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Contemporary Research Topics

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CONSISTENCY THROUGH TRANSITION

Trish Chaplin-Cheyne

We are proud to present this twelfth issue of *Scope: Contemporary Research Topics (Learning and Teaching)* for 2023, with an open theme. This issue continues the journal's aim of addressing current matters and reporting research in the field of tertiary and vocational education. Our focus is also on building community amongst researchers and practitioners from an array of Aotearoa New Zealand institutions. The transition of polytechnics and institutes of technology into Te Pūkenga offers new opportunities for collaboration, and in this issue we welcome contributions from a range of educational organisations across the motu.

ĀKONGA AT THE CENTRE

We open this issue with an exciting step towards embedding and normalising Māori perspectives and practices into polytechnics under Te Pūkenga. Three kaiako working in the School of Media Arts at the Kirikiriroa campus of Wintec | Te Pūkenga, aware of how Eurocentric bias has historically and culturally framed teaching and learning styles within the polytechnic setting, bring together their own journeys and weave them together in kōrero to outline a new learning framework called Te Pou Ahurei. Toni Herangi, Mason Holloway and Joe Citizen offer Te Pou Ahurei as a tool for meeting the expectations of tertiary educational institutions around mātauranga Māori in a way that is meaningful for our students (ākonga) and represents our shared partnership values of te Tiriti o Waitangi.

Next, Rosemary Sadd and Jacinda Hills consider another priority area: undergraduate nursing education. In an ever-changing educational landscape affected by attrition, conflicting ākonga commitments, and global pandemics, educators must make sure that learners can practice safely and competently. For second-year nursing ākonga within a Bachelor of Nursing program, being able to respond, assess, and intervene appropriately are considered essential "safety to practice" elements before entering an inpatient clinical placement. One solution is simulation learning. In their article, Sadd and Hills describe how virtual simulation games help prepare learners for clinical simulations later in their training, and ultimately for the challenges of the healthcare workplace.

In "A critical appraisal of anxieties among higher education students: Strategies and solutions," a team of early childhood education teachers consider a growing problem in tertiary and vocational education and how to mitigate it. Mallory Tomsett, Kelly Warren, Rachael Burke, Fenella Wilson, and Chrissie Keepa form a community of practice. In this article, they reflect on the rise of anxiety in ākonga, report findings from the literature on different kinds of anxiety, and explore some of the approaches they are taking to support ākonga with these types of anxieties.

LITERACY SKILLS

Literacy skills are a core theme of this issue. First, Clare Thomas looks at the transition from school to tertiary or vocational education. For many ākonga, transitioning to higher education involves leaving their comfort zone and, as Tomsett et al. in this issue have shown, entering a high anxiety environment where accessible support

services can be crucial. Thomas's article discusses findings from a 2022 study of tertiary teaching staff across the Bay of Plenty region. The study found three key features of student support critical to successful transitions for students: digital literacy, literacy and numeracy, and academic writing. These three themes therefore focus how Thomas's support services team direct their efforts to support students to succeed and communicate with stakeholders in the wider institution.

Next, Willfred Grayling examines the Literacy and Numeracy for Adults Assessment Tool (LNAAT), which over the past decade has been used extensively by the Tertiary Education Commission to track learners' literacy and numeracy skills in tertiary vocational education programmes in Aotearoa New Zealand. The main aim of Grayling's article is to show that the current LNAAT algorithm for calculating statistically significant learner gain in reading and numeracy is limited in its capacity to describe learner progress. Algorithm transparency, Grayling argues, is required to uncover its unintended descriptive effects, and to propose an alternative. The article concludes with detailed recommendations for managing the LNATT data and allowing users of the tool to more easily track learners' progress.

Alongside language acquisition and numeracy, visual literacy entails the ability to use, interpret, produce, and evaluate visual content. In their important contribution to this issue, Ana Terry and Lucy Richardson argue that the dominant focus on writing and reading overlooks these essential capabilities, thereby disadvantaging our learners. Privileging the written word in knowledge production and treating images as secondary "add-ons" is at odds with the potential visual media has to enhance learning and develop social and cultural competencies. Contemporary technology is overwhelmingly dominated by images. Therefore, the authors call for a pedagogical shift to integrate visual literacy skills into the curriculum and into the professional development of educators.

ONLINE LEARNING AND SUPERVISION

The landscapes of learning and teaching continue to expand globally, and online learning environments are now an integral part of education in Aotearoa New Zealand. Growing demand for internationalised tertiary education has led to increasing numbers of students studying programmes in a different country to that of the provider. This trend is the subject of Elizabeth Youard's research study, which sought to answer the question: How do tertiary ākonga and lecturers perceive interaction during transnational online learning? In doing so, Youard's research offers recommendations to promote interaction among diverse participants and across national borders and time zones.

We follow Youard's study with a complementary survey of postgraduate distance learning. This literature review by Suzanne Miller and Sally Baddock, with the support of research assistants Finn Miller and Katie Baddock, considers twenty articles that specifically focused on online research supervision practice for masters' and higher-level research students. Miller and colleagues summarise the benefits, challenges and potential threats posed by conducting research supervision online – both for supervisors and their research students – to provide some guidance for supervisors who are incorporating distance supervision into their teaching practice. They present some recommendations for best practice and propose some new avenues for ongoing scholarship in this area focusing specifically on professional alignment between supervisors and students, and the possibilities inherent in distance supervision practice for those historically excluded from higher education due to geographical distance.

KAIAKO NETWORKS AND PROFESSIONAL DEVELOPMENT

Finally, this issue turns to teachers (kaiako) as learners, and the ever-present need for educators to develop and hone their own skills. Across Te Pūkenga, various roles exist for learning and instructional designers who complement subject-matter experts to produce high-quality teaching and ākonga outcomes. Balint Koller, Jerrylynn Manuel and Katrina Watt are instructional designers within the Southern Institute of Technology. In

their contribution, they share strategies employed and lessons learnt through reflective practice in the hope that others involved in learning design may benefit from them in their own institutional context. They also highlight the importance of their role and the value instructional designers bring to the organisation in the transition into Te Pūkenga.

Educational institutions commonly use observations of teaching either to evaluate teaching practices or to help develop kaiako capabilities. An article by James Staples, David Woodward and James Harrison builds upon an earlier 2022 study by Staples which explored how peer observation of teaching could be used at Otago Polytechnic | Te Pūkenga to develop facilitation practice and progress. That earlier study showed that a parallel community of practice was the key ingredient to the successful uptake of a peer observation programme. In their contribution, Staples et al. consider the model developed in that study in the light of subsequent research and recommend changes, motivated by the goal of ongoing improvement.

The final article in this issue continues a series of investigations originating from the community of practice of the Graduate Diploma in Tertiary Education research group at Otago Polytechnic | Te Pūkenga. David Woodward, Shannon Booth, Elise Allen, Alexa Forbes and Clare Morton set out to unpack the constructivist model of teaching and learning. They explore the use of reflective practice by asking how educators use and encourage this practice in their learners.

Reiterating the benefits of engaging in continuous reflection and learning is an appropriate place to close *Scope (Learning and Teaching)* 12. We hope you enjoy this issue.

Trish Chaplin-Cheyne is the director of Te Ama Ako | Learning and Teaching Development at Otago Polytechnic | Te Kura Matatini ki Otago | Te Pūkenga, where she is responsible for the learning and teaching development service team. This team is tasked with ensuring that programmes and courses are designed to best practice standards; that academic staff have the full range of knowledge and skills needed to facilitate learner success; and that ākonga enjoy an outstanding experience. She is involved with facilitating on the Graduate Diploma in Tertiary Education and enjoys being in the classroom environment. Trish joined Otago Polytechnic | Te Pūkenga in 2015, as a learning facilitator involved in the Designing for Learner Success initiative. Her areas of particular interest are curriculum and assessment design.

https://orcid.org/0000-0002-2709-572X

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NEW SHOOTS FROM OLD ROOTS: TE POU AHUREI AS A LEARNING FRAMEWORK

Toni Herangi, Mason Holloway and Joe Citizen

INTRODUCTION

As three kaiako working in the School of Media Arts at the Kirikiriroa campus of Te Pūkenga, we are intensely aware of how Eurocentric bias has historically and culturally framed the teaching and learning styles of not only the creative arts, but also within a polytechnic setting. Some of us worry that embedding mātauranga Māori is easier said than done, not the least of which because most of the School are non-Māori. Others of us worry that the competing tensions within Te Pūkenga will mean that it will struggle to be more than "policy rhetoric" (Jones, 2017, p. 181). In order to make "Māori ways of being and doing as normal" (Citizen, 2020, p. 82) for non-Māori as well as Māori in a tertiary educational setting, we embarked on our own journeys first and through kōrero have brought them together. What follows outlines the beginnings of a learning framework called Te Pou Ahurei, which we believe is a valuable tool for meeting the expectations of tertiary educational institutions in a way that is meaningful for our students (tauira) and represents our shared partnership values of Te Tiriti o Waitangi.

THE SITUATION

Polytechnics have traditionally been described as being places that provide "professional and vocational education and training" (Ministry of Education, 2022) to achieve "advanced technical skills" (Tertiary Education Commission, 2018, p. 3). According to the Education and Training Act 2020 ('the Act'), this definition appears unchanged in that Te Pūkenga remains a place of "vocational, foundation, and degree-level or higher education and training" that is designed to meet the needs of "learners, industries, employers, and communities" (s.315). The Act now makes explicit that one of its purposes is the statutory requirement that it "honours Te Tiriti o Waitangi and supports Māori-Crown relationships" (s.4(d)).

For those of us working at the 'coal-face' with tauira, the directive to "to improve outcomes for Māori learners and Māori communities in collaboration with Māori and iwi partners, hapū, and interested persons or bodies" (s.315(f) of the Act) is now made clear. What is less certain is precisely how this is to be achieved for those working in the creative arts and for those whose role is to help foster critical thinking skills. We are faced with a multitude of complexities. Foremost amongst them is identifying that whilst the charter of Te Pūkenga identifies industry as meaning enterprises of two or more which use "the same or similar inputs and methods of production to produce the same or similar products; or the same or similar methods to provide the same or similar services" (s.10), this is not in itself the same as honouring Te Tiriti o Waitangi, particularly concerning the Māori version of Article 2, which guarantees Tino rangatiratanga. In other words, regardless of individual interpretations, these directives can be visualised as a Venn diagram—with one circle representing Te Ao Māori and the other representing industry. There is obviously an overlapping portion where both these realms meet. However, similarly, there are also large parts of each realm where they do not meet, where different understandings arise from each cultural knowledge framework, not the least of which is entirely different metaphysical foundations

with their attendant understandings of what or does not constitute knowledge, who or what has agency in the world, what strategies are tika (correct), what ensures that both tauira and kaiako act with pono (integrity), and a whole host of cultural differences that are not immediately apparent within the Act. For instance, nested within the Act's emphasis on industry are foundational assumptions about what constitutes work, with an attendant privileging of employment and work-based training. Work-based training can occur with someone who is identified as an industry member, which is defined as a "person who employs persons who work in that industry or a self-employed person in that industry" (s.10).

THE NEED

The idea for Te Pou Ahurei was born from a personal need, obligation and responsibility that one of the authors (Toni Herangi) had—and continues to have—for herself, her tūpuna and mokopuna, to ensure that the ways in which she chooses to represent and portray mātauranga Māori within an academic setting are done with integrity and respect. As Toni describes it:

> I will be honest and say that initially accepting this role under the guise of 'A Mātauranga Māori Expert' truly terrified me. Culturally there is a huge amount of pressure to ensure that the way I choose to share and invite participants to engage with mātauranga Māori is done in an uplifting and culturally appropriate way that secures the place of mātauranga Māori for future generations. As an approach to teaching, I suppose Te Pou Ahurei is my way of endeavouring to confirm and reaffirm the value mātauranga Māori has. Please understand I am not suggesting that the initial idea of a cultural framework is mine and mine alone. I am simply sharing a method I have further developed from already existing concepts that stem from Te Ao Māori.

In this way, the authors of this article would like to recognise that Te Pou Ahurei is born both out of Toni Herangi's needs as a kaiako, out of the indigenous knowledge and ways of being that Te Ao Māori fosters and has also grown out of our teaching practice and obligations to meet the needs of our tauira.

Underlying Te Pou Ahurei are two core concepts that stem from Te Ao Māori: kaitiakitanga and whakapapa. The concept of kaitiakitanga refers to the idea of guardianship, of protecting or being the protector of something precious. It involves responsibilities and obligations that will cause us all to be accountable; these accountabilities are both inherent and cultural. In the context of Te Pou Ahurei, kaitiakitanga reminds both kaiako and tauira to explore cultural bodies of knowledge with integrity and respect. Practising the principle of kaitiakitanga can be challenging, but also rewarding; it is not as simple as simply thinking about how we use this knowledge. It is also about considering the types of impact our interactions with this knowledge will have and in turn creating strategies of application to help promote a positive outcome for all.

Whakapapa is commonly understood as connections through genealogical descent; another understanding refers to processes of doing or steps applied to help fulfil an outcome. When we utilise whakapapa as an underlying concept in Te Pou Ahurei, we mean whakapapa is not just about where a person is from or whom a person is related to or descends from, but also about ways of doing. It is about being aware of how we use and share knowledge, how we build connections and understanding and how we re-interpret that knowledge. As Toni puts it:

> This understanding is shaped by my upbringing, fostered by the lived experiences I was privileged to have with my grandparents. The way they lived, the way they taught me, and how the things I experienced moulded my perspective. The way my grandparents passed on their knowledge moulded the way I view the world; it has shaped the person I am today. These lived experiences reinforce the idea that 'what happens here affects what happens in the future', meaning that how we use knowledge today will shape the knowing of tomorrow.

We believe that because the knowledge we cultivate with our tauira filters down to our mokopuna (descendants) to shape the way they view and experience the world, it is our responsibility to approach education in a way that reinforces—for both kaiako and tauira—kaitiakitanga and whakapapa. Kaitiakitanga and whakapapa are the guiding principles for Te Pou Ahurei because our responsibility is to help tauira identify or establish their own kaupapa, as they learn.

THE NAME

Te Pou Ahurei has two components: Pou references the traditionally carved Māori posts that sit within a wharenui; these pou serve as part of the structural support system that helps to hold up the roof of the wharenui. The word ahurei references processes and protocols that relate to the planting of kūmara. In Te Pou Ahurei, the pou represents a structural system or framework that fosters and supports the educational development and learning journey of tauira, whilst ahurei references tauira as being the kūmara or seed. The kūmara is nourished and sustained within the earth that it has been planted in, which in an educational setting refers to the knowledge kaiako provide to foster and nurture tauira learning. The pou is therefore a support structure that guides, directs, and informs that nourishment.

To extend the metaphor of the name, Te Pou Ahurei offers two things. Firstly, the pou is a structure in which tauira can embed their values to support their own studies. Secondly, ahurei references the processes and protocols implemented to ensure the holistic delivery and nourishment of student-centred learning. This learning is constructed and developed through reciprocal and meaningful strategies and educational experiences, with a purposeful intention that tauira will carry these experiences with them throughout their learning journey to eventually become creative and independent thinkers.

BEGINNINGS

Te Pou Ahurei was initially an assessment for the Mātauranga Māori Mahinga Toi class, which is part of our Bachelor of Contemporary Arts degree. It is a way in which we can recognise the positionality of our tauira, explicitly ask them to identify their values and then use those values as a reference point for engaging with various concepts. In this way one could think of Te Pou Ahurei as a strategy for teaching a student-centred and culturally responsive class.

Since its initial introduction as an assessment for contemporary arts tauira learning about mātauranga Māori through an exploration of toi Māori, Te Pou Ahurei has evolved into a learning framework that has been adopted in the delivery of other several classes.

RETHINKING ASSESSMENT

Applying Te Pou Ahurei beyond the Mātauranga Māori Mahinga Toi class allowed us to ask, with our tauira, what exactly are we aiming for when we attempt to foster a sense of professional ethics in the creative arts? Asking this question prompted us to see an opportunity to rethink how we assess, and in the process co-activate, the ethical dimension. We believe the interrelating complexities found within the twin directives of Te Pūkenga and the technological disruptions of artificial intelligence and automation, can only be met by radically rethinking our teaching delivery methods and how we approach assessment to meet our learning outcomes. We therefore identified a common assumption within tertiary teaching and learning practices of the creative arts: the Eurocentric tradition of separating theory and practice classes from each other. To an extent, it is unsurprising that the same liberal humanist philosophies that informed the emergence of tertiary institutions, such as polytechnics, have equally presumed the universality of those Cartesian divisions between nature and

culture, body and mind, human and nonhuman, and so on. Similarly, communications media theory assumed, before Māori-Indigenous and post-humanist critique at least, the universal applicability of dividing between intangible ideas and, by extension, representations, and tangible things, including practices with those things, in the world.

We therefore wondered that if we sought to facilitate 'student-centred teaching and learning' about the practice-led creative arts, could we use teaching and learning and assessments that themselves use practice-led creative arts approaches in a participatory and performative manner? Extending Te Pou Ahurei into other classes, we asked the question, is it possible to assess critical thinking through creative arts practice itself? If the core fundamentals of critical thinking are comprehension, synthesis and practical applicability, then can we weave together classroom learning, tauira reflection and assessment, without, for example, the need to write essays? Furthermore, can we do this in a way grounded in collaboration with Māori, iwi partners and hapū? Te Pou Ahurei presents a way that helps to foster critical thinking skills in tauira, so that they can determine for themselves what is the best course of action to take in relation to their own lived experiences.

THE FRAMEWORK

Returning to our hypothetical Venn diagram, we can now see that Te Pou Ahurei forms the lines that structure the circles themselves; it is the foundation for growth in all areas in a way that aligns with kaupapa Māori values and, without requiring mātauranga Māori to explicitly sit within the category of 'industry', recognises both the soft skills and the bodies of knowledge that facilitate the growth of a student's capabilities. As an indigenous learning framework, Te Pou Ahurei was born out of a local need to honour the positionality of tauira, to recognise from where their creative practice speaks, and in so doing, whom they might address. It starts by inviting tauira to consider their position, not just in space and time, but in other dimensions such as their own cultural and personal values. These self-reflections are woven together as an evolving live document, which tauira bring with them throughout the duration of their tertiary education journey. By continually asking what their values are, tauira have a point of contact to engage with new content and discourse and are able to relationally contextualise this information. Tauira are therefore not only engaging with different bodies of knowledge in a meaningful way, but actively experience how these bodies of knowledge exist within different cultural frameworks.

THE STAGES OF TE POU AHUREI

Te Kūmara – Tauira start by identifying their values, exploring their identity, and/or identifying their interests. Te Kūmara represents the tauira, as well as the knowledge and lived experiences they carry with them. From a conceptual Te Ao Māori lens, Te Kūmara is represented by the concept of kākano, or the unrealised potential of a seed.

Te Whenua – Kaiako share knowledge that tauira can connect, compare and make comparisons with, within the Te Kūmara stage. Te Whenua represents the earth that nourishes and sustains the kūmara. The earth is nurtured and enriched by the bodies of knowledge kaiako introduce and encourage tauira to explore, which in turn continues to foster the nourishment of Te Kūmara. Through a conceptual Te Ao Maori lens, Te Whenua is represented by the concept of mātauranga, a living breathing intergenerational body of knowledge.

Te Pou – Tauira weave together this knowledge to construct a framework. This framework will support tauira during the development of a project, guiding and informing the decisions they make as they progress towards an academic or creative output. This stage is the bulk of the assessment. Te Pou represents the emerging framework tauira weave together by fusing the strands of knowledge the kaiako imparts to them with the strands of knowledge they carry with them. Here, kaiako create opportunities for tauira to engage in meaningful learning experiences that are both student-centred and individualised. Through a conceptual Te Ao Maori lens, Te Pou

is represented by the concept of whakapapa, which is reflected in the developmental stages or processes of doing that kaiako and tauira progress through together, during the construction of emerging tauira frameworks.

Aka Kūmara – Tauira are processing, analysing, and interpreting knowledge that has been shared. Tauira will continue to interpret and re-interpret what they have learnt, and this may potentially cause tauira to consider how their new learning can be applied to other areas. In this way Te Pou Ahurei has the potential to be a foundation on which other learning (the Aka Kūmara) can be scaffolded and used as the starting point of other assessments, projects, and further growth. Aka Kūmara represents the progressions of learning, the development of insight, the establishment of understanding, and the evolution of perspectives that tauira experience through meaningful learning engagements. Aka Kūmara represents the growth tauira experience when they are taught using strategies and approaches that foster opportunities where meaningful, relevant, and insightful learning experiences can take place. Through a conceptual Te Ao Maori lens, Aka Kūmara is represented by the concept of mauri. This mauri is reflected in the growth and learning of tauira.

EXAMPLES OF TE POU AHUREI IN PRACTICE

There are four classes where we have applied Te Pou Ahurei; the first is our Mātauranga Māori Mahinga Toi class, the second is a media/cultural theory class called Critical Methods, and the other two are contemporary art project classes. All of these classes follow the structure of Te Pou Ahurei whilst still allowing us to deliver the required content, regardless of its alignment with Te Ao Māori.

MĀTAURANGA MAORI MAHINGA TOI

Mātauranga Māori Mahinga Toi is a contemporary art class in which tauira learn about and engage in mātauranga Maori concepts through Toi Māori practices. Te Pou Ahurei was first utilised in this class—what we present here is the second iteration of it.

Te Kūmara – The starting point for Mātauranga Māori Mahinga Toi starts from pēpehā as a strategy for establishing one's position. During this initial development, tauira then identify the values and principles that guide their day-to-day activities.

Te Whenua – The kaiako introduces Te Ao Māori concepts, such as those within Toi Māori practices, which tauira discuss in alignment with their established values.

Te Pou – Tauira create a visual anchor to present to the class, with a written description of their values and pēpehā, which will inform their final output. For this class the output was a pair of tukutuku panels that visually illustrated two aspects from their pēpehā.

Aka Kūmara – Tauira re-enter the Te Pou Ahurei to foster further growth.

In Mātauranga Māori Mahinga Toi we found that implementing Te Pou Ahurei empowers tauira to interact with mātauranga Māori in relevant, meaningful, and validating ways. It allows for engagement with Te Ao Māori, specifically mātauranga Māori and toi Māori, in a culturally appropriate and safe manner. The dialogue between one's values and how they are positioned in relation to values within Te Ao Māori, fosters opportunities for tauira to engage with the course content in a way that is relevant to their own lived experience, contextualising newly constructed knowledge in relation to their values and to better understand their own motives. The Aka Kūmara component of the course asks tauira how their Te Pou Ahurei might guide and support their creative practice in the future and empowers them to take responsibility for their studies through the principle of kaitiakitanga, as tauira know that what they do in one class forms the foundation for the following classes.

INDEPENDENT PROJECT

Independent Project is a contemporary art class where tauira are asked to revisit or extend a previous project from the contemporary arts degree. This class was the first time Te Pou Ahurei was used outside of a mātauranga Māori-focused class.

Aka Kūmara – The knowledge and new learning tauira carry with them from the Mātauranga Māori Mahinga Toi class.

Te Kūmara – The starting point for Independent Project starts with identifying a project they would like to explore, combined with some of the values they explored in their first engagement with Te Pou Ahurei.

Te Whenua – Kaiako introduce concepts and points of reference to support their proposed project.

Te Pou – Tauira write a project description, a final output, and then an update of the values related to the project's learnings.

By using the written framework of values from the previous Mātauranga Māori Mahinga Toi class, tauira were able to consider their project's direction and reflect upon its completion. It opened up discussion about whether their work represented their values as creatives and if representing or practising these values is what they wanted to do in their work.

CRITICAL METHODS

This subject aims to foster critical thinking skills and is usually referred to as a 'theory class.' It is a compulsory subject for all tauira of the School of Media Arts at the Kirikiriroa campus of Te Pūkenga. This year we utilised the structure of Te Pou Ahurei as a method for contextualising what is known as 'contemporary theory.' The trajectory of Critical Methods begins with ideas around world view, then continues with the making of meaning, and finally with the various forms of modernism(s). Following the principles of Te Pou Ahurei, in week one, we started the session with tauira identifying their values and positionality through asking them to write their own version of a creative manifesto. As the course progressed through different topics, tauira were able to rewrite different versions of their manifesto, so that they could compare their original values with the discourses that they encountered.

Aka Kūmara – The knowledge and new learning tauira carry with them from the Independent Projects class.

Te Kūmara – Tauira explored manifesto writing as a way to outline their values.

Te Whenua – The manifesto became a reference point that tauira could then use to compare the values of various discourses delivered by Kaiako.

Te Pou – Although Te Pou Ahurei is not a part of the assessment in Critical Methods, it informs our delivery. The Te Pou stage comprises in-class activities; for example, we co-construct a participatory workbook with tauira.

One key difference between our Mātauranga Māori Mahinga Toi class and the Critical Methods class is that the former has both the documentation of Te Pou Ahurei and practical work as assessable components. Critical Methods however appears to lack the opportunity for kaitiakitanga because the day-to-day work is not assessed in the same way as it is in project-based learning. To resolve this in the context of a theory class which uses only essay writing and presentations as a form of assessment, we used a participatory workbook that invited tauira to engage in the workbook's own creation. This started with us writing and illustrating a basic version that tauira could then make their own contributions to. It is not an assessment but rather an in-class resource accompanied

by in-class activities, which invites tauira to engage in the workbook's creation through marginalia, manifesto writing, and illustration, all packaged within a zine format. We provide tauira with a skeleton and an overview, which they subsequently actively string together. At the start of the semester, the zine is presented to them with the promise that by the end of the course it will look very different to how it currently looks and will help provide the course materials for tauira for next iteration of the course to start with. Kaitiakitanga is therefore actively fostered through enabling multi-semester tuakana-teina relationships.

PRELIMINARY CONCLUSIONS

Te Pou Ahurei is a strategy for activating a sense of kaitiakitanga, beyond its usual reference of guardianship, towards its more nuanced inclusion of accountability. Kaitiakitanga in this sense reminds us to act with integrity and respect when exploring cultural knowledge systems or any body of knowledge. Participants who conduct their interactions in this way are present, conscious, and purposeful with regards to how they use these knowledges. These interactions are conducted responsibly, suggesting that participants are consciously thinking about their interactions and the impact their interactions might have on the body of knowledge they are exploring.

Within Te Ao Māori, accountability, through a whakapapa approach which references the continual reinterpretation of intergenerational bodies of knowledge, with each new generation, helps to ensure the preservation of mātauranga for future generations. The mātauranga our tūpuna fostered shaped and forms the knowing we have today. The mātauranga we foster today will be the knowledge of our mokopuna tomorrow, shaping their perspectives, perceptions, and knowledge and determining how they see the world. Thus, we must be mindful of how we use our mātauranga. Perhaps Te Pou Ahurei is a way of ensuring that the pono (integrity) of our mātauranga stays intact to guide our mokopuna, who are the tūpuna of tomorrow.

Toni Herangi is a kaiako and artist who descends from the Tainui waka. She has a Master's in Media Arts from Wintec and is working towards her PhD. Toni has spent countless hours developing and refining her understanding of traditional Toi Māori practices, and is now working for Te Pūkenga, Kirikiriroa campus, where she is sharing her knowledge and skills with both tauira and kaiako.

Mason Holloway is a kaiako and artist from Kirikiriroa. After completing a BMA(Hons) in painting in New Zealand, he completed an MFA in Experimental Art at the Tianjin Academy of Fine Art, China. He is currently an educator for Te Pūkenga, Kirikiriroa campus. His primary research interest is applying Luhmann's systems theory in a creative arts context.

Joe Citizen is a collaborative practice-led creative-arts researcher mainly interested in speculative metaphysics located at the intercultural hyphen space (Fine, 1994, p. 72) and how this applies to Māori and Pākehā ways of knowing and being. Joe Citizen is particularly interested in relational emergence explored through the creation of immersive interactive installations, using sound, lighting, and transcoded data from environmental sensors. Citizen's work has relevance to the fields of Māori-Pākehā relations, post-humanist and new materialist critique, aesthetics, and contemporary digital theory. For further information, please contact Joe.Citizen@wintec.ac.nz
https://orcid.org/0000-0002-3805-1829

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Article

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TAMING A WICKED PROBLEM THROUGH VIRTUAL PRE-SIMULATION GAMING

Roseanne Sadd and Jacinda Hills

INTRODUCTION

Wicked problems are those problems that are not clearly defined or able to be stated, but which are inherent in solving the problem – issues in which changes may be made and aspects of the problem solved therefore resulting in a more acceptable outcome (Rittel & Webber, 1973). In nursing education, wicked problems arise from challenges in providing quality undergraduate nursing education in an ever-changing educational landscape affected by attrition, conflicting student commitments, and global pandemics. As a nursing educator, this means balancing the essential elements required for safe and competent practice within the confines of academic timing and process.

