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FUTURE-FOCUSED ORGANISATIONS AND NEURODIVERSE LEARNERS

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# FUTURE-FOCUSED ORGANISATIONS AND NEURODIVERSE LEARNERS

Marianne Cherrington

## INTRODUCTION

Tertiary learning organisations are rethinking and adapting to the needs of business and industry. It is critical to align teaching and learning to modern organisational requirements (Ganeshan et al., 2021). This article outlines a reflective and ethnographic inquiry into organisational diversity and considers how to create more future-focused organisations with relevance for current and lifelong learning. In particular, the research explores issues facing learners in this new post-COVID era, such as resilience, wellness, and neurodiversity, and learner-focused perspectives that can evolve organisations in the future.

A forward-looking approach can inspire creativity, expand knowledge, and redefine meaning revealing new touch-points for industry and employability (Cherrington et al., 2021). This investigation sourced multifaceted and collaborative viewpoints that were initiated for training improvements. This research considers that diversity can be an approach for re-energising learning environments, to create true value as well as enhanced well-being and resilience. New approaches also hold promise of building capabilities for a new era of work.

The world of work has never been more dynamic and uncertain, yet foundations that are authentic and trusted allow for sureness that can inspire courage, and creativity with new, meaningful interactions (Detert & Bruno, 2017). This research investigates contemporary workplace diversity issues and ponders how tertiary learning providers can address issues. With the tertiary sector in flux in New Zealand, it is apt to reflect on where we are, and to progress with aspirations. To create a culture of life-long learning, environments which welcome diversity and inclusivity must be considered, evolved, and championed (Ossiannilsson, 2019).

This article specifically considers organisational diversity and neurodiversity, especially in tertiary education leading to the workplace. The topics are researched in the context of the new, post-COVID era and include the issues of resilience and wellness. Reflections are given from the author's experience in the electrical training industry, in which learners must achieve via technical learning, hands-on training and on-job workbook requirements for qualification. Reflections focus on a six-month period which culminated in Cyclone Gabrielle and two major flood events and created enormous contextual challenges to overcome for learning and teaching.

Formalised ethics approval was granted for a rudimentary tally of learner responses regarding learning style and attendance preference, improvement ideas and progress perceptions (permissions and ethical approval, Electrical Training Company, Rowhani, L. LR12.11.22).

This article is not prescriptive, but aims to promote reflective action along diversity pathways. A topical review was undertaken from a modern management perspective, to gain valuable insights for decision-makers. The approach permits a contextual review and progressive, long-term interpretation of what is most relevant when training electricians, but also for future-focused organisations to improve resilience, and real support for neurodiverse learners and instructors for organisational wellness from the viewpoint of a learning support manager.

Neurodiverse learning is a growing research field and, as such, not widely understood. While it may be true that 'not all smart students go to university,' many highly intelligent students train to be electricians. Electrical training is both theoretical and applied; specific issues arise, but begin with existing training models that need to be updated within existing frameworks.

## **THEORETICAL BACKGROUND: ASSESSING DIVERSITY AND INCLUSIVITY**

Workforce diversity themes consider comparisons amongst employees regarding cultural background, race, physical abilities and disabilities, religion, gender, and sexual orientation (Saxena, 2014). Increasingly, motivation exists for organisations to manage and champion diversity in the workplace; research establishes the need for diversity and inclusion for dynamic organisational success (Trenerry & Paradies, 2012). Diversity "leads to more and better innovation and improved financial performance," with 19 percent higher revenue, innovation and creativity (Lorenzo et al., 2018); top quartile companies for racial and ethnic diversity have financial returns 35 percent above industry medians (Hunt et al., 2015). Diversity and inclusion matter.

Diversity, work relationships and inclusion are also needed in top level positions (Combs et al., 2019). Workforces evolve, yet many employees are hidden, unable to exercise strengths and potential, so team synergies rarely optimise (Hughes, 2019). Without opportunity, excellent employees resign; action on diversity is required (Cox, 1991; Ng & Sears, 2020).

