



GREATER CHRISTCHURCH
SCHOOLS' NETWORK

Harnessing the Power of AI for Future- Focused Learning

A GCSN Guide for Kaiako, Schools and Kura

Greater Christchurch Schools' Network

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This guide represents the collective effort of several individuals and organisations committed to the advancements of education in Aotearoa through thoughtful digital technologies integration and the pursuit of knowledge.

Artificial Intelligence represents many exciting new opportunities for educators to prepare ākonga for learning and work in the future, however, there are also legitimate risks that make many educators hesitant to use AI in the classroom or that can make those with good intentions use it ineffectively. This guide is intended to give educators a general understanding of the potential benefits and risks of AI technology and provide some practical tips for how it can be used for different school-related functions.

This piece of work was commissioned by the Greater Christchurch Schools' Network (GCSN) and written by Dr Gabrielle Wall, the General Manager. The GCSN is a charitable trust which works to bridge the digital divide in education for ākonga and their whānau across greater Christchurch. GCSN provides advice and guidance for schools around digital technologies integration, and this project is part of our commitment to fostering best practice in Digital Technologies, preparing ākonga for the future.

We acknowledge the contribution of the wider GCSN team in creating this guide from its conception and through various stages of research and writing. Please note that the field of AI is developing rapidly.

We welcome feedback and questions regarding this guide, and we would like to hear from educators using AI technology successfully in their practice. Please contact Gabrielle at gabrielle.wall@gcsn.school.nz.

Introduction

Artificial Intelligence, AI, has gained considerable traction in the online sphere as it has increasingly entered our educational, work, and personal lives. In an era characterised by rapid technological advancement and global interconnectedness, the educational landscape is constantly evolving. The increased prevalence of technology, the Internet, media, social platforms etc. have required the New Zealand education system to continually adapt and transform to meet changing needs, emerging ways of learning, and risks posed to young people accessing essential tools.

The integration of AI into educational practices has emerged as a pivotal factor in shaping future-focused learning environments. AI has vast potential to revolutionise education and enhance professional teaching practice. It also offers opportunities for schools and kura to create more personalised learning experiences and to equip ākonga with the knowledge and skills they need to learn and work in the 21st century. One of the takeaway messages of this resource is that not embracing AI for its learning potential, sweeping it under the rug, or avoiding its use altogether runs the risk of not providing the essential knowledge and skills ākonga need to use technology that is rapidly developing and not going away.

A particular focus of this report is generative AI, which we refer to as genAI. This includes popular AI tools such as ChatGPT which learn from existing data, producing novel outputs based on the commands of the user. These tools have opened opportunities for people to analyse mass amounts of information available on the internet to generate text, images, music, videos, and animations. Largely, text-based engines such as ChatGPT allow users to give commands and generate large text outputs. This includes reports, stories, essays, and answers to questions. This has had a substantial effect on the education sector as schools and kura are now grappling with an ever-evolving technology that can streamline learning experiences but is highly susceptible to unethical use that inhibits learning.

In this lies an opportunity for schools and kura to harness AI for future-focussed learning. This report delves into the common concerns of AI including issues of privacy and plagiarism and how genAI can be used by kaiako to assist learning and create meaningful learning outcomes. Some of the key questions we hope to answer are:

- What is genAI and what does it mean for learning?
- How can we address ethical issues of AI in schools and kura?
- How can genAI be used effectively in the classroom for deep learning experiences?
- How can kaiako use genAI in their everyday practice?

It is important to note that the scope of research and knowledge on AI in education is increasing exponentially. This guide is intended to support schools, kura, and the teachers/kaiako to embrace genAI in their practice while addressing some of the common concerns that inhibit the uptake of AI in learning. Schools and kura must be pragmatic and open-minded to keep up with the continual advancement of AI.

The main risks we want to address through this guide are:

1. Ignoring or avoiding genAI as a learning/teaching tool due to fear or misunderstanding, thus depriving ākongā of learning that will help them navigate this world.
2. Rushing the use of genAI or not adequately considering the risks associated with it, such as privacy and plagiarism.

The best outcomes are found when schools and kura consider the safe, effective, and purposeful integration of AI for learning. This includes policy and planning from senior leadership, learning and upskilling from kaiako, and ethical and safe use from ākongā. With these parts synchronised, AI may become a more integral, beneficial aspect of school life and the curriculum.

The Proliferation of genAI for Learning

Technological advancement in the 21st century has resulted in rapid changes to the educational landscape. The progress and expansion in machine learning has resulted in sophisticated digital content generation tools which are unsupervised or partially supervised machine learning frameworks that generate outcomes with user prompts.¹ genAI refers to AI models that are trained with several billions of parameters, requiring large amounts of training data and computing power to generate outcomes based on user prompts.^{1,2}

Chat-GPT is one of the most common examples of genAI and is the guiding example in this document due to its high uptake and prevalence. Chat-GPT (Generative Pre-trained Transformer) was created by Open-AI, a research company in San Francisco, and it is the biggest language model ever trained. Chat-GPT is trained on a vast amount of data to learn patterns and process natural language, then uses these patterns to generate new content (hence 'generative' AI).³ Chat-GPT is able to produce human-like text on almost any topic, from creative texts to full-blown research articles in convincing ways.⁴

Each iteration of Chat-GPT adds more parameters, making it smarter with more up-to-date references for training. Greater user activity further refines the model, resulting in continual learning and increased sophistication in response. Responses are generated one word at a time as the model predicts the next word based on the input and the words generated so far, focusing on the relevant parts of the input and generating responses that are coherent and appropriate. While this has many implications and potential benefits for how teaching and learning occur, it is not without bias and significant risks for teaching and learning.

¹ Baidoo-Anu, D., & Ansah, L. O. (2023). Education in the era of generative artificial intelligence (AI): Understanding the potential benefits of ChatGPT in promoting teaching and learning. *Journal of AI*, 7(1), 52-62.

² Brown, T., Mann, B., Ryder, N., Subbiah, M., Kaplan, J. D., Dhariwal, P., ... & Amodei, D. (2020). Language models are few-shot learners. *Advances in neural information processing systems*, 33, 1877-1901.

³ Sharma, S., & Yadav, R. (2022). Chat GPT—A technological remedy or challenge for education system. *Global Journal of Enterprise Information System*, 14(4), 46-51.

⁴ Aydın, Ö., & Karaarslan, E. (2023). Is ChatGPT leading generative AI? What is beyond expectations?. *Academic Platform Journal of Engineering and Smart Systems*, 11(3), 118-134.

The AI Forum of New Zealand has written an AI blueprint for Aotearoa New Zealand, designed to align with the government's AI Principles and Roadmap in 2024.⁵ To encourage and support the adoption of AI in Aotearoa, their guide highlights strategic integration and investment of AI in various industries, including the education sector. Their vision for the education sector over the next five years is to:

- Facilitate inclusive and equitable access to learning that is driven by a Te Ao Māori lens.
- Provide personalised learning to enhance engagement and lift outcomes for students.
- Automate administrative tasks, enabling educators to focus on teaching.
- Re-evaluate teaching, learning and assessment based on the requirements of future employment and societal contexts.

The AI Forum also recognises that there needs to be significant investment to achieve this, as well as upskilling the workforce to successfully integrate AI. Continued professional development and including AI in new teacher training, delivered by AI experts, will ensure significant improvements in AI knowledge amongst both educators and learners.