Part of the role of nursing education is to ensure students are safe to practise at their educational (and experience) level. For second-year nursing students within a Bachelor of Nursing program, being able to respond, assess, and intervene appropriately are considered essential 'safety to practise' elements before entering an inpatient clinical placement. The challenge for a teaching team in a year two Bachelor of Nursing Inpatient and Ambulatory Care clinical course that has limited allocated theory hours was to provide learning opportunities and resources students are able to understand, and to use frameworks needed to develop their clinical practice to practise safely in the 'real' clinical environment.

WICKED PROBLEMS

Rittel and Webber (1973) first coined the phrase "wicked problem" when referring to complex problems inherent in pluralistic societies. In contrast to a "tame problem" for which there will be a clear solution, wicked problems require consideration of possible solutions to identify the problem (Rittel & Webber, 1973). Wicked problems are widely considered at a macro level to examine major global issues such as planning or public health, or at a more micro level to examine issues such as higher education and curriculum design (Hamshire et al., 2019). Both have layers of complexity and include aspects of Rittel and Webber's (1973) characteristics of a wicked problem.

Ruth (2014) discusses the concept of wicked problems within one's teaching; that the understanding and resolution of a wicked problem occurs concurrently. The aim is not to solve the wicked problem but to evolve a satisfactory resolution. Even with quality improvements, wicked problems do not disappear. The concept of a wicked problem can be applied at a basic level to problems encountered within undergraduate nursing education (Hamshire et al., 2019). Nurse educators need to understand, analyse and critique wicked problems to identify possible strategies to manage the problem if not solutions (Glasgow & Colbert, 2022; Krause, 2012). For example, attrition rates of student nurses are a complex issue, and one which requires multiple possible ways of managing, yet is not a problem easily resolved (Hamshire et al., 2019). Innovation is one way in which wicked problems can be managed, requiring flexible reassessment and refinement as part of the problem-solving process (Veltman et al., 2021).

THE CHALLENGE

At the start of their second year, nursing students enrolled in the Inpatient and Ambulatory Care clinical course undertake simulation-based learning over the first seven weeks. This aims to develop nursing students who can apply a systematic approach to patient assessment, identify and manage patient deterioration, and undertake medication management in a culturally safe manner. Prior to clinical placement, students are required to demonstrate these 'safety to practise' elements in a practical Objective Structured Clinical Examination (OSCE) assessment. Students were provided with pre-simulation activities such as exposure to the simulated patient's background, and activities to review the relevant pathophysiology and pharmacology. These activities provided students with guidance to the knowledge needed to navigate the simulation, but there was no structured method for students to cognitively prepare pre-simulation. Our observations were that students who completed pre-simulation activities were better prepared for the simulation, and those who came unprepared often experienced significant anxiety. The wicked problem was how to provide students with safe, effective, quality learning opportunities within this limited timeframe, and how to engage them to prepare for the learning opportunities afforded by simulation. Virtual pre-simulation games were introduced as a way of providing another option for preparation and to engage students to complete the preparation work.

PREPARATION FOR SIMULATION

Simulation-based learning is an identified method of education found successful in the development of clinical decision-making (CDM) in nursing (Dileone et al., 2020; Gaba, 2004; Tyerman et al., 2019). A difficulty experienced by educators delivering simulation is engaging students to complete learning activities before a simulation class, despite this being a crucial part of simulation preparation (Tyerman et al., 2019; Verkuyl & Hughes, 2019). Research has identified that psychological preparation pre-simulation is an important factor in nursing simulation, providing a safe and effective learning environment, and resulting in improved student outcomes and simulation satisfaction (Dileone et al., 2020; Stephen et al., 2020). Tyerman et al. (2019) report that students often do not complete pre-simulation activities and are therefore inadequately prepared for simulation. Engaging students in pre-simulation activities results in positive learning experiences and reduces anxiety related to simulation (Tyerman et al., 2019). Kim et al. (2019) identified the positive effect of pre-simulation preparation on students' confidence and clinical decision-making related to simulation. Nonetheless, challenges exist in motivating students to do the preparation required prior to live simulations (Lucktar-Flude et al., 2021).

Over the last three years, there has been a huge increase in the use of virtual simulation and simulation gaming which is perceived by students as engaging (Cobbett & Snelgrove-Clarke, 2016; Luctkar-Flude et al., 2019). Virtual pre-simulation games have been identified as more engaging than similar case studies or one-dimensional preparation activities, offering the potential to prepare at the student's own time and pace (Bektaş & Yardimci, 2018; Cobbett & Snelgrove-Clarke, 2016; Luctkar-Flude et al., 2021; Verkuyl et al., 2017). A significant advantage of virtual simulation used as pre-simulation preparation is that students can repeat the experience numerous times. Pre-simulation gaming was introduced into the second-year inpatient and ambulatory care course to form part of the preparation for simulation to bring through core soft and hard skills from year one of the degree, and orientates students to the simulation scenario. This provides a way for students to practise cognitively prior to OSCE exams, and facilitates the development of self-reflection and clinical decision-making skills.

VIRTUAL SIMULATION GAMES

Virtual simulation games (VSGs) are serious games designed for educational purposes, depicting real-world events and designed for specific learning outcomes (Agency for Healthcare Research and Quality, 2020), using various gaming design principles aligned with Kolb's (1984) experiential learning and simulation pedagogy. The research and teaching team for the course developed VSGs for pre-simulation preparation online prior to clinical laboratory-based hybrid medium fidelity simulation and for further practice toward their OSCEs. Three

simulation scenarios were already developed and had been used in clinical simulations in previous years, forming the framework for game development. Research was undertaken to analyse this teaching and learning strategy to prepare students better psychologically for simulation, and reduce simulation and exam anxiety associated with year two summative OSCE assessments (Sadd, 2023).

DEVELOPMENT OF GAMES

The decision was made to use the H5P interactive software program branching scenario format (https://h5p.org/) already contained as a plug-in within our Learning Management System (LMS) Moodle. Video recording was done using a Go-Pro camera, and uploaded to a YouTube (video platform) situated on the Moodle game development page. No extra software or licenses were required. This was chosen as a cost-effective way to develop and deliver the games. Once templates were developed, the primary cost per game was time – approximately 20 hours for the preparation of learning outcomes, decision points, and scripts, and eight hours for the filming, preparation, and uploading of content within the H5P branching format. Game testing was undertaken by teaching peers and year three students who had previously completed the course. H5P makes it easy to share interactive games within courses and Moodle sites. Games are then able to be updated or adapted without creating a whole new game. Learning analytics and game metrics are able to be accessed and utilised from within the H5P program and LMS.

H5P's branching scenario format is a form of "choose your own activity" (Chen et al., 2021, p. 84). Students are provided with a scenario proceeding to a decision or activity that may have multiple options and paths depending on the student's response. Choices may be set to lead to any other node within the interactivity tree structure with any number of branches and endings possible with different feedback per ending (Figure 1). Other H5P content forms such as image or drag-and-drop activities can be included as a stage in the branching scenario. H5P interactive content facilitates students to develop their clinical decision-making and reflective practice skills in a flexible learning environment (Singleton & Charlton, 2019).

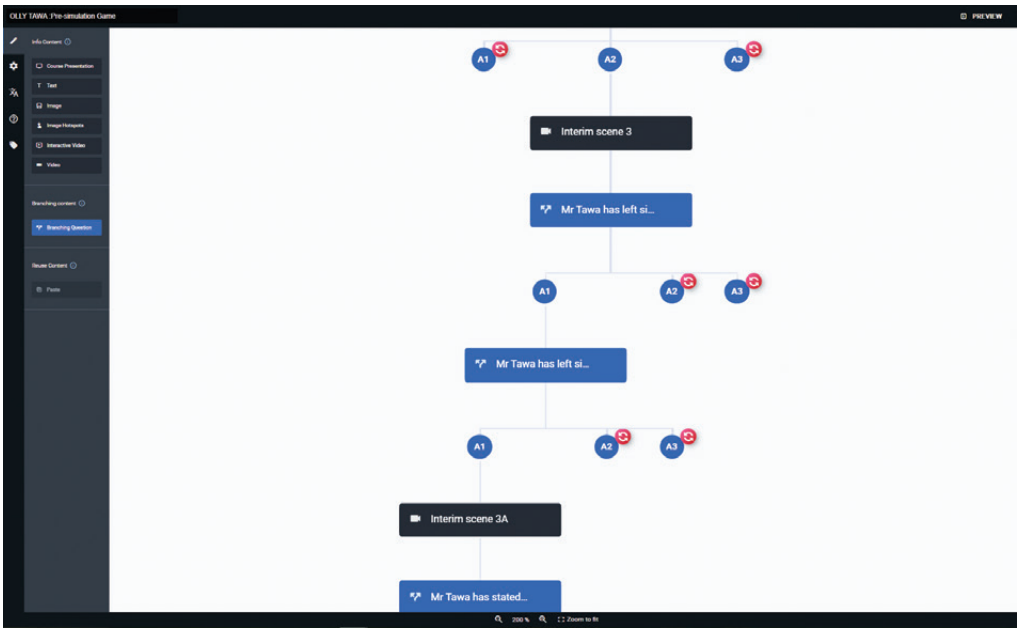

Figure 1. H5P Branching Scenario decision tree.

The three virtual pre-simulation games were developed to provide students the opportunity to prepare cognitively and familiarise themselves prior to participating in each of the three live simulations. The aim for the second-year nursing students is to be able to complete an initial assessment systematically, using a primary survey approach, respond to cues to complete a more focused assessment, and initiate appropriate actions including medication rights. The systematic approach that was already used within the simulations is replicated in the games. The pre-simulation VSGs reinforce basic 'soft skills' from year one of the degree, such as patient consent and basic clinical skills such as hand hygiene, while encouraging students to respond to assessment cues and decide upon appropriate nursing interventions at five key decision points. The VSGs prompt students to make decisions which they will then demonstrate in their live simulation such as focused assessments. All three games follow a similar format, individualised to each simulation scenario.

The VSGs use a branching loop (H5P) where students need to choose the 'best answer' to proceed. Other choices are looped back to the original question.

Students are introduced to their patient as a virtual whānau avatar via Moodle and the pre-simulation game. Virtual whānau are family groups developed for within the Bachelor of Nursing who students get to know throughout the curriculum. Virtual whānau members represent the rohe and have connections with other whānau and families. An outline of the whānau member's background and history is provided. The example provided is from Olly Tawa who has suffered a stroke (Figure 2).

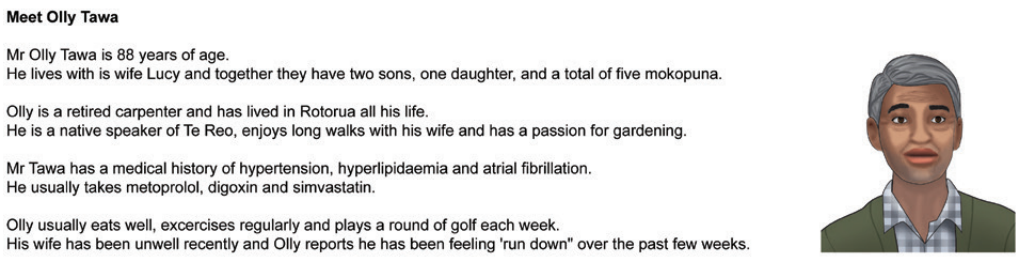

Figure 2. Scenario setting: Olly Tawa.

Subtle cues are given as part of the game to trigger familiarity with the basics learned in year one (Figure 3).

Figure 3. Role modelling: Hand hygiene.

In this simulation, Olly identifies as Māori. Students are prompted to consider cultural approaches and professional communication such as how they introduce themselves (Figure 4).

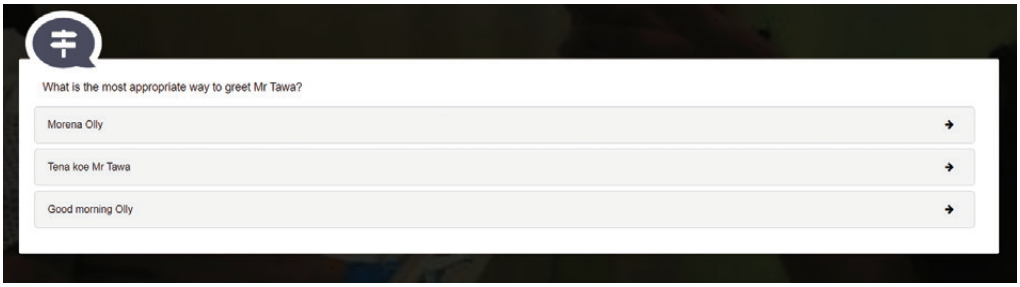

Figure 4. Soft skills: Culturally appropriate introduction.

Olly has had a stroke. After initial assessment students are prompted to identify the most appropriate focused assessment. Students are required to select the 'best' answer (Figure 5). It is important students are not given potentially unsafe choices which may then be role modelled.

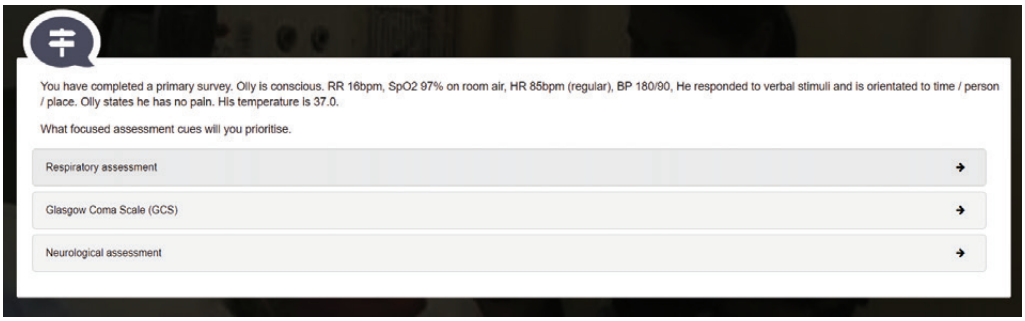

Figure 5. Clinical decision making.

Once the student has made their choice feedback is provided (Figure 6).

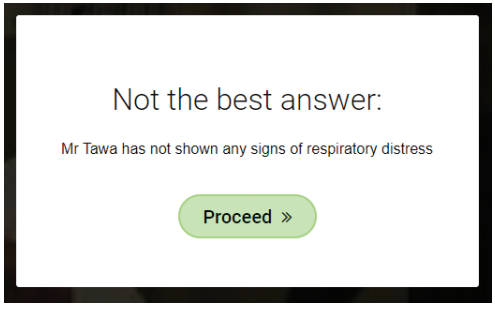

Figure 6. Decision and feedback: Not the best answer.

If the decision is not the best answer students are looped back to the question and promoted again to make a decision (Figure 7).

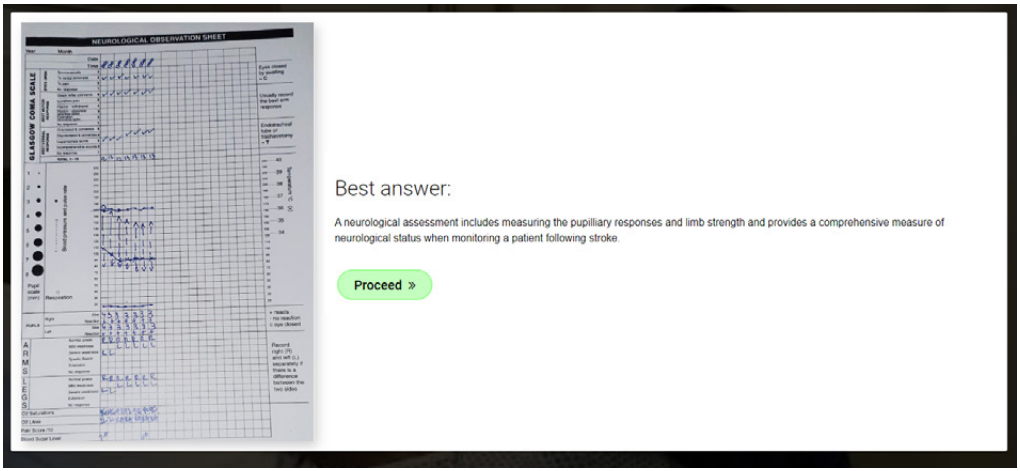

Figure 7. Decision and feedback: The best answer.

Sub-decisions include drag and drop or matching activities to support critical thinking and safe practice such as identifying the correct steps in medication checking and rights (Figure 8).

Figure 8. Skill acquisition (drag and drop): Medication rights.

Each VSG takes approximately 10 to 15 minutes to complete and concludes with the student providing a nursing care handover to their supervising registered nurse to conclude the episode of care. Students receive recognition for their achievements on the final game page. VSGs are made available to students via the LMS before the simulation, and games remain available for practice post-simulation to prepare for OSCE assessments. Of the 116 students enrolled in the course when VSGs were introduced, each student on average accessed each game nine times – more than 1000 times per game from the time each VSG became available pre-simulation to the time of their OSCE assessment.

After three years, pre-simulation VSGs have become a routine aspect of the preparation for clinical simulation at the start of year two. Research was undertaken after the first introduction of VSGs into the course to explore the role of VSGs in reducing the anxiety associated with OSCE assessments. The research used self-reporting scales (Levett-Jones et al., 2011; White, 2011) to examine student perceptions of VSGs on the simulation experiences, clinical learning, and anxiety and self-confidence with clinical decision-making, noting that virtual pre-simulation gaming helped students prepare cognitively and emotionally for simulation (Sadd, 2023). Positive outcomes were reported satisfaction with simulation and clinical learning, and high levels of confidence with clinical decision-making. Further research is needed to explore the cognitive learning effects of pre-simulation gaming on student learning and knowledge retention.

CONCLUSION

The issue of students completing preparation prior to clinical simulation will always remain, with students balancing competing priorities in their studies and life. Virtual pre-simulation games have shown to be well utilised by nursing students in preparation for clinical simulations. The 'wicked problem' was not solely about time; there is also the added pressure and anxiety that students feel when they are to be assessed in an OSCE. While the teaching team could not add more clinical practice time, the introduction of VSG did encourage cognitive practice – a possible 'taming' of a wicked problem. Pre-simulation VSGs are a cost effective, flexible mode of experiential learning providing students with flexibility in where, how and when they prepare for class; there is the added advantage of VSGs providing students with a way to revise or revisit a simulation, therefore embedding the learning from clinical simulation in preparation for safe clinical practice.

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Roseanne Sadd is a Registered Nurse and Senior Academic Staff Member within the Nursing Department at Toi Ohomai | Te Pūkenga. She teaches on the Bachelor of Nursing and has an interest in nursing informatics and the use of digital technologies within teaching and healthcare.

https://orcid.org/0000-0002-0506-9424

Jacinda Hills is a Technology Enabled and Enhanced Learner Advisor (TEEL) within the Whanake Ake Advisory group at Toi Ohomai | Te Pūkenga. Her role assists teachers in using technology for assessing student learning, differentiating instruction, and providing rigorous, relevant, and engaging learning experiences for all students.

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https://doi.org/10.34074/scop.4012011

A CRITICAL APPRAISAL OF ANXIETIES AMONG HIGHER EDUCATION STUDENTS: STRATEGIES AND SOLUTIONS

Mallory Tomsett, Kelly Warren, Rachael Burke, Fenella Wilson and Chrissie Keepa

INTRODUCTION

We are now entering a new era of higher education that has been inevitably shaped by our recent social history and shared experience of learning and teaching. The pandemic has had a profound impact on the education system and has forced educators and students alike to adapt to new ways of learning and teaching (Tarkar, 2020). Jehi et al. (2021) describe the rapid transition of delivery and learning modes, and, most significantly, how the suspension of formal classes that offered the traditional face-to-face learning experience removed the physical opportunity for students to build social and emotional connectivity.

Professional conversations across our early childhood education team revealed a shared perception that there is now an unprecedented level of student anxiety related to almost every aspect of their learning journey. This is observable in both our undergraduate and postgraduate degrees. Students' expectations of how they would learn were rocked when they were thrown into a space of the 'unknown' (Te Whatu Ora, 2022). Our observations, coupled with conclusions from the literature, suggest that in an unknown future, higher education institutions must take a proactive approach in supporting students' social and mental well-being.

Our teaching team has met regularly as a community of practice (Wenger, 2009), adopting a theoretical platform of critical reflections as part of continuous professional development. We took, as a starting point, our shared belief that we were observing the same noticeable shift in student anxiety discussed in the literature. This article will describe where we have sought to extend the discussion through categorising the range of exhibited anxieties as 'academic anxiety', 'social anxiety', 'change anxiety' and 'cultural anxiety'. Recognising that this new era of education will require a re-imagining of traditional teaching and learning delivery, we explore some of the approaches that we are now taking to support students with these types of anxieties.

To contextualise the discussion, we begin with an overview of our programme, outlining the expectations that our students have of us as a provider, and that we have of them, as adult learners preparing for a professional career. We hope that this article will offer not only some practical, transferable strategies to address student anxieties, but will exemplify the key role that critical reflection plays in education. Professional conversations and critical analysis of our own practice can help educators to gain a deeper understanding of their own professional work and make improvements to create better outcomes for students in their learning (McGarr et al., 2019), which is what we are trying to do here.

BACKGROUND

The early childhood education suite of programmes on offer at our institute comprise two undergraduate programmes and one postgraduate degree. Our teaching team of 11 are based at offices on both our institute's two main campuses in Rotorua and Tauranga, and regularly travel between the two to deliver the same lectures to students at each location. Kaiako teach across both the undergraduate and postgraduate programmes. All of our programmes are bilingual. It is expected that students make progress on their language and tikanga development each year, regardless of prior knowledge, exposure and confidence, or lack thereof.

As part of the programme, students must participate in practicums each year, in which they attend an early childhood centre for the required number of weeks, depending on their year level. Practicums are essential, as students gain hands-on experience working with children, experienced kaiako and whānau. Students do not get to pick the centre that they work in and this alone can cause some anxiety. Students on practicums must have strong interpersonal skills and communication skills as they are required to complete tasks while in the centre. These tasks often require permission from whānau to complete observations of their child and share the child's learning journey – and some students can find this requirement challenging. The expectation of students while on practicum is to attend 100 per cent of their practicum days. This too can cause students anxiety when they need to make up days and this impacts their other class work, or their whānau.

Another focus within our programmes is connectivity and the importance of building respectful relationships. In any early childhood centre, teachers will always be working in a team, so students need to be able to work with others and accept others' views, opinions and cultural perspectives. In the early childhood sector, students and qualified teachers alike do not get to pick the colleagues they are working with, or the children and whānau who attend the centre; therefore social and interpersonal skill development is crucial.

METHOD / THEORETICAL PLATFORM

Research has identified that it is imperative for teachers to reflect on their teaching as this is crucial to their professional development and the quality of their work (Saric & Steh, 2017), as they learn from their own practice (Mentor et al., 2011). As our programmes focus heavily on reflection for our students, we understand the importance of modelling our own critical reflection. When challenging and interrogating practice, we do not do it in isolation, but as a team.

We work as a community of practice which emphasises the learning that we do together, through robust conversations, with the focus on how best to support our learners (Wenger, 2009). With this focus on collaborative process, we have paid attention to some of the good practice indicators for successful communities of practice (Gerritson, 2007). First, we are highly conscious that a successful and high-functioning team must ensure high levels of trust and respect, where input is invited, all ideas are listened to, timelines and responsibilities are shared, and decision-making is consensual. Second, we believe in the value of face-to-face meetings where possible, in an era in which video-conferencing and working-from-home *can* emphasise independence rather than reciprocity of roles, tasks and responsibilities (Tarkar, 2020). To maintain a sense of balance, we share hosting and chairing duties by alternating meetings at each campus, supporting an ethos of distributed leadership (Gerritson, 2007). When setting our meeting agenda, we allow time to discuss our collaboration, how we are feeling, and recent challenges or successes. Third, we recognise and utilise individual strengths and share expertise, including conceptual planning, curriculum alignment, industry liaison, tikanga and te reo. Finally, respect for fellow members also facilitates an important function of communities of practice: engaging members in quality conversations rather than simply perpetuating existing practice or 'ticking the box' (Knowles, 2017).

Within our community of practice meetings, we have had multiple discussions in which the theme of rising student anxiety was a constant focus. Having arrived at our four main themes of *academic/performance anxiety,*

social anxiety, change anxiety and cultural anxiety, we explored what we were each doing in our classrooms to support our students and build resilience for their continued studies. From this, we found five key strategies that we have found helpful. The remainder of this article describes the anxieties we have observed and the five responses we have developed – acknowledging that as with any experiential learning (Knowles et al., 2005), we will continue to reflect on, and evolve our approaches.

OBSERVATIONS AND DISCUSSION

Academic/Performance anxiety

Academic anxiety can be defined as ākonga self-doubt in their abilities, nervousness and worry over grades, and overall negative imagery of themselves as academic learners (Mooney, 2022). While the concept of academic anxiety is not new to the tertiary environment, studies have indicated that the COVID-19 pandemic has resulted in an increased incidence (Zeng et al., 2022).

At our institution, anecdotal evidence of various year one domestic cohorts highlights academic anxiety related to learner confidence. Students report previous negative experiences, inclusive for some of a belief that they are not academically capable, a perception that can be carried from their previous learning environment into their tertiary study. It is highly probable that lost schooling time and the lack of interaction with peers due to lockdowns, illness and working from home have only increased this lack of confidence. For international students, the main academic concerns centre around the expectations of high performance and the accompanying stress (Mooney, 2022), again, almost certainly exacerbated by being away from home during an international health crisis.

In our community of practice, the teaching team has noted behavioural indicators such as negative self-assessment of their abilities, low self-esteem, avoidance of tasks, low levels of participation in discussion, poor study skills, procrastination of tasks, refusal to ask for help, avoidance of communication with tutors, and in some cases withdrawal from study. Bülbül and Odaci's (2023) analysis of academic anxiety studies in the literature confirms that these phenomena are part of a much larger, global trend and therefore needful of a considered and sustained teaching team and organisational response.

Social anxiety

Social anxiety is an umbrella term that speaks to a spectrum of discomfort experienced in relationship with others. While this wide diversity can make definition problematic, social anxiety is broadly being "fearful or anxious about or avoidant of social interactions and situations that involve the possibility of being scrutinized" (American Psychiatric Association, cited in McNeil & Randall, 2014, p. 9). At our institute, anecdotal evidence suggests that social anxiety is growing in prevalence, seeing surges in pastoral care needs.

While our intentional teaching practices, such as whakawhānaungatanga, deliberately build upon a community sense of belonging, anxiety can prevent authentic participation, directly contradicting its purpose. There is also the social anxiety of contributing to classroom discussion: ākonga can feel that their contribution could be wrong, may have a fear of failure, get nervous when speaking to a group, or feel constrained by cultural differences. Zakrajsek (2017) suggests these differences may include shyness, English-as-a-second-language, and lack of knowledge about the response expected. As our students are often from a range of backgrounds and experiences, we believe these factors do contribute to the overall heightened levels of social anxiety we are observing.

Change anxiety

According to Stallman (2011), issues with mental health such as anxiety can impact significantly on students' ability to assimilate to a tertiary environment and participate in class discussions; further, students already experiencing mental unwellness are more likely than peers to struggle with change (Kessler et al., 2007). Change anxiety encompasses a feeling of fear of the unknown, and can include a change of environment, change of people within class settings, change of lecturers, change of papers or courses, transition process such as moving into the work force or changing levels within the degree, moving to another country or simply doing something 'new' within the classroom setting. Change can be overwhelming, and it is not uncommon for students to feel anxious and stressed during their tertiary years.

Demographics play a key part. Kessler et al. (2007) discuss a strong sense of vulnerability between the years of 18 to 25, an age-range in which many students attend tertiary education, with its new expectations and responsibilities, pressure to succeed and fear of falling behind (Gurbuz et al., 2019). At our institute, the majority of our students are school leavers, and change anxiety is evident through disclosure during enrolment interviews, as well as behaviour within the classroom setting such as a lack of participation with peers and kaiako, disadvantaging engagement with programme content, and skill development.

Stallman (2011) explains the importance of resilience for students to cope with change anxiety but raises concern about an over-reliance on mental health support systems where research has found that some tertiary students are seeking support from general practitioners rather than councillors. Other authors conclude that students are not always referred promptly to mental health services, perhaps being deemed not serious enough to require such support (Megivern et al., 2003).