Measuring diversity can be complex, with various metrics, indices and techniques which sometimes add bias (Freire et al., 2020). Organisations jostle to be seen as diverse and transparent, and research on the topic is escalating as the implications are immense and compounding (Volpe, 2019). Multifaceted 'openness' can manifest in many veiled ways (Montgomery et al., 2019) so technology is used to search for diverse views in organisations and to stimulate value-in-diversity or detect anomalies in practice (Bader et al., 2019).

The evidence supporting diversity in the workplace is irrefutable (World Economic Forum, 2019) with a strong alignment to the United Nations Sustainable Development Goals (Miotto, 2018). Simply, organisations should reflect societies they serve; hiring practices should mirror labour market demographics (Wilson, 2010). Measuring for gender, age, disability, ethnicity, and so on, can assess if organisations are as diverse as their environments, with similar ratios (Stats NZ, 2013); it is easy to measure, distort and mask glass ceilings (Lewellyn & Muller-Kahle, 2019). Perhaps the bigger question is 'when equality?' (Wingfield, 2020). Strategies should recognise cultural diversity with fair and equitable processes (Bourke & Dillon, 2018), as it is a legal requirement (Human Rights Act, 1993).

Yet our current tertiary education system "does not adequately cater for diverse students or encourage new models to emerge to meet evolving needs and opportunities ... [and] that excludes some people from participating at all" (New Zealand Productivity Commission, 2017). As a result, our learning organisations will not have their needs met, and businesses will lack the benefit that diversity offers.

## **NEW DIVERSE LEARNING AND TEACHING PERSPECTIVES**

In a post-COVID learning and teaching environment, a re-evaluation of 'successful outcomes' is needed. The necessity of online learning suits some learners more than others so that achievement metrics are re-interpreted with a lens of resiliency for a myriad of valid reasons.

The purpose of education is to create possibilities, "to awaken and develop powers of creativity" (Robinson & Aronica, 2016), but standardisation thwarts meaningful possibility. Education and learning differ, but intertwine, as "schools drive public education and reflect our social values." But do we value an education system that fosters diverse relationships, enables us to engage with society and prepares us for action (Witehira, 2019)?

Young people want education to be relevant to the world they live in. They are adept at using new media and community engagement for “individual action, collective impact, and system change.” This generation is “being the change they wish to see” (Pipiri Ki A Papatūānuku, 2020).

Tertiary education is broken, expensive, takes too long and disadvantages those who need it most, and innovations are thwarted by opposing agendas (Ramsey & Khan, 2020). Post-COVID value versus cost trade-offs will be made (The Economist, 2020). Online education promises to be more flexible, inclusive and affordable; the tertiary sector is ripe for disruptive innovation. Transformational innovation is *by design* and educational design must be more available, accessible, acceptable, and adaptable (Westwood, 2018) using diverse academic sectors, to overcome common assertions of ‘leaking pipelines’ (Wingfield, 2020).

Inclusion implies equality of access. These are issues of sustainable development; the United Nations’ Sustainable Development goals include #10 *Reduced Inequalities*, #5 *Gender Equality* as well as #4 *Quality Education* that lead to #8 *Decent Work and Economic Growth* (United Nations, 2015).

Diversity benefits can energise and enliven our learning organisations by design; this includes schools and workplaces as sites of life-long-learning. Over three quarters of organisations are expecting complex change, of which cultural change ranks first. Conversations about diversity can unlock talent to celebrate who we are; these conversations can be formal and informal, and lead to informal coalitions and dynamics to hasten change (Rodgers, 2007).