The Issue of AI Use & Misuse

Claire Amos, the Principal of Albany Senior High School, presented at NZQA's "Assessment in the Age of AI" Symposium, and her insights on the subject are available on her blog.⁶ She worries that schools, school leaders, and kaiako are so busy that AI goes ignored or swept away for higher-priority tasks. Ignoring it, however, creates its own problems. AI technology is developing faster than we can comprehend and it is increasingly woven into everyday life and the tools we already use. Whether school staff educate themselves on AI and its potential and risks, students are already using it or inevitably will use it for various learning tasks. Ideally, students will use it creatively and critically to accelerate and deepen their learning. Without guidance though, there are risks that:

1. Students use it poorly, e.g. to write answers for them and cheat themselves out of learning.
2. Students are fearful of using it and don't want to be seen to be plagiarising, so refuse to engage with it and miss out on useful technology tools.

⁵ AI Forum New Zealand. (2024, July). *AI blueprint for Aotearoa working group*. AI Forum New Zealand. <https://aiforum.org.nz/ai-blueprint-for-aotearoa-working-group/>

⁶ Amos, C. (2023, June 1). *Assessment in the Age of AI*. Teaching and Learning. <https://teachingandlearning.blogspot.com/2023/06/assessment-in-age-of-ai-claire-amos.html>

No use or misuse does not adequately prepare students for using AI ethically and effectively and fails to prepare them for future learning and work in a rapidly evolving tech world. This means embracing AI to find the learning opportunities that exist, address the risks and ethical issues such as privacy and plagiarism, and bridge the digital divide that will perpetually disadvantage students who cannot access technology. Open dialogue, ongoing learning, and trial and error will be essential parts of this process.

Technology is fast-moving and staff can have difficulty keeping up with technologies like AI as it proliferates through education and life. There can be limited guidance and a lack of time to engage meaningfully.⁷ Providing and engaging with resources on Digital Technologies and AI, elevating awareness of AI, supporting and engaging with ongoing PLD, and seeking immediate technical support are ways that kaiako and school leaders can address challenges in AI technology use in teaching and learning.

⁷ Broadly, A. (2024, August 5). *Teachers struggling to implement Digital Technologies Curriculum*. Teacher Magazine. https://www.teachermagazine.com/au_en/articles/teachers-struggling-to-implement-digital-technologies-curriculum

Potential Benefits of AI for Learning

This section deals with the potential benefits of AI without providing a roadmap for how it should be used. The later chapter, genAI Curriculum Integration will provide more tips and strategies for implementing AI to reap these benefits.

The following are suggestions from Baidoo-Anu and Ansah (2023)⁸ who asked Chat-GPT how genAI can be used to benefit learning (thus the bullets below are informed from Chat-GPT).

- **Personalised learning**

One powerful way that genAI may assist in learning is through personalised tutoring and providing feedback to students based on their individual learning needs and progress. For example, genAI (Chat-GPT) has been found to provide personalised maths tutoring to students, resulting in improved learning outcomes through addressing student misconceptions and adapting the responses to their level of understanding.⁹

genAI may also provide tailored lessons by assessing an individual's needs and providing differentiated instruction, such as providing more difficult problems for those that require a greater challenge or providing simpler problems for those that need more help.¹⁰ Kaiako may utilise genAI tools to help students engage with material appropriate to their learning level to ensure they are continually challenged and address gaps in their knowledge or skill.

- **Interactive learning**

Students may be able to use genAI conversationally, in a similar way they would interact with an online tutor. AI can understand student questions and answer in ways they will understand, improving their comprehension and tailoring responses to their needs. This may also help shy or nervous students ask questions and want to do so without fear of judgment.

⁸ Baidoo-Anu, D., & Ansah, L. O. (2023). Education in the era of generative artificial intelligence (AI): Understanding the potential benefits of ChatGPT in promoting teaching and learning. *Journal of AI*, 7(1), 52-62.

⁹ Chen, Y., Chen, Y., & Heffernan, N. (2020). Personalized math tutoring with a conversational agent. *arXiv preprint arXiv:2012.12121*.

¹⁰ Sharma, S., & Yadav, R. (2022). Chat GPT—A technological remedy or challenge for education system. *Global Journal of Enterprise Information System*, 14(4), 46-51.

- Adaptive learning

genAI can be used to create adaptive learning systems, meaning that the progress and performance of students are used to inform teaching methods and ensure continual progress. Chat-GPT can provide learning support by adapting learning and making it easier or harder to build upon the fundamentals of learning.

Sharma and Yadav (2022)¹¹ also suggest the following benefits from genAI:

- Improved vocabulary

In terms of literacy learning, genAI may assist in learning new words and generating sentences with those words. This can help students learn new words, see them in context, and try to use them with immediate feedback from the genAI tool.

- Writing ideas and storytelling

Tools like Chat-GPT may help generate writing exercises and ideas. It can generate writing prompts to get students thinking and writing creatively. It may help students think of the next steps for their writing so they can then continue writing in their own words. The conversational nature of genAI also provides immediate feedback and helps students refine their writing and explore ideas they might not have thought of.

- Assisting reading comprehension

When given a passage of text, genAI can understand the text and ask questions for students to help with their reading comprehension and retention. This can help students process what they have read and think critically about their reading with tools such as Chat-GPT that can answer their questions and provide feedback.

- Language translation

Chat-GPT can work as a translation tool to assist in communication and language learning. It may also answer the questions someone has to help with their comprehension and tone.

¹¹ Sharma, S., & Yadav, R. (2022). Chat GPT—A technological remedy or challenge for education system. *Global Journal of Enterprise Information System*, 14(4), 46-51.

- **Mathematic problems and quizzes**

genAI can generate mathematic problems with immediate solutions and feedback to assist with learning and practice, beyond what a teacher may be able to supply. This could also assist kaiako in making quizzes and problems quickly, adapting the content to the level of students and making problems easier or harder when necessary.

- **Mathematical clarification and tutoring**

Students may ask genAI to break down a concept to help them understand if they are not getting it in class or if they are falling behind. Similar to the points discussed earlier, genAI may tutor the students to help them understand the concept through having a conversation.

- **Gamification**

genAI may also gamify learning, such as through a timed quiz and awarding points to students. While small, this may be a more engaging way to answer quiz questions in an interactive way and allow for collaboration or competition among students.

Claire Amos of Albany Senior High School has also suggested that genAI may assist in changing writing style or scripting writing conventions to assist in student literacy and creative writing. Students may also submit their text to have Chat-GPT critique it or help refine it.¹²

The potential of AI to support disabled communities is frequently underestimated. Gibson (2024)¹³ delves into the transformative possibilities AI holds for creating more inclusive learning environments. For instance, AI-generated image descriptions now offer detailed assistance to screen readers, greatly improving visual content accessibility for those with vision impairments. Additionally, AI-powered audio descriptions enhance access to both visual and written materials, opening new educational avenues. Applications like Be My Eyes and socially assistive robots are increasingly supporting neurodiverse and physically disabled students to navigate physical and digital spaces, and foster independence and engagement. AI also empowers educators to produce accessible content that meets diverse learning needs, promoting equity across educational contexts. By harnessing these innovations, we can move closer to a truly inclusive educational landscape for all learners.

¹² Amos, C. (2023, June 1). *Assessment in the Age of AI*. Teaching and Learning.