Cultural anxiety

With an increasing number of families from a wide range of cultural backgrounds living in Aotearoa New Zealand, the country is now being described as "super-diverse" and facing emerging challenges due to new levels of cultural complexity (Chan, 2019). In a super-diverse society, contemporary migrants are heterogeneous, and therefore likely to experience a range of inequalities and challenges that teachers may not be aware of. Similarly, tamariki at early childhood centres are increasingly diverse, and teachers need to have the skills to support, acknowledge and value each student's cultural background (Kendall, 2015). Te Whāriki (the Early Childhood Curriculum) also states that children are now growing up in a diverse society, in which there is a wide range of cultures and ethnicities (Ministry of Education, 2017). As Chan (2019) argues, this can be difficult without reverting to tokenism and cultural stereotyping. International students, or those from migrant backgrounds, may find it particularly difficult to navigate the social, cultural and academic world of Aotearoa New Zealand (Coburn, 2020).

For international students, the main concerns centre around mastering language, academic, social and financial requirements (Cheung, 2013); that is, anxiety stemming from a change in cultural context. However, this kind of cultural anxiety may not be limited to international students. Jones (2001) has written about the apprehension shown by Pākehā students when Māori and Pacific teachers take positions of authority. This is supported by anecdotal evidence from our institute where some Pākehā students expressed anxiety about spending time at the culturally unfamiliar environment of the marae where they were positioned as learners. For Māori and Pacific students, cultural anxieties may be generated by a tertiary environment that privileges Western educational theories, therefore homogenising practices according to dominant discourses and marginalising Māori and Pacific knowledge systems (Matapo, 2021).

FIVE STRATEGIES WE HAVE FOUND HELPFUL

Being present

One strategy for supporting student well-being and reducing anxiety is through introducing mindfulness practices within the classroom environment. Kabat-Zinn (2003) refers to mindfulness as paying conscious attention to the present moment whilst acknowledging, but not being distracted by, other stimuli, or more simply, being present in the here and now (Good et al., 2016). The argument being, if we are able to pay attention to the present moment, we are less likely to worry about the future, a major cause of anxiety. For our students within their future vocation of working alongside tamariki in early childhood settings, the ability to be present is not only vital for relationship building but also as the foundation of the practice of observing tamariki.

This strategy of being present is implemented at the start of each class, inviting students to 'be present' and to attend to the subject at hand. We unpack this as focussing on the subject, avoiding unrelated kōrero, and paying attention to others when they are speaking/sharing. A transition period is given at the start of class, and after breaks, so students can move out of their prior focus and/or discussions and attend to practising the skill of being present. For some, the distraction, and even the addiction, of their smartphones (Zeng et al., 2022) has proven a challenge in regards to this practice. This is quite a culture shift; however, as our approach has been reinforced over time, students are now more frequently taking on the responsibility for reminding their peers to put their phone away, to listen to others, and to move away from those who continue to be distracted by their phones.

Focusing on self-care

Our shared observation is that anxiety paves the way for reduced participation, hindering both planned and spontaneous discussion and activities, and compromising the growth of the group through shared experiences. We need to address this immediately, so that early learning is not lost. One method of mitigation we have recently trialled across three different classes, is to introduce the concept of self-care.

During class orientation on day one, a *growth box* was presented. A tray holds a memo cube of paper, a supply of pens and a post box. When clarity is required and students are unable to seek it during class, for whatever reason, they post it anonymously to the box. The contents of the box are revisited during *He Hokinga Mahara* (a looking back, orientation process at the beginning of the next session). To introduce the box, each student was asked to supply one important fact that was conducive to successful learning for them. The responses fell into typical categories: the need for silence during reading, a variety of activities to maintain interest, mental health issues, neurodiversity, allowing autonomy in group choice, regular movement, availability of PowerPoint presentations for multi-modal absorption and time to process. Sharing the responses back to class during the second session highlighted our diverse community and the need to agree on a safe learning environment, along with a 'friendliness with error' and other growth dispositions. The shared examples were also used to introduce the same diversity within our early childhood settings (Ministry of Education, 2017; 2019). While class-wide interactions are growing in line with increasing trust and relationship between students and teacher, verbal feedback suggests the box may have accelerated this natural process.

A further strategy to highlight the need for self-care was used during the year one orientation session. Sharing a holistic model for teacher transformation (McFarland, 1993), the class was led on a preliminary journey of looking inwards; specifically at the holistic aspects of their spirit (from a secular perspective), emotions, mind and their body. The exploration, although personal, was linked to teaching roles of reflective practice and role-modelling self-care approaches for tamariki (Ministry of Education, 2017). Strategies such as breath work, positive affirmation, expressive communication, understanding and empathy, nutrition, exercise, rest and connection to nature were explored. Additionally, ākonga were offered provocations for self-awareness and belief systems that led towards a personal initial life/career mission statement. The immediate feedback was positive and offered

an important framework to enhance their well-being during study and throughout their teaching career. A week later during a session exploring Kaupapa Māori theory, synergy was 'discovered' with the holistic focus in Te Whare Tapa Whā (Durie, 1985) and Te Wheke (Pere, 1991).

Utilising the Māori health system

In exploring the Te Whare Tapa Whā concept of Māori health, students were reminded of the inextricable nature of the four human dimensions explored during orientation (McFarland, 1993). Using a whare (house) as a metaphor, the model identifies four walls representing taha wairua (spiritual well-being), taha tinana (physical well-being), taha whānau (family well-being) and taha hinengaro (mental well-being), each supported by whenua (the land) as a nod to her tūpuna (ancestral) status. Students need all walls to be strong to be successful in their health and their education and needs to be viewed holistically (Ministry of Education, 2017).

While students reconnected to the earlier exploration of their individual selves, some were new to cosmic relationships as an extension. Kaupapa Māori sees each individual as one part of a collective, unable to be viewed in isolation. This calls attention to one's responsibility to and from others for the overall health of the group, which may be empowering for those suffering anxiety, knowing that their contribution is both necessary and valued, provided the conditions of the whare are in alignment.

Emphasising relationships and belonging

Teaching practices such as whanaungatanga build strong reciprocal relationships through learning about one another to ensure that students develop a sense of belonging, and knowing their well-being is being prioritised. (Ministry of Education, 2017). Whanaungatanga examples can be as simple as sharing stories of meaning with others, consensus building and collaboration where everyone's ideas and opinions are shared and valued as meaningful. At times, during stressful periods such as assessment due dates, it could be that students need that time to unpack what might be going on in their lives to be able to move forward with the day, a term that has been used recently by students as "taking a load off."

Sammons et al. (2020) suggest that a strategy to encourage belonging and well-being is through the sharing of cultural artefacts. This strategy was used during a noho marae experience at our institution, where a group of international and domestic students were asked to bring an object that was culturally significant to them. Taking turns introducing their object and explaining its significance to them and their culture revealed many remarkable stories of resilience, aroha, whānau and childhood. The sense of belonging fostered here was due to all members of the group showing their willingness to listen, be open, and to learn about each other's culture. This experience had long-term effects with deep, long-lasting bonds formed between students. It was particularly significant for Māori students in this class, who communicated later how empowering it was to have their culture positively acknowledged within the sacred space of the wharenui. Kaupapa Māori principles including manaakitanga, aroha, tuakana/teina, ako kotahitanga, and tino rangatiratanga result in uplifting the mana of all participants and enhancing both individual and collective growth. Education Council (2017) also values whanaungatanga, manaakitanga, pono and whakamana and these are our guiding principles and responsibilities as registered teachers. In class, such whanaungatanga practices usually take place after karakia and himene, allowing students to move past anxiety and settle into their learning.

Acknowledging multiculturalism

In our post-graduate programme, the majority of students hail from a diverse range of international backgrounds. Lessons always begin with a karakia, waiata, and basic te reo Māori greetings. By around the third week, students are invited to teach their classmates greetings from their own cultures, which are then revisited each week.

Hearing a friendly greeting in your own language is a positive way to set the tone for the class each week and students always enjoy this. As Nuttall (2005) has pointed out, such simple strategies are a way to support multiculturalism and to ensure that everyone feels that they belong and are valued.

Chan's (2019) research focuses on the importance of fostering strong relationships between teachers and culturally diverse whānau in the ECE context, and many of the ideas are relevant to the tertiary classroom. Chan argues that "it is the teacher's responsibility to proactively initiate relationship building" (p. 256) by facilitating respectful dialogue in order to explore differences and similarities in each other's beliefs and practices. This includes culturally diverse communication styles: some may be comfortable to ask questions in class, others may prefer a private chat after class, or an email or class forum. It is important to remember that most international students are completing their studies in a second (or even third or fourth) language, so even those who seem to be coping easily will still be grappling with translation issues and language barriers. Students from overseas often experience high anxiety about academic assessments or different learning practices, based on their educational experiences in their own countries (Coburn, 2020).

As well as clear and patient communication, other strategies that have been effective for our international students include bringing in Learning Facilitators and Faculty Librarians for targeted sessions, setting up online forums around assessments, workshopping tasks as a class, providing plenty of time for interactive activities and ensuring that students are well supported by the International Department. These opportunities for dialogue and exchange provide the chance for all students to work together which can also build trust and strengthen relationships even further (Chan, 2019).

Another challenge identified by international students at our institution is the difficulty making friends with domestic students on campus. This is supported by research which suggests the friendship gap appears to be particularly large between students that come from cultures that are markedly different to the host society, such as between Aotearoa New Zealand and Asian countries (Coburn, 2020). Here again, the concept of whanaungatanga and noho marae described above can assist, mixing undergraduate and post-graduate students from a diverse range of cultural backgrounds, ages and life experiences. Reciprocal learning activities build cross-cultural connections and foster tuakana-teina relationships; food sharing and the communal sleeping experience can be the start of openness towards others from different cultures and classes. Back on campus, and on a more regular basis, students from different classes are brought together for the weekly te reo Māori classes which are an important component of our programme. After all, in order for early childhood teachers to nurture the diverse cultural identities of tamariki, the teachers themselves need to feel a sense of belonging (Arndt, 2018). This process begins in the classroom.

CONCLUSION

Today's students have been through a period of significant change with delivery and learning modes, and the arising challenges. As a team, our early childhood education community of practice's robust professional conversations have confirmed the extraordinary level of anxiety described in the literature as a post-pandemic phenomenon, and allowed us to progress our understanding by noting four categories of anxiety. We believe academic, social, change, and cultural anxiety will continue to be big factors in our programmes and placement settings.

This article has outlined some of the strategies that we have used to reduce anxiety: introducing mindfulness and being present in the moment; ensuring that students are taking time for themselves and taking care of their holistic well-being; encouraging self-reflection through the Te Whare Tapa Whā model; building relationships and a sense of belonging through whanaungatanga experiences; and embracing multiculturalism in our superdiverse setting. There are exciting times ahead, and as a team we find that working, sharing and strategising

as a community of reflective practitioners has helped us to accept the challenge of turning anxiety-beset learners into confident and effective graduate teachers. We hope that this account of how we work, and what we have come up with, will spark others to share their own critical narratives of building student resilience and success.

Mallory Tomsett is a qualified certified early childhood teacher with over 17 years of teaching experience in early childhood sector. She has a Master of Education from Waikato University. Mallory started in 2021 as an academic staff member within the Education Department at Te Pūkenga | Toi Ohomai Institute of Technology, leading programmes in early childhood education and is now a Senior Academic Staff Member.

Kelly Warren is an academic staff member within the Education Department at Te Pūkenga | Toi Ohomai Institute of Technology. She has a Master of Education from Massey University. Kelly's previous experience was as Curriculum Advisor for New Shoots Children's centres. She has contributed to the 2019 rewrite of *Take Another Look-Tirohia anō: A guide to observing children* (3rd ed.). Kelly has taught in the Education programme since 2022.

Rachael Burke is a Senior Lecturer in Early Childhood Education at Te Pūkenga | Toi Ohomai Institute of Technology. She has a PhD, Master's and B.A (Hons.) in Social Anthropology from Massey University, and her research interests include inquiry-based learning and implicit cultural practices in early childhood education settings.

https://orcid.org/0009-0002-0465-7707

Fenella Wilson is a certified early childhood teacher and a Montessori trained guide. Fenella previously owned a Montessori preschool in the Bay of Plenty and joined Te Pūkenga | Toi Ohomai Institute of Technology as an Academic Staff Member for early childhood education in 2022.

Chrissie Keepa is a Senior Academic Staff Member at Te Pūkenga | Toi Ohomai Institute of Technology within the Education department. Chrissie has a Master's in education and Bachelor of teaching and learning with a strong focus on te ao Māori and te reo Māori within the education sector.

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HOW PREPARED ARE OUR STUDENTS? DIRECTING OUR EFFORTS TO SUPPORT STUDENTS' TERTIARY EDUCATION

Clare E. Thomas

INTRODUCTION

New friends, new types of teaching and learning or perhaps even a change of location: for many students, transitioning to tertiary education involves adjusting to an environment which is out of their comfort zone (Sotardi & Friesen, 2017). These changes can impact on students' experiences which, in turn, impacts on their level of achievement (Bowden et al., 2019). Furthermore, for those unable to adjust, the fallout can be lifelong. It clearly behoves an education provider to not only provide services which support new learners, but to ensure these are accessible and available when needed, and that their uptake is encouraged and advocated. This article discusses findings from a 2022 study of tertiary teaching staff across the Bay of Plenty region conducted by Student Support Services at Toi Ohomai (a subsidiary of Te Pūkenga – New Zealand Institute of Skills and Technology). Lecturers and tutors from multiple disciplines at several Toi Ohomai campuses were interviewed about the assistance and resources provided to their students by this team. This data was collected and analysed elsewhere by team members (Brons & Granger, 2022). For this article, thematic analysis of the dataset was used to identify three key features of student support which participants singled out as critical to successful transitions for students. These three features were: digital literacy, literacy and numeracy, and academic writing. These skillsets are most frequently cited by teaching staff as essential for success, and yet are a source of imbalance and inequity. These three themes are therefore a focus of how we, as a support services team, need to direct our efforts to support students to succeed. In addition, they provide the basis of professional conversations as we build relationships with tutors in gaining access to students who need support. In discussing how we do this, regular communication and a whole institutional approach will also be explored.

BACKGROUND

In 2021, at Toi Ohomai, programmes of study were delivered from the New Zealand Qualifications Authority framework levels 1 to 9 in over 20 sites across the region. There were over 8,500 domestic and nearly 560 international learners enrolled across the Bay of Plenty region supported by approximately 600 permanent full-time and 300 part-time staff (New Zealand Qualifications Authority, 2022).

Toi Ohomai Institute of Technology, like all other providers in our sector, is under "increasing pressure to pass a high percentage of students and admit students into programmes without prerequisites or adequate prior experience/skills" (Malik, 2021, p. 3). This is supported by Sedgwick and Proctor-Thomson's (2019) study on the preparedness of students for tertiary level education. Furthermore, this study also indicated the working conditions of tutors with additional workload in terms of administration, preparation, marking, "class sizes and staff levels" (p. 1) and research, all of which further impacted the time available to support their students adequately. Considering the unpreparedness of some students, it is therefore of benefit to them to be supported not only by their tutor but by a highly qualified and knowledgeable support team.

At Toi Ohomai Institute of Technology, the Student Support Services team provide a wraparound support model for their students (Figure 1). This support includes: health and wellbeing, pastoral support, careers and employability, library access, student administration, accessibility services, kaitātaiako (Māori and Pacific academic learning facilitators), faculty librarians, student administration and the learning facilitators. Part of this larger team are learning facilitators (LFs) whose role is to support students with their academic studies. As LFs, we know what support students ask for, but what do teaching staff see as the most pressing need? From the findings, we may identify how to support our students better. This is a less studied area in the literature and the gap this paper intends to address.

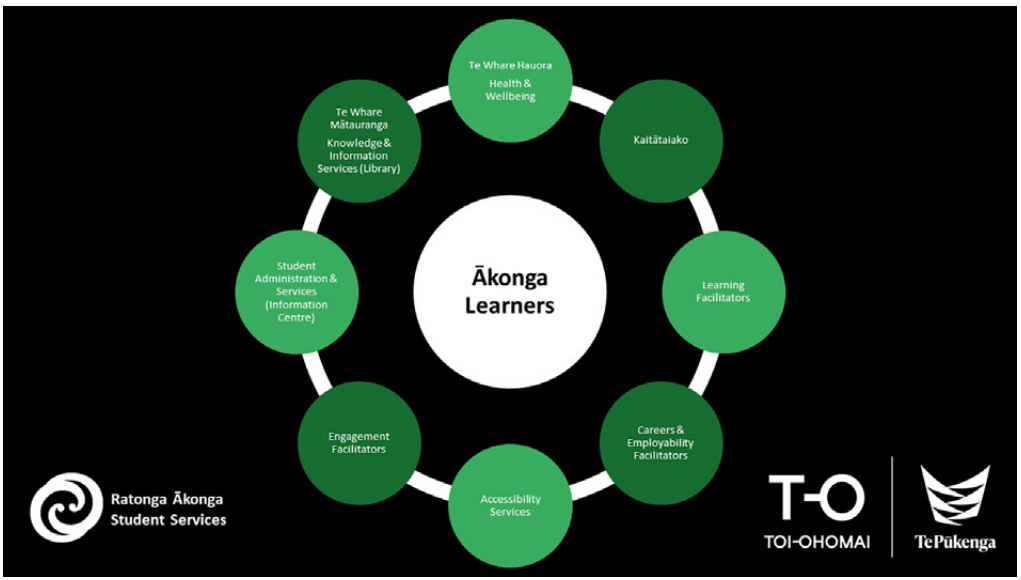

Figure 1. Student Services Support team model (Toi Ohomai Institute of Technology, 2023).

Learning facilitators (Toi Ohomai Institute of Technology, 2023), tertiary learning advisors (Malik, 2021; Tanner & Goa, 2021), and academic advisors (Barbuto et al., 2011; Higgins, 2017) are some of the terms for those supporting students learning within tertiary level education. For the purpose of this article, tertiary learning advisors (TLAs) will be used as a term to discuss their roles and responsibilities. Tertiary learning advisors are an important aspect in teaching and vital in supporting students at tertiary level (Sotardi & Friesen, 2017). According to Malik (2021), tertiary learning advising "is an established profession within the tertiary education system in New Zealand" (p. 1). Tertiary learning advisors are educated professionals, highly knowledgeable and skilled in their role of supporting students in their educational journey. Cameron's (2018) research indicated 90 per cent of those employed had a teaching qualification, with nearly 80 per cent holding postgraduate qualifications and over 60 per cent at master's level. In addition, many undertake professional development as part of their role.

THE STUDY

In 2022, after gaining ethics approval (TRC 2021.108, Toi Ohomai Institute of Technology, 24 November 2021), the Learning Support and Engagement team (part of Student Support Services) undertook a qualitative study with a selection of teaching staff (N=16) across all Toi Ohomai campuses in the Bay of Plenty region. The represented teaching staff taught on the following programmes:

- Master of Teaching Early Childhood Education
- Bachelor of Social Work
- Bachelor of Nursing
- New Zealand Diploma in Business
- Introduction to New Zealand Forestry Sector (Level 5)
- New Zealand Certificate in Tourism and Travel
- New Zealand Certificate in Real Estate
- New Zealand Certificate in Health and Wellbeing (Level 4)
- New Zealand Certificate in Health and Wellbeing (Level 3)
- Sport and Recreation (Levels 3–5)
- Te Kura Māori, Te Reo Māori (Level 2)
- New Zealand Certificate in Foundation Skills (Level 2)
- Student Transition Program – Automotive and Construction Trades (Levels 1–3).

The study consisted of semi-structured interviews, in person or online, to elicit teaching staff feedback on how the Learning Support and Engagement team work in partnership to support student learning and engagement (Brons & Granger, 2022). The raw data of the transcripts were further analysed to understand better the issues faced by teaching staff when students transition to a tertiary education environment. From this data, three specific themes that impacted on student success and retention were identified by the teaching staff: digital literacy, literacy and numeracy, and academic skills and writing. The rationale was to identify, through teaching staff feedback, the preparedness of students when they begin their studies and how we as learning facilitators might support both teaching staff and students.

FINDINGS: WHAT DO THE TUTORS SAY?

Digital literacy

Digital technologies continue to evolve and are part of everyday life transforming the way people work, learn and play. Digital devices such as computers, cell phones and laptops have proliferated in these environments. One of the factors relating to learning experiences indicated in the findings was an individual's level of knowledge, skills and experience in the use of digital technologies (Brons & Granger, 2022). Of those interviewed, 65 per cent of tutors stated lack of digital literacy skills as a barrier to learning for their students. Challenges students faced when using digital technologies, such as logging on to the organisation's network, were an issue for some who found it difficult to remember how to log in or had forgotten their password (Brons & Granger, 2022). Once the organisation's network was accessed, there were then challenges for students with accessing the different online platforms such as Moodle and Google Classroom. Further challenges were identified by the teaching staff for students in accessing and using the associated applications such as Microsoft Word, Excel and PowerPoint or Google Slides, Docs and Sheets. According to Cowie and Khoo (2014), students who lack digital literacy skills face barriers with digital technologies which, in turn, impact negatively on their learning experiences. In considering the importance of time to develop digital literacy skills and to circumvent workload barriers, they suggest consideration should be given to preparing learners for using digital technologies in academic study.

As these digital technologies continue to change, the ability for individuals to adapt to these changes depends on their level of digital literacy knowledge and skills (Thomas, 2021). Morgan et al. (2022, p. 261) define digital literacy as "the ability to access, analyse, evaluate and communicate digital information, using relevant digital tools in a manner which is legally, ethically and socially aware". Considering this broad range of attributes, individuals with insufficient levels of digital literacy skills may face challenges adapting to rapidly changing digital technologies in their everyday lives. It is therefore important that students have digital literacy skills and knowledge to navigate digital platforms, particularly as course content and assessment are accessed within the online environment

(Jeffrey et al., 2014). Whilst there are many benefits to accessing course materials anytime and anywhere in the online digital environment, students need appropriate skills and knowledge. Many learners, when they embark on tertiary studies, encounter new technologies that require particular digital literacy skills (Thomas, 2021). Learners without these skills are more likely to face difficulties in their academic studies (Jeffrey et al., 2011). In addition, of the digital literacy skills identified for the use of new digital technologies, there was a "lack of familiarity with the breadth of digital tools, the terminology, and the common procedures used limited their ability to identify solutions and to navigate the digital environment" (p. 398). Therefore, lack of digital literacy skills negatively impacts on students' learning experience in higher education.

LITERACY AND NUMERACY

Basic levels of literacy and numeracy are an important part of education, work and society throughout life. The New Zealand Qualifications Authority Project Advisor Group (n.d., para. 9), provide the following definitions of literacy and numeracy:

- Literacy is the written and oral language people use in their everyday life and work. It includes reading, writing, speaking, and listening. Skills in this area are essential for good communication, active participation, critical thinking and problem solving.
- Numeracy is the bridge between mathematics and daily life. It includes the knowledge and skills needed to apply mathematics to everyday family and financial matters, work and community tasks.

Of the teaching staff in the study, 42 per cent indicated poor literacy and numeracy skills negatively impacted on their students' learning and motivation. To assess literacy and numeracy level proficiency, some students are assessed on the Literacy and Numeracy Adult Assessment Tool (LNAAT). This tool is an adaptive online assessment that measures levels of literacy and numeracy via the Learning Progression Steps, from Step 1 lowest, to the highest, Step 6 (Tertiary Education Commission, 2017). The LNAAT results give teaching staff an indication of students' proficiency which may impact on their deciphering of the course requirements. Participant teaching staff found the LNAAT results of their students important in ascertaining if additional support was needed (Brons & Granger, 2022).

Wagner (2014) highlights the importance of literacy and numeracy in the early years to improve opportunities in education. This is associated with increased employment opportunities and a better quality of life. There is an increase in the number of children leaving school who lack reading and maths abilities to function in the adult world (Berger & Fisher, 2013). In addition, poor literacy and numeracy skills of parents impact on the quality of their child's learning and development (Jones et al., 2015; Napoli & Purpura, 2017; Wagner, 2014). Furthermore, literacy and numeracy skills learning are dependent on childhood educational environments particularly in low socio-economic areas. With varying literacy and numeracy skills learnt within education, it is therefore likely that those transitioning to higher education later in life will face challenges. Erwin et al. (2020) report that 20 per cent of New Zealanders had low levels of literacy and numeracy. Of these figures, a high percentage identified as Māori or Pacific. Consequently, those with low levels of literacy and numeracy tend to have lower educational attainment and find their studies challenging (Erwin et al., 2020; Johnson et al., 2012).

ACADEMIC SKILLS

Intricately linked with literacy skills is student academic writing ability. Academic writing is a specific genre that follows a set of conventions. According to Massey University (2018), academic writing encompasses a range of skills including: understanding and breaking down the question; understanding the structure of the assignment; finding and referencing academic sources; paraphrasing, grammar, and punctuation; and sentence and paragraph structure. Academic writing "deals with the theories and causes of a given topic, as well as exploring alternative

explanations for these theories or events" (para. 1). It is written in a "tone which uses concise, formal, and objective language" (para. 1) with no contracted words. In addition, the written work addresses an audience who may not necessarily know the topic; therefore, the writer needs to be clear and concise in their writing.

When students enter higher education, they are assessed mostly on their academic skills. Therefore, they need to have sufficient academic skill to interpret their findings and communicate within academic writing. Academic writing is an invisible element of learning, and it is assumed students' skills will develop as their course progresses (Strongman, 2013). However, this is not always the case. Students who have little experience of English, or for whom English is not their primary language, lack the necessary conventions of academic writing to succeed (Strongman, 2013; Wingate, 2012). Developing expertise in academic writing takes time and practice and, for some students, challenges them both mentally and emotionally (Wingate, 2012).

Of the participant teaching staff, 57 per cent indicated a lack of academic writing skills as a barrier to student learning and progression (Brons & Granger, 2022). Considering the demographics of students transitioning from secondary school and second chance learners, many lack ability in academic writing skills (Fowler, 2020). In addition, the transition for secondary students to higher education involves other adjustments in their lives, such as moving away from home, forming new friend networks and studying independently (Menz, 2020). Many participant tutors also discussed inadequate education as a cause of poor academic writing skills (Brons & Granger, 2022). However, it is not necessarily that students are unable to write, but that they have insufficient academic skills. For example, the initial task of deciphering an assignment question might seem overwhelming to some (Fowler, 2020). Menz (2020) indicates that the development of academic skills is not sufficiently integrated within the course content. However, tutors do support students in their academic skills, but there are constraints of time and resources, restricting tutors to teaching the required course content (Wingate, 2012). This aspect was mentioned by the participant tutors who realised they were unable to cover everything needed, particularly with the size of classes and diversity of student needs. To demonstrate, one participant mentioned the sheer size of some classes which made it impossible to cover all academic skill requirements (Brons & Granger, 2022). The collected data also indicates the unpreparedness of some students when they begin tertiary studies.

DISCUSSION: TUTORS AND TERTIARY LEARNING ADVISORS WORKING TOGETHER TO SUPPORT STUDENTS

Clearly, the three themes of digital literacy, literacy and numeracy, and academic skills, highlighted in the findings, identified barriers for some of our students within our organisation. Therefore, we need to discuss how students can be better supported by both tutors and tertiary learning advisors in their studies. Considering this focus, participant tutors found support provided by the TLAs to support their students in digital literacies, literacy and numeracy and academic skills vital. Tertiary learning advisor support for our students consists of individuals and group consultation, providing a range of workshops and digital literacy sessions which are essential in breaking down barriers to learning. Specifically, Higgins (2017) echoed the importance of TLAs for "student experience as well as student retention" (para. 1). More recently, Cameron (2018) discussed how working with TLAs increased student satisfaction; in particular, the versatility of advisors in responding to students' needs at the time of appointment who were sometimes unaware of the support they were providing. Further evidential research validates the successful retention and completion for those students who work with TLAs compared to those that do not (Ross, 2011).

According to Tinto (2012), supporting students is of utmost importance for success and retention especially for those requiring additional support. However, this support is reliant on the relationship between tutors and tertiary learning advisors (Holland et al., 2020). Whilst our participants consistently felt that the support provided by TLAs enhanced student engagement and retention, promoting cohesiveness between tutors, students and TLAs was needed. In particular, Leenknecht et al. (2020) advocate the quality of the relationship between

the tutor and other staff which either supports or inhibits the student's experience. Therefore, developing interaction and sustaining relationships over time between tutors and TLAs is essential. With this in mind, Strauss (2013) advocates a relationship where tutor and tertiary learning advisor connect regularly. Whilst our services connect regularly with students, building and maintaining supportive relationships with their tutors is also crucial. However, as Strauss (2013) emphasises, high workforce turnover is an issue for the sustainability of these relationships. For this reason, Strauss (2013) advocates promoting TLA services via formal and informal networks to connect with tutors. To improve these networks, a whole institutional approach is also suggested.