## NEURODIVERSITY, WELLNESS, AND RESILIENCE

At best, most of our organisations and tertiary institutions clumsily add on strategies for neurodiverse learners. Yet strength is within people. Organisations grapple with inclusivity, but it is part of sustainable practice. Our job is to protect and watch over our every resource (Marae, 2014), a challenge that is ongoing and aspirational. Educators must reflect ever more deeply and act diligently on these challenges and opportunities, because what we do and how we do it matters. From the lens of *ako* (facilitation) we can re-energise our learning environments with more holistic approaches. From the lens of *akoranga* (learning), knowledge links learner and teacher, both of whom are recognised as knowledgeable, in the fullness of who they are (Marshall, 2014). Reflecting upon suitable learning, teaching styles, and context chosen can and should edify and benefit communities (Doesburg & Bull, 2019).

The neurodiversity paradigm considers variations in the way people perceive and interact in environments within normal cognitive variation. The term is linked with terms such as autism, attention deficit hyperactivity disorder (ADHD), dyslexia, and developmental language disorder (DLD) as examples (Hamilton & Petty, 2023). Neurodiversity can be associated with unique strengths.

It is estimated that 15 to 20 percent of the population is neurodivergent (Turner, 2021). The New Zealand Workplace Diversity Survey 2022 (Tolooei, 2022) revealed that about two thirds of neurodiverse people often mask it in the workplace, so our organisations are often unaware. Organisations must ask: What is it that our people need and how can we respond to that need?

The author confronted this conundrum as a learning support manager at an electrical training firm. Moving to data-driven decision-making and planning (Pace & Cherrington, 2020) it was clear that:

- data veracity and reliability is an ongoing task; data cleaning for analysis is vital.
- achievement and ‘at risk’ metrics conflicted, using three diverse ‘at risk’ definitions.
- management had been upskilling/workshopping for neurodiversity with no progress.
- some simple solutions, embedded in how we taught, would benefit all of our learners.

As a catch-all term, neurodiversity is rather vague; this can pose challenges within tertiary learning organisations, but the term can help focus learning and teaching strategic direction. Facilitators often face learners with neurodiverse traits or unidentified learning challenges; creating supportive strategies and learning environments is beneficial (Ker & van Gorp, 2024). Developing modes and choices in which to ‘attend to learning’ can be valuable (see Figure 1).

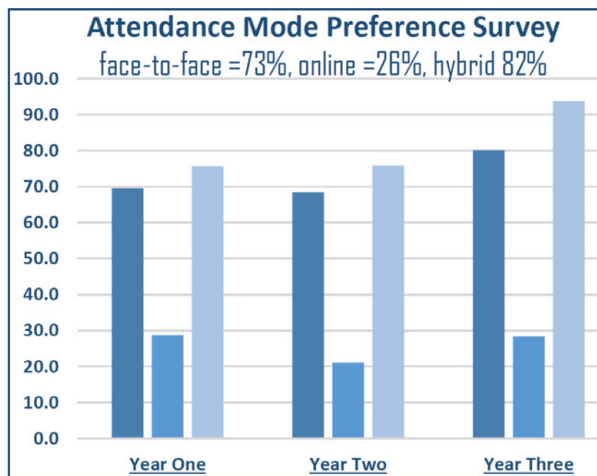


Figure 1. Student learning preference by year of study (multiple response permitted).

Whenever data-driven decisions are needed, data integrity is vital before creating models that lead to more innovative, effective solutions (Cherrington et al., 2020a, 2020b, 2020c). Consultants are not required to create a strategy, if neurodiverse youth are allowed and able to articulate, in detail, how their learning can be supported (via a learning plan, for example).

It is for management to translate this in an organisation, within training and learning settings.

## STUDENT-CENTRED TEACHING MODES, IDEAS AND PROGRESS

As a learning support manager for budding electricians who made myself available onsite and in our many external locations, I felt that about one fifth of our learners were neurodiverse. I felt this was a higher percentage than in other tertiary organisations and hypothesised that electrical training is difficult, but also hands-on with work-based assessments (to which neurodiverse learners might be partial). Regardless, our learners said action was needed.