<https://teachingandlearning.blogspot.com/2023/06/assessment-in-age-of-ai-claire-amos.html>

¹³ Gibson, R. (2024, September 10). *The Impact of AI in Advancing Accessibility for Learners with Disabilities*. EduCause Review. <https://er.educause.edu/articles/2024/9/the-impact-of-ai-in-advancing-accessibility-for-learners-with-disabilities>

Potential Risks of AI for Learning

The risks of AI are well-documented but not necessarily well-understood. This may contribute to the lack of uptake of genAI in schools and the reluctance of kaiako and school leaders to adopt genAI for learning purposes. Mitigating potential problems of genAI requires a balance between encouraging exploration and teaching digital citizenship to ensure that it is used ethically for learning purposes.

- Privacy

Privacy is discussed in the following section in more detail as it poses a significant ethical risk. People readily feed personal information into genAI tools such as Chat-GPT and the machine then learns from this. The Privacy Commission of New Zealand recommends deep consideration of privacy issues, and schools and kura must take their responsibility to the Privacy Act 2020 seriously and proactively.¹⁴

If Chat-GPT collects private information that people input or that is available online, it poses risks to privacy if people do not respect the boundaries of private information.

- Plagiarism

As will be discussed in the next sub-section of this guide, plagiarism is a significant risk associated with genAI use in schools. The ability of genAI to create content that is almost indistinguishable from human-created content blurs the boundaries between original content and machine learning, making plagiarism a very important issue for learning and genAI.¹⁵ As genAI is able to write and solve problems for us, schools and kura are now grappling with determining what is coming directly from a student and what has genAI contributed. How do we know if the work is real or artificially generated?

¹⁴ Ministry of Education. (2024, June 5). *Generative AI*. Te Tāhuhu o te Mātauranga. <https://www.education.govt.nz/school/digital-technology/generative-ai/>

¹⁵ Hutson, J. (2024). Rethinking Plagiarism in the Era of Generative AI. *Journal of Intelligent Communication*, 4(1), 20-31.

- Misinformation/disinformation

With the ability to generate content in convincing ways and being trained from vast amounts of online user-created content, there are concerns that Chat-GPT can spread misinformation or learn from disinformation. In the age of misinformation, social media, user-generated content and the 24-hour news cycle, biased information has never been more plentiful, and it can be difficult to distinguish such information.¹⁶

genAI can provide false information in a way that sounds plausible and authoritative. While there are ongoing efforts to improve this issue, the creators of Chat-GPT acknowledge that it is a major challenge to ensure that genAI remains factual and free from bias.¹⁷ One such phenomenon is *Hallucination* in AI, whereby genAI occasionally generates content that goes against fact, is misaligned with the context, or is contrary to the user input.¹⁸ They may be seemingly plausible at first glance, but actually pose a significant threat for misinformation. This highlights the importance of checking outputs generated by genAI.

- The use of creative works

A nuanced debate in the field of genAI is the copying of work of creatives when generating AI art, music, film etc. While genAI such as Chat-GPT may be used in the arts and creative subjects, ethical use and responsibility should be emphasised as AI generated content will reference the work of others when generating new content. It may also be used to generate content, but many argue that this lacks artistic integrity, originality and authenticity.¹⁹ This is an ongoing issue and ethical debate in the arts.

¹⁶ Duncan, C., & Mcculloh, I. (2023, November). Unmasking Bias in Chat GPT Responses. In *Proceedings of the International Conference on Advances in Social Networks Analysis and Mining* (pp. 687-691).

¹⁷ Wynne, M. (2023, March 2). *Disinformation in the Age of CHATGPT*. Modern War Institute. <https://mwi.westpoint.edu/disinformation-in-the-age-of-chatgpt/>

¹⁸ Zhang, Y., Li, Y., Cui, L., Cai, D., Liu, L., Fu, T., ... & Shi, S. (2023). Siren's song in the AI ocean: a survey on hallucination in large language models. *arXiv preprint arXiv:2309.01219*.

¹⁹ LeBlanc, K. (2024, May). Art Under Fire: How AI Challenges Artistic Authenticity and Integrity. *Information Today*. <https://www.infotoday.com/it/may24/LeBlanc--How-AI-Challenges-Artistic-Authenticity-and-Integrity.shtml>

- Inequitable access

Another risk to consider is inequitable access to Digital Technologies that enable them to learn to use and experiment with genAI safely. This is important when considering socioeconomically disadvantaged students and the policies that enable them access to learning tools.²⁰ Without a chance to learn and experience genAI they may not gain the experience to use it safely and ethically.

Baidoo-Anu and Owusu Ansah (2023)²¹ also discuss some of the following shortcomings of using genAI for teaching and learning:

- Lack of human interaction

ChatGPT and other genAI models emulate the experience of speaking with a person, but they do not offer the same level of human interaction as a real teacher or tutor. Some students benefit from a personal connection with a teacher to engage with learning and in such cases, reliance on genAI may inhibit learning. While genAI can engage in human-like conversation, the authenticity of interactions is limited which may inhibit social learning.²²

- Limited understanding

genAI works through statistical patterns in the data they are trained on, meaning such tools do not have a true understanding of the concepts they are helping to communicate. This means that genAI may not be able to adequately address misconceptions students have or target their specific needs for understanding.

- Bias in training and usage

genAI tools produce outputs based on the information that they are trained on. Thus, it is only as good and accurate as the data it is trained on. If there is bias, misinformation and disinformation in that data, then that may be present in its responses. Being trained on data containing bias or data that does not accurately represent the characteristics of different

²⁰ Schleicher, A. (2024, August 2). *Equity lessons for the AI era from PISA 2022*. Teacher Magazine. https://www.teachermagazine.com/au_en/articles/equity-lessons-for-the-ai-era-from-pisa-2022

²¹ Baidoo-Anu, D., & Ansah, L. O. (2023). Education in the era of generative artificial intelligence (AI): Understanding the potential benefits of ChatGPT in promoting teaching and learning. *Journal of AI*, 7(1), 52-62.

²² Bozkurt, A., & Sharma, R. C. (2024). Are we facing an algorithmic renaissance or apocalypse? Generative AI, ChatBots, and emerging human-machine interaction in the educational landscape. *Asian Journal of Distance Education*, 19(1).

populations, the algorithmic decisions may also contain bias. Similarly, using AI for a purpose it was not intended for, such as using it to make decisions for, or to provide outputs on, a particular population may lead to inaccurate results due to it reflecting the same biases.²³ This is closely linked with the potential for genAI to spread misinformation. It also brings into question the validity of data used to train genAI, as incorrect information or disproven information could still be taken at face value without an understanding of the context.

One of the major issues with the presence of bias in genAI training is the fact that the future of AI is being built by a relatively few like-minded people within insulated groups. This is discussed in Amy Webb's book, *The Big 9*.²⁴ She describes these tech groups as 'tribes' who work closely together which strengthens their systems of beliefs. As they are homogenous groups – mostly affluent, well-educated men in North America and China – cognitive biases present in these groups are unintentionally reinforced in the building and training of genAI models. While genAI reaches the capabilities of being considered as a 'thinking' machine, it doesn't necessarily think like *all* of us. Those who have identities fundamentally different to the founding tribes of genAI, over time they may realise that the responses of genAI represent their populations less and less. This is an important consideration for those using genAI for diverse perspectives.