For an institution, initiatives to create opportunities for engagement and connecting tutors and tertiary learning advisors should be considered particularly important as strengthening these relationships would perhaps increase student engagement. Manning (2015) discussed how important the relationships between tutors and TLAs were for their students. Such relationships are beneficial to both the tutor and the TLA as each bring their own expertise—the tutor with their knowledge of subject content and the TLA facilitating academic study skills. Thus, they work in partnership to address the learning needs of the students to increase achievement and retention. A key aspect of the relationship between tutors and TLAs is communications that are regular, targeted and open, thus facilitating a mutual relationship of trust and respect

CONCLUSION

It is evident that some students arrive at tertiary education without the required skills for academic study, which impacts on their learning experience. The three specific trends highlighted in this study are the lack of digital literacy, low levels of literacy and numeracy, and limited or no academic skills. However, with the necessary support from their tutors and tertiary learning advisors, barriers to learning can be overcome. In particular, building and maintaining a reciprocal relationship where tutors and TLAs regularly communicate is an important aspect of supporting students in their academic journey. In addition, a whole institutional approach where both tutors and TLAs work in partnership allows each to bring their own strengths and knowledge for the benefit of their students which, in turn, may increase retention and attainment rates.

Clare Thomas is a Learning Facilitator within the Student Support team at Toi Ohomai Institute of Technology, Tauranga Campus. Her role is to support students navigating their tertiary academic journey with essential study skills. Her interests include digital technologies to support learning and teaching within the educational environment.

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TRACKING LITERACY DEVELOPMENT IN THE TERTIARY SECTOR: EDUCATIONALLY AND STATISTICALLY SIGNIFICANT LEARNER GAIN

Willfred Greyling

INTRODUCTION

Over the past decade, the Literacy and Numeracy for Adults Assessment Tool (LNAAT) has been used extensively by the Tertiary Education Commission (TEC) to track learners' literacy and numeracy (LN) skills in tertiary vocational education programmes in Aotearoa New Zealand. The main aim of this article is to show that the current LNAAT algorithm for calculating statistically significant learner gain in reading and numeracy is limited in its capacity to describe learner progress. Algorithm transparency, it is argued, is required to uncover its unintended descriptive effects, and to propose an alternative.

We present a distinction that may be useful in dealing with the limitations of the gain calculation algorithm well-documented as a statistical measure in its initial design (TEC, 2012). Sustained TEC commitment to the LNAAT and LN progress tracking remains clear from recent guidelines (TEC, 2023). These guidelines include sectoral advice that Step 4 scores on the reading progressions and Step 5 scores on the numeracy progressions are educationally significant thresholds (TEC, 2023). However, hidden from view are numerous examples of learners who achieve these educationally significant levels yet are deemed not to have achieved statistically significant gain. This paper is intended to highlight educationally significant gain that has not been captured by the statistical measure in the LNAAT (TEC, 2023).

We argue that a measure combining statistically significant and educationally significant gain would yield a more comprehensive and more informative account of learner and sectoral progress. We present a case for this distinction to raise stakeholder awareness of learner performances above these thresholds where these achievements are not recorded as statistically significant.

We also argue that cross-tabulations of initial and progress steps represent a simple yet useful procedure to track shifts from lower steps to threshold levels, or regress from higher to lower levels (Field, 2014).

A secondary, yet important, aim has been to collaborate with the New Zealand Council for Education Research (NZCER) to gain their perspectives and expertise in exploring the descriptive adequacy of the gain calculation algorithm and the implications of sectoral advice on step-level thresholds for reading and numeracy. This study received ethics approval from the Wintec Human Ethics Research Group on 27 June 2022 (Reference number: WTLR21230622).

BACKGROUND, OVERVIEW AND EXAMPLES

The Literacy and Numeracy for Adults Assessment Tool item calibration

TEC-mandated NZCER performs annual calibration analyses on the LNAAT to validate its psychometric integrity. Item analyses, following a unidimensional Rasch model, are conducted to safeguard the LNAAT's robust complex-adaptive functionality and to ensure the optimal functioning of the questions in the item bank (Veldkamp & Verschoor, 2019; Baker & Kim, 2004). In brief, these item-by-item analyses show whether learners at the same ability level (measured as total score on the LNAAT) have the same probability to select the correct answer from a list of options attached to any given question. The validation process also tracks item and ability parameters, as well as the predictive efficiency of questions in the item bank (E. Lawes, J. Mazengarb, & B. Gardiner, personal communication, May 5, 2022).

A significant advantage of the LNAAT is its complex-adaptive functionality (Veldkamp & Sluijter, 2019; Larson, 1999) which allows users to develop individualised needs analyses and personalised learning plans for learners based on intent statements and step-level data from individual profiles. The step level at which each individual learner's assessment session is terminated indicates the boundary of what Vygotsky referred to as a learner's "zone of proximal development" where mediated intervention is needed further to develop their competence (Van Lier, 1996; Tudge, 1990; Vygotsky, 1978). Collating intent statements from these profiles, it is possible to identify developmental boundaries for groups (Greyling et al., 2020).

NZCER oversight of the LNAAT is an advantage to the sector. NZCER psychometricians and technical experts track not only item performance and item curve characteristics, but also differential item functioning (DIF). An item is categorised as not showing DIF when, irrespective of their group membership, test respondents with the same latent ability have the same probability of selecting the correct response to an item (Breslau et al., 2008; Kamata & Vaughn, 2004). This signals, as pointed out by NZCER analysts in our recent meeting, that when such DIF occurs, this would most likely relate to how the construct validity of items was addressed in the item design process, notably by expert panel reviews (Martinková et al., 2017), the current TEC method of choice in item design.

DIF is a complex issue, best managed by psychometricians who have sector-wide oversight of the item-based performance of the LNAAT as a nationally used assessment tool (Jalali, 2009; Baker & Kim, 2004). As the sector pursues equitable outcomes for priority learners, the NZCER's oversight and calibration of the LNAAT remain an important safeguard against adverse DIF and item bias (Breslau et al., 2008).

The NZCER team noted that TEC specialist panels applied a rigorous analytical process in LNAAT item design to ensure construct validity. However, expert panels have been criticised because the interpretative, meaning-making skills and voices of targeted learners are not accounted for as an explicit source of information on item functioning. Ercikan et al. (2010) recommend that close analyses of targeted learners' think aloud protocols in response to items may shed light on how they selected multiple-choice item responses, not only to ensure construct validity, but also to identify potential causes of DIF. In general, stakeholders (including NZCER and the sector) have to be vigilant in ensuring fairness of assessment items (Jonson et al., 2019) and apply DIF analyses as a business-as-usual routine to safeguard item reliability and validity (Martinková et al., 2017).

Tracking learners' reading and numeracy progress

Tracking learner success is key to decision-making at various levels in tertiary vocational training establishments. If tracking is dependent on an algorithm embedded in an online tool, the LNAAT in this case, practitioners in vocational training need to reflect on its statistical outputs and how statistically significant gain is calculated. Studies aimed at reflecting on the outcomes of such a statistical model should be of interest to all participants

in tertiary vocational education. However, pointing out limitations should also be accompanied by possible solutions and how measures of learner progress may be elaborated, tweaked and extended.

Institutional approach and the Tertiary Education Strategy priorities

The most recent TEC guidelines for LNAAT, released in February 2023, place the tool within a holistic framework of practices and a whole-of-organisation approach (TEC, 2023). In a section on measuring progress, the document states that progress assessments are no longer mandatory, yet the expectation remains that providers will "find a way to measure … learners' increased skills and knowledge, as part of best practice to support learner success … [f]or many learners, completing another LNAAT assessment will be appropriate" (TEC, 2023, p. 7). Although there are no "targets for learner progress as calculated by the Gain report … providers are strongly encouraged to track learner progress throughout their studies" (TEC, 2023, p. 12). This implies that the TEC and the sector have an interest in tracking LN progress. Historically Wintec has remained committed to the LNAAT's diagnostic purpose and its capacity to measure LN progress, reporting annually on reading and numeracy performance (Greyling et al., 2022a, b; Greyling et al., 2023a, b).

Illustrating issues with the gain calculation algorithm

As an aside, it should be noted that the gain calculation algorithm is a statistical measure for calculating statistically significant gain for individual learners and is not related to hypothesis testing one would encounter in, say, paired t-tests and assessing effect sizes for impact.

The LNAAT gain calculation algorithm uses continuous data (scale scores and standard error values for start and progress assessments) in calculating individual learner gain. If either or both values increase in size, this will have a significant impact on the threshold level cut-off score for statistically significant gain. First, we outline the gain calculation algorithm, and then show the impact of the standard error values for initial and progress assessment on the threshold for judging learner performance as statistically significant.

The gain calculation algorithm

The LNAAT progress algorithm was inputted into Excel to calculate statistically significant gain for the learners who had to be re-tested at the institute.

The gain calculation algorithm (TEC, 2012) is the following:

1. **Calculate Gain Score** where **Gain Score** = Progress Scale Score – Initial Scale Score.
2. **Calculate Gain Score Error**
   - i Square the standard error values for initial and progress scores.
   - ii Add the squared values for the two standard error values.
   - iii Calculate the Square Root of the total obtained in the previous step – this value is known as the **Gain Score error**.
3. **Calculate statistically significant gain**
   - i Multiply the Gain Score error calculated in 2. iii by the constant, 1.645 (which is the 95th percentile value on the z-score distribution table).
   - ii Statistically significant gain is defined as follows: Gain Score Error x 1.645 < Gain Score, provided the so-obtained value is positive.

Next, we illustrate how this algorithm yields a threshold for statistically significant gain which is higher than the threshold level steps recommended in TEC sectoral advice (TEC, 2023). The example is from the 2021 numeracy data set for learners at the institute, and was also replicated in multiple examples of individual learner reading and numeracy data for the same year (Greyling et al., 2022a, b).

Example: Numeracy

The learner obtained a scale score of 659 (Step 5) with a standard error of 38 for the progress assessment. The initial scale score was 600 with a standard error of 37 (see Figure 1). We calculated the Gain Score error thus:

$$38^2 + 37^2 = 2813$$

$$\sqrt{2813} = 53.0$$

The value to be used to calculate statistically significant gain for the sample learners is the following:

$$53.03 * 1.645 = 87.25$$

This yields the threshold level for statistically significant gain, in this case 87.25. The implication is that Gain Score (659-600=59) does not exceed 87.25; therefore, the candidate has not achieved statistically significant gain even though the progress score of 659 is well above the cut-off score of 603 for Step 5. Put differently, for the candidate to have achieved statistically significant gain, the progress score would have had to have been 688 which is 0.1% below the cut-off point for Step 6 at 689. In practical terms, the learner could only achieve statistically significant gain if he/she had achieved a Step 6 score.

Initial Score 1	Std Err	Progress Score 2	Std Err	Total squared Std Err 1 & 2	Sq root of Total Sq Std Err 1 & 2	X 1.645	Gain score	Threshold For Step 5	Stat sign gain threshold
600	37	659	38	2813	53.03	87.25	59	603	687.25

Figure 1. Summary of terms for Example:Numeracy.

Although this learner scored at the top end of the exemption level (score = 659, threshold score for Step 5 = 603; and algorithm determined threshold = 687), he/she was deemed not to have achieved statistically significant gain.

As stated earlier, similar results were found when individual learners' reading scores were calculated: threshold levels for statistically significant gain were significantly above the Step 4 cut-off point for reading.

These gain calculations suggest that several terms in the algorithm should be interrogated to yield more reasonable thresholds for identifying statistical gain. Such gain is only one way of tracking learners' reading and numeracy development. An element not covered by the algorithm, yet indirectly accommodated by the sequence concept (TEC, 2012; 2017a, b), is the impact of time. The duration of exposure to embedded literacy and numeracy development strategies could be made explicit, with differential developmental targets identified and pursued for the duration of LN-embedding exposure.

CROSS-VALIDATING PROGRESS FINDINGS FROM THE READING AND NUMERACY GAIN DATA OUTPUT

To cross-validate the worked example, we selected random samples of 10 learners from each of the reading and the numeracy progress data files to compare their results with gain calculations yielded by the LNAAT. The LNAAT gain calculation progress results for the selected samples matched the progress analyses conducted manually in Excel.

Cross-tabulations as a tracking measure

As stated earlier, the use of cross-tabulations as an additional tracking measure may be useful to TEC and the sector. Although the gain calculation algorithm provides a list of learners who showed statistically significant gain, these calculations are based on continuous values (scale scores out of 1000). Cross-tabulations yield information about category shifts (Field, 2014), in this case, step-based changes in performance. An advantage of the LN assessment tool is that it has been designed and calibrated to capture both continuous (scale score) and step-based categorical data.

It is noted that the argument in this article is not intended to introduce a new approach; rather, it is intended to show how current TEC sectoral advice on educationally significant gain and the LNAAT gain calculation algorithm for statistically significant gain can be combined to offer a more comprehensive account of learner progress.

RESEARCH QUESTIONS

The following research questions were noted as framework for exploring the LNAAT gain calculation algorithm and its limitations, as well as possible solutions.

- What are the limitations of the gain calculation in describing learner gain?
- How can cross-tabulations be used to provide a more informative account of learner progress?
- How can LNAAT data be made more accessible and usable to LNAAT users?

RESEARCH METHODS

Step-by-step data management

A challenge for LNAAT users is that Excel file downloads from the website do not follow a multivariate data design (Field, 2014). The following data-management process was adopted to address this limitation. First, a reliable list of learner names, in this case the Single Data Return (SDR) submitted to TEC, was obtained from the Knowledge Management Unit at the institute. This list was used as a master file of relevant names for any given academic year. Second, a download of the last four years' reading and numeracy results (following the sequence concept) was obtained. Third, reading and numeracy data were split into two separate worksheets so that the first score recorded (coded as 1) and the next-best score (coded as 2) (TEC, 2012; 2017a, b) for each learner could be identified. Redundant rows from the worksheets were deleted. Fourth, code 1 data rows were matched with their equivalent code 2 data, yielding paired samples data for reading and numeracy for learners who had not achieved the threshold levels of Step 4 for reading and Step 5 for numeracy at the start. Next, a data join, selecting relevant learners from the SDR data, was performed in Tableau Software (2019.4). The resultant worksheets were then ready for statistical analysis. This procedure highlighted one of the challenges to end users: a paired samples download function is not available in the LNAAT.

Statistical analysis

This phase involved two steps. The first was to replicate the Gain Calculation algorithm in the two worksheets, identifying learners who in progress assessments obtained statistically significant gain. These results were then coded with statistically significant gain labelled as '1' and no gain as '0'. Thus, the output of the gain calculation algorithm was converted into categorical data. This created the option of cross-tabulating gain/no gain and step scores at progress. The next step was to compute these cross-tabulations, using the Statistical Package for the Social Sciences (SPSS for Windows, version 28.0). These findings are reported in the next section.

FINDINGS AND DISCUSSION

Educationally significant versus statistically significant gain

Sectoral advice, issued by the TEC (2012; 2017a, b; 2023), has consistently stated that learners who achieve Step 4 in reading and Step 5 in numeracy have reached the required threshold where further assessment is no longer needed. This advice may be interpreted as follows: once these threshold levels are achieved, learners have shown measurable educationally significant gain which implies that they have reached a level of LN competence that eliminates foundational skills as a negative factor in their success. The distinction we are proposing is therefore that a significant-gain measure should comprise statistically significant gain, calculated by the LNAAT progress algorithm, and educationally significant gain, related to learner progress to the stated threshold levels where these exemption-level scores were not identified as statistically significant by the algorithm.

An anonymised example

Presented below is a cross-tabulation from the 2022 internal institutional reports to illustrate the argument (Greyling et al., 2022a, b). The cross-tabulation in Figure 2 shows the distribution of initial and progress step scores obtained for the full cohort of the institute's learners who scored at Step 4 or lower on numeracy at the start of their academic programme in 2021. On the vertical axis, the candidates' initial steps appear as Steps 1, 2, 3, and 4 while the horizontal axis displays the progress steps (Steps 1 to 6) for numeracy.

Numeracy steps			Numeracy Progress Steps						Total
			1	2	3	4	5	6	
Initial Numeracy Step	1	Count	0	1	2	5	2	1	11
		% within Initial Step	0.0%	9.1%	18.2%	45.5%	18.2%	9.1%	100%
		% within Progress Step	0.0%	7.7%	4.0%	3.5%	1.2%	2.9%	2.7%
		% of Total	0.0%	0.2%	0.5%	1.2%	0.5%	0.2%	2.7%
	2	Count	1	5	6	10	2	3	27
		% within Initial Step	3.7%	18.5%	22.2%	37.0%	7.4%	11.1%	100%
		% within Progress Step	25.0%	38.5%	12.0%	7.0%	1.2%	8.6%	6.6%
		% of Total	0.2%	1.2%	1.5%	2.4%	0.5%	0.7%	6.6%
	3	Count	2	2	26	47	36	3	116
		% within Initial Step	1.7%	1.7%	22.4%	40.5%	31.0%	2.6%	100%
		% within Progress Step	50.0%	15.4%	52.0%	33.1%	21.4%	8.6%	28.2%
		% of Total	0.5%	0.5%	6.3%	11.4%	8.7%	0.7%	28.2%
	4	Count	1	5	16	80	128	28	258
		% within Initial Step	0.4%	1.9%	6.2%	31.0%	49.6%	10.9%	100%
		% within Progress Step	25.0%	38.5%	32.0%	56.3%	76.2%	80.0%	62.6%
		% of Total	0.2%	1.2%	3.9%	19.4%	31.1%	6.8%	62.6%
Total		Count	4	13	50	142	168	35	412
		% within Initial Step	1.0%	3.2%	12.1%	34.5%	40.8%	8.5%	100%
		% within Progress Step	100%	100%	100%	100%	100%	100%	100%
		% of Total	1.0%	3.2%	12.1%	34.5%	40.8%	8.5%	100%

Figure 2. Distribution of progress steps against initial numeracy steps for the 2021 Wintec cohort (N=412).

The horizontal totals row in Figure 2 shows that 49.3 per cent of learners (168 learners [40.8%] and 35 learners [8.5%] who did not achieve threshold level numeracy scores at the start), achieved progress steps at or above the Step 5 threshold. Similarly, if we look at the vertical totals column (on the right), we see that 9.3 per cent (11+27 learners [2.7% + 6.6%]) obtained scores of Step 1 and Step 2 at the start. If we then look at the horizontal totals in the bottom row, we see that this number declined from 38 to 17 learners (1% and 3.2%, total 4.2%) remaining at these Steps. If we consider learners who obtained Step 1 to Step 3 scores at the start, they totalled 37.5 per cent [154 learners] (in the right-most column: 11 learners [2.7%], 27 learners [6.6%] and 116 learners [28.2%]). Of the 154 learners, 67 learners [on the horizontal totals row: 4 + 13 + 50 learners, 16.3%] remained at these levels. This implies a positive shift of 21.2 per cent of the sample to scores at Step 4 or higher (154-67 = 87 learners, 21.2%).

Put differently, if we compare the numeracy progress steps reported in the horizontal row at the bottom of Figure 2 with the initial numeracy step scores reported in the vertical column, one can see the shifts in performance.

Fewer of the targeted learners remained at Steps 1 to 3 when progress assessments were recorded:

- 11 (Initial) to 4 (Progress) (Step 1)
- 27 (Initial) to 13 (Progress) (Step 2)
- 116 (Initial) to 50 (Progress) (Step 3)

The anticipated upward shifts in the proportion of targeted learners are clear when initial and progress steps are compared:

- 258 (Initial) to 142 (Progress) (Step 4)
- Of the Step 1 to Step 4 learners (N=412)
    - 203 (168 +35 learners, 49.3% of the sample) progressed to Steps 5 and 6.
    - 345 (142 + 168 + 35 learners, 83.8% of the sample) obtained scores of Step 4 or higher.

This explanation shows the advantage of using cross-tabulations: progress and regress can be read off the table for all levels of numeracy performance.

The same calculations were performed on the reading data; for the sake of space, these results are not reported here. It is confirmed, though, that findings showed the same trends (Greyling et al., 2022a, b). There are also several annual institutional reports that have replicated these findings for the past five years, including for 2022 (Greyling et al., 2023a, b).

Figure 3 displays cross-tabulations for numeracy progress steps against the gain/no gain categories, illustrating the main point of this article: a significant proportion of learners who progressed to threshold levels (educationally significant gain) were excluded from the statistically significant gain category. Thus, hidden from view are the proportions of learners who achieved the sector-determined thresholds.

Progress steps X Statistically significant gain			Statistically significant gain		Total
			No gain =0	Sig. gain =1	
Step Progress	1	Count	4	0	4
		% within Progress	100.0%	0.0%	100.0%
		% within statistically significant gain	1.4%	0.0%	1.0%
		% of Total	1.0%	0.0%	1.0%
	2	Count	13	0	13
		% within Progress	100.0%	0.0%	100.0%
		% within statistically significant gain	4.6%	0.0%	3.2%
		% of Total	3.2%	0.0%	3.2%
	3	Count	48	2	50
		% within Progress	96.0%	4.0%	100.0%
		% within statistically significant gain	17.1%	1.5%	12.1%
		% of Total	11.7%	0.5%	12.1%
	4	Count	120	22	142
		% within Progress	84.5%	15.5%	100.0%
		% within statistically significant gain	42.9%	16.7%	34.5%
		% of Total	29.1%	5.3%	34.5%
	5	Count	93	75	168
		% within Progress	55.4%	44.6%	100.0%
		% within statistically significant gain	33.2%	56.8%	40.8%
		% of Total	22.6%	18.2%	40.8%
	6	Count	2	33	35
		% within Progress	5.7%	94.3%	100.0%
		% within statistically significant gain	0.7%	25.0%	8.5%
		% of Total	0.5%	8.0%	8.5%
Total		Count	280	132	412
		% within Progress	68.0%	32.0%	100.0%
		% within statistically significant gain	100.0%	100.0%	100.0%
		% of Total	68.0%	32.0%	100.0%

Figure 3. Distribution of numeracy progress steps by statistically significant gain for Wintec 2021 cohort (N=412).

These results indicate that 32 per cent (132/412 learners) achieved statistically significant gain—this result has been achieved in spite of the limitations of the algorithm. From these findings, it is noted that 23.1 per cent of learners (n=95 [93 + 2 learners]) achieved the minimum threshold level of Step 5 or Step 6 yet were deemed not to have achieved statistically significant gain. It is clear from Figure 3 that the algorithm under-reports educationally significant gain achieved by educators and their learners (by 23.1 per cent).

These results allow us to argue that learners who achieved statistically significant gain (in this case the 32 per cent at all step levels in the gain category) should be added to the number of them who had achieved educationally significant gain (23.1% or 95/412 learners) reported in the no-gain category against Step 5 and Step 6 in the cross-tabulation. These findings show that at least 55.1 per cent of them achieved significant gain.

CONCLUSIONS AND RECOMMENDATIONS

Firstly, cross-tabulations allow for a more comprehensive account of learner progress than the gain calculation algorithm on its own. A significant advantage of cross-tabulations is that a cohort-level perspective on learner progress can be accessed in the form of shifts at all step levels, making both progress and regress visible. Hence a case has been made to distinguish between statistically significant and educationally significant gain, and this composite measure allows us to develop a more comprehensive view of learner progress and regress. It is therefore recommended that TEC align the LNAAT algorithm and cross-tabulations as a composite measure expressed as a significant gain percentage.

Secondly, a composite measure could be used not only to achieve a more comprehensive account of learner progress, but also to set realistic targets for learners in tertiary vocational training. Clearly the LNAAT algorithm offers a limited account of learner progress. It is recommended that TEC use the proposed composite measure in setting and tracking, say, a 40 per cent progress target, or even step-based targets such as not having more than five per cent of Step 1 and Step 2 learners remain at these levels when progress is measured. With easy access to cross-tabulations, TEC and providers alike could set developmental targets across the distribution of learner step scores. It is recommended that cross-tabulations be made available within the functionality of the LNAAT for institutional and programme-level use.

Thirdly, data-management requires tweaking. The following tweaks, recommended to TEC, will promote LNAAT use: (1) an interface between student management systems and the LNAAT website that allows institutes to automate the matching of SDR and LNAAT data; (2) a multivariate data design layout for downloaded csv files to enhance ease of use; and (3) relevant automated pairwise data-matching and downloading.

An interesting functionality already available from NZCER is an LNAAT Application Programming Interface that student management system (SMS) vendors and some Tertiary Education Organisations (with the relevant software) currently apply. Data management across platforms and educational levels, pointed out by the NZCER team, would require in-depth exchanges and systems alignment with the sector and LNAAT users. The recommended tweaks above should be viewed against the challenge of LN assessment data access and management at all levels in the education sector, including how the LNAAT relates to other educational levels and their imperatives.

It was shown in this study that cross-tabulations allow LN practitioners to develop a more comprehensive view of LN progress and regress for cohorts of learners. Improved access would allow LN practitioners, vocational educators and various teaching (ako) domains to track performance and set specific targets for LN growth. With improved access to data, it is also possible to track performance for a range of categorical variables such as ethnicity, funding type, centre of study (say, Trades or Hospitality), or specific programmes to identify achievement gaps and set specific goals in pursuit of improvement, including equity outcomes. Multiple reports are available from the author's institute where such analyses and practical uses are described (Greyling et al., 2023a, b).

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Willfred Greyling has worked as literacy-embedding manager/Kaiwhakahaere Te Pūkenga Reo at Te Pūkenga (historically, Wintec) for approximately 14 years. His interests include LN-embedding practices, LN performance, classroom studies, applied linguistics, repertory grids, mixed methods research and socially responsive practice. He has also worked on projects in Saudi Arabia, Tonga and Fiji.

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VISUAL LITERACY: MORE THAN "A PRETTY PICTURE"

Ana Terry and Lucy Richardson

INTRODUCTION

"Seeing comes before words" (Berger, 1972). Berger, a media theorist, suggests that we look and recognise before we can verbally articulate. This hierarchy in the construction of meaning is widely accepted in early childhood education, yet by the time we reach tertiary education the learning emphasis has shifted from image to text (Kędra, 2018). The relationship between seeing and knowledge is not treated with the same academic rigour as the relationship between the written word and knowledge (Kearney, 2020). This is perhaps due to deeply rooted beliefs that literacy is only about reading and writing. Images are not seen to be as effective in learning as their word-counterparts. Indeed, anecdotally, the authors have observed graphics and pictures referred to as 'pretty pictures' in learning contexts and the creating of visual media to be the domain of artistic people. While this may not be intentional, comments like this imply there is an underlying belief that images are aesthetic "add-ons" to their text counterparts and thereby undervalue their integral part of meaning-making (Ervine, 2016).

We suggest this inferred pedagogical bias is at odds with the potential visual media has to enhance learning. In addition, this predisposition does not support building competencies in the use of the visual communication modalities we use every day. Contemporary technology is overwhelmingly dominated by images online and on social media. These digital platforms have significantly facilitated image use and dissemination. However, despite visual literacy being identified as a key twenty-first century competency (New Media Consortium, 2005), tertiary education is still lagging in terms of integrating visual literacy into academic culture and policy (Fragou & Papadopoulou, 2020). The capacity to create and consume visual content has become an essential skill in life and work, so why is this skill not integrated in education?

Like language acquisition (literacy), visual literacy entails the ability to use, interpret, produce, and evaluate visual content. According to the Association of College and Research Libraries (ACRL) framework (2011), a visually literate citizen is a competent contributor to a body of shared knowledge and visual culture. Visual literacy skills include the ability to:

- Determine the nature and extent of the visual media required.
- Find and access relevant visual media effectively and efficiently.
- Interpret and analyse the meaning of images.
- Evaluate images and their sources.
- Design and create meaningful images and visual media.
- Understand many of the ethical, legal, social, and economic issues surrounding the creation and use of images and visual media, and access and use visual materials ethically.

We argue the dominant focus on writing and reading overlooks these essential capabilities, thereby potentially disadvantaging our learners.

For a pedagogical shift required to integrate visual literacy in the curriculum, we propose the need to:

1. Expand the concept of what it means to be 'literate' in the contemporary milieux.
2. Understand how visual media provides opportunities to develop social and cultural competencies.
3. Understand how visual media supports communication and facilitates human learning processes.

