

Promoting inclusive practice for autistic learners: Universal design for learning

Fiona Mitchell



ABSTRACT

The Universal Design for Learning (UDL) framework has the potential to enhance the inclusive practices of teachers with autistic learners in their classes. This study examines the extent to which the UDL framework is currently being used as a model for the inclusion of autistic learners in New Zealand primary schools. This study gathered data from a survey conducted online by primary teachers of autistic learners, and used the Universal Design for Learning guidelines to ask teachers how they felt they were using them within their classroom programmes. The study concludes that while some teachers are aware of and use the UDL framework, there is still work that needs to be done to ensure that it is consistently and consciously used to benefit autistic learners. There needs to be robust professional development programmes accessible to all teachers to see the UDL framework fully utilised within New Zealand primary schools.

KEYWORDS

Universal design for learning, inclusion, autism, New Zealand inclusive practices

Rationale

Within my role as a Specialist Outreach Teacher, I work across a range of different schools, and with a variety of teams and children who all have differing needs and are funded through the Ongoing Resourcing Scheme (ORS)¹. My role is to support the teams working with the child to encourage an inclusive and equitable learning experience for the child. This can sometimes mean working directly with the child, with the teacher aide to model strategies, adapting curriculum resources, and supporting teachers to consider these children when they are planning learning experiences. In 2021, I conducted research on the barriers teachers face when implementing an inclusive education

¹ The Ongoing Resourcing Scheme (ORS) helps students to join in and learn alongside their peers. It is for students who have a high ongoing level of need for specialist support at school and meet the criteria. Once a student is funded, it stays with them for their time at school (Ministry of Education, 2021).

(F. Mitchell, 2023). Almost half of participants did not understand what inclusive education is, and therefore were unsure how to implement it in their classrooms.

This led me to investigate the Universal Design for Learning framework, which promotes inclusivity, diversity and equity. This is a framework that, if implemented, could support all learners to access their right to an inclusive education by designing learning to meet the diverse and variable learning needs of the children. I have chosen to focus on this framework as the Ministry of Education recommends it as the optimal inclusive framework, and they provide online resources for teachers to be able to understand and implement it (Ministry of Education, 2018).

By conducting this research, I aim to continue my mission of educating and supporting the teams that work with the children I support, and others, to really reflect on their attitudes and practices, and how they could best support all learners. I have chosen to narrow my focus down to autistic learners, as in my experience they are often the ones who are excluded the most from learning opportunities. From the knowledge of the teams I work with, this can sometimes be because the understanding of autistic learners is not strong, and in some cases children appear to 'look normal', therefore negating the need for extra support. These children can be left on their own, and fail to succeed, which then creates further issues as they are not being heard or catered for with their learning. Universal Design for Learning is an effective framework for autistic learners, as it has a focus on the child's interests, strengths, and providing choice with the way they learn and demonstrate their learning (Ministry of Education, 2018; Whaikaha – Ministry of Disabled People and Ministry of Education, 2022). As Universal Design for Learning is also a culturally responsive framework, it means Māori autistic learners are also able to be fully included in equitable learning opportunities (Chita-Tegmark et al., 2012; Kieran & Anderson, 2018). UDL is a person-centred, strengths-based approach, and relies on teachers knowing their children well. This aligns with te ao Māori principles by placing an emphasis on relationships within the classroom, and allowing different ways of learning (Bishop & Berryman, 2009; Hargraves, 2022; Ministry of Education, 2009). Learners are able to bring their cultural experiences to their individual learning in authentic and inclusive ways through UDL (Chita-Tegmark et al., 2012; Hargraves, 2022).

Literature review

Inclusive practice

Autism is a term used to identify a condition that affects social communication, social interactions and behaviour functioning. From a deficit view, those diagnosed with autism are considered to have impairments in social communication and social interaction, with restricted, repetitive patterns of behaviour, interests, or activities (Ministry of Health, 2016; Whaikaha – Ministry of Disabled People and Ministry of Education, 2022). When exploring the best strategies for inclusive education, viewing autistic learners through a strengths-based lens is important to ensure that their potential is recognised (Cosden et al., 2006). Altogether Autism (2018) identifies the following areas as strengths for many autistic learners: visual processing; logical thinking; detail focus; strong ability to follow rules and routines; and motivation to learn through engaging high interest areas. D. Mitchell (2010)

and Alesech and Nayar (2020) define inclusive education as education in which children with special needs are able to engage fully in age appropriate classes in their local schools, and receive appropriate adaptations and support services.

