He Whanaungatanga Tīmatanga: The Treaty of Waitangi, Artificial Intelligence and our Schools

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This opinion piece explores the intersection of artificial intelligence (AI), Te Tiriti o Waitangi, and New Zealand schools from the perspective of a Māori educator. In recent months, much has been made in the media and academia about Artificial Intelligence (AI) and how it will disrupt, affect and change our lives forever. I have read industry experts claiming that the AI revolution will be as meaningful to the world as the invention of the internet (Gerken, 2023) or even electricity (Patel, 2023). While time will tell on its eventual importance in the timeline of human technology, I think it is fair to say that AI is not a 'fad' and has quickly cemented itself as a technology that will have to be reckoned with. In this opinion piece I will discuss AI from the perspective of a Māori educator. I will look at my personal experiences with AI, then turn my attention to how I think The Treaty of Waitangi and AI can coexist in Aotearoa.

MY JOURNEY WITH AI

I have always loved technology and have fond memories of trying (and failing) to program my own games on the Acorn computer my dad borrowed from the rural North Canterbury Primary school he taught at. While my father's salary in the 1980s and 90s did not allow for the purchase of many hi-tech gadgets, I threw myself into anything digital or technological that he brought home. Fast forward thirty-five years and I am now a gadget and technology obsessed teacher in South Auckland, specialising in primary level bi-lingual Te Reo Māori, as well as working in the Tertiary sector with adult Te Reo Māori students. In 2022, toward the end of my master's degree, I started to use the Dalle-2 AI engine for the creation of images and ChatGPT for some basic data analysis tasks. By early 2023, as AI became more visible in the mainstream media, I had become hooked and was using AI every day, for both education and personal use.

A mutual interest in AI led my former master's supervisor Tim Gander and I to create a Community of Practice based around how AI was being used by New Zealand educators, from this we created a nationwide survey and in late 2023 we presented our results in public presentations and eventually published our findings in early 2024 (Gander & Shaw, 2024). As I have spent more time with AI, I have become more aware of its downsides and the potential risks it poses. As a Māori educator, I have become interested not only in how AI's risks and

rewards could apply to New Zealand schooling, but also how the pros and cons of AI sit within the context of mātauranga Māori and The Treaty of Waitangi.

REWARDS AND RISKS FOR MĀORI AND AI

AI is not without its appeal to Māori (Shedlock & Hudson, 2022) and carries the potential to have positive impacts on education (Kahn, 2023). Digital technologies were crucial in the preservation of traditional Māori song and language, through the digitization of old tape and vinyl recordings (Ka'ai-Mahuta, 2012) and AI may be able to go a step further to help salvage damaged and corrupted recordings formerly considered irreparable. Fresh insights into traditional Māori waiata and haka, or te reo Māori grammar and local dialect may be just around the corner thanks to the help of artificial intelligence (Lee, 2024).

AI based Te reo Māori chatbots have been created in an attempt to help preserve the language from extinction and also to help as a kōrero partner for those students who do not have someone to practise with (Hurihanganui, 2023). A few years ago, I remember giving my students access to a basic te reo Māori chatbot and how much fun they had with it. The level of the bot's te reo at that time was quite poor, however as a user of the current AI chatbots, I can say that AI's ability to converse in te reo Māori has drastically improved over the last two years. I find myself quite excited at the idea that in the near future, all New Zealand students could have access to their own personal AI te reo Māori tutor capable of adapting to their current levels and specific language needs.

Despite positives such as these, AI has come under fire on several fronts. One of its largest criticisms is its inherent white Western bias (Moran, 2021). This prejudiced and stereotypical presentation of 'reality' is something I have become increasingly concerned about the more I use AI and talk to Māori who are involved in the artificial intelligence field. Examples of this bias in earlier versions of AI image creation surfaced when users prompted the AI to produce images of 'intelligent people' to be met with countless images of only white men (Makhortykh, Urman & Ulloa, 2021). Similar results occurred when prompting 'scientists' or even 'successful people'. The lack of diverse training data can lead to overemphasising whiteness and the reaffirmation of negative stereotypes, leading online groups such as The Algorithmic Justice League (https://www.ajl.org/) to fight against the potential harms of improperly trained artificial intelligence.

I worry about how my students would be affected by an AI that they were not able to see themselves in and the potential harm that could have on their view of Māori and other marginalised groups. The data that feeds into the AI training is therefore of the utmost importance. If the data is too generic then it will fail to serve marginalised populations; however, who decides what data should be given over to the trainers in the first place? And who has the control over that data? In a New Zealand context, the concept of Māori data as a taonga / treasure has been a pressing issue for years and has been discussed at the tribunal and government levels (Anyon-Peters, 2017; Waitangi Tribunal, 2021). How this taonga is managed, stored and used has become more important now that AI, and its endless hunger for data, has entered the picture. This discussion around data can help lead us into the second part of this piece, where I discuss how I believe artificial intelligence connects to The Treaty of Waitangi.