EXPANDING LITERACIES

In a rapidly growing environment of visual content consumption and creation, our definition of literacy (or literacies) needs to evolve responsively so that it "engages with the multiplicity of communication channels and media" we experience (Cope & Kalantzis, 2000) and acknowledges the networked and diverse participatory culture we live in. Media and digital literacy are now fundamentally implicated in the practice of everyday work and life, such as applying for jobs, finding research-based information, locating and engaging in educational opportunities.

According to Hobbs (2010), a new concept of literacy is emerging, defined as "the ability to share meaning through symbol systems in order to fully participate in society"; these symbol systems include language, still and moving image, graphic design, sound, music and interactivity. Hobbs proposes that these evolving literacies should be considered an inclusive collection of literacies that support each other rather than compete. Each literacy type reflects distinctly different theoretical ideas or contexts, social and cultural competencies. Collectively they include the use of text, tools and technologies; engage critical thinking skills and analysis; encompass both message composition and creation; and promote social, cultural and ethical reflection. Cheryl Stephens, Director National Institute of Māori Education Te Whare Wānanga I Awanuiārangi (Ako Aotearoa, 2012) also advocates "multiple literacies" with visual literacy as a key skill for a strengths-based pedagogical approach to support and engage our Māori and Pasifika learners. This framework would similarly support neuro-diverse learners, many of whom have advanced visio-spatial skills (Ako Aotearoa, 2012).

VISUAL LITERACY AND CULTURAL COMPETENCY

According to photographer Susan Sontag (1977), ways of thinking and representing the world are inscribed within images. The same concept presents itself in a digitally mediated and manipulated environment where images have the same power to define our reality, furnish a dominant ideology and reinforce stereotypes. This has implications for both ākonga (learners) and kaiako (teachers) when selecting, creating and analysing images. Just as it is important for learners to question the credibility of textual information: where it appears, who authored it, to whom it is being addressed, and what has been included or omitted, the same criticality needs to be applied to visual media. Media and art history studies have been analysing the impact images have on influencing socio-political reality for decades. These disciplines understand that any pictorial representation has the power to "injure" (Lester & Ross, 2003), even unintentionally. As contributors to our global visual culture, kaiako have the responsibility to play a leading role in challenging stereotypical and reductive portrayals, with an opportunity to shift attitudes towards marginalised communities. We can contribute to this through the critical and informed choices we make regards the visual media we use in learning and teaching. Part of this visual literacy aspect also includes ensuring images are used appropriately, including ethical use, and copyright considerations.

It is reasonable to presume that our learners, often considered 'digital natives', have an innate capability to think or learn in a visual way due to their deep engagement with technology. However, an empirical study by Brumberger (2011) found that there were relatively low levels of critical engagement amongst post-secondary students with what they visually consume. While they can use and communicate with images, they do not necessarily know how to interpret, evaluate or use images effectively. This suggests that mere exposure to imagery is not enough and that critical visual literacy skills need to be explicitly taught. This may pose a challenge for educators who lack the knowledge and visual analytical skills themselves.

According to Loerts and Belcher (2019) visual literacy skills can help cultivate identity and emphasise an "active construction of knowledge" where learners become active practitioners, producing new knowledge, while drawing on their own references of meaning. In an ako-based classroom, both learner and educator bring their own interpretation of meaning to the discussion and both will inform the other (Kearney, 2020). Kaiako can facilitate these discussions and learners can use those responses for further image analysis. Opportunities to engage with images from different cultures, contexts and perspectives can promote a greater appreciation of diversity. When learners draw on and make connections between these extended literacy competencies, their awareness of bias, culture and ethics expands; critical thinking and problem-solving skills are engaged and they become active participants in their own learning journey. These make up the "'constellation of life skills" Hobbs (2010) refers to, that are necessary for full participation in our media-saturated, information-rich society.

VISUAL LITERACY AND LEARNING PROCESSES

In teaching, words and images are the two tools we have at our disposal; however, kaiako generally have greater skills and confidence in using words, as mastering reading and writing are predominantly the skills fostered from an early age. The ability to analyse, use and create images effectively is a more neglected skill. As Clark and Lyons (2010) propose, often images are deployed in instructional contexts without a clear learning objective or with the intention to entertain or create visual interest. They warn that while images may initially engage the learner, pictures used to decorate or for humorous effect will likely detract and depress the actual learning at hand. They are what Garner et al. (1989) refer to as "seductive details." Harp and Mayer (1998) documented the negative effects of irrelevant video content and text in a science lesson. While readers rated them as entertaining, learning was significantly better when the 'seductive' content was omitted. Mayer (2009, as cited in Clark & Lyons, 2010, p. 93) concludes that "adding interesting but irrelevant pictures and words had a strong negative effect on people's understanding of the explanation presented in the lesson."

However, the benefits of using effective visuals in learning and teaching have been widely accepted by cognitive research through understanding how our brains process and retain information (Carney & Levin, 2002). There are two parts to this cognitive process: working memory and long-term memory. Working memory is our mental 'workspace' where complex reasoning, learning tasks and manipulating information occurs. Long-term memory refers to the mental storage space where information from short-term memory is stored and can be recalled over a long period of time.

Baddeley and Hitch (1974) propose working memory is divided into subsystems; one which focuses on verbal and acoustic information, called the "phonetic loop", and another, a "visio-spatial sketchpad" its visual equivalent. Both systems are dependent on the "central executive" which is responsible for allocating attention.

Leveraging off the visual and audio subsystems, Paivio (1990) proposed the two interrelated processes as a form of "dual coding." According to dual coding theory: "There are two distinct and independent but interconnected cognitive systems for processing and storing information: an imagery or nonverbal system for nonverbal information and a verbal system for linguistic information" (Vekiri, 2002, p. 266). By using both senses simultaneously we spread the processing of information between the visual and auditory subsystems. Dual coding is sometimes mistakenly conceived as using text and pictures (for example, a PowerPoint slide with words and an image). However, we only use our visual processing subsystem when reading a text and looking at pictures. To distribute cognitive load, use audio (for example, spoken words) and visual media.

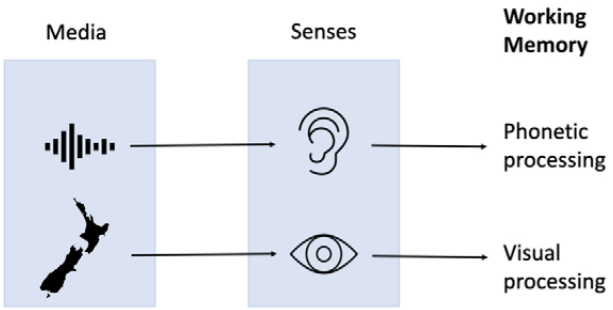

Figure 1. Dual coding occurs when we listen to audio and look at visual media (Adapted from Clark & Lyons, 2010, p. 55).

Sweller et al. (1988) propose that as we have limited capacity in working memory, instructional material should use techniques to reduce extraneous cognitive load. One way to do this is by varying the modality of information—in other words using multimedia in our teaching (Mayer & Moreno, 2010). Multimedia learning occurs when ākonga build a mental representation from words and images that have been presented.

Encoding information in our long-term memory is paramount to a successful learning experience. Referring to Levie and Levie's (1975) research on pictorial memory processes, Malamed (2015) suggests using images provides a "concreteness" for long-term memory as visuals activate associations and prior experience to sensory and spatial experience. This ability to recall images is also referred to as the 'picture superiority effect' (PSE). This theory proposes that we remember pictures better than corresponding words (Hockley & Bancroft, 2011). In a recent study, researchers tested whether semantic relatedness between to-be-remembered items and item presentation format (pictorial versus verbal) affects associative recall. Their findings confirmed memory advantages for using pictures compared with words (Baadte & Meinhardt-Injac, 2019). Including images with words or instead of words will help ākonga create a mental picture of the information which can enhance long-term memory.

While PSE contributes to memory, images are processed more quickly than their word counterparts. Look at the content below. Which did you recognize first – the text or the shape?

Graphic description:

Textual description:
A blue plane figure with four
equal straight sides and four right angles.

It is likely the time taken for you to see (comprehend) the shape versus read (comprehend) the text is quicker. This is because we process pictures more efficiently than words. We can take in and process the data from an image simultaneously, whereas reading text is linear and sequential – it literally takes more time to read the letter shapes and decode the words. This premise is supported by the concept of pre-attentive processing whereby we subconsciously accumulate simple spatial forms at speed (Treisman, 1985).

Our visio-spatial capacity can have a profound impact on learning, for example, if we consider learning procedures or processes. A study by Marcus et al. (1996) compared the time taken to connect several resistors using written instructions to the time it took using a graphic representation. The diagram resulted in a faster performance (Clark & Lyons, 2010).

Text Format:

Using the resistors supplied, make the following connections:

- Connect one end of an 8 ohm resistor to one end of a 3 ohm resistor, and connect the other end of the 8 ohm resistor to the other end of the 3 ohm resistor
- Connect one end of the 3 ohm resistor to one end of a 5 ohm resistor, and connect the other end of the 3 ohm resistor to the other end of the 5 ohm resistor.

Diagrammatic Format:

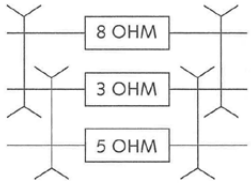

Figure 2. Task directions presented by text and by a graphic (Clark & Lyons, 2010, p. 60).

The adages 'show, don't tell' and 'a picture paints a thousand words' both provide useful cues for kaiako to consider when selecting content and media for lessons. When you looked at Figure 2 what was your eye drawn to first? It is likely to have been the diagram. This is because we tend to be attracted to a picture before we read the text. Our propensity to be interested in images over words is supported by consumer research; pictorial advertisements are more effective at capturing attention than text advertisements (Goodrich, 2010). This suggests we are very efficient at 'reading' images and the process requires less cognitive effort. An eye tracking study by Smerecnik et al., on the effects of images used in health education and promotional material, indicates that graphical information enabled greater comprehension because it attracts the eye and holds the viewers' attention for a longer period than words. The results suggest graphics are highly beneficial in communication for two primary reasons. Firstly, they have a natural ability to capture attention. Secondly, when people focus on them, they facilitate extracting information with minimal cognitive effort, ultimately leading to improved comprehension (Smerecnik et al., 2010).

While providing effective visuals can reduce cognitive load, enhance comprehension, and increase long-term memory, it is no surprise that creating images has also been proven to be an effective way to support information processing and memory recall.

Drawing, such as sketching out a process, enhances problem solving, and supports processing information and recall. Fernandes et al. (2018) conducted several cognitive studies, which systematically examined whether drawing pictures depicting information to-be-remembered increased memory recall more than other strategies such as writing did. Their research concluded that drawing improves memory because of how information is encoded. When we draw, we process information in multiple ways; visually, kinesthetically and semantically. They argue that the act of drawing "requires an elaboration on the meaning" and "translating the definition to a new form (a picture)," the learner must reconstruct their understanding in a way that makes sense to them. When a learner draws out an idea, they "must elaborate on its meaning and semantic features, engage in the actual hand movements needed for drawing (motor action), and visually inspect [the] created picture (pictorial processing)"

(Fernandes et al., 2018). When we draw we create synaptic connections, providing robust memory structures or schemas in our long-term memory. Importantly, in the study, memory performance was comparable across different skills and artistic tendencies. In other words, you do not need to have artistic talents to gain the cognitive benefits of drawing.

Learning through 'translating' and 'elaboration' of meaning through visualising is also supported by Tong and Baken (2016). In their research, they found the process of learners visualising abstract data into infographic forms to be an effective method for learning. This is relevant for ākonga grappling with abstract subjects such as mathematics. When we make abstract data visible it becomes more accessible "understandable, improvable and manageable" (Tong & Baken, 2016). Creating graphics of abstract concepts help us understand complex information and assists us in building mental models.

While using visual media and designing visually-led activities appropriate to the learning needs will support learning and engagement, research also shows that the way we present information (images and text) will also affect cognitive load. A well-designed course can easily be undermined by content not being well laid out or organised, and the misuse of colour and fonts.

Graphic design principles effectively applied will enhance communication and engagement of the learning content. While there are variety of definitions of the graphic design principles, the fundamentals include the use of contrast, repetition, alignment, and proximity. These principles are not just a set of arbitrary stylistic rules or aesthetic preferences but firmly grounded in the way we process information visually. Look at the following page layouts. Which layout would you be compelled to read first? What is the difference?

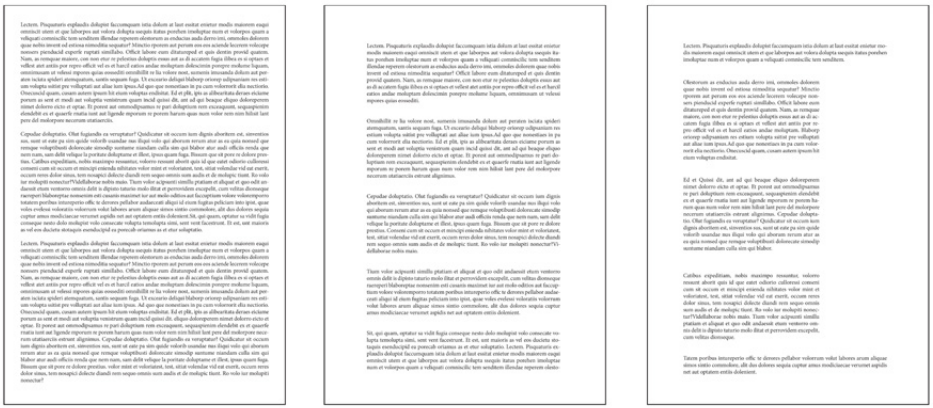

Figure 3. Application of the design principles including proximity, alignment, and contrast (Romney, 2013, p. 6).

The page on the far right appears more readable. This is achieved by the applying the design principles of contrast, alignment and proximity to break down chunks of information and the use of white space to give the text 'room to breathe.' These design strategies enhance accessibility to the information (Lohr, 2008). The navigation and readability of information on a page or screen will also be influenced by other design elements such as a grid structure, visual hierarchy, font choice, and colour.

An eye tracking study by Holsanova et al. (2008) revealed how the layout of image and text affects the reader's eye movements. Their research showed how readers choose entry points and reading paths, and how they integrate text and pictures. The way print and screen-based learning materials are visually arranged and designed impacts not only the reader's initial attention but the reader's sustained interest (Holsanova et al., 2008). Their study focussed on the "spatial contiguity principle" and the "signalling principle" (Mayer, 2005). The spatial

contiguity principle states that readers learn more deeply when pictures and words are presented near rather than apart on the page or screen (for example, applying the proximity design principle). When readers engage with complex information they have to read the text and scan the illustration to derive meaning and mentally integrate the content—if the text and corresponding image are too far apart this can be cognitively demanding process creating "split attention" (Sweller et al., 1998). The signalling principle states that learning occurs more deeply "…when cues are added that highlight the organisation of the essential material" (Mayer, 2005). For example, a visual cue could include a bold headline or a bullet pointed list (for example, applying the contrast and repetition principles). These empirical studies contribute to cognitive research on how we process information and support how the effective application of the design principles in learning materials will significantly impact readers' engagement and sustained interest, ultimately contributing to the learning process.

While the acquisition and effective application of the visual design principles may appear daunting for the novice, like learning to structure a written sentence, the principles form the fundamental 'grammar' which can, with practice and support, be learned by non-designers. A recent study which examined the visual design processes of composing infographics investigated the various strategies used to generate high-, average- and low-quality infographics with an emphasis on formulating visual communication guidelines for a wide range of learners (Kuba & Jeong, 2022). They concluded that providing specific strategies and tools along with learning opportunities has the potential to enhance non-designers' visual communication and visual literacy. As Avgerinou and Pettersson (2011, p. 4) state, "visual literacy skills are (a) learnable, (b) teachable, (c) capable of development and improvement."

CONCLUSION

Visual literacy is much more than just a 'pretty picture' or capability limited to an artistic talented few. It is a learnable set of skills which impact and can enhance learning processes, communication, and cultural competency. It includes the ability not only to select or create effective visual content and present information clearly, but also to analyse images critically to ensure they are the 'best fit' for the learning purpose at hand. In addition, creating effective visually-led learning activities and assessments will contribute to ensuring an inclusive learning environment for all ākonga. These skills need to be actively taught, supported, and integrated into professional development for our educators and the curriculum. Through this proactive approach, we believe that kaiako will be able to embrace the full potential of visual literacy and recognise the integral role it can play in our learners' success and in enabling a diversely literate Aotearoa.

Ana Terry is a learning and teaching specialist with Te Pūkenga | Otago Polytechnic and is currently teaching on the Graduate Diploma in Tertiary Education and Visual Communication in the Postgraduate Certificate in Learning Design. She holds a Master of Fine Arts by research and a Postgraduate Diploma in Science Communication. Ana has been teaching communication design and fine art in New Zealand, USA, Malaysia, Melanesia, Colombia, and China for over 25 years. She advocates visual literacy as an integral skill in developing and supporting inclusive modalities in teaching and learning.

https://orcid.org/0000-0001-9437-9522

Lucy Richardson is a lecturer in Communication Design at Te Maru Pūmanawa, College of Creative Practice and Enterprise, Te Pūkenga | Otago Polytechnic. She holds a Bachelor of Arts in Comparative World Religion and a Postgraduate Diploma in Design at AUT. She has over 25 years' design industry experience in publishing, museums, exhibitions and education. Lucy has a passion for books and typography and is committed to expanding the definition of 'literacy' within learning and teaching to include visual media, to enable a more diversely literate Aotearoa.

https://orcid.org/0009-0006-4847-0126

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INTERACTION DURING TRANSNATIONAL ONLINE LEARNING: TERTIARY STUDENT AND LECTURER PERSPECTIVES

Elizabeth Youard

INTRODUCTION

Transnational education involves students studying a programme in a different country to that of the provider (Gemmell & Harrison, 2017). There is a growing transnational educational market in response to global demand for internationalised tertiary education (Youssef, 2014). Transnational education can be delivered in several ways, one of which is via online learning (Bruhn, 2017; Ziguras, 2008).

Online learning is broadly defined as education provided through the medium of internet technology (Zulfikar et al., 2019). Online learning may be used in combination with face-to-face teaching in blended approaches or be fully online, providing access to education for students unable to attend campus-based learning due to barriers such as geographical distance (Fraser et al., 2017). Recently, the COVID-19 pandemic caused an uptake in online learning in Aotearoa New Zealand (Cameron et al., 2022). Post-pandemic, transnational online learning is likely to continue to thrive worldwide due to increased resourcing and recognition (Tsiligkiris & Ilieva, 2022).

A foundational theoretical concept in distance education that has evolved to apply to online learning is the categorisation of interaction proposed by Moore (Moore et al., 2005; Vlachopoulos & Makri, 2019). According to Moore (1989), there are three types of interaction in distance learning: learner with content, learner with instructor, and learner with other learners. Learner interaction with content involves any interaction a learner has with course materials, and was considered by Moore to be essential for building knowledge and understanding of concepts. Learner interaction with instructors involves interactions between learners and a person who is facilitating use of the course materials. Learner interaction with other learners is any interaction between learners in a course, and may or may not include the presence of the instructor (Moore, 1989). As all three types of interaction help students learn, it has been recommended that instructors design opportunities for all types to occur in courses, rather than one or two types of interaction only (Martin et al., 2020; Moore, 1989).

Research on interaction in the transnational tertiary education context is emerging. Several studies have considered the perspectives and experiences of students studying programmes delivered online from another country (Dzubinski, 2014; Harrison et al., 2018; Stapleford & Lee, 2020). The cultural context of such research is a limiting factor to generalising results to other countries (Barbera et al., 2016). More New Zealand research is needed for this reason and to address the increasing uptake of transnational education.

RESEARCH FOCUS

This small-scale research study sought to answer the question: How do tertiary students and lecturers perceive interaction during transnational online learning? In doing so, the research aimed to identify ways to promote interaction in transnational online learning.

METHODS

This qualitative research study was conducted in 2021 at an institute of technology in New Zealand. Ethical approval was granted by the institute of technology research ethics committee prior to beginning the research.

Participants in the study were recruited using purposeful sampling from lecturers and students involved in transnational online programmes delivered by the institute of technology. Lecturers resided in New Zealand and taught online to students in other countries. Student participants resided overseas and studied programmes offered by the institute of technology online. Participants differed individually in terms of the duration of their experience in the online learning space. A limited number of participants was recruited due to researcher workload constraints. Figure 1 shows the basic demographic information of the six male participants included in the study.

Participant number	Role	Country of residence	Subject area	Experience
1	Lecturer	New Zealand	Graduate legal studies	5+ years teaching online
2	Lecturer	New Zealand	Graduate education studies	1 year teaching online
3	Lecturer	New Zealand	Graduate business and legal studies	2 years teaching online
4	Student	India	Graduate legal studies	3 years learning online
5	Student	Australia	Graduate legal studies	3 years learning online
6	Student	Philippines	Graduate health studies	1 year learning online

Figure 1. Participants in the research study.

Semi-structured interviews were used to generate data in this study. Interviews took place virtually using Zoom or in-person on campus, and followed a three-part approach, as recommended by Tolich and Davidson (2018a). Firstly, an introductory question encouraged the participants to talk about their transnational online educational experience; for example, describing what subject area they had been involved in and for how many years. Secondly, there were three questions about interaction in transnational online learning based on the three types of interaction in distance education proposed by Moore (1989). These three questions provided a theoretical basis to data generation and were specific enough to meet the research aim. Finally, a concluding question allowed the participants an extra opportunity to share anything else they wanted to say.

The validity of data generated was based on the participants having authority on the topic of interaction during transnational online learning through their experiences as lecturers and students. Participants were 'experts' on their own perceptions—lecturers of teaching online and students of learning online (Tolich & Davidson, 2018b).

Interviews were recorded and transcribed. Thematic analysis was used to identify themes in the interview transcript data (Braun & Clarke, 2006). Initially, the transcripts were read to build familiarity with the data, which allowed the formation of initial ideas. Then, data reduction occurred by manually coding and re-coding the transcripts into themes, as suggested by Kellam and Cirell (2018). An inductive approach was used in the coding process, where the themes identified were defined by the content of the transcripts (Thomas, 2006). This resulted in a range of themes that were described using the participants' own wording.

DISCUSSION OF THEMES

The following themes about how students and lecturers perceive interaction in transnational online learning were generated in the research. Themes have been grouped according to Moore's (1989) three types of interaction and discussed with links to relevant literature.

Student-lecturer interaction

Synchronous and asynchronous

Both synchronous and asynchronous approaches were applied by lecturer participants to communicate with their students. Likewise, student participants reported experiencing both approaches in their studies. This finding aligns with recommendations from other research that both approaches should be used in online learning (Serdyukov & Sistek-Chandler, 2015). Methods used for synchronous and asynchronous communication included video-conferenced classes, emails, shared documents, feedback and forum posts. The variety of methods reported by participants reflects the different modes through which student-lecturer interaction takes place in online learning, as noted by Fraser et al. (2017) in their online learning guidelines.

Applications and technical barriers

Various applications, including Moodle, Google Docs, Google Meet, Zoom and Adobe Connect, were used by participants during online learning. The advantages of applications were apparent in relation to interaction. For example, Google Docs allowed a lecturer to provide copies of assessment templates to his students and give feedback on their work, as well as facilitate class interaction around shared documents. However, technical issues with applications can act as barriers to lecturer-student interaction (Ahiafor et al., 2023; Gavan, 2015). Some student and lecturer participants reported experiencing technical issues using Adobe Connect and suggested the problems were caused by large student numbers. Problems using Adobe Connect along with other videoconferencing applications were found in Tuapawa's (2017) research about online students' experiences, suggesting that technical issues are likely to occur while using various applications, not only Adobe Connect. However, the issue of Adobe Connect raised in the current research would indicate educational providers should choose applications for online learning carefully to ensure they meet requirements.

Lecture recordings

A student in this research was disappointed not to be provided recordings of lectures after he experienced ongoing technical issues with audio quality during online classes. This suggests the student saw value in what the lecturer was saying during the classes and did not want to miss out on hearing those messages. The student believed that lecturers chose not to provide recordings in case it reduced student attendance in online classes by providing an alternative way of receiving content. However, Nkomo and Daniel (2021) found that providing recordings of lectures was perceived by students as an additional learning resource instead of a replacement for attending class, with the benefit of its being useful to revise content before assessments. It has been recommended that lecturers record classes so that students can access content at all times (Tuapawa, 2017). This may be particularly useful for online classes with transnational students as they have been found to encounter more technical issues, such as poor internet connectivity, than domestic students (Ahiafor et al., 2023; Gemmell & Harrison, 2017).

Technical support

Another recommendation to help students overcome technical barriers is to provide self-help resources that problem solve common issues (Gavan, 2015). While providing self-help resources is a reasonable strategy to mitigate technical issues, a student in this research who experienced technical issues suggested his own solution to the problem. Tertiary institutes could provide live technical support during synchronous classes, especially in the first few weeks of the course, to directly help students resolve technical problems. This solution would place responsibility for student access to interaction on the provider and recognise that because transnational students have been found to experience more technical issues than domestic students, they require more support services (Gemmell & Harrison, 2017).

Large student numbers

Large student numbers impeded interaction during video-conferenced classes. A student participant perceived that staff did not interact well with individual students due to the high number of students in his course. He acknowledged it would be not be easy for a lecturer to connect with every individual in a large course. Lecturer participants used strategies to manage large class sizes and capitalise on smaller student numbers. A lecturer divided his class into smaller groups for tutorials and made use of the break out rooms feature in his videoconferencing application to facilitate group activities. He found that smaller groups increased his interaction with students. For another lecturer who taught a small class, discussions and shared activities were possible during video-conferenced meetings. It is clear from this research that smaller groups are perceived to facilitate more individualised student-lecturer interaction. This deduction is supported by the recommendation of Serdykov and Sistek-Chandler (2015) that small groups are used in discussion activities to make interaction more personal.

Nonverbal communication

Nonverbal communication was not easy to read during video-conferenced classes. A lecturer participant expressed his frustration with only seeing the facial expression of students when they talked due to how his videoconferencing software worked. He could not see students when they were listening, therefore missing cues on levels of understanding and engagement that would easily be visible in face-to-face teaching. Another lecturer in this research actively encouraged his students to turn on their webcams so nonverbal cues could be seen. He thought students were hesitant to use webcams due being uncomfortable or lacking a good quality webcam. Although lecturers were aware of nonverbal communication as part of their interaction with students, this topic was not mentioned by the student participants. Nonverbal communication may not have been perceived as an issue by the students as they could see their lecturer's facial expression in video-conferenced classes. This inference is supported by research into nonverbal communication during video lectures that found positive connections between lecturer use of facial expression and student satisfaction with learning (Wang et al., 2019).

Time demands

Online learning is known to attract a different student demographic than face-to-face learning. For instance, students studying online are more likely to be older and have family or work responsibilities (Moore & Greenland, 2017). The students in this research all studied part-time while working full-time, which caused scheduling obstacles to interaction with lecturers and content. A student excused himself at work to attend classes during his lunchbreak. Another worked long hours and found it difficult to complete assigned readings during the day prior to attending synchronous classes in the evening after work. These student perceptions correspond to other research that found instructors consider synchronous interaction less effective due to the busy work schedules of students (Bolliger & Martin, 2018).

Time zones

Time zones as a barrier to interaction is a theme that has been identified in other research on transnational online education (Ahiafor et al., 2023; Gemmell & Harrison, 2017). In this study, time zones were perceived differently by lecturers and students. Lecturers indicated time zones were a potential barrier to interaction. A lecturer noted some of his students were less engaged during synchronous classes because it was night time in their locality. Another lecturer scheduled classes on weekends to suit the time zones of his students in Asia and avoid conflict with his other teaching commitments on weekdays, even though this interrupted his leisure time with family. In comparison, student participants appeared unconcerned about time zone differences, although this may be due to their lecturers having considered the issue in advance. For example, a student was satisfied that lecturers had factored in time zones when scheduling classes. He also appreciated that lecturers were quick to respond to emails so that students could get answers without delay, implying that lecturers replied to emails out of standard New Zealand office hours. This response time would appear to go above and beyond

recommendations from other studies that lecturers reply within 24 hours (Tuapawa, 2017). Harrison et al. (2018) similarly found that transnational students studying online had more favourable perceptions of staff who responded quickly to emails.