Despite inclusive practice being a core component of *The New Zealand Curriculum* that New Zealand teachers are expected to abide by, many schools and teachers sometimes struggle to provide teaching and learning opportunities which reflect the policies and conventions that underpin education in New Zealand (Education Review Office, 2022; Kearney, 2013; Ministry of Education, 2015). These policies and conventions are: *The New Zealand Disability Strategy*, which ensures a commitment is made to no child being denied access to their local school because of disability and all children having access to resources that are equitable; and *The United Nations Convention on the Rights of Persons with Disabilities*, Article 24, which requires New Zealand educators to promote access, inclusion, empowerment, equity and the right to education for all (F. Mitchell, 2023; Office for Disability Issues, 2016; United Nations, 2019). Articles 23, 28 and 29 of the *United Nations Convention on the Rights of the Child* state that all mentally or physically disabled children have a right to active participation in the community, including the right to education that has equal opportunities and the right to develop to their full potential (United Nations, 1989). *The Education and Training Act 2020* ensures that all New Zealanders have access to the skills, knowledge and capabilities needed to fully participate in the community, and to support the health and well-being of all children (New Zealand Government, 2020). *The New Zealand Curriculum* ascertains that as a matter of social justice, everyone will have access to education in a way that works for them (Ministry of Education, 2015).

An inclusive practice framework called Universal Design for Learning, which provides for overall educational well-being, is promoted and well-resourced by the Ministry of Education. These resources include videos, guidebooks, discussions around Universal Design for Learning, and practical strategies for implementation (Ministry of Education, 2018). Universal Design for Learning can help schools create flexible, inclusive and accessible learning opportunities for autistic learners. The UDL framework supports teachers to make shifts from traditional teaching methods to equitable ones and provides meaningful access to the general education curriculum and settings (Evmenova, 2018; Ok et al., 2016; Smith & Lowrey, 2017). Learner variability is acknowledged within the UDL framework by recognising that each learner links the three networks of the brain – affective, recognition and strategic – in different ways, which influences the context in which learning occurs, emotional states of each learner, and the experiences, knowledge, interest and abilities that each child brings to the learning context (CAST, 2018c; Gordon et al., 2014). It is this combination that makes every experience unique for the learner, and which makes their learning variable (Rose & Meyer, 2002).

However, latest research shows that these guides are not being used effectively, if at all, by many New Zealand teachers, and there are some teachers who do not understand that UDL starts with the learner at the centre, and implementing this range of strategies ensures that all children, including autistic children, are having their learning needs met (Education Review Office, 2022). This study therefore focuses on the research question ‘to what extent do primary teachers use the Universal Design for Learning framework to support an inclusive education for autistic learners in New

Zealand?’ It defines Universal Design for Learning as an inclusive practice, discusses the value of using the framework, and situates the research within a New Zealand context.




Universal Design for Learning

There are three core principles of UDL which are linked to differing, yet interwoven, parts of the brain. Under each principle sits a set of guidelines and checkpoints to help educators to reframe teaching and learning (see Table 1). *Multiple means of engagement* is the first principle and is the ‘why’ of learning. This links to the affective network of the brain, which recognises the emotional and motivational aspects of what we do and what we learn (Gordon et al., 2014). The second principle is *multiple means of representation* and is the ‘what’ of learning. It links to the recognition network of the brain and allows us to gather and process information in the environment and make sense of that to use as effective knowledge (Gordon et al., 2014). The third principle is *multiple means of action and expression*, the ‘how’ of learning, and is how students are able to effectively demonstrate their understanding (CAST, 2018c). This is not a one size fits all approach, and requires teachers to have a deep understanding and appreciation of the difference that all children bring to the classroom, and a recognition that UDL planning starts with the child (Capp, 2017; CAST, 2018c; Gordon et al., 2014).

The value of the Universal Design for Learning framework

The Universal Design for Learning framework has great value for all learners. The *Aotearoa New Zealand Autism Guideline* recommends evidence-based strategies that educators should be using with autistic learners to provide an inclusive education (Whaikaha – Ministry of Disabled People and Ministry of Education, 2022). Although these strategies are not explicitly stated in these guidelines as Universal Design for Learning, all of the recommendations fit into the framework (Gordon et al., 2014; Whaikaha – Ministry of Disabled People and Ministry of Education, 2022). Using individualised supports and services that focus on the child’s strengths to help meet goals can be addressed through all three UDL principles. Implementing structured learning environments, taking into account the setting, schedules, choices and supports available for autistic learners is covered through *providing multiple means of engagement*. Teaching with systematic instruction, including explicit teaching of educational content, can be met through a focus on the guidelines of *providing multiple means of representation*. Specific curriculum content, involving the prioritisation of skills that are required to participate fully, can be linked with *providing multiple means of action and expression* (CAST, 2018b; D. Mitchell & Sutherland, 2020; Whaikaha – Ministry of Disabled People and Ministry of Education, 2022). UDL has positive implications for autistic learners as it is focused on finding ways that work for them so that the curriculum is equitable and accessible (Ministry of Education, 2018; Smith & Lowrey, 2017). UDL is a way to ensure that diversity is embraced in the classroom, rather than singled out. It allows teachers to identify and minimise potential barriers for individual learners before they occur (Ministry of Education, 2018; Mirfin-Veitch et al., 2020). A study conducted by Carrington et al. (2020) showed that educators who understand and implement UDL meet the needs of autistic learners by overcoming barriers to learning and providing flexibility within planning and teaching. Although this study was conducted in Australia, there are clear links to strategies for