AI AND THE TREATY OF WAITANGI

The Treaty of Waitangi is the founding document of New Zealand and central to governmental public policy (O'Sullivan, 2008). The application of the Treaty to technology has been discussed by Māori over the years and now its relationship with artificial intelligence and AI policy is coming under attention (Taiuru, 2020). How are we best to understand this relationship? One way I have found helpful when considering how the Treaty connects with everything from literature and technology policy at school, to language frameworks for our kāhui-ako, is through the lens of the three Ps. Partnership, participation, and protection have been important principles when talking about the Treaty since The Royal Commission on Social Policy in 1988 (O'Sullivan, 2008). Over the years, the three Ps have been visible in policy documents across New Zealand and government organisations have widely adopted these principles as a means to address societal inequalities affecting Māori (Hudson & Russel, 2009). The three Ps are also visible in New Zealand education policy and the curriculum (Ministry of Education, n.d.).

AI and partnership

For Māori to be in a true partnership with AI usage in Aotearoa, we must be present at every stage of the AI cycle: from the collection and processing of data, to the building, training, evaluation and deployment of models. Māori should not only be consulted about things such as how accurate a Te Reo chatbot is but also be present in the aforementioned steps. By having control at the nascent stage of an AI's creation, Māori would be able to set the direction of the AI and reduce the risks of bias and stereotyping. This is not to say that I expect that Māori will have a voice in the creation of all chatbots and AI models, but I think that we should focus on creating our own Māori designed models from the ground up.

There are already attempts currently for Māori involvement at this step. Academics Kevin Shedlock (Ngāpuhi, Ngāti Porou, Te Whakatōhea) and Petera Hudson (Te Whakatōhea) have pushed for a Kaupapa Māori approach to the creation of Māori controlled AI models (Shedlock & Hudson, 2021) which they argue would help foster a more culturally centred artificial intelligence and one that was more beneficial to mātauranga Māori.

The partnership principle of the Treaty of Waitangi is about working together to build something greater than what can be achieved by one group alone. Currently Māori are not only underrepresented in the IT industries (Vanderklei & Todorova, 2023) but worryingly only make up a minute portion of the New Zealand AI sector (Taiuru, 2024). Despite this poor representation, there are exciting AI projects being led by Māori such as: Te Hiku Media (https://tehiku.nz/), Doug Healy (https://www.doughealey.co.nz) and Dan Walker (Stuff.co.nz, 2024). However, whether we are thinking about inside the classroom or out of it, an AI that is representative of Aotearoa must reflect its bi-cultural beginnings as well as its multi-cultural present and that can only happen if everybody is invited to the party.

AI and participation

In my opinion, the major difference between participation in the AI space and partnership is the ease at which all Māori have access to AI. The digital divide that exists for Māori has been well documented and researched (2020 Trust, 2023;

Cullen, 2003; Hoar & Hope, 2002; Parker, 2003) and is not only connected to physical technology like laptops and WiFi access, but also to technological training and know-how (King, 2021). There is a risk that the digital divide may be exacerbated by the onset of artificial intelligence, creating groups of AI 'haves' and 'have-nots' (Carter, Liu & Cantrell, 2020), and this potential outcome is something that worries me deeply. As a teacher in South Auckland, I have seen firsthand the delight and talent that Māori children have when it comes to new technology, however I have also seen the limited access to technology that some of those same children face as soon as they are outside the school gates and back into the 'real world'.

Some have argued that AI may actually be able to partially address the digital divide (Celik, 2023) as the technology improves and the future possibility of small, local, offline AIs get closer and closer to reality. Currently, offline local AIs can only run well on powerful laptops or PCs, but a future where every student in New Zealand with access to a cell phone (connected to the internet or not), would have an accurate and adaptable AI at their fingertips, may be just a few years away.

For the participation principle of the Treaty to be enacted in regard to AI, I believe that access to AI needs to be a priority at the governmental and local level. With the proliferation of tiered/paid AI access, it is important that all New Zealanders are aware of the free options when it comes to AI as I can imagine people wanting to try out AI but being put off at the idea that they would have to pay a subscription or usage fee. Public and school libraries could be good venues for this to happen, as they typically have open access computers. Perhaps schools and libraries could have 'AI nights' where those that are knowledgeable about AI help to teach the local whānau and community members about the exciting potential of this new technology.