Permissions were approved for an onsite tally of students' response to several proposed changes. From five different centres in Auckland and Northland, over one thousand learners were asked in evening classes for their partiality to several stated choices as in Figures 1, 2 and 3.

Extra-curricular, in person, and online evening classes were created in that last quarter of 2022 so *any learner* could get extra support for whatever reason, outside of a classroom. Approval was gained for an onsite tally of students' responses to the current perception of evening classes. Subjectively, I had spoken to many neurodiverse learners who could not learn online. They needed face-to-face teaching (even if they did not ‘connect’ with their teacher for various reasons); we encouraged them to bolster their learning with online support (Figure 1).

Also, tutor training began (it had long been requested) to build awareness of the needs of neurodiverse learners, some simple strategies (low hanging fruit) were implemented. Concurrently, specialists were advancing neurodiversity expertise to senior management.

Extra-curricular classes were intended to help 'at risk' students but often ended up being used as reinforcement learning for any challenged students. A 'solution' was a relatively easy and cost-effective programme. Anecdotaly, many students came to be in a learning atmosphere to do assessments in a communal learning atmosphere (like a library milieu). Many students were 'all good' (Figure 2). Some students could not learn online; others (often older learners) preferred the online options to get support for specific queries or for career guidance! It made me wonder how comfortable students felt to 'speak up' in a classroom setting.

In debrief, the sessions were under-attended but highly successful. They became a pilot for a cut-down, extra-curricular support programme in 2023. I felt the hard-yards would pay off, yet in 2023, the teaching year began a week early. Many students were not enrolled yet!

- In the first week, 23–27 January, two-thirds of new learners missed a week of learning.
- On 27 January 2023, a one-in-200-year rain event hit Auckland and its surrounds.
- On 1 February 2023, intense rainfall hit again (aggravating infrastructure hurdles).
- From 5 February 2023, Cyclone Gabrielle struck New Zealand, creating havoc.

Our learning and teaching strategy had hit a squally front. Power and roads were out for our Northland learners. Learners and teachers had insurance claims, no wifi, and cleanup urgency. Despite 70-hour work weeks and recording intense periods with a dozen actionable requests every five minutes, there was no way to get learners on track.

It was then that I realised that neurodiversity is also a wellness and resilience issue.

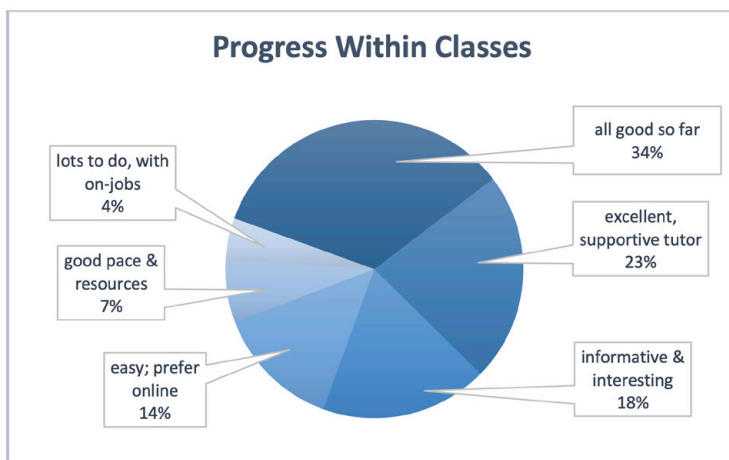


Figure 2. Student response regarding in-class progress.

Until then, I had 'oiled the squeaky wheel' and 'kicked the can' up the management chain while promising to address teaching, training, and learning environment issues in a strategic way.

Simple, cost-effective tactics that support neurodiverse learners exist (Takabayashi, 2024). Such scholarship can be used and tailored to needs. So, we communicated with our learners. For example, if I sent emails to all

my learners, I colour-coded and aligned them, paring them down to the most important, unmissable details; I asked their trainers to reinforce messages. Neurodiverse learners came to specifically tell me that highlighting key points was beneficial. We also instigated term-wise training for our trainers on ways to deliver in diverse classrooms. I established online catch-up classes each week using only the best trainers to summarise and deliver key concepts from each in-class sessions each week. Reinforcement learning worked!