Table 1. The UDL checkpoints listed under each guideline and core principle, with examples

 <p>Provide multiple means of Engagement Affective Networks The "WHY" of learning</p>	 <p>Provide multiple means of Representation Recognition Networks The "WHAT" of learning</p>	 <p>Provide multiple means of Action & Expression Strategic Networks The "HOW" of learning</p>
<p>Provide options for Recruiting Interest</p> <ul style="list-style-type: none"> *optimise individual choice & autonomy (choice boards, alternative seating, preferred topics, enlarged equipment, free play). *optimise relevance, value & authenticity (culturally, socially, age and ability appropriate). *minimise threats and distractions (considering acoustics, lighting, sunlight, brain breaks, fidget toys, sensory options). 	<p>Provide options for Perception</p> <ul style="list-style-type: none"> *offer ways of customising the display of information (adapted text, schedules, online tools, high contrast text, audio systems, visual cue cards). *offer alternatives for auditory information (closed captions, New Zealand Sign Language, sensory bins). *offer alternatives for visual information (audio books, bright coloured high contrast materials, text to speech). 	<p>Provide options for Physical Action</p> <ul style="list-style-type: none"> *vary the methods for response and navigation (adapted equipment, act out problems, handwriting adaptations, physical accessibility for wheelchairs/mobility, sports buddies, prompt cards). *optimise access to tools and assistive technologies (communication board, adaptive switches, speech to text, text to speech, word prediction software).
<p>Provide options for Sustaining Effort & Persistence</p> <ul style="list-style-type: none"> *heighten the relevance of goals and objectives (visual cue cards, rubrics, progress monitoring). *vary demands and resources to optimise challenge (adapted equipment, menu of options, modified assignments, reading prompts). *foster collaboration & community (big books, active listening, book buddies, circle time, social supports). *increase mastery-oriented feedback (individual conferences, peer activities for feedback, modelling behaviours). 	<p>Provide options for Language & Symbols</p> <ul style="list-style-type: none"> *clarify vocabulary and symbols, syntax and structure (glossaries, maths dictionary, word wall, vocabulary preview). *support decoding of text, mathematical notation, and symbols (heart words, play related texts, labels, reading aloud). *promote understanding across languages (cloze sentences, word bank, word wall) *illustrate through multiple media (picture choices, maths manipulatives, animations, visual aids). 	<p>Provide options for Expression & Communication</p> <ul style="list-style-type: none"> *use multiple media for communication (text assignment or video submission, sticky notes, role play, poster summary). *multiple tools for construction and composition (alphabet blocks, dice, maths games, letter/word tiles, sentence starters, manipulatives). *build fluency with graduated levels of support for practice and performance (templates, multiple choices, participation scripts, mini lessons, interactive activities).
<p>Provide options for Self Regulation</p> <ul style="list-style-type: none"> *promote expectations and beliefs that optimise motivation (brain breaks, reinforcers, task variation, visible boundaries, first/then task boards). *facilitate personal coping skills and strategies (belly breathing, fidget toys, calming strategies and spaces, movement breaks, mindfulness). *self-assessment and reflection (check in/check out, online tools, problem solving checklists, goal setting, thinking routines). 	<p>Provide options for Comprehension</p> <ul style="list-style-type: none"> *activate or supply background knowledge (brainstorming, photos, pre reading, verbal prompting, visual cueing). *highlight patterns, critical features, big ideas, and relationships (anchor charts, comic strips, modelled writing, shared reading, word sorts). *guide information processing and visualisation (calculator, explicit instruction, guiding questions, imaginative play, KWL charts, multiplication chart). *maximise transfer and generalisation (character maps, modelling, T-Charts, graphic organisers). 	<p>Provide options for Executive Functions</p> <ul style="list-style-type: none"> *guide appropriate goal-setting (rubrics, visuals, explicit instruction, goal setting). *support planning and strategy development (templates, outlines, graphic organisers). *facilitate managing information and resources (anchor charts, breaks, retelling, story map, to-do lists, visual task schedule). *enhance capacity for monitoring progress (audio, rubrics, marking guides, help signal/visual, calming space, visual task schedule).

Adapted from "The UDL Guidelines" by Cast, 2011.

autistic learners that educators were using that can also be found in the *Aotearoa New Zealand Autism Guideline*. For example, using the learner's interests and strengths, using visual systems, explicit teaching and accepting different ways of communicating (Carrington et al., 2020; Denning & Moody, 2013; Whaikaha – Ministry of Disabled People and Ministry of Education, 2022).