AI and protection

For me, two of the most important issues when it comes to the protection principle of the Treaty as it connects to AI, are protecting our data as a taonga and protecting and safeguarding our Māori identity from bias and stereotyping.

Having a voice in the management of our data, is an important step in protecting Māori mōhiotanga/knowledge. Māori have already lost so much information and knowledge through colonisation (Ka'ai-Mahuta, 2011) and while AI provides exciting opportunities for preserving indigenous knowledge (Molino, 2023), there is also the danger of open unfettered access to that knowledge being misused by outside agencies, or even for harm.

During the week of writing this piece, a positive step towards data sovereignty for Māori was taken through the establishment of a data server relationship between Microsoft and Te Tumu Paeroa (Gunson, 2024). The two groups agreed that the data that Te Tumu Paeroa held would be kept on local, Aotearoa based servers and not international ones. This means that access is not only more direct, but that local data is not subject to international laws, jurisdictions or access. This is the first example of an indigenous group having an agreement of this scale around data retention and marks a step forward in the way our data is treated. Ministry of Education data is currently spread out across several data centres both nationally and internationally (Gully, 2021), so the protective steps that have been taken to protect Te Tumu Paeroa data could serve as a model for our student and teaching staff data in the future.

Data is also connected to how Māori are presented through AI. Sites such as haveibeentrained.com can show you examples of the image data used to train AI image apps like Midjourney, demonstrating how inaccuracies can exist. When searching the phrase 'Māori' on the site, results include historical images of Māori, wharenui and Māori carvings, but also a large amount of tattoo work, most of which is not Māori at all (the majority seem to be variations on generic 'tribal tattoos'). The output of these misinformed training images can then be seen if you generate images of 'Māori tattoos' on popular image creation sites, which result in 'Māori tattoos' that look more like Viking style tattoos than Māori or Polynesian. I can imagine the worrying situation where a school student is doing a project on Māori culture and ends up using AI created images which are not only inaccurate but potentially offensive or harming.

This is just one example of a misrepresentation of Māori, but points to a general misunderstanding of Māori by the training data. In my experience, text-based AIs like ChatGPT or Claude AI tend to have a better understanding of Māoritanga than the image creation AIs, but our ability to control this understanding is hampered by the fact that the most popular models have already been trained and we cannot retroactively untrain the AIs from what they have already learned.

From my perspective, protection as it sits within the context of the Treaty looks like Māori training our own AI models on our own knowledge, resulting in AIs that do not carry the biases of internationally trained models. While we can use internationals at the movement for many purposes, I believe we will eventually have to make the substantial monetary investment to do a 'from scratch' AI training based on our own data. While the use of pre-trained models is relatively cheap, the training of those models from scratch can require tens of millions of dollars to process trillions of parameters. This would need to be a multi-iwi investment, but once completed could be a taonga for generations to come. A purely Māori trained model could then be made available for AIs that could be fine-tuned at the iwi or even hapū level, thereby maintaining rangatiratanga over our own artificial intelligence models. Schools could fine tune their own local AIs with knowledge about their own kura or the rohe that they sit in. Data could be leveraged to perform detailed analysis on what is working and what is not within the school, knowing that their data is safe and not accessible by anyone else.

CONCLUSION

Artificial intelligence, Te Tiriti o Waitangi and our schools sit intertwined in a shifting landscape. While it is difficult to say what direction these three will take in respect to one another, it is my hope that the promised rewards of AI can deliver over the risks that it certainly presents. We must uphold the principles of the Treaty when dealing with AI and make sure that Māori remain partners in the creation and maintenance of AI, that AI is accessible to all, and that our data is protected, along with our intellectual property and likeness.

REFERENCES

2020 Trust. (2023). *Digital Equity priorities for Aotearoa New Zealand.* https://2020.org.nz/about/our-reports/

Anyon-Peters, C. (2017). *Protecting Taonga Works: Does the WAI262 Report Measure Up.*

Carter, L., Liu, D., & Cantrell, C. (2020). Exploring the intersection of the digital divide and artificial intelligence: A hermeneutic literature review. *AIS Transactions on Human-Computer Interaction*, 12(4), 253-275.

Celik, I. (2023). Exploring the determinants of artificial intelligence (Ai) literacy: Digital divide, computational thinking, cognitive absorption. *Telematics and Informatics*, *83*, 102026.

Cullen, R. (2003). The digital divide: a global and national call to action. *The electronic library*, 21(3), 247-257.

Gander, T., & Shaw, B. (2024). AI in Education 2023: Understanding the impact on effective pedagogy, inclusive learning and equitable outcomes. *He Rourou*, 15-15.