Neurodiverse learners often associate with more than one 'label.' They may benefit from access to you or to mentorship to address issues before they become mammoth. Realise that 'solutions' come at a cost (in time, people, or money) so advocacy will be required.

A comfort is that solutions are often ways of learning, teaching and being that will support atmospheres of learning for all. That realisation creates a compelling cost-benefit analysis. Old, ineffective ways can create space and resources for more inclusive ways to deliver life-long learning organisations where the learning/teaching line is shared (Cherrington, 2019).

Neurodiverse learners have good resiliency to persist with slow moving frameworks. Many have tried (through trial and error) to discover ways to learn that work *for them*. We can:

1. Talk to our learners in non-confronting after-class spaces before they are 'at risk.'
2. Talk to our trainers and address their concerns (they tend to be older than learners).
3. Listen and action easy and cost-effective 'solutions' quickly and monitor their value.
4. Research nascent topics in neurodiversity; reflect on 'solutions' within organisations.

Some learning challenges go undetected for years. While training tertiary-level electrical students, we found many of our neurodiverse learners struggled with classroom pace; some were on learning plans. Many already knew and articulated the support they needed, seeking out the learning support managers for that support, or stating it, as in Figure 3.

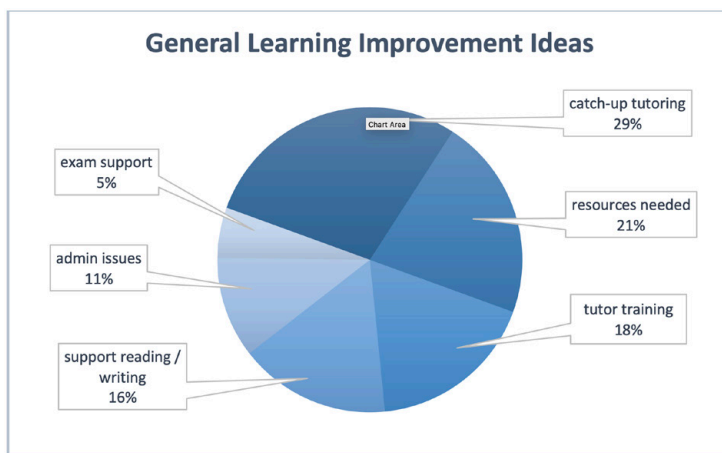


Figure 3. Improvement ideas to improve learning.

Neurodiverse learners have good resiliency to persist with existing qualification frameworks.

We are all 'at risk' and need to manage our wellness. I learned how to smile more and greet those around me with aplomb, even in extremely challenging circumstances and contexts. That bolstered my 'wellness and capacity.' No one has an endless well of resilience; without seeing real progress our capability, wellness and

resilience takes a hit. I learnt to speak up. I safe-guarded my wellness and resiliency because they are not infinite. Neurodiversity is the reality in our organisations now; we are just beginning a better journey.

## VALUING INCLUSIVITY: ENERGISING LEARNING ENVIRONMENTS

Holistic pedagogical values can underpin culturally inclusive learning, fixed in our practices, policies, and management systems (Dreamson et al., 2017). We can aspire to be continuous learning organisations, adding value to our communities and society, making experiential learning a routine (Cherrington et al., 2020f), using organisational knowledge and visionary collaborations to share wisdom and values that align with culture (Fox, 2011).