According to Smith (2023), it can be determined that by implementing UDL strategies such as providing visual scaffolds in writing lessons, barriers to learning are removed for autistic learners which then creates a positive impact in the engagement of the tasks. Universal Design for Learning provides the flexibility that autistic learners need by allowing information to be presented in different ways, and allowing different ways for them to demonstrate knowledge and skills, and become engaged in their learning. It reduces barriers to instruction, while maintaining high and realistic expectations for all learners (Edyburn, 2010).

Universal Design for Learning within a New Zealand context

Universal Design for Learning is a culturally responsive framework which makes it highly relevant to New Zealand (Chita-Tegmark et al., 2012; Kieran & Anderson, 2018; Lakkala & Kyrö-Ämmälä, 2021). UDL focuses on learner variability, and cultural diversity reflects the way learners experience and interact with their contexts. Culture informs all aspects of learning, and provides different experiences which are an important part of learner variability (Chita-Tegmark et al., 2012).

Bolstad and Gilbert (2012), in a report to the Ministry of Education on future-oriented learning and teaching, noted that international education began to shift to a new phase in the latter part of the 20th century. It was a change preceded by an awareness of the world changing, and the amount of human knowledge generated as a result. Within New Zealand, it was recognized that teachers needed to actively develop capabilities of learners to allow them to successfully engage in the 21st century, including shifts in how knowledge is gained and understood. Six principles emerged from this report as essential for 21st century learners. These are personalising learning; new views of equity, diversity and inclusivity; a curriculum that uses knowledge to develop learning capacity; “changing the script”: rethinking learners’ and teachers’ roles; a culture of continuous learning for teachers and educational leaders; and new kinds of partnerships and relationships (Bolstad & Gilbert, 2012).

These principles align with Universal Design for Learning, although within Bolstad and Gilbert’s (2012) report this connection has not been made, potentially due to UDL not being as prominent at the time of the report. Personalised learning is at the forefront of the UDL framework, and it provides the opportunity for teachers to really understand and demonstrate an equitable curriculum for all. Universal Design for Learning requires a shift in educational paradigms, in which the teaching and learning roles are reassessed and used to benefit the learners, and support their development in becoming expert learners. This framework requires teachers to deeply know and be able to connect to the strengths and interests of each child (Bolstad & Gilbert, 2012; CAST, 2018c).

Universal Design for Learning is a person-centred and strengths-based approach, and holds the underlying beliefs that all students require high and realistic expectations to be set; barriers to success exist in the system, not in the student; a one size fits all approach does not work; and self-

reflection leads to expert learners (Butler, 2019; Schwartz, 2022). *Ka Hikitia: Accelerating Success 2013–2017* is a unique strategy focus for New Zealand that emphasises the components required to support educational success for Māori learners, while acknowledging the principles of the Treaty of Waitangi (Ministry of Education, 2009, 2012). The strategies within *Ka Hikitia* allow teaching and learning to happen for Māori learners in ways that support all learners to engage and achieve success, by knowing their own potential and being able to successfully set goals (Ministry of Education, 2013). This links in with the *multiple means of action and expression* principle of UDL, where it is important to support learners to develop the skills of effective goal setting (CAST, 2018c). Being a part of learning that is relevant and engaging aligns with the *providing multiple means of engagement* principle. *Providing multiple means of representation* allows Māori learners to demonstrate the skills and knowledge in ways that reflect who they are culturally, and provides opportunities for te reo Māori (Māori language) and tikanga Māori (Māori culture) to be an important aspect of accessibility (CAST, 2018c; Ministry of Education, 2013). The connection between culturally responsive teaching and learning is even more important when considering Māori autistic learners who often require support in relation to their autism, and who may already hold one marginalised identity due to culture (Ratima & Ratima, 2007). These strategies align with the beliefs of the UDL framework, and when effectively implemented, offer Māori learners the opportunity to have their identity, language and culture valued and included in the classroom (Ministry of Education, 2013).

While there is limited New Zealand research to indicate the use of UDL, worldwide literature suggests that with professional development and an understanding of the UDL framework, there is an increase in teacher's confidence and use of UDL in practice (Engleman & Schmidt, 2007; Evmenova, 2018). Studies from Kearney (2013) and F. Mitchell (2023) situated in New Zealand conclude that the right perspective from teachers regarding inclusive practice is vital to the success of implementing Universal Design for Learning. The latest research from the Education Review Office (2022) regarding the quality and inclusiveness of education provision for disabled learners indicates that the UDL framework has the potential to be a successful way to increase the strength of inclusive practices within New Zealand classrooms. However, as it currently stands there are too many teachers who perhaps dismiss UDL as what is already being done, or who do not have the confidence to implement it as it needs to be. The understanding that reducing barriers for autistic learners before they occur is vital (Butler, 2019).