Lecturer presence

Lecturer presence in courses can be demonstrated through regular use of asynchronous communication tools such as emails and forums (Fraser et al., 2017). A student in this research reported minimal asynchronous interaction with lecturers and, along with another student, recommended that lecturers initiate increased contact with students. In contrast, a lecturer participant observed that some students email lecturers more regularly than others, suggesting they took a student-led approach to this form of interaction. Regardless of who initiates contact, other research has found that both lecturers and students consider regular asynchronous communication as the most valuable strategy to improve interaction and connectedness between the two parties (Hartline et al., 2022; Bolliger & Martin, 2018).

English language proficiency

English language proficiency was identified as a barrier to interaction by participants. A lecturer recognised that transnational students, while meeting English language proficiency entry criteria for programmes, may be living and working in other language environments and thus have limited daily practice of English. Learning in English can be a disadvantage for students who speak English as an additional language, especially if they encounter English in the learning environment only and not in daily life (Gunawardena & LaPointe, 2008). Where synchronous communication is used, a strategy identified by participants in this research to help transnational students understand lecturers was lecturers speaking slowly and clearly. A student in this research spoke about their reluctance to ask questions in classes because they preferred to have time to formulate ideas into English. The student instead chose to email questions after class to their lecturer. This student's perception aligns with other research, which noted that some speakers of English as an additional language may be afraid of making mistakes when interacting with native speakers (Gunawardena & LaPointe, 2008). For transnational online students, like those in the current research, asynchronous communication may have benefits for students in terms of allowing time to think about responses and consider wording of ideas (Arasaratnam-Smith & Northcote, 2017; Dzubinski, 2014).

Student-student interaction

More student-student interaction wanted

Lecturers encouraged student-student interaction in their courses through various methods. However, the student participants perceived that there could be more opportunities for interaction between students. This viewpoint suggests that lecturers may need to take further action to promote student-student interaction. A student observed that transnational students from around the world could exchange country-specific knowledge and experiences related to course concepts. This perception aligns with the findings of Harrison et al. (2018) that one motivation to study for transnational students was the potential to learn from other students in the programme. One strategy touched on by student participants in this research that lecturers could use to encourage student-student interaction is group discussions and activities. Group work has been rated by both lecturers and students in online learning research to be one of the most important strategies that promotes student-student interaction (Bolliger & Martin, 2018).

Forum use

Several factors were perceived to influence student-student interaction and these were mentioned especially in relation to forums. Lecturers observed that peer interaction increased over time as students became more

comfortable communicating in the online learning environment. A lecturer in this research commented that only half of students participated in forum activities and this was perceived as being caused by students' individual level of engagement as the forum activities were not compulsory. This viewpoint is supported by the research of Harrison et al. (2018), who found that some transnational students were comfortable using forums while others did not like them. Forums may be an unfamiliar context that students need time to overcome apprehensions about (Arasaratnam-Smith & Northcote, 2017). The lecturer has an important role to play in promoting student-student interaction in forums. In this research, a lecturer participant explained how he worked to make discussion forums welcoming and inclusive to encourage student interaction. Forums with a positive atmosphere are more likely to encourage voluntary engagement and lecturers can facilitate this through moderating discussions and providing guidelines (Vlachopoulos & Makri, 2019; Serdyukov & Sistek-Chandler, 2015).

Contact outside course learning environment

All the students in this research initiated contact with other students outside of the course learning environment in order to provide or receive support with learning. Some described successful contact while others had attempted contact but found classmates were not receptive. Lecturer participants also reported hearing about student-student interaction outside of the course format. Students in online learning can choose whether to communicate with other students outside of course structures and this can be positive for students who may not socialise as well in face-to-face settings (Arasaratnam-Smith & Northcote, 2017).

Student-content interaction

Institute resources and relevance to assessment

Student participants spoke broadly about interaction with general institute resources as well as course specific content. Students in this research used Studiosity (an online learning advice service) and library databases to help with creating assessments. This use of resources for assessment preparation agrees with a lecturer participant's view that content was accessed by students as long as they could see how it was relevant to assessment. Further supporting this view is a student's praise of course resources that helped him format assessments and reference literature. These findings endorse the recommendation of Vlachopoulos and Makri (2019) that course content should be related to assessment and easy to access to encourage student interaction.

Content suggestions

Student participants made recommendations about how lecturers could improve student interaction with learning resources. Students suggested lecturers could provide more information about what was available as both had had experiences with resources that were unclear or hard to locate. This perception is comparable to other research that found students believe lecturers could provide more information and orientation around how to use learning management systems (Tuapawa, 2017). A student in this research wanted to see more variation in learning resources provided by lecturers to keep the course interesting, suggesting gamification to engage students. Gamification strategies such as point systems and leader boards were also recommended by Fraser et al. (2017) to motivate students to engage with content. Another student in this research thought quick revision tasks like quizzes would help students find time to interact with content. As discussed earlier, transnational online learners may be time poor due to work and other commitments, and therefore quick tasks could increase student-content interaction.

Lecturer awareness

Lecturer participants spoke less about student-content interaction than the other two types of interaction. Furthermore, lecturers had less to say about student-content interaction than the student participants, who, as discussed above, spoke about the institute's resources and provided suggestions to improve content interaction.

This is concerning as student-content interaction can be considered essential to building understanding of ideas (Moore, 1989). This theme from the findings suggests that lecturers could increase their awareness of how transnational online students interact with content.

RECOMMENDATIONS

The themes of this research provide the basis for recommendations to improve interaction in online learning for transnational students, as per the research aim.

To promote student-lecturer interaction:

- Provide live technical support during the first synchronous classes in courses to help students and lecturers fix any technical issues encountered.
- Provide recordings of synchronous classes for students to access in case of technical issues and as a revision learning resource when preparing for assessments.
- Speak slowly and clearly during synchronous classes to help speakers of English as an additional language understand what is being said.
- Divide students into smaller groups to facilitate more personal lecturer-student interaction during synchronous classes.
- Encourage students to turn on webcams so their facial expressions and body language are visible.
- Initiate increased asynchronous communication with students to demonstrate instructor presence.

To promote student-student interaction:

- Plan group work activities in courses.
- In forums, take an active role in encouraging student-student interaction.
- Encourage student-student contact outside of the course learning environment. For example, organise an optional study buddy system.

To promote student-content interaction:

- Ensure content is relevant to assessment.
- Provide orientation to resources and services available to transnational students.
- Keep course content interesting for students by varying types of activities.
- Provide quick revision and learning activities to suit time poor students.

LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

A limitation of this study was the small participant sample size. This restricted the potential representation of different populations amongst participants and is unlikely to have achieved thematic data saturation (Guest et al., 2020). For example, all participants were male and associated with the same institute of technology in New Zealand. Therefore, the results of this research have limited generalisation to wider lecturer and student populations in transnational online education.

Future research could investigate the perspectives of larger participant populations in transnational online learning to increase diversity and applicability of findings. The impact of implementing the recommendations of this study could also be researched. To further investigate Aotearoa New Zealand contexts, te ao Māori concepts relevant to interaction such as whanaungatanga, as discussed by Douglas (2022), could be considered in the transnational online learning space.

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Elizabeth Youard is a Senior Academic Staff Member in Health at Toi Ohomai – Te Pūkenga with a background in Speech Language Therapy. She completed this research in partial fulfilment of the Master of Applied Professional Studies (Adult Teaching) studied through Toi Ohomai – Te Pūkenga.

https://orcid.org/0000-0001-8784-0579

Correspondence to: Elizabeth Youard, Private Bag 3028, Rotorua 3036.

Email: elizabeth.youard@toiohomai.ac.nz

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RESEARCH SUPERVISION AT DISTANCE IN HIGHER EDUCATION: A REVIEW

Suzanne Miller, Finn Miller, Katie Baddock and Sally Baddock

INTRODUCTION

Research supervision in higher education has traditionally been conducted via face-to-face meetings between research supervisors and their learners. More recently, and especially since the onset of the global COVID-19 pandemic, research supervision has pivoted to include fully online distance modes, typically including videoconferencing tools, email and online document sharing. We reviewed twenty articles that specifically focussed on online research supervision practice for masters and higher-level research students. This article does not purport to be a full systematic literature review, rather we have coalesced insights about the benefits, challenges and potential threats posed by conducting research supervision online – both for supervisors and their research students – to provide some guidance for supervisors who are incorporating distance supervision into their teaching practice. We present some recommendations for best practice and propose some new avenues for ongoing scholarship in this area focussing specifically on professional alignment between supervisors and students, and the possibilities inherent in distance supervision practice for those historically excluded from higher education due to geographical distance.

Internationally, there is a history of conducting tertiary education at all levels at distance and online. Specifically in relation to the provision of research supervision at distance, online modalities were a relatively under-explored avenue before being catapulted into the limelight as a result of the COVID-19 pandemic in 2020 and the mass global migration to the digital space (Shin & Hickey, 2020). Subsequent lockdowns served as a catalyst that brought e-learning to the forefront of typical pedagogy and vastly proliferated its utilisation in higher education. When considering research supervision at distance, this rapid expansion comes with the need to ascertain how it affects the formation of the integral relationships between supervisors and students, its effectiveness as a method of delivery, as well as exploring the relevant benefits and challenges associated with distance supervision to determine which strategies can be employed to mitigate against the challenges. Most notably, there is strong evidence from within the wider academic community that the suite of available communication modes and technological advances available in the digital sphere have sped up thesis completion times and easily facilitated the development of communities of practice (Elliot & Makara, 2021).

SEARCH STRATEGY

To compile this review, key words were entered into the search engines of the ERIC database, Google Scholar, ProQuest Central and Taylor and Francis Journals. Search terms included combinations of "distance", "online", "postgraduate", "higher education", "supervision", "research supervision", "Masters supervision", "thesis" and "dissertation." Abstracts were reviewed for relevance and studies were only included if they specifically referred to masters or doctoral level study where research supervision was conducted at distance, yielding the 20 articles included in this review.

PROLIFERATION OF RESEARCH SUPERVISION AT DISTANCE

Prior to the radical online migration enforced by the global pandemic, online learning including distance supervision was in a phase of steady growth. Augustsson and Jaldermark (2014) argued that "…more students than ever before participate in higher education through computer-mediated communication. In 2010, the United States (US) higher educational system had 6.1 million online students, approximately 31% of all students, an increase of 1.5 million students from … 2008" (p. 2). It cannot be understated that digital learning increases the flexibility with which students can navigate thesis completion as being unrestricted by location and time considerations allows students to manage study their around their lives, particularly for "non-traditional students, such as working professionals, part-time students and adult learners who cannot come to the campus regularly" (Huet & Casanova, 2021, p. 2). Online learning modes are beneficial for postgraduate students in particular, as evidenced in Australia and Aotearoa NZ, where 40 per cent of the student body are concurrently employed as academics and whose investment in completing a PhD is associated with their professional and working environments (Andrew, 2012). We can conclude that digital learning and research supervision were already popular methods and were gaining traction within the academic sphere well before it was necessitated by the global pandemic.

THE SUPERVISOR-LEARNER RELATIONSHIP IN DISTANCE MODES

The relationship between supervisors and learners has long been regarded as an integral factor in supporting a learner's success. Bruce et al. (2008) noted that graduate students with supportive mentorship relationships tend to be more actively engaged in their programmes, are more satisfied, and more productive than those with less supportive relationships. In the online environment the supervisor by extension becomes a representative of the entire academic institution, thus placing an even higher significance on the role. However, while the method of delivery in distance supervision may be different, Gray and Crosta (2019) argue that fundamentally the attributes of an effective supervisor are consistent irrespective of whether learners are on or off campus.

The selection and allocation of supervisors to their learners is also of crucial importance. Woolderink et al. (2015) stress that a cohesive relationship between learner and supervisor is integral to the successful completion of the study process. Gray and Crosta (2019) similarly report that students who perceive that they are actively involved in selecting supervisors are more likely to make good progress and express satisfaction in their experience, in particular when they feel their values are shared by their supervisor. A foundation of trust and a genuine shared commitment to the success of the student is fundamental to the development of this relationship. While some concern exists that the early growth of this relationship may be stunted in the online environment due to the lack of face-to-face contact, Augustsson and Jaldermark (2014) argue that this can be mitigated by using technologies that facilitate the social aspects of supervision – for example, computer conferences, chat, and social network sites. Supporting this argument Huet and Casanova (2021) suggest that digital platforms may actually improve the learning pedagogy, noting that supervision where students and supervisors rely on technology to communicate or build communities of practice, involves greater connectedness, collaboration and more intense relationships. This has been noted to include relationships between both themselves as partners within the supervision (Maor & Currie, 2017) but also within the wider academic community (Loureiro et al., 2010).

THE BENEFITS OF TECHNOLOGY USE IN SUPERVISION AT A DISTANCE

Frequently discussed as a benefit of online supervision is the flexibility it provides for both learners and supervisors alike. This flexibility is unparalleled in respect to location of study, time management, scheduling and the jurisdiction over one's own pace of learning (Harrison et al., 2014). This flexibility is particularly advantageous for enabling research students to remain in their place of employment, family, communities and networks as the primary advantage (Andrew, 2012). Students undertaking higher education are often juggling their studies

alongside their wider life commitments, and reduced constraints around time and geography allow the involved parties more opportunity to manage their time (de Beer & Mason, 2009). Following the shift from face-to-face to online encounters, Elliot and Makara (2021) noted a gradual acceptance of the online space as a good alternative which created ease for those who found it difficult to get to campus. The flexibility to schedule virtual meetings removes the grievance of travel time and widens the window of available meeting times. Meanwhile, the utilisation of both synchronous and asynchronous communication by means of an online forum reduces gaps in communication (Karunaratne, 2018). With the barrier of geography removed and all aspects of study being completed remotely, research supervision at distance provides a medium through which thousands of previously disadvantaged students can access education (Harrison et al., 2014). This opens the door of higher education to a far wider audience and extends the possibility of tertiary study in the pursuit of professional and personal development for those for whom it may have previously been unattainable.

The immense range of information and communications technology (ICT) tools is credited with assisting the transmission and retention of knowledge and data in higher education. Thesis tracking databases exist which collate information about student progress and supervision meetings, retain copies of all documentation including writing drafts and feedback, ethics committee engagements and approvals and track institutional administrative processes relevant to the learner's enrolment, thesis production and examination. Abhari et al. (2019), contend that utilising ICT tools and computer systems in the process of supervising a thesis can improve the effectiveness and efficiency of the interaction between the students and supervisors which consequently enhances the quality of the postgraduate thesis. Notable benefits include a reduction in the thesis completion timeframe, an improvement in the scientific standard of the thesis, improved efficiency in the procedure, amplified creativity on the student's behalf, augmented flexibility and enhanced motivation (Abhari et al., 2019). Thesis tracking software can significantly improve supervisor efficiency, reducing the administrative workload by automatically recording and registering communications. Pollard and Kumar (2021) note that "the nature of the online environment in which mentoring takes place also creates a written record of interactions which can be referenced for reflection, clarification, or even pedagogical research" (p. 6). Palmer and Gillaspy (2021) confirm that verbatim records capture information accurately and are "much fuller and detailed than handwritten jottings" (p. 5).

COMMUNITIES OF PRACTICE

The ease of communication and breadth of networking possibilities provided by online learning spaces also easily facilitates the formation and development of communities of practice, considered an integral element of the learning experience. Members of a community of practice assist each other, engaging in joint activities and shared discussions, building mutually supportive relationships that enable them to learn from each other (Manyike, 2017). Despite the potential geographic distance, members of Elliot and Makara's (2021) study recognised how during the pandemic "the online mode enabled mutual learning, growth and continuous benefits from being part of a close-knit, supportive scholarly community… In our community, the online platform served as a crucial channel for continuously nurturing members in a reciprocal manner, particularly during this period characterised by a greater sense of isolation" (p. 9). This was also noted by Shin and Hickey (2020) in their COVID-19 pandemic-related exploration of student experience. These online spaces were not merely channels for information-sharing but served as places which enabled improved learner wellbeing.

Palmer and Gillaspy's (2021) study followed a supervisor whose normal face-to-face group of students made the digital shift. Following the change "the community has grown to include supervisors and candidates beyond my supervision, postgraduate taught students, staff who just enjoy chats about learning, managers and education developers from across this university and others too" (p. 6). In a surprising twist, online social media platforms, once thought to be a distraction and a vortex to lack of productivity, have blossomed into an indispensable tool for academics to further their networks and communicate knowledge and findings. Social networks like Twitter have been adopted by the academic community for their ease of use and their frequent, communicative and

non-intrusive exchanges. Twitter was reported as "serving the function of answering quick questions, referring one another to research or other resources, and also contributing to relationship building" (Maor & Currie, 2017, p. 8). Users were active in referring one another to online blogs of academic communities that dealt with aspects of their research areas. Interviews with students in Maor and Currie's study highlighted that using Twitter to communicate was 'by a lightyear' the most useful. One student had to convince her supervisor of this: "At first he's 'oh no, a waste of time' and now he's on it more than me! [Laugh], which is great, and I benefit from it as well. He disseminates a lot of information through it and we have quick exchanges that would be awkward over email. It would be too formal" (Maor & Currie, 2017, p. 8).

Communication through this modality is also more frequent, with some supervisors communicating with students via the platform two to three times a week. One long-term supervisor noted that this was "in stark contrast to 20 years ago, when she was doing her PhD and there were only two or three meetings per year" (Maor & Currie, 2017, p. 7). Regular and frequent communication is commonly reported as being significant to the development of trust and feelings of confidence in the supervisor-student relationship; therefore the utilisation of these networking tools can strengthen the ongoing relationship between both parties. This is supported by the use of video conferencing, which in the same study was considered a fantastic tool for supervision when students are not in the same geographical area as supervisors. Maor and Currie (2017) confirm that most supervisors reported anecdotes about successful relationship building and successful completions with candidates in different locations as a positive feature of distance supervision. The tools and technologies available to distance students sufficiently allow for clear communication, the facilitation of vast and profound networking, the development of communities of practice and potentially the significant reduction of administrative tasks for supervisors. It can be expected that, as the capabilities of the technology evolve, so too will the continued benefits and possibilities to further advance the pedagogy.

CHALLENGES ASSOCIATED WITH DISTANCE SUPERVISION

While clear evidence exists for the benefits of online supervision, some argue that the medium is lacking in certain aspects of study in which traditional face-to-face and campus-based methods excel. Within the literature, a commonly discussed issue confronting distance students is the feeling of isolation and loneliness that can accompany their distance. In a traditional setting, students would typically be engaging in 'present' human contact with both supervisors and peers constantly – to discuss ideas and receive constructive feedback that would in turn benefit and progress their learning experience. Andrew (2012) argues that distance students miss out on the ambiance of the campus and on identification with the university, suggesting that discussions via video conferencing technologies are an inferior means of communication given that "body language engenders real listening and speaking ability" (p. 8). The belief that a lack of subtle non-verbal communications between parties can lead to misunderstandings is shared by de Beer and Mason (2009) who affirm that the inability to effectively read and gauge body language cues along with facial expressions is a distinct disadvantage of online supervision (p. 12).

This specifically needs to be considered during the transmission of feedback between supervisor and student. When providing feedback online, it can be perceived as harsh since there is "an absence of auditory, visual and physical cues which would otherwise soften the constructive criticism" (Gray & Crosta, 2019, p. 13). Online learning may exert limitations on group research work which may be a feature even within thesis work. Torka's (2021) study reported that:

> An advisor in experimental quantum physics, a field that usually relies on close group interactions in labs, noticed that 'we are not going into the science as deep any longer… It seems also that the project is more fragmented . . . people are working much more on their individual projects rather than on something together.' (p. 7)

The rapid advance of different technologies also poses its own set of problems.

The previously noted advantage of online supervision transcending geographic barriers may be something of a double-edged sword, as due to residing in different time zones or on different continents, supervisor and learner may have difficulty with finding reciprocally convenient times to meet (Huet & Casanova, 2021). Supervisors also reported the potential for extended working hours given the perception that they are perpetually available to respond to students queries via technology, and the intrusion upon the supervisor's work-life balance resulting from this situation (Maor & Currie, 2017). This flexibility could blur the lifestyle balance of both the supervisor and learner and negatively affect the mental wellbeing of both. While online supervision initiates introductions and relationships between participants of different backgrounds which then opens studied content to an enormous variety of perceptions, care must be taken to adapt to different cultural expectations to avoid causing confusion or offence. Individuals from different cultural and societal backgrounds can experience differences in both culture and language which has the potential to affect the quality of the relationship (Gray & Crosta, 2019). This may be particularly true when dealing with Indigenous communities: in Aotearoa New Zealand, Māori education is "customarily undertaken in face-to-face teaching situations, involving the application of knowledge regarding Māori custom and tradition" (Fisher, 2009, p. 2). This may put Māori learners at a distinct disadvantage in this format, highlighting the importance of embedding tikanga practices such as whakawhanaungatanga (relationship building), manaakitanga (reciprocal respectful ethic of care) rangatiratanga (enabling student agency) and kotahitanga (a sense of connection and unity) (Rātima et al., 2022).

Advances in communication technology provide countless supervisors and learners a wider network in which to share and discuss knowledge and nascent findings. Social media, discussed earlier as providing significant advantages, however is not without its own limitations. By discussing their research on social media, research students could be incorrectly quoted and credited by the media as experts and as such could be seen as an authority in an area that they may not yet know much about or represent (Maor & Currie, 2017). This requires an extra layer of due diligence that students and supervisors alike must enforce while using these platforms as a learning tool. Further, the rapid progress in the capabilities of information technologies is constantly evolving and new tools and platforms are released with great frequency, sparking concern that "a significant time in such long-distance discussions might be spent on exploring and talking about a new technology or software instead of a clear focus on research issues" (Nasiri & Mafakheri, 2015, p. 3). This misallocation of time could potentially lead to abundant distractions and a diminished quality of work on behalf of the student as they scramble to stay 'up to date' with the latest technology. Such technology is also vulnerable to cyber security risks, and confidential data can be hacked and misused should an institution not apply the required level of security to prevent data breaches.

OPTIMISING THE EFFECTIVENESS OF DISTANCE SUPERVISION

From the reviewed literature, the most fundamental mitigation to the challenges found in online provision of research supervision is the development and maintenance of communities of practice. The common issue of feeling isolated is vanquished by regular communication between supervisors and a committed group of peers who create a sense of community that all members invest in and contribute to, with shared values (Huet & Casanova, 2021). The benefit is not limited to learners; these authors also stress the importance of communities of practice focussed on the continued professional development of supervisors with the objective of further improving the online supervision experience for all. Frequent communication via video conferencing platforms and email make sufficient headway in enabling students to feel connected to their programs and assure them that their supervisors are invested in their experience of graduate education and professional development (Bruce et al., 2008). This can be achieved by organising regular online 'thesis drop-in' sessions where the group of learners can discuss the joys and challenges of thesis study while also addressing the need for social engagement and the sharing of life events outside of study that are so integral to relationship-building.

At the start of the supervisor-learner relationship it is imperative that supervisors initiate an open and honest conversation with their student aimed at exploring any cultural differences embedded in communication methods, and styles of building working and social relationships (Gray & Crosta, 2019). During this dialogue, a clear set of expectations, such as appropriate contact hours and platforms for communicating, should be agreed upon by both parties to ensure a cohesive relationship. Engaging the student in the selection of supervisors has been shown to be beneficial (Gray & Crosta, 2019) and a negotiated supervision contract which can be revisited as necessary throughout the candidature provides both flexibility for changing circumstances and certainty as to the mutual expectations of supervisor and learner. Mindfulness of supervisors when providing feedback is important: organising a videoconference to share a document online for discussion can reduce the perception of feedback landing harshly when it is delivered as a series of tracked changes on a document with no nuanced verbal encouragement to accompany it.

FUTURE POSSIBILITIES

One study (Fannin & Perrier, 2019) has posited the idea that when the supervisor and learner are from the same professional discipline, there could be an added impetus within that relationship, which they have described as an alternative feminist pedagogy of "birth work accompaniment and PhD supervision" (p. 136). They suggest that when the research learner and supervisors are both midwives, there is a unique synergy between them: for the supervisor, assisting a research student with the 'production' of a thesis holds some resonance with working as midwife alongside a birthing person to 'produce' a baby. This is a fascinating potential for ongoing scholarship in the research supervision area, particularly when this supervision relationship is being conducted at distance. This certainly merits further research consideration as to its applicability in other professional contexts such as Occupational Therapy or the Creative Arts sector. Further opportunities exist for research that examines how lower income or rurally-based learners can be more adequately accommodated within the realm of online research supervision as there remain inequities in access to expensive hardware materials and stable internet connectivity.

CONCLUSION

Since the onset of the global pandemic, flexibility in education, and indeed in many other sectors, is of paramount importance. Given what we know, it is clear that digital learning and online research supervision offer an extensive suite of benefits that allow both learners and supervisors to excel in their field. The technology allows us to communicate both synchronously and asynchronously conveniently without impinging too drastically on the balance of our lives, especially considering the volume of students who are juggling multiple responsibilities in our rapidly evolving world. The ability to participate in higher education regardless of geography also extends an open palm of education to a wider audience than ever before and provides a springboard into the realm of academia for those who might have been excluded in the past. The medium does indeed have its limitations, however creative strategies can be employed that mitigate against these challenges and provoke wider thinking and problem-solving opportunities.

Suzanne Miller, Associate Professor, is the Postgraduate Programmes Leader in the School of Midwifery at Te Kura Matatini ki Otago | Te Pūkenga. A supervisor at distance for Master of Midwifery students, Suzanne was motivated to understand how to make online supervision the best possible experience for learners, prompting this review of the literature.

https://orcid.org/0000-0002-0648-9543

Finn Miller is a content writer and research assistant. Fascinated by the expanding horizons of emerging technologies, Finn aims to democratise education inclusion.

Katie Baddock has a BA majoring in psychology. She works freelance as a writer and research assistant and has a keen interest in sustainability and new uses of technology.

Sally Baddock, Professor, College of Health, Te Kura Matatini ki Otago |Te Pūkenga, has been an educator in the health sciences for over 30 years. Her research includes Sudden Unexplained Death in Infancy (SUDI) and infant sleep, midwifery education and midwifery practice. She is passionate about engaging with master of midwifery learners and their research.

https://orcid.org/0000-0003-3095-6735

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A JOURNEY INTO THE UNKNOWN: REFLECTIONS FROM NOVICE INSTRUCTIONAL DESIGNERS ON IDENTIFYING THEIR PLACE WITHIN THE SOUTHERN INSTITUTE OF TECHNOLOGY

Balint Koller, Jerrylynn Manuel and Katrina Watt

INTRODUCTION

Although the discipline of instructional design has been around for over four decades (Reiser, 2001) there is still confusion as to the role instructional designers play within the workplace. Gagne et al. (2005) emphasise the process of instruction when describing instructional design work while others take a broader view and include its more 'emergent' and practical realities (Sims & Koszalka, 2008; Drysdale, 2019). With the addition of different titles that may cover similar or overlapping remits, such as learning designer (MacLean & Scott, 2007, 2011), and identical titles which may conceal quite different actual tasking (as described in this article), instructional designers often face the challenge of having to explain their role and justify their interventions to colleagues within the organisation in which they work (Halupa, 2019; Miller & Stein, 2016; Mueller et al., 2022; Schwier et al., 2004).

At the Southern Institute of Technology (SIT) (a division of Aotearoa's national polytechnic, Te Pūkenga), until early 2021, instructional designers had mostly operated within the organisation's distance education division known as SIT2LRN. There, they worked in partnership with subject matter experts (SMEs) in preparing content for online delivery. Essentially, content was passed from the SME to the instructional designer for development – study guides, in the case of SIT2LRN. As the role underwent several iterations from instructional designer to content manager to programme operations manager, the core task of instructional design-informed content development was lost in the process and is now only evident in project-driven change such as in the re-design of SIT2LRN's environmental papers (see this article). In terms of the rest of the organisation, instructional design has always been subsumed into the role of full-time kaiako (teacher). For instance, in the initial rollout of blended delivery at SIT, an Information Technology Services (ITS) initiative led by E-Learning (a branch of ITS), no instructional designer support was provided, especially in the realm of content creation. From this, the need for such individuals was identified to scale-up the project; they would provide said support to reduce the workload of kaiako. In March 2021, two instructional designers (1 × 1.0 FTE and 1 × 0.6 FTE) who were new to the field, but who had been in education for at least a decade, were hired as part of E-Learning. A year later, E-Learning welcomed an additional instructional designer with expertise in digital content creation and primary teaching. Highlighted in Figure 1 are SIT's original core tasks and vision for instructional designers.