Applied learning is the kind of learning that we need to solve the “wicked problems” of this world (Edmonstone et al., 2019), like poverty, inequity, and pandemics. Because youth influence their peers, communities and even the heads of big corporations or governments (Goodall, 2020), relevant and energised learning environments are vital in our society. When programmes invoke disparate conversations, they shape a richer vision of the future without waiting for the system to catch up (Our programmes – Untouched World Foundation, 2020). Engagement can be built into the experience and conversation (Cherrington, 2020). This can be challenging in polytechnics, depending on subject or ‘linear perspectives’ of how knowledge and wisdom are attained (Figure 4) (Duan et al., 2017).

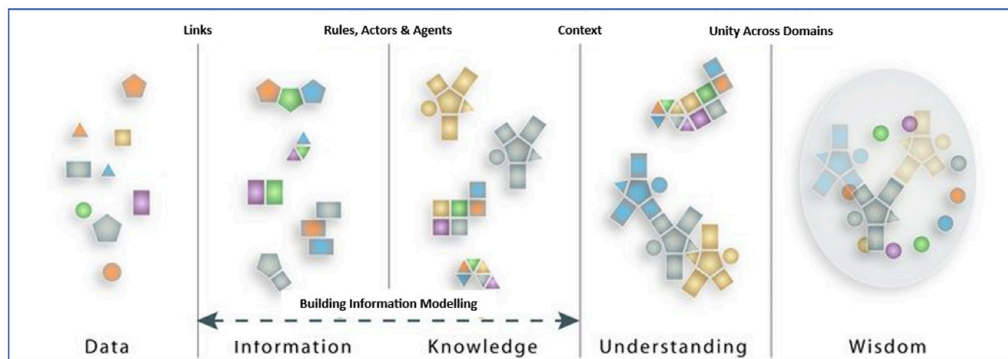


Figure 4. D-I-K-U-W progression with BIM/knowledge overlay (BIM ThinkSpace, 2011).

Similarly, industry placements and internships foster connection, partnerships and relationships; they support learning and attainment of qualifications and often lead to positions within the firm after graduation. It is another pathway to more diverse and inclusive workplaces. Aotearoa is more diverse than ever, so our life-long learning environments must reflect and value diversity. It can be as simple as breaking out of silos to work interdepartmentally on a campus with co-research projects (Cherrington et al., 2022).

An interesting elaboration of the D-I-K-U-W progression is given in Figure 4. It adds points of connection and perspective in the progression with examples that consider data types and industry sector or knowledge domains. Seeking and exploring intersections in organisations is where diversity benefits are found, to create transformational results (Benschop et al., 2015).

Diversity and inclusion policies and indigenous frameworks can create a basis for individual, collective and societal well-being (Harding & Oetzel, 2019) and as a metric for success in applied foundational formats for schools and research for collective well-being (Bouvier et al., 2016; Zhukov & Cherrington, 2020). Performance as a sole-metric is outdated (Cherrington et al., 2020d, 2020e).



## CONCLUSION

This article is not a prescription for energising polytechnic environments. It re-establishes the value of diversity, from a scholarly and organisational perspective, considering contemporary diversity issues in a New Zealand context. It develops a progression of diversity from tertiary learning and teaching, towards a view that organisations must wake up to the needs of our neurodiverse learners and our peers in places where we work. Communication and inclusion count. Developing understanding, knowledge and wisdom need not be linear.

Diversity of thought and of talent is vital to overcome the challenges we face. Diversity challenges the status quo, requires dialogue and is part of life-long learning. Diversity makes communities and organisations stronger, into sustainable futures (Chen, 2018). As we seek to energise our learning environments, let us learn to be more open, inclusive and diverse.

A great poet (Shevchenko, 1845) tenderly advised us to

Gain knowledge, brothers! Think and read,  
And to your neighbours' gifts pay heed,  
Yet do not thus neglect your own.

The purpose of education is to create untold possibilities, for us all.

**Marianne Cherrington** is a researcher in the stability of high dimensional machine learning algorithms and a business lecturer with a focus on Sustainability. A recent focus on applied problems in the electrical training industry has led to research projects generating exciting peer collaborations, sharing diverse interests and perspectives in learning and teaching.

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