In summary, autistic learners bring a range of strengths to classrooms, such as strong visual-spatial skills, and memory and auditory skills (Bennie, 2019; Whaikaha – Ministry of Disabled People and Ministry of Education, 2022). By enhancing these strengths, and *providing multiple means of engagement, representation and action and expression*, teachers can provide an inclusive education for these students. An inclusive education gives the opportunity to all children and young people to be engaged in learning by being present, participating and increasing their sense of belonging (Denning & Moody, 2013). In New Zealand, the Ministry of Education provides policies to guide educators towards the importance of inclusive education, but research shows that there are still many schools not providing this for their autistic learners (Bolstad & Gilbert, 2012; Ministry of Education, 2015; Office for Disability Issues, 2016; United Nations, 2019). Universal Design for Learning has been identified by the Ministry of Education as a framework that is culturally responsive

and inclusive of all learners, yet it does not seem to be reflected in many New Zealand schools (Education Review Office, 2022; Ministry of Education, 2018).

Research suggests that using the guidelines of Universal Design for Learning provides the opportunity for students to become expert learners through the way that they learn and the connection to the networks of the brain, which sets them up for future success (CAST, 2018c). While there are limited studies based in New Zealand, this framework is the way to provide for our 21st century learners, and to keep up with the changing world we live in. There are many aspects of Universal Design for Learning that add value to education in New Zealand today, and it is an equitable framework in which all learners are able to be included in the general curriculum (Bolstad & Gilbert, 2012).

Methodology, method and ethics

The research question that this study focuses on is, 'to what extent do primary teachers use the Universal Design for Learning (UDL) framework to support an inclusive education for autistic learners in New Zealand?'

This research used a quantitative approach, in the form of an online survey, to collect and analyse numerical data for each checkpoint that supports the three core principles (multiple means of engagement, multiple means of representation, and multiple means of action and expression) of the Universal Design for Learning Framework. Gathering quantitative data through an online survey was the best approach for this research to ensure that participants were able to give honest and anonymous answers (McCombes, 2019). An online survey also reduced the risks in the current climate due to the uncertainties during the COVID pandemic. The survey used a Likert scale of five options to allow for participants to decide on answers and for the data to be captured and analysed successfully. These were in a dropdown box, with the options never, occasionally, sometimes, often and always (McCombes, 2019). The questions were derived from statements that are taken from the UDL guidelines and checkpoints. A time frame of three weeks was allowed for the survey to be completed, through Google Forms.

Participants for the study were recruited using social media platforms (*NZ Primary*, *NZ New Entrants Teachers*, and *Horowhenua Kāhui Ako*). An information sheet providing an overview of the study and the selection criteria was attached to ensure informed participation in the study. The eligibility criteria for participants completing the survey was they needed to be a primary teacher in a New Zealand primary school (year 0-8), and have taught an autistic child/group within the last five years (due to UDL being in New Zealand in this timeframe). The survey needed to be completed with this child/group in mind, rather than a focus on the whole class. This was to ascertain data in relation to autistic learners and the use of UDL principles for inclusion of this group of learners. A total of 58 teachers responded.

Data has been analysed using percentages as a measurement tool, with a total of 55 eligible completed surveys. The scales 'sometimes', 'occasionally' and 'never' have been combined together for a total percentage with the understanding that for successful implementation of an inclusive

education, strategies should be used 'often' or 'always' to be effective (Lakkala & Kyrö-Ämmälä, 2021). Google Forms was used to create and share the survey due to being reliable, easy to navigate, and giving a range of options to support the analysis of data. There may have been limitations with using this method, as it can be easy just to click the answers you believe the researcher wants to hear. With this in mind, all participants were asked to be reflective and honest when answering, and the data gathered shows that this has been carried out as requested as there were a range of scales used by individual respondents. Ethics approval for this research was obtained by completing a Massey University low risk ethics application.

Results

The 55 participants in this study represented all primary age groups from Year 0 to Year 8. For the purposes of this study, Year 8 has been included as primary to include both full primary schools and intermediates. The participants were geographically spread across New Zealand, with the majority of participants situated in the North Island. Figure 1 shows the participants according to the year level they taught.

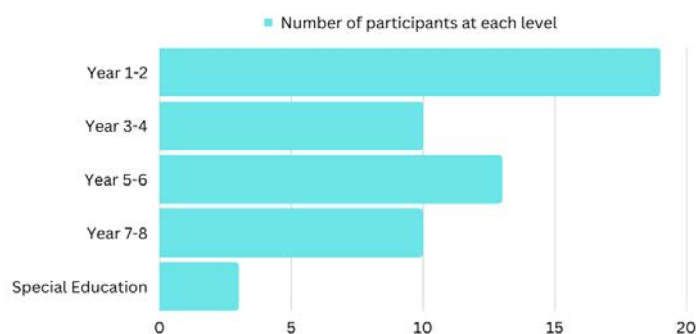


Figure 1. Number of teachers at each year level who responded to the survey

Research findings have been organised into the following categories to demonstrate the extent of the participants' understanding of Universal Design for Learning (UDL) as a framework: using *multiple means of engagement*, using *multiple means of representation* and using *multiple means of action and expression*. This allowed data to be gathered that was able to show to what extent UDL was being used by the participants and has provided discussion of more common strategies being used versus those least known and used least effectively.