Since the establishment of the instructional design role within ITS, kaimahi (staff) filling this role have been proactively carving out and negotiating their own niche within the organisation. In exploring and navigating the operational culture of the institution and positioning themselves as advocates of the learners' ako (teaching and learning) experience, they have been seeking to establish the scope of instructional design at SIT, and how and where it overlaps with the remit of other stakeholders (for example, tutors) with similar goals. During this

process, they have experienced a mixture of setbacks and successes. Here, they aim to relay some strategies they have employed and some 'lessons learnt' through reflective practice in the hope that others involved in learning design may benefit from them in their own institutional context.

In preparation for this piece, instructional designers underwent critical reflection on key events since the start of their employment that they believe have shaped their identity as change agents within the organisation. Permission was sought and granted from stakeholders to discuss specific events and feedback obtained to help inform instructional designers' perspectives of these crucial moments.

Key Tasks as of January 2021	Key Tasks as of December 2022
• Aid in the training, development and recommendations of online course design.	• Aid in the training, development and recommendations of course design across a range of teaching and learning modes.
• Use pedagogical expertise to support subject matter experts in the creation of engaging learning activities and compelling course content.	• Use pedagogical expertise to support subject matter experts in the creation of engaging learning activities and compelling course content across face to face, blended, online, and flexible delivery.
• Apply tested instructional design theories, practices, and methods.	• Apply tested instructional design theories, practices, and methods.
• Support tutors and developers to ensure that materials received are fit for purpose.	• Support tutors and content creators to ensure that learning assets and materials are best suited to their context.
• Liaise and co-ordinate with tutors and programme managers to achieve timelines for development or redevelopment of courses.	• Liaise and co-ordinate with tutors and managers to achieve timelines for development or redevelopment of courses.
• Use materials from subject experts to design engaging and effective learning courses in the SIT Learning Management System.	• Provide learning design support to tutors to ensure consistency throughout a programme and across different programmes.
• Provide learning design support for all courses to ensure consistency throughout a programme and across different programmes.	• Coach and mentor tutors to adopt and apply best practice for their teaching and learning context.
• Upload, test and quality assure materials within the Learning Management System.	• Use content authoring tools and the LMS to develop and support the development of learning materials.
• Manage and maintain SIT's materials in the Document Management System.	• Support tutors to develop and deliver accessible, inclusive learning experiences appropriate to an Aotearoa New Zealand context.
	• Manage and maintain SIT's materials in the Document Management System.

Note: The ability to engage in research where appropriate has also been added to the latest version of the job description.

Figure 1. Key Tasks as described in SIT's Instructional Designer job description.

Boyd's OODA (Observation – Orientation – Decision – Action) loop (Ryder & Downs, 2022) was employed because of its focus on identifying where one is situated within their surroundings and consideration of the reciprocal nature of the relationship between individuals and their space. For one instructional designer, the OODA sequence was modified to better suit his logic with 'Orientation' occurring first and 'Observation' last; the remaining two adhered to the original order. Below are their accounts of how they have operated within and outside of their remits.

INSTRUCTIONAL DESIGN PERSPECTIVES

Persisting with incorporating Māori content – Balint's story

I joined ITS's E-Learning Team on the same day as Jerrylynn, and we were assigned our respective projects on our second day on the job. The brief from my manager was that I needed to work with SIT2LRN to re-design their course material for an Environmental Management qualification consisting of four papers. The aim was to make the learning material more interactive and appealing than the then current PDF Study Guide. In my process, I loosely followed the ADDIE method, an instructional design process that includes the following five steps: analysis, design, development, implementation, and evaluation (Gibbons, 2014). When I embarked on a journey of professional reflection, I decided to select one well-defined tasking to focus on. Through reflection, I was hoping to better understand the limitations of my mandate and capability as a change agent.

Orientation

Some months into my role, I discovered that the official title, some graduate outcomes, and the strategic purpose statement of the qualification that I was re-designing had recently changed: there was now more emphasis on rangatiratanga and the primacy of Te Tiriti o Waitangi (New Zealand Qualifications Authority, n.d.), which created an imperative for reflecting this shift in the course content as well. I also became more familiar with the institution's Māori Education Strategy, Goal Three of which asks kaimahi "to include Māori concepts and knowledge in programmes as appropriate that reflect a valuing and understanding of these for Māori learners; to incorporate manawhenua tikanga, knowledge and participation in programmes as appropriate" (Southern Institute of Technology, 2019, p. 13).

Around the time of my project starting, some institutional changes added a sense of urgency to this mandate. SIT's first General Manager of Māori Development was appointed. In her first report about the state of Māori visibility and culturally sustaining practices at SIT, she signalled the need for fast changes within the organisation so as to improve Māori student retention and satisfaction (Milne-Ihimaera, 2021).

Beyond SIT, the emergent working groups formulating the policy foundations of Te Pūkenga were producing similar 'status quo' reporting on the support and wellbeing of Māori students across the network. All this multi-layered institutional 'ferment' came to bear on my self-orientation with respect to incorporating (more) Māori perspectives and content in re-designed learning material.

Decision

I decided that, while I was not qualified to create or curate kaupapa Māori content, this project provided a unique opportunity to enhance the learning material, driven by a strong and multi-layered mandate, as discussed above. This outweighed my lack of formal qualification and became an issue of civic and professional responsibility. Although my role description states that I need to support subject matter experts in content creation, rather than act as the subject matter expert myself, I decided that I had to give this a go (karawhiua!). In the beginning, my goal was to find a collaborating subject matter expert.

Action

I reached out to the Māori Development Unit (MDU) to seek advice on their preferred way of having such content created and checked for accuracy and cultural appropriateness. I organised an in-person meeting with the relevant stakeholders in the hope that an institutional process can be drawn up for how everyone at SIT goes about fulfilling their Tiriti obligations in developing learning material with consideration and incorporation of mātauranga Māori (Māori knowledge) and tikanga Māori (correct procedure, custom, and practice). Immediate guidance was offered at this hui and I was able to involve the MDU in reviewing some draft material – the feedback received reassured me that I was on the right track and also prompted some edits. However, there was no resource for an actual content developer/subject matter expert to be assigned to this project, so I had no choice but to carry on curating and creating content myself and seek feedback from the MDU. This included sourcing content from well-established and respected sources that would have been reviewed by experts in te ao Māori before being published in the public realm and asking MDU to review and comment on iterative drafts.

Besides creating and reviewing content, I also sought the help of the MDU with reaching out to knowledge holders in the local Māori community on my behalf. These were community members with links to Murihiku mana whenua who I was hoping might be able to share their whakaaro for the students' benefit, or grant permission for content already available in the public domain to be used for instructional purposes. The MDU acknowledged that making these connections through them rather than contacting individuals directly was culturally more appropriate. The process was slow, however, for a couple of reasons. One was the limited availability of the people being sought out, especially for a kanohi-ki-te-kanohi (face-to-face) meeting involving all stakeholders. The other challenge had to do with MDU's role in managing multiple requests for the same people's time coming from other corners of the institution. MDU's plan was to help coordinate within SIT first and bring all tangata whenua and tangata Tiriti that shared an agenda (in this case, environmental management) together for a hui where connections can be made in person.

In the end, while not involving the originally identified community members with links to mana whenua, a hui around the environmental management agenda did take place, and I made professional connections with many of my own colleagues as well. Through my relationship with MDU, I was also invited to participate in a series of workshops aimed at prototyping what authentic Tiriti partnerships between the institution and mana whenua might look like.

Observation/Learning

While my hope for an institutionally defined process and guidance for how Māori content is meant to be developed did not materialise, some other, tangential benefits did: one of these was an established and active communication channel and good rapport with the MDU. Through this relationship, I gained more insight into the activities of the MDU, acquired an enhanced understanding of the priorities and cultural norms of local mana whenua, and became involved as tangata Tiriti in shaping policy settings that would later drive the kind of 'partnership-based' content creation that I originally set out to find guidance on.

I have learnt that although the resource that is available may not perfectly match project needs, unexpected benefits do arise from collaboration in unpredictable ways – and eventually, the original needs will also be met along the way.

> *Major learning: My advice to other instructional designers embarking on a similar pursuit is to create and maintain the conditions in which unpredictable benefits for the students may emerge – that is, reach out to stakeholders and collaborators, build trust and rapport, and stay curious about the work where their main interests lie. Look for opportunities to support what they do – offer value to them and you will gain value yourself. There is only so much that can be enabled by formal structures and workflows – for genuine partnership, you will need to cultivate relationships.*

Operating within the periphery: Jerrylynn's story

Whilst writing this piece, I came to the realisation that most of my journey as an instructional designer at SIT has been within the periphery of the expectations of the role. From the outset, I have been located within that space due to the nature of the project that was given to me at the start of my employment. Since then, we (E-Learning) have managed to realign the instructional designer role to reflect our practice and vision, which is to "support", "coach", and "mentor" kaiako as they transform their teaching practices. The story below describes how this change came to be.

The situation (Observation)

Within a week of joining SIT, I was tasked with the job of assisting Screen Arts kaiako with the transition to blended teaching from face-to-face (traditional) instruction. Essentially, the expectation was that the latter would be an additional mode offered within the School of Screen Arts, and that the development and facilitation work involved would be on top of what kaiako were already doing. As a result of several mistakes, misunderstandings, and 'out-of-the-box' proposals (mostly on my part), blended delivery did not quite align with SIT's vision of it. This led to confusion within the organisation about our product and apprehension around our design choices. Serendipitously, these choices ultimately facilitated the transition to Hybrid-Flexible (HyFlex) delivery (a multi-modal system where students are given the liberty to choose how they would like to participate in their lessons – traditionally, synchronously, and/or asynchronously (Beatty, 2019)) within the School, and across the institution. And so, the major problem that emerged from the pilot was how to roll out HyFlex delivery across the institution with limited people power. *What is the plan?* In the first year of the HyFlex rollout, I supported six Screen Arts kaiako; in this second year, E-Learning now is responsible for on-boarding an additional 17 kaiako from various departments.

The role (Orientation)

My role has always encroached on the remit of others within the organisation. As part of the pilot project and during the first year of HyFlex at SIT, I observed lessons of kaiako (reading through the learning resources, viewing recordings, monitoring the class communication platform for ākonga (learner) engagement, and providing feedback), provided debriefing sessions with kaiako, facilitated ad hoc tutorials when required, and evaluated the project (Manuel, 2022a; 2022b). The reason for my involvement in more of an academic support role was because tutors wanted full autonomy over the content creation aspect of their redesign; support with the technology and andragogy side of the delivery was what was needed. Despite the existence of the Academic Support Unit at SIT, I took on the job of providing that type of assistance, as it required expertise within my wheelhouse.

I worked closely with the Screen Arts programme manager to ensure that the School's vision for HyFlex was maintained by kaiako; at times this resulted in us being pitted against each other when views were contrasting and confusion as to who was responsible for 'policing' the vision. Prior to the appropriate people coming on board, I helped with troubleshooting technology issues. Additionally, I facilitated an Introduction to HyFlex workshop for Year 1 HyFlex students to help them make informed decisions about their participation mode, I drafted the first version of HyFlex information on the SIT website, and I have engaged in research – these latter tasks being outside of the scope of my role entirely. I have been a sounding board and a source of frustration. Many hats were worn, and I was embroiled in many aspects of this project in an effort to maintain its momentum.

The learning (Decision)

As we moved into the second year of HyFlex delivery at SIT, the need to devise a slightly different approach to on-boarding kaiako (due to volume) and to document our process became apparent. Mainly, I did not want to repeat the mistakes made from the previous year (in other words, overstepping boundaries). I captured this new process in what we termed the HyFlex Manual, which consists of a series of checklists outlining key tasks for

programme managers, kaiako, and instructional designers to perform and the sequence in which they must occur. Information on who to report specific information to in order to communicate the School's vision of HyFlex to other stakeholders was also included. The strength of this document lies in the explicit communication of the expectations of each stakeholder involved in this project. Because of my naiveté about what an instructional designer does, and the need to be helpful and keep the project moving along, I now recognise that many of the tasks I performed early on in my role should have been carried out by others. The hope is that this document will clearly delineate our boundaries.

> *Major learning: Formulate your overall process, document it in a way that stakeholders understand, and share it widely – be transparent.*

The outcome (Action)

The prospect of our team being shifted from ITS into a yet-to-be determined place within Te Pūkenga prompted us to examine who we are and where we fit within the larger organisation. Armed with a greater understanding of what we do, we scoured various instructional design job ads from other organisations within Aoteaora and contacted our counterparts from within the network. The results were unsurprising – we all do different things. As alluded to above, the project dictates the work of the instructional designer. What this entire experience has enabled us to do was to articulate our spin on what an instructional designer does and formally amend the 'Key Tasks' component of SIT's instructional designer job description (Figure 1) – we are operating within the periphery no longer.

HyFlex delivery at SIT – Katrina's story

I joined E-Learning in May 2022 after working as a kaiako in Primary and Early Childhood Education; I also have a lengthy background in Digital Arts and creating digital media. An important lesson I took away from classroom teaching and work with digital media was the importance of scaffolding learning and professional learning for all kaiako, especially when technology and trends change.

Observe

This year (2023), more kaiako have been coming on board with HyFlex delivery, so we needed to identify ways that we could continue to support kaiako and give them a place to refer to when we were not as available as we had been in the past. Taking our own knowledge of how people learn into consideration, and the need for learning materials to be presented in diverse ways, E-Learning created *HyFlex for Tutors (H4T). H4T* is a self-paced course available in SIT's learning management system (LMS), Blackboard Ultra, which can be updated to service the growing and ever-changing landscape of e-learning and HyFlex delivery within the context of SIT. Associated with it is a Microsoft Teams Classroom. The bones of the course were based on a series of workshops that Jerrylynn delivered during the 2022 HyFlex roll out to the School of Screen Arts. *H4T* was created with the intention of being used as a model that other kaiako could base their Blackboard courses off. Developing the content for the course has allowed me to gain understanding on how tutors might create content and use the content creation tools that Blackboard offers. I was able to increase my knowledge of ways video, audio, imagery, text, and interactives could be used by a tutor to enhance the learning and engagement of their ākonga, and when they might use them for different purposes in their teaching.

Orient

To better orientate myself with the experience of a HyFlex kaiako, I went to work creating various modules within *H4T*. I developed my own way of working and tested the parameters and uses of the content creation tools available in Blackboard. I also looked at how other institutes used their LMS – gaining perspectives on others such as Canva, Moodle and iQualify. I wanted *H4T* to inform the support we deliver to current and new

kaiako that join the HyFlex community at SIT. Applying the knowledge gained of HyFlex delivery and the work of an instructional designer over the first year of working at SIT has been valuable to my journey. The considered approach by E-Learning has been guided by best practice in teaching and learning, literature, and the teaching and learning practices of kaiako we have observed along the way. The learning I took away from having my own simulated learning experience in building *H4T* has made me a more confident supporter to the kaiako who are using Blackboard to create their content and learning materials for the ākonga in front of them or those who are online.

Decide

Since the pilot in 2021 with one paper, we are now supporting seven faculties (roughly 20 kaiako) with delivering their classes in HyFlex. We collaborate with stakeholders to articulate their version of HyFlex and then offer support in the form of meetings, one-on-ones, workshops based on their needs, and andragogy for e-learning (and teaching and learning in general) that they want to develop. They can use *H4T* to design what HyFlex delivery looks like for them. Each faculty is delivering and interpreting HyFlex in their own way.

Act

We actively continue to update *H4T* based on the needs of our kaiako (it looks different now compared with how it was last year) and are experiencing increased engagement with kaiako in the associated Teams Classroom. Most of our communication with kaiako happens through Teams. Our overall aim is to create a HyFlex Community of Practice within our institute; we may be seeing the birth of it through the *H4T* Teams Classroom. Also, kaiako and programme managers even slightly interested in HyFlex teaching have been given access to the Blackboard course. This may help facilitate our vision of scaling HyFlex delivery upwards until it becomes the expected and normal way for ākonga to engage with their study.

> *Major learning: As an instructional designer, embrace each opportunity to gain experience from everyone and everything around you – be it building on skills you already have and applying learning to a new context. Everything will take you down a new path and these opportunities can allow you to support others to learn from you.*

DISCUSSION AND CONCLUSION

Often, organisations require instructional designers to possess expertise in all facets of the job from digital content creation to research, which is an unrealistic expectation especially for those new to instructional design. A plethora of frameworks (Gibbons et al., 2014) and research (Bodily et al., 2019) exists to guide the inexperienced through managing the design process; however, best practices do not always translate to productive work in real life. What is needed are more stories from those on the ground to help others understand and navigate their own reality. Schwier et al. (2004) claim that much of the tacit knowledge on instructional design has been kept private due to the limited opportunities to share this information. Even though this was the sentiment nearly 20 years ago, for Aotearoa the belief still rings true today: only one publication on the novice instructional design experience exists (Nichols & Meuleman, 2017), there are few learning opportunities (in other words, instructional and learning design qualifications) where those new to the profession can interact, and no active nationwide communities of practice outside of these experiences. And so, the stories presented here serve to publicly add to the paucity of information on the diverse practices of instructional designers within New Zealand.

In no way do we assert that our experiences are representative of the instructional designer work performed across the country. However, we do recognise shared challenges with those described in the literature. These include struggles with stakeholder engagement (Mueller et al., 2022) and being underutilised due to our association with IT (Miller & Stein, 2016; Xie et al., 2021). Because the instructional designer role has traditionally

been isolated within specific departments (Gibbons, 2014), as in the case for SIT, it is not surprising that feelings of suspicion in what we do arise. Our stories demonstrate that partnerships may be built upon whanaungatanga, transparency, and empathy; and that strong commitments to the instructional design profession, our institution, and wider society in addition to fulfilling our obligations to our stakeholders may lead to organisational change (Campbell et al., 2009). Our next step is to determine how those around us (colleagues, managers, and Te Pūkenga leaders) view our roles so that we can begin the work of aligning all views in the interest of delivering the best value we can for ākonga.

Balint Koller is an instructional designer with the E-Learning Team at Te Pūkenga (Southern Institute of Technology business division) in Invercargill, New Zealand. Currently, his time is split between assisting tutors with HyFlex delivery and creating interactive digital modules for an Environmental Management qualification.

Jerrylynn Manuel is an instructional designer with E-Learning at Te Pūkenga (Southern Institute of Technology business division) in Invercargill, New Zealand. Her main role is to support kaiako in the redesign of courses for HyFlex delivery. Her areas of interest include flexible education and inclusive learning.

Katrina Watt is an instructional designer working at Te Pūkenga (Southern Institute of Technology business division) within E-Learning. She is currently studying the Postgraduate Certificate in Learning Design. She is currently supporting kaiako with online teaching and HyFlex delivery.

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A MODEL FOR PEER OBSERVATIONS OF TEACHING PRACTICE AND A PROPOSAL FOR IMPLEMENTATION AT OTAGO POLYTECHNIC

James Staples, David Woodward and James Harrison

The following sections are the work of the first author. After the first author's content has concluded, there follow two reflective accounts from the second and third authors who were the first author's mentors.

INTRODUCTION

Observations of teaching are an increasingly common method used by educational institutions either to evaluate teaching practices or to help develop teacher capabilities. Observations of teaching offer multiple benefits to both staff and institutions, especially concerning the enhancement of teaching quality, recognition and rewarding of good teaching, and the development of academic careers (Harris et al., 2008). For teaching staff, especially, the benefits of an observation programme include receiving feedback on their teaching, acknowledgment of their efforts and the discovery and adoption of best practice techniques from their colleagues. Peer observation programmes foster a collegial culture as colleagues engage in discussions and share insights around teaching practice, either within their own disciplines or across departments.

Although teaching observation programmes carry valuable benefits for teaching staff and their institutions, there are common challenges to their implementation and sustained usage from the very people they serve to benefit. Typical challenges include the heavy workload and limited time that teaching staff have for such development initiatives (Gosling & O'Connor, 2009), as well as a lack of trust that staff may have in the process, either due to a lack of confidence in having their work observed, fear of negative evaluation and unfamiliarity with such processes (Harris et al., 2008). The literature does offer solutions to these obstacles, such as a focus on development as opposed to evaluation, the maintenance of confidentiality, and the training of staff in providing constructive feedback (Gosling, 2002), as well as the need for voluntary engagement and a staged approach to implementation that begins with more willing staff members (Harris et al., 2008). However, staff reticence remains a concern (Edgington, 2014).

An earlier study (Staples, 2022), motivated by such challenges, was conducted to explore how peer observation of teaching (PoT) could be used at Otago Polytechnic (OP) to develop facilitation practice and encourage facilitators to share techniques with their colleagues. This study examined how PoT could be designed to give facilitators ownership of their own developmental process. The results showed the use of a parallel community of practice (CoP) to be the key ingredient to the successful uptake of a PoT programme. The key output of the study was the creation of a peer observation and CoP model that could be used across Otago Polytechnic. The proposed model was underpinned by scholarship available at the time. The aim of this article is to consider if the proposed model for Otago Polytechnic is still supported by more recent research. The article will briefly explain the process, findings and proposed model and will then compare the proposed OP model to the work of two other recent research outputs. The article will conclude with recommended changes to the proposed model, based on the comparisons.

DEVELOPING THE PROPOSED PEER OBSERVATION MODEL

The original study used participant action research as the methodology (Staples, 2022). The intention was to help bring about cultural change within the organisation via the research project, through the researcher working alongside, and empowering, the participants to create a peer observation model that would benefit their own and their colleagues' classroom practice. The participants were assisted to take ownership of their own development and could thereafter (with support from the Learning and Teaching Development team) help drive the capability development of their peers outside of the research participant pool.

Seven facilitators at the Otago Polytechnic Auckland campus from two academic departments voluntarily took part in the study, which started at the end of 2020 and concluded in early 2021. The method used was the creation of a peer observation of teaching programme, *combined* with a CoP model. The participants received training in how to conduct observations and provide feedback. To help identify focus areas for their development of practice, each participant was observed initially by a Learning and Teaching Specialist, who also conducted final observations of the participants after the peer observations were completed. The participants themselves engaged in three rounds of peer observations over the period of an eight-week teaching block, with each observation round lasting two weeks. The first two rounds of peer observations occurred between members of the same department, while the third round was interdepartmental, so that participants could potentially be exposed to differences in teaching practice. After each round of peer observation, all participants came together as a community of practice (CoP) for a reflective session, facilitated by the researcher. These CoP sessions allowed for a sharing of experience and best practice, and were an opportunity for the researcher to receive feedback on the viability of the peer observation process being used.

The results indicated that the inclusion of a community of practice, facilitated by a champion, who would promote and facilitate the CoP sessions, was significant in motivating teachers to engage in teaching observations for the purpose of their own development and in sharing their practice with their colleagues. While the intention was to create a process that would encourage development of practice that was separate from managerial compliance initiatives, it became apparent that facilitators might want to use such a programme as part of their official performance review process.

Based on the study at the Auckland campus, the following model (Figure 1) was proposed for the use of a similar programme for Otago Polytechnic:

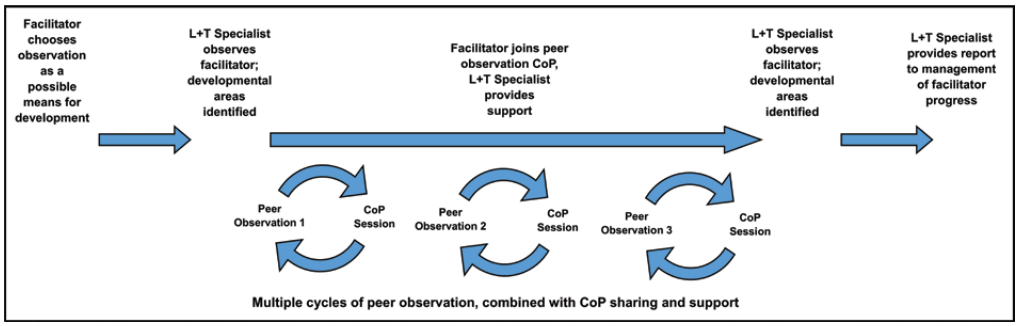

Figure 1. Proposed model of peer observation of teaching for Otago Polytechnic (Staples, 2022).

This model, if used at Otago Polytechnic, would make use of the Learning and Teaching (L+T) specialists assigned as academic capability (AcCap) partners to the various colleges to facilitate the programme within their college. The L+T specialist would champion the programme and facilitate the regular CoP sessions with the participants.

The model allows for two approaches to peer observation of teaching depending on the motivations of the participants, who would participate voluntarily. Some teaching staff may choose to engage in peer observation purely for their own development and to be exposed to ideas from their colleagues. Others may also choose to engage for development of practice, but with the added intention to have their progress linked to their official performance reviews and professional advancement. This latter group, having agreed with their formal leader to use the programme for their development, would initially be observed by their L+T specialist, after which they would agree to focus areas for their development. The teacher would then join their colleagues in a series of peer observations, acting as both reviewer and reviewee, and would join the regular CoP sessions to share their development with other teaching staff from their college. Once the facilitator felt that they were ready, the L+T specialist could observe them again to record any developments in their teaching practice. The initial and concluding observations, conducted by the L+T specialist would, by necessity, have an *agreed upon* evaluative aspect to them, whereas the observations by peers would be purely for development and collaboration. Those facilitators who chose not to use the programme as part of their professional reviews, would have the option to engage purely in the peer observations and the CoP sessions.

COMPARING THE PROPOSED MODEL WITH RECENT RESEARCH

This section compares the proposed model with two pieces of recent (post 2020) research. The first (Kocur, 2021) was selected as it compares the different types of observation programme that can be used, while the second research output (Mouraz et al., 2023) was selected due to its multidisciplinary nature, which was also a consideration of the research that led to the creation of the proposed OP model.

Kocur (2021), expanding on the work of Gosling (2002), identifies three different models of peer observation of teaching that are used in evaluation and development of teaching practice: evaluative, developmental and collaborative. Kocur highlights the positives and negatives of each model, while advocating for the use of the collaborative option. For Kocur, the strengths of the evaluative model, used by management to evaluate the quality of teaching and to mould compliance in practice, include "quality assurance, compliance and adherence to standards" (2021, p. 136). The weaknesses, however, include educators being resistant to a process that is seen as top-down and focused on standardisation. The development model, on the other hand, involves observations by educational developers or expert teachers to provide feedback on specific developmental needs, as determined by the expert and the teacher being observed. As the name suggests, the focus here is less on compliance and more on development of practice. Like the evaluative model, the developmental model brings both positives and negatives. The positives include observations that are less judgemental, as the feedback is only shared between the observed teacher and an expert reviewer, who provides a sense of credibility to the identified needs. This model can enhance teaching practice through encouraging critical self-reflection based on the received feedback. The negatives, states Kocur, include a lack of impact as the response to the feedback depends on the reviewee and there is no structured mechanism to ensure that feedback is actioned to produce improvements to teaching. In the collaborative model, teachers observe each other and improve their teaching practice through dialogue and mutual reflection (Gosling, 2002; Kocur, 2021). This model highlights equality between the peers involved in observations and should eliminate or greatly reduce potential judgements in favour of constructive feedback. While Kocur identifies some negatives to the model, by citing Georgiou, Sharma and Amanda (2018), such as "a lack of adoption given its strictly voluntary nature, varied interpretations of what quality teaching looks like, and potential fear of being critical of one's colleagues" (p. 136), Kocur also highlights that this model has gained popularity due to its self-directed nature, ease of implementation and flexibility, as well as its providing developmental benefit.

The perceived benefit of the proposed Otago Polytechnic (OP) model (Staples, 2022) is that it is flexible enough to cater to different needs. The model encompasses aspects of all three models identified by Gosling (2002) and Kocur (2021), in that it allows for evaluation, development of practice, and collaboration between peers. In doing

so, the model would address, and possibly overcome, the limitations in each of the three observation methods described by Kocur (2021), while simultaneously producing the positives from each of the different models. Like the evaluative model, the proposed OP model would allow for an adherence to quality assurance and a set of standards from teaching staff. However, what would set this apart from other compliancy-based evaluative models is that the staff member would have the *choice* to agree to this. When meeting with their academic leader as part of their annual performance review, the staff member could choose to use the observation programme (as *one* option of performance measurement) to meet performance targets in teaching. These could be agreed upon with their formal leader and the AcCap partner, who would provide the initial and concluding observations and identify developmental focus areas with the staff member. Therefore, while still providing an evaluative process as part of development and professional advancement, the negative connotations of top-down compliance can be diminished. A greater sense of ownership and, therefore, motivation to engage in the process could result.