- **Lack of creativity**

Being trained on pre-existing data means that genAI is not necessarily able to be 'creative' with completely original ideas. It may help provide ideas or refine ideas, but not with the power or creativity of the human psyche.

- **Lack of contextual understanding**

genAI may not understand context and situation well, leading to inappropriate or irrelevant responses. A particular concern here is that genAI may not understand the context of Aotearoa, Te Ao Māori, Te Reo Māori and Mātauranga Māori in teaching and learning, due to not having sufficient data to be trained on and not understanding the richness of this context.

²³ Ferrer, X., Van Nuenen, T., Such, J. M., Coté, M., & Criado, N. (2021). Bias and discrimination in AI: a cross-disciplinary perspective. *IEEE Technology and Society Magazine*, 40(2), 72-80.

²⁴ Webb, A. (2019). *The big nine: How the tech titans and their thinking machines could warp humanity*. Hachette UK.

Privacy and Plagiarism Ethics

Privacy

Privacy is particularly important to consider in the context of genAI usage for teaching and learning. The New Zealand Privacy Act 2020 outlines the requirements for handling personal information, mandating schools to ensure that the data collected is used appropriately and is safeguarded against unauthorised access. genAI systems rely on data to function effectively and as such, often rely on the sharing of student information which raises concerns about data security and privacy.

The Privacy Commissioner, Te Mana Mātāpono Matatapu, has outlined how the Information Privacy Principles (IPPs) can be applied to the use of AI tools, largely focusing on the need to be proactive and have a Privacy Impact Assessment (PIA) in the early stages of AI adoption.²⁵ As discussed, the use of genAI for teaching and learning is inevitable, thus schools need to consider privacy issues such as:

1. Is the training data behind genAI relevant, reliable and ethical?

Gaps and biases exist, particularly with regard to Mātauranga Māori. This needs to be acknowledged in relevant school policies and procedures to ensure that genAI is used in a way that supports the articles of Te Tiriti o Waitangi.

2. What was the purpose for collecting personal information?

Student personal information should not be collected using AI and it is essential that schools and kura educate students about private data so they do not disclose such information to a tool designed to store and use this information.

3. How are you testing that AI tools are accurate and fair for your intended purpose? Are you talking with people and communities with an interest in these issues?

A PIA should engage with students, parents, and community members, including Māori, to understand the fairness and accuracy of genAI outputs. Everyone should be aware of the limitations of genAI for teaching and learning and the ways that it uses data to ensure that there is a shared obligation to use it safely and ethically.

²⁵ Privacy Commissioner. (2023, September 21). *Artificial Intelligence and the Information Privacy Principles*. <https://privacy.org.nz/publications/guidance-resources/ai/>

4. What are you doing to track and manage new risks to information from AI tools?

genAI should be included at the strategy level of schools and kura, ensuring that they are aware of ongoing issues, particularly with the use of private data and information. Matters of privacy and misuse should be handled immediately.

The Privacy Commissioner has recommended that if in doubt, people should not use AI tools to handle any personal information.

Plagiarism

Susana Tomaz of EdTech New Zealand succinctly summarises the issue of plagiarism for school uptake in genAI usage.²⁶ They argue that the ever-growing presence of genAI makes it increasingly essential for students to learn about ethical use. Some schools and educators have been blanket banning the use of genAI due to plagiarism, however, this does not adequately prepare them to ethically use genAI for learning and work and mitigating the risks. Schools and kura refusing to engage with genAI due to plagiarism may not be able to identify plagiarised material made by genAI and may not understand the potential benefits of genAI to assist with schoolwork for deeper learning.

Tomaz states that failing to acknowledge the rapid evolution of AI or avoiding it out of fear of plagiarism runs the risk of diminishing the relevance of secondary education for young people. Taking advantage of genAI and addressing plagiarism through teaching ethical use and implementing effective assessment allows schools and kura to prepare students for the prevalence of genAI and mitigate poor outcomes. As with all technology usage, it is important to teach students about plagiarism so they can recognise it and avoid it in their own work.

The issue of plagiarism has a profound impact on assessment. TurnItIn and similar companies are in the process of rolling out feature additions to existing software to detect genAI content.²⁷ AI detectors, however, are not accurate and may actually result in many false-

²⁶ Tomaz, S. (2023, June 28). *Embracing the AI Revolution in New Zealand Schools: A Make-or-Break Decision for Education's Future*. Ed Tech New Zealand.

<https://edtechnz.org.nz/2023/06/28/embracing-the-ai-revolution-in-new-zealand-schools-a-make-or-break-decision-for-educations-future/>

²⁷ The Education Hub. (2023, March 20). *An introduction to the role of Artificial Intelligence in classrooms and schools*. <https://theeducationhub.org.nz/an-introduction-to-the-role-of-artificial-intelligence-in-classrooms-and-schools/>

positive reports (reporting that something is AI-generated when it is actually original work).²⁸ Rather than playing “plagiarism whack-a-mole” in detecting genAI content in student work, schools and kura should instead be critical of how assessment works in the age of genAI.²⁹ True detection between true positives and false positives will require staff to know their learners, their capabilities, and have channels of open dialogue to discuss genAI usage and ethics. Kaiako should work through issues of plagiarism openly and honestly so students are aware of how plagiarism can affect them rather than being too afraid to admit to its use.

As genAI is here to stay and its usage in schools and kura will increase, it is important to consider how knowledge and skill are assessed in the future. Students will increasingly use genAI to formulate answers and responses in traditional assessments, so the parameters of what is assessed may need to change to reflect the nature of genAI and what it allows students to do.

This includes when ākonga transition to tertiary learning where the use of genAI can result in serious implications for academic integrity. Without adequate knowledge of plagiarism and genAI, students are at risk of breaking strict plagiarism rules and protocols. Universities are increasingly dealing with the impact of genAI on academic work and policies are continually developing to address academic integrity and plagiarism.

²⁸ Rosso, C. (2023, July 15). *A Hitch in Accurate Detection of AI-Written Content*. Psychology Today. <https://www.psychologytoday.com/nz/blog/the-future-brain/202307/a-hitch-in-accurate-detection-of-ai-written-content>

²⁹ Amos, C. (2023, June 1). *Assessment in the Age of AI*. Teaching and Learning. <https://teachingandlearning.blogspot.com/2023/06/assessment-in-age-of-ai-claire-amos.html>

Streamlining Kaiako Work

Another area that genAI may be quite useful is in streamlining kaiako work, lessening their workload and changing the way that lessons are formulated. genAI allows kaiako to quickly create quizzes, prompt questions, review topics, and match material to different student levels.

Specifically, teachers may use genAI for the following purposes:

- Writing quizzes, questions, and problems for students to solve
- Creating writing prompts
- Synthesising student voice from feedback forms
- Creating worksheets to test literacy, grammar etc.
- Contextualising topics to make them feel more applicable to students
- Initial grading and checking student work
- Creating unit plans and workbooks that may be structured to minimise plagiarism

genAI has been shown in research to act as a “teacher assistant” to reduce workload and prevent burnout in secondary school teachers.³⁰ Tools such as Chat-GPT are able to engage collaboratively with a teacher to create course content using task-specific prompts. This optimises teacher planning, enhances instructional support, and helps to refine resource allocation so that teachers can focus on the learning that occurs, rather than continually creating questions and content. As such, this relieves stress and helps to prevent feelings of burnout as teachers have an AI “helper”.