Understanding of UDL

There were varying understandings of the Universal Design for Learning framework from participants. Well over half of participants (65%) had heard of Universal Design for Learning within their contexts. Over half (51%) of participants stated that they did not implement the principles of

UDL in their programmes, or were unsure if they did. Thirty-five percent stated that they had not heard of UDL before. However, when analysing individual anonymous responses, the data showed that some teachers were in fact using some of the principles without realising what the underlying framework of UDL was.

Professional development had not been provided for 75% of participants, while some indicated that they had encountered the framework through recent studies, or as a part of in-school professional development conversations. Data results across all three principles of UDL (multiple means of engagement, multiple means of representation, and multiple means of action and expression) showed that participants found implementing multiple means of action and expression the most challenging.

Figure 2 shows the overall use of the three principles. The scales sometimes, occasionally, and never are combined together because optimally teachers should be consistently following guidelines for UDL to provide the most benefit for autistic learners.

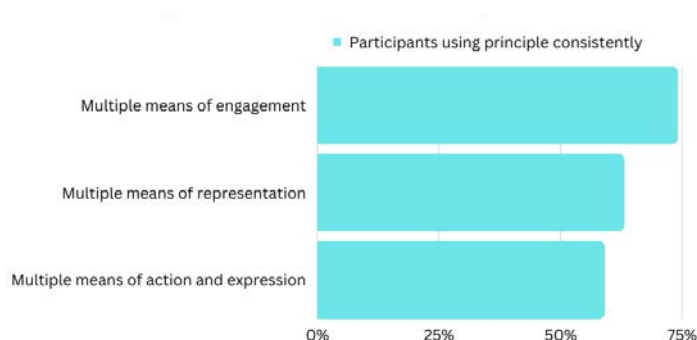


Figure 2. Percentage of teachers who always or often use UDL strategies across the three principles

Overall, combining the percentages of always and often, 74% of participants consistently provided a range of multiple means of engagement strategies, 63% provided a range of multiple means of representation strategies, and 59% provided a range of multiple means of action and expression strategies.

Multiple means of engagement

Most of the strategies indicated in the multiple means of engagement principle of UDL saw participants always or often using them in their teaching. Figure 3 identifies that 84% of participants were consistently using strategies such as choice boards, alternative seating, preferred topics, enlarged equipment, and free play for their autistic learners. Classroom programmes were shown to be culturally, socially, age and ability appropriate for 87% of participants.

I optimise individual choice & autonomy by offering choices of what and how students learn, and how they express their learning (such as choice boards, preferred topics, enlarged equipment, free play).
55 responses

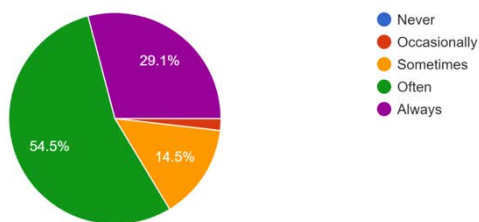


Figure 3. Percentage of teachers providing choices to assist autistic learners in expressing their learning

Providing a safe environment for learners, while taking into account acoustics, lighting, sunlight, brain breaks, fidget toys, and sensory options was well represented with 72% of participants doing this always or often (Figure 4).

I minimise threats and distractions by creating a safe space for learning with minimal risk of distractions (such as considering acoustics, lighting, sunlight, brain breaks, fidget toys, sensory options).
55 responses

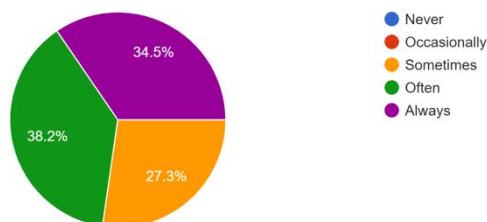


Figure 4. Percentage of teachers providing a safe space for autistic learners

Of the 55 participants, 54% indicated that they did not consistently encourage autistic learners to discuss goals, or provide learners with a range of options to meet the goals. Providing a classroom environment that fosters collaboration and community was actioned by 82% of participants, indicating that they used circle times, social support systems and active listening to do this. The data for providing options for self-regulation showed that 78% of teachers were supporting autistic learners with personal coping skills and strategies by modelling, movement breaks, mindfulness and calming strategies and spaces being used.

Figure 5 indicates that 85% of participants used strategies for autistic children such as brain breaks, reinforcers, task variation, visible boundaries, and first/then task boards to optimise motivation and develop relationships, while making authentic connections.

I promote expectations and beliefs that optimise motivation by fostering conversations with students to develop relationships and make authentic...tion, visible boundaries, first/then task boards).
55 responses

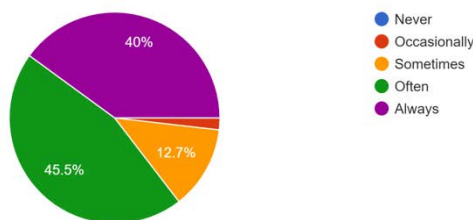


Figure 5. Percentage of teachers building positive and authentic relationships with autistic learners

Multiple means of representation

Figure 6 shows within the principle of providing multiple means of representation that 67% of participants varied resources to provide challenges for students to learn with degrees of difficulty.