The proposed OP model, by using the AcCap partners, would align to the developmental model as described by Kocur (2021), which requires observations be completed by expert teachers or educational developers. This especially would be the case for those teaching staff who prefer to use the model as part of their formal development. The AcCap partners would also facilitate the CoP sessions, allowing for practice to be shared with a wider group of people. The potential problem with the development model, as identified by Kocur (2021), was a lack of impact as there is no mechanism to ensure actions are taken by the teacher to improve. The OP model would address this for those staff members who have made it part of their formal professional development. However, it would also work for those staff members who have instead opted for the developmental pathway. By engaging in *regular* cycles of observation, colleagues are constantly exposed to different teaching practices and can discuss their own practice with their observation peer, as well as in the wider CoP group. By having these regular observations and CoP sessions that are not judgmental but are rather about open discussion and idea-harvesting, the staff member would be provided with multiple reminders to action any feedback they have received or any reflection they have made on their own teaching.

Mouraz et al. (2023) introduce the use of a multidisciplinary peer observation programme that fosters teacher collaboration, innovation and reflection on practice. Their model ('the Mouraz model') begins with two sets of teachers from different disciplines coming together to form "quartets" (Mouraz et al., 2023, p. 49). The organisation of the quartets, including the observation objectives, is determined by the members themselves. In the quartets, each teacher is observed in one class by at least two observers – one from their own discipline and one from a different subject area. The observations include the typical and necessary pre- and post-observation sessions. Each observer completes an observation form with pre-determined focus areas and the post-observation phase consists of a joint reflection on the observations by all members of the quartet. At this session, members jointly share their perceptions about the observed classes and develop suggestions for improvement. The quartet engages in the process through three observation cycles. "This three-part observation-cycle approach," according to the authors, "allows the participants to … implement the changes they wish to experiment with in their pedagogical practises in a more secure and supported way" (Mouraz et al., 2023, p. 50). Alongside the observation cycles, participants also take part in a training programme, which consists of three sessions that introduce the programme and guide the participants through it, discusses the perceptions and reflections of the teachers, and supports the teachers in the implementation of their improvement strategies. The final training session promotes the further, sustained use of a collaborative class observation process.

The key principles of the peer observation model used by Mouraz et al. are that it is voluntary, symmetrical (all participants are both observers and observed), it is multidisciplinary (allowing for varied perceptions), it has flexible observation foci that are determined by those being observed, and the feedback is confidential (between the observer and observee) allowing for trust to develop.

While there are some small differences between the observation programme used by Mouraz et al. and the proposed model of observation for OP, the similarities between the two programmes are noteworthy and show that the OP model does align with current efforts by others. The OP model, like the Mouraz model, is voluntary and symmetrical in nature. As described, participants will only take part in the process if they choose to do so, whether this is for evaluative or developmental purposes. Participants will also act as both observers and observees, and, like the Mouraz model, they will be able to conduct their observations with autonomy by selecting their own focus areas and sharing these with their peers. As for confidentiality, participants who engage in the programme purely for developmental purposes will control which feedback they choose to share with the wider participant group. For those who choose to engage in the programme as part of their official performance review process, the confidentiality is lessened as their academic leader will receive their observation reports from the AcCap partner.

We can also compare the implementation of the Otago Polytechnic model to the Mouraz model. The OP model does not *require* that participants come from different disciplines, whereas the Mouraz model identifies quartets of teachers from two different subject areas. While the earlier research conducted (Staples, 2022) did include the use of inter-departmental observations as part of the idea for an organisation-wide process, and found these to be valuable to the participants, it was ultimately decided that the complexities of teaching at Otago Polytechnic (such as workload and timetabling) would not be conducive to make this a mandatory part of the observation process. Rather, the recommendation was to keep the observations within the various schools – at least until participants felt comfortable to explore beyond their own colleges.

The Mouraz model also identifies the use of an observation form during the class observations, which is completed by the observer. The use of such forms is common in observation programmes and is recommended throughout the literature (Kocur, 2021; Harris et al., 2008; Hendry et al., 2021; Kumar et al., 2020), although this is not specifically stated in the OP model. Therefore, one consideration would be that observation forms be included as part of the OP programme and that these forms are developed with participants when they join the process.

It is also noted that the quartets in the Mouraz model engage in a group reflection after each round of observation, where they share ideas for improvement of practice. While these sessions are essentially small, and only occur a maximum of three times, their aim is remarkably similar to the CoP sessions that form part of the proposed OP model. The difference being that the OP model would not be limited to only three rounds of observation and the CoP session would include all members of the team, whereas the Mouraz model limits their sessions to the smaller quartet groupings. For Mouraz et al. (2023), the value of a peer model is that it places emphasis on collaboration to improve long-term mutual professional development and development through communities of practice (Byrne, Brown & Challen, 2010 as cited in Mouraz et al., 2023). The CoP sessions are critical to the proposed OP model. In the results from 2022, it was the CoP that created a sense of empowerment for teaching staff and a willingness to share their practice. In fact, Kocur's (2021) potential negatives of the collaborative model – lack of adoption, fear of critiquing a colleague, and varied understandings of what constitutes good teaching – were not witnessed during the research. This, this researcher believes, is due to the regular meetings of the participants in the CoP sessions, where they were free to discuss their experience without judgement. Contrary to Kocur's concerns, the more the participants engaged, the more eager they became to share practice and observe more peers. As Mouraz et al. (2023) state, in the context of their programme, "the creation of learning communities between participating teachers and the reflection about the implemented improvements and innovations are the main drivers of development" (p. 50).

Reflective practice is a key aspect of peer observation programmes and is driven by the feedback given by observers. As Mouraz et al. (2023) point out, basing feedback and subsequent reflection on the isolated perceptions of an observer is dangerous, as it could be interpreted as evaluative or threatening to the teacher being observed. The authors suggest mitigating the dangers by training participants in giving constructive

feedback, allowing them to choose partners based on existing relationships, using a pre-designed observation form and engaging in pre-observations to determine observation objectives. We can argue here that the use of a CoP, as intended in the proposed OP model, would also greatly help to lessen the dangers inherent in providing feedback. Through a *continuous* process of observation and engagement in structured communities of practice sessions, the observed teacher would not be receiving isolated feedback from one observation. Rather, the feedback would be more frequent, and the teacher would be able to hear from, and engage with, a wider range of voices to develop new strategies to implement.

An important aspect of the Mouraz model is the inclusion of teacher training that occurs parallel to the observations, where teachers are guided through the observation process, including how to conduct observations and provide constructive, non-judgemental feedback. This study (Staples, 2022) engaged participants in similar training processes. While it was always intended that participants would receive such training as part of a peer observation programme, it has now been realised that this should be made more explicit as a component of the OP model. It would be the role of a learning and teaching specialist to train participants at the start of the programme and to continue offering support and guidance as part of their role as CoP champion. Should the L+T specialist choose to remove themselves from the process, due to their own workload, they would be able to pass the role of champion to another member of the CoP.

CONCLUSIONS

The model for peer observations at OP appears to compare well with recent scholarship and addresses the concerns and ideas that are present in the literature. The model is flexible and can be adjusted to the needs of the participants, whether these are evaluative or developmental. The model also allows for collaboration and reflection through development, via the continuous use of a community of practice. However, more explicit emphasis needs to be placed on the use of observation forms that will capture actionable feedback for those observed. Likewise, the need for observer training as part of the observation programme needs to be explicitly indicated as part of the model going forward.

AUTHOR 2 CONTRIBUTION

Peer observations provide an important tool for improving teaching practice, and providing valuable constructive feedback and recognition. Utilising an observation form and championed by an experienced learning and teaching specialist to make observations, provides an evidence-based approach useful for performance reviews.

The importance of a voluntary approach and the use of a community of practice, facilitated by a L+T specialist, cannot be underestimated. This could remove the fear of a possible poor evaluation, lack of trust and concerns around confidentiality. The CoP provides an effective social constructivist tool for building trust and a sense of belonging, sharing of enterprise and enhancing the reflectivity that is a precursor to independent learning (Henry et al., 2020). The CoP also provides an inclusive, non-judgemental learning environment for sharing teaching practice, mutual professional teaching development and promoting a sense of empowerment (Staples, 2022).

The peer observation and community of practice model, developed by Staples (2022), incorporates an evaluative, developmental and collaborative approach suggested by Kocur (2021), with each educator being an observer and observed. To be effective, the model needs to be flexible enough to fit around time poor teacher needs, initially including intra-departmental observations while later expanding to inter-departmental observations. As Staples (2022) points out, the key to peer observation is reflective practice. Reflective practice is the ability to reflect on one's actions to engage in the process of continuous learning (Schön, 1987). Reflective practice critically examines one's experiences and actions to learn from them and create an action plan to improve future performance (Morton, 2022).

AUTHOR 3 CONTRIBUTION

The work produced by Staples (2022) provides correlation with work of other researchers including Kocur (2021) and Mouraz et al. (2023), and it provides a combination of methods that suit a community of practice (CoP) for a cadre of lecturers who are new to an academic profession or are used to a didactic teaching system where they take sole responsibility of individual learner courses.

With the advent of a learner-centred strategy becoming important as one of the education priorities of Te Pūkenga, a CoP structure for tertiary academic professionals will be able to offer good support to the collaboration processes needed for learner-centred and peer facilitation work. The advantages an established CoP continues to provide are shared space and time for more processes such as staircasing (Harrison & Mendoza, 2019), and research-based learning (Fung, 2017) that will foster a climate of collegiality. This enables the development of academic professionalism and peer research practice to grow and thrive. This can be underpinned by a developmental framework of practice of a kind illustrated by Harrison (2021), and work on professional development and self-assessment provided by Boud (2005).

James Staples is a Learning and Teaching Specialist and senior lecturer in the Te Ama Ako team at Otago Polytechnic. He teaches on the Graduate Diploma in Tertiary Education and assists in the training of all new facilitators at Otago Polytechnic. He has 19 years' tertiary teaching experience.

https://orcid.org/0009-0009-6753-4158

David Woodward is head of apiculture programmes and principal lecturer at central Otago campus, Otago Polytechnic, and an academic mentor and assessor at Capable NZ (MPP, DPP). With a background in botany and zoology, he was a research scientist, state advisor and head of apiculture, with 25 years' tertiary teaching experience.

https://orcid.org/0000-0001-5716-8865

James Harrison is a principal facilitator and lead assessor for both Independent Learning Programmes in undergraduate business and engineering and Professional Practice post graduate programmes in business, management, leadership and education at Capable NZ. He received his PhD in vocational and professional learning from Victoria University, Melbourne in 2021.

https://orcid.org/0000-0001-8327-8451

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REFLECTIVE PRACTICE FOR EDUCATORS AND LEARNERS, AND THE BENEFITS OF BEING A REFLECTIVE PRACTITIONER

David Woodward, Shannon Booth, Elise Allen, Alexa Forbes and Clare Morton

INTRODUCTION

As tertiary educators, our Graduate Diploma in Tertiary Education (Level 7) (GDTE) research group, previously considered developing a teaching philosophy for a teaching credential and the enablers, challenges and use of metaphor employed in this process (Woodward et al., 2019). Subsequently, we considered our early impressions of teaching practice, enablers and challenges and made recommendations for improvement (Woodward et al., 2022).

Previous research on constructivism and reflective practice, as an evidence-based approach (Cullen et al., 2017) to tertiary teaching practice (Woodward et al., 2021), concluded that constructivism provides the vehicle for learner empowerment and was the most widely used pedagogical framework employed by educators for Otago Polytechnic (OP) learners (Woodward et al., 2020).

More recently, we decided to unpack the constructivist model of teaching and learning and explore the use of reflective practice. Reflective practice is the ability to reflect on one's actions to engage in the process of continuous learning (Schön, 1983).

Our GDTE research group collaborated in a Community of Practice (CoP), to write a research article on the use of reflective practice at OP. We set out to investigate how OP educators use reflective practice in their daily lives, how educators encourage use of reflective practice in their learners, and what educators consider are the benefits to learners of being a reflective practitioner.

METHODOLOGY

Henry et al. (2020) identified Communities of Practice as an effective social constructivist tool for building trust and a sense of belonging, sharing of enterprise and enhancing the reflectivity that is a precursor to independent learning. We therefore employed this social constructivist (Palincsar, 1998) approach to mine information from interviewees, all OP lecturers, or facilitators, using an autoethnographic approach (Maréchal, 2010) involving reflection on teaching experience. The GDTE CoP research group met online on a regular (fortnightly) basis to explore the research questions, with all interviewees being members of the CoP and co-authors of the present article.

FINDINGS

What reflective practice do you use as an educator in your daily life?

As a veterinary nursing educator, Clare encourages her work colleagues to incorporate reflective practices, not only in the classroom with their learners, but in their personal lives as well. The veterinary industry is a fast paced and stressful environment which can lead to compassion fatigue, so it is a key aspect to teach both herself and her learners how to be reflective practitioners. Compassion fatigue can be described as the loss of ability to care due to emotional and physical exhaustion and be characterised by loss of empathy or compassion towards co-workers and patients (Foote, 2020). Reflection can be a useful tool in helping to take a positive step towards understanding mental health in the workplace and combating compassion fatigue and burnout. Personally, Clare undertakes reflection by getting outside in her garden; it is here that she can think through past situations and experiences and develop plans for moving forwards.

Shannon describes herself as a deep thinker and a natural reflector. Being reflective is part of her personality and shapes who she is. "My reflective lenses are not something I choose to put on and take off," she says, "they just 'are'. It is part of an innate desire for self-improvement, and I view the world as my classroom, where every interaction is an opportunity to learn and grow." Shannon used her journey to become a lecturer at the Institute of Sport, Exercise and Health, as an example of this in practice.

> It was a long and diverse process to get here, but I always knew that this was what I wanted to do. So, for years I sat through department meetings, listened to other people's presentations, experienced other lecturer's lessons and teaching styles as a student, and thought about the way they communicated, the way they connected or did not connect with me, and I continuously reflected on all these experiences, and still do now, to shape the way I choose to teach today, now that I am finally in that role.

Elise, who is a lecturer in Information Technology (IT), has formed the habit of reflection both as an educator and in daily life. Reflection can be formal, for example annotating a lesson plan with ideas of how to improve the lesson next time, or informal such as making a mental note to communicate more clearly with a particular learner.

As an educator, Elise has found that both formal and informal reflection has been the driver of many beneficial outcomes professionally and for the department. Particularly beneficial has been the reflective processes enabled by co-teaching (Admiraal et al., 2022) as a natural part of lecturer discussion in the classroom. This informal, collaborative reflective process of discussing what does and does not work for learners and the curriculum, has led to significant improvements in learning design within the programme (Allen et. al., 2021).

Elise views reflection in daily life as the process of interpreting the consequences of actions and decisions and using this understanding to inform future decisions. The process of continual learning afforded by such reflection is the basis of accumulating "life experience" and underlies the idea of wisdom. Examples from daily life might include using past experience to inform the planning of a trip out of town or becoming a better gardener by keeping a gardening diary to record successful and unsuccessful crops and conditions.

Bringing a broad systems view and lenses of environmentalism and equity, Alexa, who works with learners studying the Master of Professional Practice and Bachelor of Applied Management, has a strong reflective approach that over many years of practice is now quite automatic. She first cultivated the habit as a learner who needed the discipline of studying her own reactions as well as the impact of actions. Kolb's reflective cycle was her introduction to the process (Kolb, 1984). Over the years, many other similar cycles made their way into her practice and thinking until eventually reflection was just a part of all work and private life. Alexa engages

in formal and informal reflective practice. Formal is erratic but takes the form of journalling when the world seems complicated. Informal is discussions with friends, colleagues and even self, without fear of vulnerability or surfacing emotions. This includes acceptance of emotions surfacing for processing. Reflection is a big part of developing emotional intelligence and trust in that intelligence. She finds a reflective process freeing, settling and capable of deepening friendships and collegiality even within a busy lifestyle.

How do you encourage reflective practice in your learners?

In veterinary nursing education, Clare felt they did not use reflective practice as much as they could. The aim is to develop and use this skill more effectively with her learners and educators, by embedding reflective practice in all the new Animal Healthcare and Veterinary Nursing programmes now being developed and offered from 2023 onwards. By using a simple three step model such as the "What? So What? Now What?" reflective model (Borton, 1970; Rolfe et al., 2001) and tailoring the prompt questions to suit the situation, she can introduce reflective practice to her learners in an easy and simple method. For the more adept learners, she can use a more in-depth form of reflective model, such as the Gibbs reflective model (Gibbs, 1998), where this brings in the awareness of feelings and analysing the perceptions of those involved. The students are encouraged to also consider the animals' viewpoint as well as their colleagues'. Journals can be used as a way of encouraging and developing the learners' reflective writing through providing feedback and feedforward from the educator.

At the Institute of Sport, Exercise and Health (ISEH) where Shannon teaches, the programmes have a strong focus on experiential learning opportunities (Kolb, 1984; Ministry of Education, 2023), which fits well with reflective practice. Their students participate in practical, authentic learning opportunities through work integrated learning placements, and are then encouraged to reflect on these experiences. As described in the ISEH Student Guide:

> Students engage in a learning cycle whereby they participate in an activity, reflect on that experience (think about it and ask questions about 'what?'), explore abstract concepts (ideas, theory, and beliefs 'so what?') and make connections (linking, relationships, and correlations – 'now what?') between this theory and the learner's actual experiences. Through this process new learning takes place and can then be applied to new activities and to work contexts. (Institute of Sport, Exercise and Health, 2023, p. 3)

These reflections are shared with classmates, mentors and teachers through formal and informal conversations, classroom discussions, presentations, and formal e-portfolios. The aim is to enhance students' learning through the ongoing cycle of experience/activity, reflection, and transfer of learning into action from one situation to another.

In the Bachelor of IT, Elise and her colleagues used reflective practice as educators to develop a curriculum with learner reflection at the heart. This is best represented in the series of courses called Studio (Allen et. al., 2021), in which experiences are carefully curated such that learners in teams will make mistakes in a safe environment, with the lecturers acting as coaches to manage frustration (Woodward et al., 2021). The Studio approach encompasses a "fail fast" mentality (Ries, 2011), allowing reflective cycles to happen early and often throughout the learning process.

The reflection process is formalised in Studio within the assessment system, which uses Performance and Development Review (PDR) techniques to encourage learners to write about and verbalise what they have learnt as well as allowing direct and personalised feedback from the lecturers. The PDR assessment includes a worksheet with prompt questions that learners answer twice each semester, helping them to identify what is going well for them and what they need to improve as well as encouraging learners to commit to concrete, self-identified actions to improve their own performance in specific areas.

Encouraging reflective practice in learners is a real challenge. Alexa finds some learners unwilling to examine the consequences of their action, so she employs strategies to create a safe place for them to do so. First, and arguably most successful, is to model the behaviour (Bandura, 1976; 1986). If Alexa is not afraid of vulnerability, she makes it safe for her learners to also be unafraid.

Secondly, Alexa provides opportunities for reflection within her facilitation. Usually, she uses Borton's simple framework: "What? So What? Now What?" (Borton, 1970; Rolfe et al., 2001). In a class scenario, this helps people reflect on their experience and think about what they might do differently in future. Feedback in this process is important so that gaps are not skipped across. This requires non-violent communication (Center for Nonviolent Communication, 2022), which creates a supportive and respectful environment that is honouring and never reductive. Non-violent communication emphasises deep listening and careful language use; for example, "are you willing to share...?" and "I noticed this...".

Lastly, Alexa brings evidence. The work of people like Mezirow (1991), show that transformative learning – that is, a fundamental shift in perspective—is enabled by reflective practice. Mezirow found that reflection empowers people to identify and challenge their own values and so develop higher understandings. The work of Hatton and Smith (1995) shows that learners engaged in reflective practice achieve higher marks because of their associated development of critical thinking skills.

However, none of these strategies work when the learner is not ready to do this thinking. This can be the case where a learner has unresolved deep trauma that can result in resistance to reflective practice; in these cases, Alexa does not push.

What do you consider are the benefits to your learners of being a reflective practitioner?

The benefits for Clare's veterinary nursing learners who undertake reflective practice, is learning the skill of being able to reflect before, during and after an experience or situation, which is essential for practical skills within a veterinary clinic. Schön (1987) talks about reflection in action, a type of reflecting that is done during a situation such as handling a cat and stopping briefly to make minor adjustments to your technique. Over time this becomes a learnt skill, and the learner undertakes that reflection in action with a new situation. Reflecting on action (Schön, 1987) is the act of reflecting after a situation or experience. This could involve writing in a journal or discussions with work colleagues in a 'debrief' meeting. Van Manen (1991) talks about a form of "anticipatory reflecting" which is done before an event that is known to be happening. This could be in the form of a pre-surgical discussion about an operation or procedure scheduled for that day.

Shannon embraces the idea of lifelong learning as being a mindset. Because our world is changing so fast, she believes that we can never have all the answers at any one time. It makes sense to her to both adopt and promote a lifelong learning approach, whereby an individual engages in a continuous process of reflecting (both in action and on action), analysing, and adjusting their practice in relation to the ever-changing requirements of their work and learning environments (Archer, 2007). Comments made by Pearson and Eastes (2022), on their reflective practice podcast, resonated with Shannon when they stated that reflection is:

> …not about ego or proving anything to leaders, or about the desire to be the best, but it is about a personal commitment to wanting to improve day after day; about getting it right for the students and making a lifelong commitment to getting better at what we do to help our students be successful in this ever-changing world.

Thus, Shannon believes the benefits lie in encouraging students to keep learning, to be intellectually curious, to engage in experiential education and reflective practice to help them to develop their own critical thinking and reflection skills, and to help them transfer their learning into action; this ensures they too can continue to improve and get better at what they do.

Similarly, to Shannon, Elise believes the benefits for her learners centre on an attitude of continuous improvement by default. Practising the ability to assess and adjust their own individual performance and performance as a team member will help them to form the habit of reflection. If learners always look to their lecturers for feedback and marks, when would they learn to assess their own performance (which they would need to do in a job)?

This might imply a form of self-assessment event, but reflection is an ongoing process rather than a one-off (Helyer, 2015). Before, during and after a task, we encourage learners to reflect on the intent of the instructions, measure their own performance against the marking schedule, or compare with others in formative tasks. Rather than always tell a learner whether they are doing well or not, it is better to teach them how to judge that for themselves. This does not replace coaching and feedback but is supplementary to those tools. Practising continuous improvement techniques will result in better academic results and translates later into better employees.

In Alexa's experience, reflective learners are also more resilient, more capable of critical analysis, and more able to respond positively to critique. Reflective learners do better (Hatton & Smith, 1995). Reflective learners can transform their thinking by enabling a perspective shift (Mezirow, 1991). Reflective learners better predict results and consequences through using a framework such as Borton's model (Borton, 1970; Rolfe et al., 2001).

DISCUSSION

Within our tertiary educators CoP, we acknowledged that reflective practice can be undertaken informally, during our daily lives while undertaking activities such as exercise (including walking, yoga, gardening), or relaxing (including talking to friends and family, listening to music, baking, reading, meditating, having a massage) (Morton, 2022). More formally, reflective practice can be undertaken while developing lesson plans, writing in a journal or diary, writing a blog or post, writing analytic memos, reflecting on teaching and peer observations (Staples, 2022), through counselling or clinical debriefing, through moderation of assessments and marking schedules, or providing feedback and feedforward.

Reflective practice can be undertaken in anticipation of an activity, "anticipatory reflecting" (Van Manen, 1991), such as reviewing a lesson plan to consider the relevance to the activity about to be undertaken; "reflection in action" (Schön, 1987), while the activity is being undertaken making changes 'on the fly'; or 'reflecting on action', where a review of what happened in a clinic, classroom, workplace, online meeting or programme delivery, is considered.

Many of these informal and formal reflective practices are used by our OP educators. A constructivist approach to embedding reflective practice in our learners was undertaken by our educators with experiential learning (Kolb, 1984), as the pillar. Educators encouraged various models with learners which often reflected the level of the course undertaken. Simple models such as the "What?, So What?, Now What?" reflective model (Borton, 1970; Rolfe et al., 2001), were used in veterinary nursing and at the Institute of Sport, Exercise and Health, where Shannon used work integrated learning placements (work experience), to provide learning cycles of reflection on experience shared with classmates, mentors and teachers through formal and informal conversations, classroom discussions, presentations and formal e-portfolios. Journalling was also used at entry level practical qualifications such as in apiculture and veterinary nursing classes, using diaries to reflect on practical activities undertaken and action required moving forward if a similar situation arose again.

Elise, working in the IT area, used several constructivist models, particularly in "Studio" courses where learners work in groups. This included social constructivism (Vygotsky, 1978), as group work encourages learners to learn from one another using collective scaffolding (Donato, 1994), and experiential learning (Kolb, 1984), making use of cycles of doing and reflecting including, importantly, allowing learners to make and learn from mistakes in an inclusive environment (Allen et al., 2021; Woodward et al., 2021).

Alexa also provides a safe, inclusive online learning environment, where she models behaviours of reflecting (Bandura, 1976), for students to feel comfortable to do the same and make mistakes, providing formative and summative feedback.

With more advanced Level 6 veterinary nursing students, Clare uses the Gibbs reflective cycle (Gibbs, 1998), particularly in coursework where assignments require reflective writing. This model analyses and evaluates, as well as considers feelings and emotions.

At the postgraduate Master and Doctor of Professional Practice level at Capable NZ, reflective practice is incorporated through journalling and analytic memos to develop a critical commentary or reflective summary using an autoethnographic (Maréchal, 2010) approach to demonstrate a transformative development (Mezirow, 1991), in one's professional framework of practice.

As Shannon has indicated, reflective practice is a life-long process which allows learners to reflect, analyse, adjust, adapt and pivot in an ever-changing learning and work environment (Archer, 2007). This adaptive plasticity allows those reflective students to be more resilient, to learn from their mistakes as they move through the minefield in front of them, staying positive in stressful situations to produce positive outcomes.

As Elise suggests, the ability of learners to adjust, measure and self-assess their performance, creates an employable learner who anticipates what is required in a work environment and can lead others to complete the challenging tasks foisted upon them. Alexa talks about transformative learning (Mezirow, 1991) – a fundamental shift in perspective; by varying learning and experimenting with new approaches, students have a richer learning experience. Learners will think more creatively, imaginatively and resourcefully, and be ready to adapt to new ways and methods of thinking, achieving higher marks through critical thinking and empowering learners to develop a higher level of understanding.

Lastly, as Clare points out, this ability to be a reflective practitioner, undertaking continual learning, helps us to avoid stress, reduces the chance of compassion fatigue, informs our teaching practice and improves our mental health. As the benefits seem to far outweigh the time spent practising such an important technique, how can we afford not to be a reflective practitioner and encourage our learners to do the same?

In conclusion, moving forward, our Community of Practice research group recommends that tertiary educators should encourage the use of daily reflective practice in both our learners and educators; encourage documentation of reflective thoughts before, during and after action; critically examine our actions and experiences to learn from them, and finally interpret actions, experiences and learning to inform future decisions and create action plans to improve future performance for continuous improvement.

David Woodward is head of apiculture programmes and principal lecturer at central Otago campus, Otago Polytechnic, and an academic mentor and assessor at Capable NZ (MPP, DPP). With a background in botany and zoology, he was a research scientist, state advisor, head of apiculture, with 25 years' tertiary teaching experience.
https://orcid.org/0000-0001-5716-8865

Shannon Booth is a senior lecturer at the Institute of Sport, Exercise and Health, teaching on both the Bachelor of Applied Science and the Otago Secondary Tertiary College Police Pathways Programmes. Shannon has a background in secondary teaching and adult education, specialising in the areas of physical education, women's health, communication development and holistic wellbeing.
https://orcid.org/0000-0002-0272-5799

Elise Allen is a principal lecturer in Web Development, Software Engineering, User Experience Design and Professional Practice in the Bachelor of Information Technology programme at Otago Polytechnic. Her current areas of interest include experiential learning, 'Agile' practices, industry workflows in the classroom and studio-based learning for technology subjects.

https://orcid.org/0000-0001-8208-0507

Alexa Forbes is a facilitator at Te Pūkenga College of Workbased learning (GDTE, GDSP, MPP, NZ Dip Te Reo (Rumaki) (Level 5)), and an elected member of the Otago Regional Council. Her specialist areas include futuring, sustainability and relational environmental thinking.

https://orcid.org/0000-0002-2637-6925

Clare Morton is a senior lecturer with the School of Veterinary Nursing (RVN, GDTE, MPP) and works on the Level 6 diploma as a learning advisor and lead moderator. Her specialist area lies in reflective practice and how we can integrate this into our professional and personal lives.

https://orcid.org/0000-0001-9600-5460

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