In this way, there can be a synergy between the classroom teacher and genAI, where both exchange information that can then be used for teaching purposes. genAI may be tailored to complement or act as a proxy of the teacher’s methodologies, and genAI may be used for generating content leaving the teacher more time to create engaging, interactive activities and provide more personalised learning support.³¹

³⁰ Hashem, R., Ali, N., El Zein, F., Fidalgo, P., & Khurma, O. A. (2024). AI to the rescue: Exploring the potential of ChatGPT as a teacher ally for workload relief and burnout prevention. *Research & Practice in Technology Enhanced Learning*, 19.

³¹ Lan, Y. J., & Chen, N. S. (2024). Teachers’ agency in the era of LLM and generative AI. *Educational Technology & Society*, 27(1).

It is essential that teachers continue to check the work from genAI and remain critical of its outputs. For example, if creating a quiz, the teacher should check the questions and answers beforehand to ensure that it assesses students on the intended competencies, does not have mistakes, and is free from (or minimises) bias. Teachers should remember that genAI can help but it cannot replace.

This research is still emerging as genAI increases in prevalence. One interesting outcome across research is the lack of homogenous sentiment around genAI usage and ambiguity around best practice.³² In general, teachers are afraid of the academic integrity of using genAI tools, and without adequate support, they may not move beyond these sentiments to use genAI effectively in their role.

WeEvolvEd Innovation Labs has a useful resource for kaiako and educators to streamline their work with AI. This includes assistance in grading, admissions, lesson planning and data analysis. Kaiako may use this to explore ways that AI may assist their work with a single sign-up fee. It can be found through [this link](#).

³² Lee, D., Arnold, M., Srivastava, A., Plastow, K., Strelan, P., Ploeckl, F., ... & Palmer, E. (2024). The impact of generative AI on higher education learning and teaching: A study of educators' perspectives. *Computers and Education: Artificial Intelligence*, 6, 100221.

References

- AI Forum New Zealand. (2024, July). *AI blueprint for Aotearoa working group*. AI Forum New Zealand. <https://aiforum.org.nz/ai-blueprint-for-aotearoa-working-group/>
- Amos, C. (2023, June 1). *Assessment in the Age of AI*. Teaching and Learning. <https://teachingandlearning.blogspot.com/2023/06/assessment-in-age-of-ai-claire-amos.html>
- Aydın, Ö., & Karaarslan, E. (2023). Is ChatGPT leading generative AI? What is beyond expectations? *Academic Platform Journal of Engineering and Smart Systems*, 11(3), 118-134.
- Baidoo-Anu, D., & Ansah, L. O. (2023). Education in the era of generative artificial intelligence (AI): Understanding the potential benefits of ChatGPT in promoting teaching and learning. *Journal of AI*, 7(1), 52-62.
- Broadly, A. (2024, August 5). *Teachers struggling to implement Digital Technologies Curriculum*. Teacher Magazine. https://www.teachermagazine.com/au_en/articles/teachers-struggling-to-implement-digital-technologies-curriculum
- Brown, T., Mann, B., Ryder, N., Subbiah, M., Kaplan, J. D., Dhariwal, P., ... & Amodei, D. (2020). Language models are few-shot learners. *Advances in neural information processing systems*, 33, 1877-1901.
- Bozkurt, A., & Sharma, R. C. (2024). Are we facing an algorithmic renaissance or apocalypse? Generative AI, ChatBots, and emerging human-machine interaction in the educational landscape. *Asian Journal of Distance Education*, 19(1).
- Chen, Y., Chen, Y., & Heffernan, N. (2020). Personalized math tutoring with a conversational agent. *arXiv preprint arXiv:2012.12121*.
- Duncan, C., & Mcculloh, I. (2023, November). Unmasking Bias in Chat GPT Responses. In *Proceedings of the International Conference on Advances in Social Networks Analysis and Mining* (pp. 687-691).
- Ferrer, X., Van Nuenen, T., Such, J. M., Côté, M., & Criado, N. (2021). Bias and discrimination in AI: a cross-disciplinary perspective. *IEEE Technology and Society Magazine*, 40(2), 72-80.
- Gibson, R. (2024, September 10). *The Impact of AI in Advancing Accessibility for Learners with Disabilities*. EduCause Review. <https://er.educause.edu/articles/2024/9/the-impact-of-ai-in-advancing-accessibility-for-learners-with-disabilities>

- Hashem, R., Ali, N., El Zein, F., Fidalgo, P., & Khurma, O. A. (2024). AI to the rescue: Exploring the potential of ChatGPT as a teacher ally for workload relief and burnout prevention. *Research & Practice in Technology Enhanced Learning*, 19.
- Hutson, J. (2024). Rethinking Plagiarism in the Era of Generative AI. *Journal of Intelligent Communication*, 4(1), 20-31.
- Lan, Y. J., & Chen, N. S. (2024). Teachers' agency in the era of LLM and generative AI. *Educational Technology & Society*, 27(1).
- LeBlanc, K. (2024, May). Art Under Fire: How AI Challenges Artistic Authenticity and Integrity. Information Today. <https://www.infotoday.com/it/may24/LeBlanc--How-AI-Challenges-Artistic-Authenticity-and-Integrity.shtml>
- Lee, D., Arnold, M., Srivastava, A., Plastow, K., Strelan, P., Ploeckl, F., ... & Palmer, E. (2024). The impact of generative AI on higher education learning and teaching: A study of educators' perspectives. *Computers and Education: Artificial Intelligence*, 6, 100221.
- Ministry of Education. (2024, June 5). Generative AI. Te Tāhuhu o te Mātauranga. <https://www.education.govt.nz/school/digital-technology/generative-ai/>
- Privacy Commissioner. (2023, September 21). Artificial Intelligence and the Information Privacy Principles. <https://privacy.org.nz/publications/guidance-resources/ai/>
- Rosso, C. (2023, July 15). A Hitch in Accurate Detection of AI-Written Content. Psychology Today. <https://www.psychologytoday.com/nz/blog/the-future-brain/202307/a-hitch-in-accurate-detection-of-ai-written-content>
- Sharma, S., & Yadav, R. (2022). Chat GPT—A technological remedy or challenge for education system. *Global Journal of Enterprise Information System*, 14(4), 46-51.
- Schleicher, A. (2024, August 2). *Equity lessons for the AI era from PISA 2022*. Teacher Magazine. https://www.teachermagazine.com/au_en/articles/equity-lessons-for-the-ai-era-from-pisa-2022
- The Education Hub. (2023, March 20). An introduction to the role of Artificial Intelligence in classrooms and schools. <https://theeducationhub.org.nz/an-introduction-to-the-role-of-artificial-intelligence-in-classrooms-and-schools/>
- Tomaz, S. (2023, June 28). Embracing the AI Revolution in New Zealand Schools: A Make-or-Break Decision for Education's Future. Ed Tech New Zealand. <https://edtechnz.org.nz/2023/06/28/embracing-the-ai-revolution-in-new-zealand-schools-a-make-or-break-decision-for-educations-future/>

Webb, A. (2019). *The big nine: How the tech titans and their thinking machines could warp humanity*. Hachette UK.

