserves access to asynchronous resources, offers both a viable approach to multi-campus learning support and a proof of concept for more rigorous investigation into equitable, GenAI-first learning support.

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