I vary demands and resources to optimise challenges by providing options for students to learn content with clear degrees of difficulty (such as a...f options, modified assignments, reading prompts).
55 responses

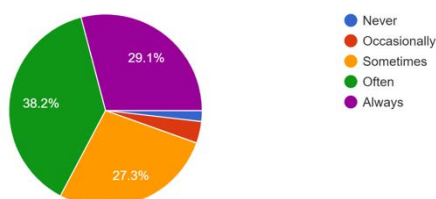
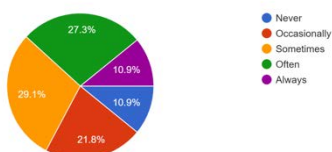


Figure 6. Percentage of teachers using strategies to optimise challenges

When it came to providing consistent options that give alternatives to relying solely on auditory and visual information, which includes taking into consideration the use of closed captions, New Zealand Sign Language, audio books and high contrast texts, 62% of participants indicated that they did not do this (Figure 7).

I offer alternatives for visual information by providing multiple options for students to choose alternatives to learn content so they don't have to ...t coloured high contrast materials, text to speech).
55 responses



I offer alternatives for auditory information by providing multiple options for students to choose alternatives to learn content so they don't have t...ptions, New Zealand Sign Language, sensory bins).
55 responses

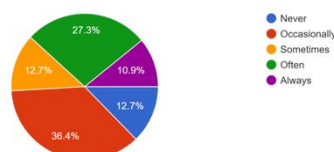


Figure 7. Percentage of teachers not providing options in programmes for auditory and visual differences

Eighty percent of participants believed that they provided scaffolding and prompts for their autistic learners. However, over half (53%) of participants stated that they did not consistently model using explicit teaching strategies for learners to be able to transfer the knowledge to other content areas (Figure 8).

I maximise transfer and generalisation by modelling explicit strategies students can use to transfer the information they have to other content areas a...er maps, modelling, T-Charts, graphic organisers).
55 responses

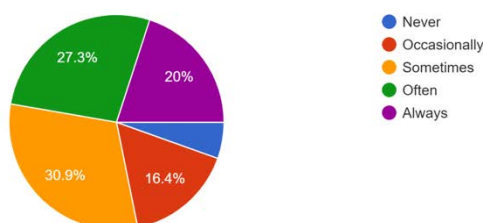


Figure 8. Percentage of teachers not modelling with explicit teaching strategies for autistic learners

Over half (58%) of participants sometimes, occasionally or never supported understanding across languages by making key information available in first languages (the language the learner speaks and understands the most fluently) of autistic learners (Figure 9).

I promote understanding across languages by making key information in the dominant language available in the first languages of learners with li...cy (such as cloze sentences, word bank, word wall).
55 responses

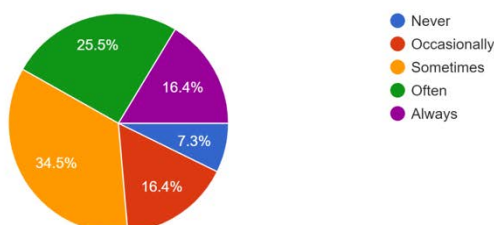


Figure 9. Percentage of teachers not supporting understanding across languages

Providing representation through different options to support building comprehension (such as picture choices, maths manipulatives and visual aids) was indicated as being always or often used by 67% of participants (Figure 10).

I illustrate through multiple media by providing multiple options and symbolic representations to build comprehension (such as picture choices, maths manipulatives, animations, visual aids).
55 responses

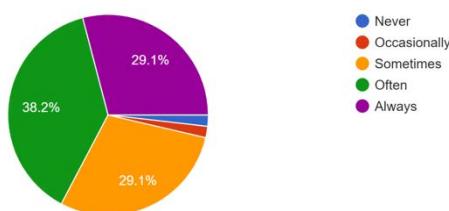


Figure 10. Percentage of teachers providing different options to support building comprehension

Multiple means of action and expression

When analysing data related to multiple means of action and expression, there were wider gaps evident in the data. Access to assistive technologies, such as communication boards, adaptive switches, speech to text, text to speech, and word prediction software, was provided inconsistently by over half (51%) of participants (Figure 11).

I optimise access to tools and assistive technologies by providing options for all students to use assistive technology (such as communication board,... text, text to speech, word prediction software).
55 responses

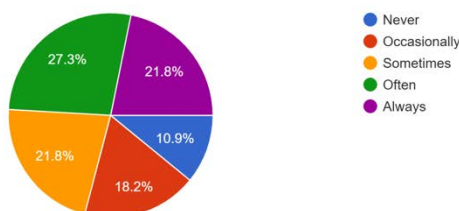


Figure 11. Percentage of teachers not using alternative technologies for autistic learners

Providing more than one way to complete assessments so autistic learners could express their understanding without barriers was indicated as being used sometimes, occasionally, or never by 56% of participants (Figure 12).