Wynne, M. (2023, March 2). Disinformation in the Age of CHATGPT. Modern War Institute. <https://mwi.westpoint.edu/disinformation-in-the-age-of-chatgpt/>

Zhang, Y., Li, Y., Cui, L., Cai, D., Liu, L., Fu, T., ... & Shi, S. (2023). Siren's song in the AI ocean: a survey on hallucination in large language models. *arXiv preprint arXiv:2309.01219*.

How to Use genAI in the Classroom

The previous section discussed the potential for genAI to streamline teaching and learning. This includes how it can be used for several positive outcomes when the risks and ethical issues are suitably mitigated.

Positive outcomes include and are not limited to:

- Personalised learning
- Interactive learning
- Adaptive learning
- Improved vocabulary
- Writing ideas and storytelling
- Assisting reading comprehension
- Language translation
- Mathematic problems and quizzes
- Mathematical clarification and tutoring
- Gamification of curriculum content

This guide follows the steps of planning for genAI learning in the classroom and integrating genAI in the curriculum. Planning breaks down the important steps of objective setting, resource allocation, professional development, policy and practice, stakeholder engagement, and evaluation and feedback. These may be formalised into a plan for genAI integration prior to explicitly putting genAI into various parts of the curriculum.

Planning for genAI Learning

If you fail to plan, you plan to fail. Planning is the essential first step in the sustainable integration of genAI in teaching and learning.³³ Effective planning is crucial for the success of genAI in improving learning outcomes.

Objective Setting

Successful implementation of genAI for teaching and learning should consider the primary goals for genAI use in classrooms.

Key actions:

- **Identify goals:** Determine what you aim to achieve with genAI. This could include enhancing personalised learning, increasing student engagement, or improving assessment methods.
- **Define outcomes:** Specify the desired outcomes such as improved student performance, higher engagement levels, or more efficient grading processes.
- **Alignment with school vision and values:** Ensure that objectives align with the school's overall mission, vision, and values for education. It may also be integrated with the graduate profile, ensuring students are prepared for future learning and work.

Key questions for educators:

1. What are the primary goals for integrating genAI in our classrooms?
2. How will genAI enhance teaching and learning experiences?
3. What specific outcomes do we want to achieve? (e.g. personalised learning, increased student engagement, improved assessment criteria and results).

Objective setting should outline what learning outcomes the school/kura seeks from implementing genAI and what skills ākonga should gain through using genAI.

³³ Chiu, T. K., & Chai, C. S. (2020). Sustainable curriculum planning for artificial intelligence education: A self-determination theory perspective. *Sustainability*, 12(14), 5568.

Resource Allocation

Ensure that all the necessary resources, including tools, budget, and infrastructure, are in place for successful genAI integration in teaching and learning. For the most part, schools and kura will be engaging with Chat-GPT due to its ease of use and access. Chat-GPT is free to use but has paid upgrades for frequent use and access to a wide array of AI tools.

Key actions:

- **Identify tools:** Research and select genAI tools and platforms aligned with the objectives above. There may be some additional needs not fulfilled by Chat-GPT.
- **Budget planning:** Allocate the necessary funds for purchase, implementation, and maintaining genAI tools. Consider initial costs, ongoing subscriptions, and potential upgrades.
- **Assess infrastructure:** Evaluate the current technical infrastructure including internet connectivity (and speed), hardware, and privacy/security tools to ensure safe use of genAI tools.

Key questions for educators:

1. What genAI tools and platforms will be used?
2. What is the budget for these tools?
3. Is the necessary technical infrastructure in place to support genAI?
4. What additional privacy and security tools are required for safe genAI usage?

Professional Development

It is essential that kaiako are equipped with the necessary knowledge, skills, and experience to effectively use genAI tools in the classroom for modern teaching and learning. This should address common ethical concerns and misconceptions about genAI as a learning tool and ensure kaiako know how to use such tools safely and effectively.

Key actions:

- **Training Needs Assessment:** Identify the specific training needs of teachers and staff. This may be assisted through surveying or speaking with staff about their current understandings of AI and what they need to know to be able to use it in classroom.
- **Identify training initiatives:** Create a training plan, find resources, and implement the things that will support teachers in using genAI effectively.
- **Support systems:** Establish a support system including access to technical help and peer mentoring if applicable.

Key questions for educators:

1. What specific training do our teachers need?
2. How will we provide initial and ongoing training in genAI?
3. Who will be responsible for coordinating and delivering training and resources at our school?

The more kaiako know about how to interact with genAI tools, the better they can apply this technical knowledge to their pedagogical knowledge for the benefit of teaching and learning.³⁴ Consider co-creation of professional development with kaiako so that they inform the training needs and delivery.

Policy and Practices

Schools and kura need to consider the policies that underline the use of genAI in the classroom. This includes ensuring that the school/kura abides by its responsibilities to upholding the principles of the New Zealand Privacy Act 2020.

Creating sound policies and practices for teaching and learning with genAI ensures that school governance is on top of the safe and responsible use of genAI and has procedures in place for dealing with ethical issues of privacy, plagiarism, and misconduct.

Key actions:

- **Ethical guidelines:** Policy should address the ethical use of genAI, including guidelines on responsible use, data privacy, and security.
- **Data privacy:** Measures to protect student data should be put in place, ensuring compliance with local and national regulations.
- **Usage policies:** Create clear usage policies for students and teachers, outlining acceptable and unacceptable uses of genAI tools. This may include a student contract they sign.

³⁴ Celik, I. (2023). Towards Intelligent-TPACK: An empirical study on teachers' professional knowledge to ethically integrate artificial intelligence (AI)-based tools into education. *Computers in Human Behavior*, 138, 107468.

Key questions for educators:

1. What policies are needed to ensure the ethical use of genAI?
2. What existing policies need to be assessed and edited?
3. How can student personal data remain private and secure?
4. What guidelines will we set for the responsible use of AI tools?
5. What role do kaiako and students play in setting such guidelines?

Scaffolded AI Literacy

The Scaffolded AI Literacy (SAIL) Framework for Education, prepared by Kathryn MacCallum, David Parsons, and Mahsa Mohaghegh outlines the levels of AI capability and the categories of AI literacy.³⁵ It breaks AI literacy down to six categories:

1. The impacts of AI
2. What AI is and how it works
3. Cognitive skills
4. Applied skills
5. Social, cultural, and ethical issues
6. Risks and mitigations

Educators should consider using a framework such as the SAIL Framework to carefully plan genAI learning and its inclusion in the curriculum. This framework is available [here](#), and includes resources to help educators evaluate or design course materials.