Gerken, T. (2023, March 22). *Bill Gates: AI is most important tech advance in decades.* https://www.bbc.com/news/technology-65032848

Gully, B. (2021). Offshoring New Zealand Government Data: A Report Prepared for Statistics New Zealand. *Statistics New Zealand, Wellington.* https://www.data.govt.nz/docs/report-offshoring-nz-govt-data/

Gunson, I. (2024). *Microsoft enters 'groundbreaking' Maori data sovereignty deal.* (2024, May 7). Te Ao Māori News. https://www.teaonews.co.nz/2024/05/07/microsoft-enters-groundbreaking-maori-data-sovereignty-deal/

Hoar, P., & Hope, W. (2002). The internet, the public sphere and the 'digital divide'in New Zealand. *Journal of International Communication,* 8(2), 64-88.

Hudson, M. L., & Russell, K. (2009). The Treaty of Waitangi and research ethics in Aotearoa. *Journal of Bioethical Inquiry*, 6, 61-68.

Hurihanganui, A. (2023). *AI chat bots can now write in te reo Māori.* Retrieved July 4, 2023: https://www.1news.co.nz/2023/07/04/ai-chat-bots-can-now-write-in-te-reo-maori/

Ka'ai-Mahuta, R. (2011). The impact of colonisation on te reo Māori: A critical review of the State education system. *Te Kaharoa*, 4(1).

Ka'ai-Mahuta, R. (2012). The use of digital technology in the preservation of Māori song. *Te Kaharoa*, *5*(1).

Khan, S. (2023, April). *How AI could save (not destroy) education* [Video]. TED Conferences. https://www.ted.com/talks/sal_khan_how_ai_could_save_not_destroy_education?language=en

King, D. L. (2021). The Digital Divide. *Library Technology Reports*, 57(2), 24-28.

Lee, A. (2024). *Māori Speech AI Model Helps Preserve and Promote New Zealand Indigenous Language*. https://blogs.nvidia.com/blog/te-hiku-media-maori-speech-ai/

Makhortykh, M., Urman, A., & Ulloa, R. (2021). Detecting race and gender bias in visual representation of AI on web search engines. In *International Workshop on Algorithmic Bias in Search and Recommendation* (pp. 36-50). Cham: Springer International Publishing.

Ministry of Education. (n.d.). *Treaty of Waitangi Principles*. From: https://nzcurriculum.tki.org.nz/Principles/Treaty-of-Waitangi-principle

Molino, J. N. (2023). Interreligious Views on the Integration of Artificial Intelligence and Indigenous Knowledge for Environmental Preservation. *The Journal of Religion and Social Communication*, 431.

Moran, T. C. (2021). Racial technological bias and the white, feminine voice of AI VAs. *Communication and Critical/Cultural Studies*, *18*(1), 19-36.

O'Sullivan, D. (2008). The treaty of Waitangi in contemporary New Zealand politics. *Australian Journal of Political Science*, *43*(2), 317-331.

Parker, B. (2003). Maori access to information technology. *The Electronic Library*, 21(5), 456-460.

Patel, N. (2023, November 8). Barack Obama on AI, free speech, and the future of the internet. The Verge. https://www.theverge.com/23948871/barack-obama-ai-regulation-free-speech-first-amendment-decoder-interview

Shedlock, K., & Hudson, P. (2022). Kaupapa Māori concept modelling for the creation of Māori IT Artefacts. *Journal of the Royal Society of New Zealand*, *52*(sup1), 18-32.

Stuff.co.nz. (2024, February 1). *Microsoft's Dan Walker creates AI as support for mātauranga Māori*. https://www.stuff.co.nz/te-ao-maori/350151921/microsofts-dan-walker-creates-ai-support-matauranga-maori

Taiuru, K. (2020). Treaty of Waitangi. *Te Tiriti and Māori Ethics Guidelines for: AI, Algorithms, Data and IOT*, 65.

Taiuru, K. (2024, March 24). *Māori Voices in the Artificial Intelligence (AI) Landscape of Aotearoa New Zealand*. https://taiuru.co.nz/maori-voices-in-the-artificial-intelligence-ai-landscape-new-zealand

Vanderklei, M., & Todorova, N. (2023). *Maori workers in the IT industry: Challenges and barriers.*

Waitangai Tribunal (2021). Report on the Comprehensive and Progressive Agreement for Trans-Pacific Partnership. https://forms.justice.govt.nz/search/Documents/WT/wt_DOC_195473606/Report%20on%20the%20CPTPP%20W.pdf

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