³⁵ MacCallum, K., Parsons, D., & Mohaghegh, M. (2024). *The Scaffolded AI Literacy (SAIL) Framework for Education*. <https://herourou.academyex.ac.nz/index.php/herourou/issue/view/911>

Some of the following resources may help schools and kura refine their policies in genAI:

- Ministry of Education – Generative AI: <https://www.education.govt.nz/school/digital-technology/generative-ai/>
- Netsafe – Generative AI Resources for Schools (the Netsafe Generative AI Policy for Schools is included as Appendix A of this guide): <https://netsafe.org.nz/ai-school-policy-and-class-charter/>
- Privacy commissioner Te Mana Mātāpono Matatapu – Artificial Intelligence and the Information Privacy Principles (IPPs): <https://privacy.org.nz/publications/guidance-resources/ai/>
- Ministry of Education – Digital Technology: Safe and responsible use in schools: <https://www.education.govt.nz/school/digital-technology/ict-incidents/digital-technology-guide-for-schools/digital-technology-safe-and-responsible-use-in-schools/introduction/>
- Alberta School Boards Association (ASBA) AI Policy Guidance for K-12 Education: <https://www.asba.ab.ca/asba-releases-artificial-intelligence-policy-guidance-for-k-12-education>

[School Docs](#) also include policies on the use of genAI. Schools can review these policies and make any adjustments necessary. This has the option for schools and kura to adapt the policy based on their situation. School Docs has the following three policy statements woven into their Generative AI model policy:

1. [Model School] allows students to use generative AI (e.g. ChatGPT) for their school work, as long as they meet the terms and conditions of the tool and any school guidelines for assessment.
2. [Model School] allows students to use generative AI (e.g. ChatGPT) with permission from teachers for their school work on a case-by-case basis, as long as they meet the terms and conditions of the tool and any school guidelines for assessment.
3. [Model School] does not allow students to use generative AI (e.g. ChatGPT) for their school work, including assessments.

This has the benefit of having school policies all located in one place with regular review. Schools should still communicate such policies to their staff and communities so they are aware of how the school is proactively responding to the rapidly evolving field of genAI.

A policy on genAI should sit alongside digital technology use agreements and relevant behaviour management policies and guidelines.

Stakeholder Engagement

All relevant stakeholders should be involved in the planning process where appropriate to ensure that genAI integration meets various existing needs and considers the concerns of multiple groups.

Key actions:

- **Identify stakeholders:** Namely, kaiako, students, parents, and school staff. There may be other stakeholders the school/kura also chooses to engage, such as mana whenua, specific communities, donors etc.
- **Engagement plan:** Determine how stakeholders will be included in the planning process, how input will be gathered and how it will be used.
- **Communication strategies:** Consider the various communication channels to keep stakeholders informed and engaged in genAI integration.

Key questions for educators:

1. Who are the key stakeholders for genAI integration in our school community?
2. How will we involve stakeholders in the planning process?
3. How will we communicate the benefits and risks of genAI integration so they can provide informed feedback?

Evaluation and Feedback

There needs to be an established system for evaluating the effectiveness of genAI integration and making continuous improvements based on feedback.

Key actions:

- **Define criteria:** Identify the metrics that will be used to evaluate the success of genAI integration, such as student performance data, engagement levels, and feedback.
- **Collect data/evidence:** Implement systems for collecting this data.
- **Continuous improvement:** Use data and feedback to make informed decisions and continuously improve the integration process.

Key questions for educators:

1. How will we measure the effectiveness of genAI integration?
2. What metrics will be used for measuring success?
3. How often will we review and update our genAI implementation plan?

genAI Curriculum Integration

The integration of genAI into the curriculum will largely come down to the kaiako, their knowledge and expertise, and the opportunities they identify in the delivery of curriculum content. genAI may be used across many curriculum areas, but staff technical knowledge of genAI will be necessary to find opportunities for meaningful integration.

At the secondary level, it is essential that genAI be aligned with New Zealand assessment standards and learning objectives. Again, with experience, kaiako will find ways to use genAI to assist in achievement standards.

While we have provided some ideas for kaiako to integrate genAI into the curriculum, including in specific subject areas, an important caveat is that the capabilities of genAI are constantly evolving and opportunities for curriculum integration will also evolve over time. There are a lot of opportunities for genAI to be used in the classroom, to assist with teaching and to help kaiako create engaging lessons. However, as our understanding of genAI as a teaching and learning tool evolves, we will find new and innovative ways to introduce it within the curriculum. We have included some additional links for kaiako to explore, but it is important to engage in your own experimentation and research. Consider the ideas below as a launchpad rather than an exhaustive list of learning opportunities.

Lesson Planning

Kaiako should find opportunities to integrate genAI into their lessons. Unsurprisingly, genAI can be a useful tool for writing lesson plans or finding opportunities to integrate genAI into lessons.³⁶ genAI can be used to break lessons down into their component parts, create related materials such as worksheets, and provide timing indications and related assessments to ensure the material has been learned. By providing classroom materials such as worksheets, sample problems, writing prompts etc., genAI may minimise the amount of physical resources kaiako are expected to have readily available.

1. Content generation and customisation

genAI may help automate lesson plan creation or create customisable lesson plan templates. It may generate ideas for lesson topics based on curriculum standards and educational trends, provide detailed lesson outlines and learning objectives, as well as activities and assessments tailored to the different learning levels and subject areas.

It may also customise lesson plan templates based on the specific needs of students, incorporating differentiated instruction techniques. Regardless of whether genAI is used in creating lesson plans or kaiako do this manually, lessons plans should specify how and when genAI is to be used for learning purposes.

2. Differentiated instruction

genAI may help to analyse performance data and recommend differentiated instruction strategies to meet diverse learning needs. This could assist in the development of personalised activities and assignments based on learning progress and areas for targeted improvement.

genAI may improve accessibility of instruction through support translation, suggestions for different learning modalities, explaining tasks in greater detail etc.

³⁶ van den Berg, G., & du Plessis, E. (2023). ChatGPT and generative AI: Possibilities for its contribution to lesson planning, critical thinking and openness in teacher education. *Education Sciences*, 13(10), 998.

3. Resource recommendations

The process of finding resources, materials, articles, videos, and websites may be assisted through the use of genAI. It may help to suggest supplementary materials that align with lesson objectives including practice exercises, worksheets, and quizzes, to reinforce lesson content.

Virtual labs and simulations may be incorporated into science and mathematics lessons to enhance experiential learning in a safe environment. It may create interactive scenarios for students to engage with their knowledge and learn through trial and error.

Gamified learning is also possible through genAI lesson plans. Educational games and interactive tools may make learning more fun and engaging for students.

4. Assessment and feedback

Quizzes, tests, and assessments generated through genAI may provide answers and scores. Students using genAI may get instant feedback on their performance in such activities.

genAI may assist kaiako in analysing student performance to identify trends and areas for improvement and inform future lesson plans. Feedback for kaiako may highlight student achievements and target areas.

English/Literacy

1. Reading comprehension

Consider using genAI as a learning tool to summarise complex texts, provide main points, or help students grasp main ideas more effectively.

Interactive questions may be tailored to student learning levels. This could be through generating questions based on a piece of text to gauge whether students could comprehend the written text.

2. Writing and composition

Try using genAI to generate creative writing prompts that inspire students to write stories, essays, poems, or other creative works. Prompts to genAI may also generate writing instructions to target specific writing techniques and themes.

Students can input their creative works and genAI can be used as a tool to refine spelling, grammar, punctuation, writing style, and tone. This real-time feedback may help students improve their writing ability.

3. Critical thinking and analysis

genAI can be used to analyse text for themes and other literary devices. This will help students engage with their work and explore the themes of writing, as well as get feedback on their interpretations of text.

This may also provide debate topics, arguments, and counterarguments to help students to develop their critical thinking skills in debate. Consider using genAI as a tool for students to argue a point and debate with AI, or have genAI ask critical questions based on their interpretations of text.

4. Language and vocabulary development

Consider how genAI may help with learning new vocabulary by providing definitions, examples of words in context, and synonyms/antonyms. genAI may provide activities to make vocabulary learning fun and interactive, such as having students use new words in sentences or by replacing words in a written passage with synonyms.

Younger students may enjoy activities such as “mad libs”, by inserting creative words into a generated story. Students may also write using new words they learn and genAI can determine whether the word was appropriate given the context.

5. Support for diverse learners

genAI may be able to support diverse learners, including those with English as a second language, those who are neurodiverse, those learning in bilingual immersion environments etc. AI has translation capabilities and can make language learning contextualised and meaningful. It may be able to help break concepts down in a way that students understand to assist with the language acquisition.

AI can be used to generate content that may help with learners with dyslexia or other neurodiverse conditions. Prompt genAI to generate text that can be read by a dyslexic reader, or ask for tips on how to format text so that it can be more easily read by those with such conditions.

Mathematics/Numeracy

1. Problem and quiz generation

Use genAI to design mathematic problems and quizzes quickly with answers available. It can tailor math practice problems to the individual students’ level by making problems easier or harder as required to ensure that learning is continual.

2. Concept understanding

Use genAI to provide step-by-step solutions and instructions so that students may understand the process involved and practice this for themselves. Interactive math problems may demonstrate the process or provide visual representations of mathematical concepts such as graphs or geometric shapes to aid ākongā comprehension.

3. Problem-solving and critical thinking

genAI may create challenging math problems to push students to apply their knowledge in new ways, fostering their critical thinking and problem-solving skills. It may also apply mathematical problems to real-world scenarios, helping students to see the relevance of maths in everyday life.

4. Support for diverse learners

Specific prompts to support diverse learners, such as those with dyscalculia or other neurodiverse conditions may help such students engage with challenging maths problems. Consider the unique needs of the student and how genAI may streamline content creation through specific prompts.

Science

1. Virtual labs and experiments

AI-driven virtual labs may simulate experiments, allowing students to conduct experiments safely online, changing variables and experimenting without consequence. genAI may also create interactive models of scientific phenomena such as the water cycle or cell division, helping students to visualise and understand complex processes.

Try using a step-by-step lab simulation on genAI and simulating different experimental outcomes. This can include steps around lab safety, controlling variables, forming hypotheses etc.

2. Research and data analysis

AI tools can help students to gather and analyse scientific data, providing insights and visualisations. This could include gathering available data online or creating a simulation with fake data.

At an advanced level, genAI may assist with hypothesis testing such as assisting students in formulating and testing hypotheses by running simulations and analysing results. This may help them create their own experiments and simulate data to test their theory.

3. Understanding concepts

Use genAI to find multiple ways of explaining a scientific concept, creating visual learning tools, and breaking things down step-by-step. This can help students who feel they cannot understand a concept or who need alternative learning modalities. This can target weak areas and misconceptions and help to build deeper levels of understanding of scientific concepts.

Social Studies

1. Historical analysis

genAI can help students to analyse primary sources, providing context and highlighting important information. Historical information may be simulated to recreate historical events so students can understand cause and effect.

Try an activity like role-play so students can simulate a historical event and interact with the events in a historically accurate way.

2. Civic education

Allow genAI to simulate government processes and political history, allowing students to participate in mock elections or debates. They may understand civic concepts and landmark events.

Health and Physical Education

1. Health education

Students may use genAI to create personalised health and fitness plans tailored to different needs and preferences. genAI may explain food and biology, helping students understand what is in the food they eat and how it works in their bodies. This could be used to create nutrition plans and simulate food experiments.

Students can also seek information on mental health and interact with information to provide personalised recommendations.

2. Physical education

genAI can be used to analyse physical activities and provide feedback on technique and performance given unique needs. genAI may also act as a virtual coach, setting realistic goals and providing training advice and routines.

A fun activity could involve having genAI suggest games and scoring systems to encourage students to try new activities that keep them active and engaged.

Arts

1. Visual arts

Use genAI to generate ideas for art projects, styles, and techniques to keep variety in student work and provide ideas for new projects. This could include ideas on composition, colour, technique, or inspiring artists. Art prompts could be set like challenges to encourage students to try new techniques and challenge themselves to expand their artistic range.

2. Music

genAI can help with music composition by suggesting chord progressions, harmonies, and rhythms that students may not have tried before.

It may also help with music analysis, helping students understand musical form and theory. This can help them analyse music critically and refine their ideas. It may also expand their knowledge of musical theory and how it contributes to famous pieces of music.

3. Drama

Create scripts using genAI for drama activities so students may practice their performance skills. genAI can also provide dialogue suggestions, plot and character developments, and dramatic devices for students to learn about dramatic arts.

genAI can help to analyse performances, such as famous acting performances, so students can learn about the techniques employed to create engaging performances.

References

Celik, I. (2023). Towards Intelligent-TPACK: An empirical study on teachers' professional knowledge to ethically integrate artificial intelligence (AI)-based tools into education. *Computers in Human Behavior*, 138, 107468.

Chiu, T. K., & Chai, C. S. (2020). Sustainable curriculum planning for artificial intelligence education: A self-determination theory perspective. *Sustainability*, 12(14), 5568.

MacCallum, K., Parsons, D., & Mohaghegh, M. (2024). *The Scaffolded AI Literacy (SAIL) Framework for Education*.

<https://herourou.academyex.ac.nz/index.php/herourou/issue/view/911>

OECD. (n.d.). *OECD AI Principles overview*. <https://oecd.ai/en/ai-principles>

Schleicher, A. (2024, March 20). *Equity lessons for the AI era from PISA 2022*. Teacher Magazine. https://www.teachermagazine.com/au_en/articles/equity-lessons-for-the-ai-era-from-pisa-2022

van den Berg, G., & du Plessis, E. (2023). ChatGPT and generative AI: Possibilities for its contribution to lesson planning, critical thinking and openness in teacher education. *Education Sciences*, 13(10), 998.

Appendix A: Netsafe Sample Generative AI Policy for Schools

[INSERT SCHOOL LOGO]
right click then select 'Change Picture'

[INSERT SCHOOL] Generative AI Policy

Rationale

At <our school> we understand the benefits of technology to support learning, and that the responsible, safe and effective use of technology is in and of itself a valuable skill. We also recognise that as with any technology, generative AI has its challenges and limitations. We will endeavor to ensure that our students, teachers, whānau & family are well informed, and well prepared for the use of this technology in a learning context.

Policy Statements

Guidelines for Appropriate Use: Students at <our school> will be provided with clear guidelines on the appropriate use of generative AI tools. This includes understanding the purpose and limitations of AI. Students will be encouraged and supported to critically assess AI-generated information, ensuring they verify facts and understand the context of the content generated.

Respecting Intellectual Property and Originality: The school recognises the importance of respecting intellectual property rights when using generative AI. Students and Staff will be supported to develop their understanding of the implications of using AI-generated content that may infringe upon others' copyrights or that may not be original. This will include education on how to properly cite AI-generated content and the significance of producing original work. It will also include the potential misuse of AI in plagiarism, which is in line with our <insert name of policy>, which explains academic honesty and integrity.

Digital Citizenship and Ethical Considerations: In line with our <insert name of online safety or digital citizenship policy> our students will be educated about digital citizenship, focusing on ethical considerations when using Generative AI. This includes understanding the potential biases in AI, the ethical implications of using AI-generated content, and the importance of using AI responsibly. We will support students and staff in using AI in a way that is consistent with the school's values and ethical standards.