I use multiple media for communication by providing more than one way to answer on assessments so students can express their understanding (e.g., oral, written, drawing, sticky notes, role play, poster summary).
55 responses

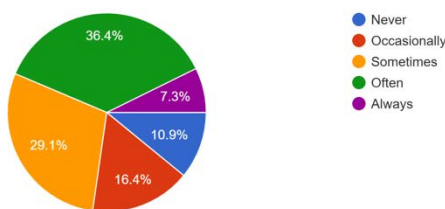


Figure 12. Percentage of teachers not providing opportunities for autistic learners to express their understanding without barriers

Figure 13 shows that 56% of teachers were inconsistently providing personalised plans, explicit instruction and goal setting for autistic learners. Explicit instruction was also represented by a low percentage within the principle of representation. Forty-four percent of participants did not consistently provide options such as adapted equipment, handwriting adaptations, and physical accessibility for wheelchairs/mobility. Sixty-seven percent of participants were always or often providing options such as templates, multiple choice, and interactive activities to support autistic learners to build fluency. In contrast, 53% of participants were not consistently providing organisation tools and scaffolds to support these learners.

I guide appropriate goal-setting by encouraging students to create personalised learning plans and strategies that optimise personal strengths while addressing individual needs (e.g., oral, written, drawing, sticky notes, role play, poster summary).
55 responses

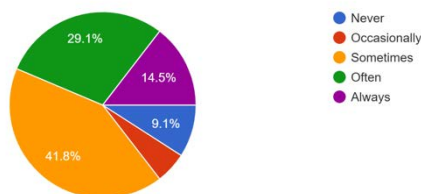


Figure 13. Percentage of teachers not providing personalised plans, explicit instruction and goal setting for autistic learners

Discussion

Previous research has demonstrated that inclusive practice in New Zealand schools is not as strong as it should be (Education Review Office, 2022; Kearney, 2013; D. Mitchell & Sutherland, 2020; F. Mitchell, 2023). The results have helped to address the question of this study ‘to what extent do primary teachers use the Universal Design for Learning (UDL) framework to support an inclusive education for autistic learners in New Zealand?’ This research question is outlined below as understanding the UDL as a framework, and then the extent of which each core principle (multiple means of engagement, representation and action and expression) of UDL is used by the participants of this study.

Understanding UDL as a framework

Overall, the data showed that a large majority of participants used some principles from the Universal Design for Learning framework, although they were not always aware of what they were doing, or even perhaps making conscious decisions to implement them (Moffat, 2022). Participants primarily taught juniors (Year 1-4), although senior teachers were represented (Year 5-8). The latest research from the Education Review Office (2022) indicated that a large number of teachers are not using the provided guides from the Ministry of Education about UDL and inclusive practice. This aligns with this current study as some of the strategies being used may appear to be naturally occurring ones that teachers often do not need to think about if they have had plenty of experience with autistic learners (Ok et al., 2016). Data showed a large number of teachers had not had the opportunity for professional development in UDL, and also a concerning number had not heard of UDL at all before. The Education Review Office (2022) report confirms that teachers lack opportunities to improve their skills, and to develop knowledge of inclusive practices that will benefit autistic learners.

Using multiple means of engagement

The data demonstrates that providing multiple means of engagement for autistic learners is a high priority for most participants. The findings from the study suggest that participants are building opportunities for autistic learners to provide input into how some classroom tasks are designed, and including a variety of classroom activities to cater for different experiences, identities, backgrounds and cultures (National Center on Universal Design, 2014). Opportunities are occurring for providing options for self-regulation. Self-regulation fits into the New Zealand curriculum as a whole, particularly with a recent focus on school wide mindfulness programmes (Kenwright et al., 2021; Ministry of Education, 2015). Participants are showing that they are providing learner variability for autistic learners by considering the emotional state of the learner as being important (Ministry of Education, 2018; Rose & Meyer, 2002).

A high number of participants are considering engagement in terms of using evidence-based strategies for autistic learners such as choice boards, preferred topics and allowing for alternative classroom setups to meet the individual needs of the child (Whaikaha – Ministry of Disabled People and Ministry of Education, 2022). The majority of participants within this study are ensuring that programmes for autistic learners are culturally, socially, age and ability appropriate, which reflects back to the New Zealand curriculum as an inclusive and culturally responsive document (Macarthur, 2009; Ministry of Education, 2015). This also sits in alignment with a safe environment being provided for learners. Although the data shows higher numbers here, which also reflects other relevant studies, the concern is still there for the approximately 20 to 30 percent of participants that are not providing a safe learning environment consistently for their autistic learners (Education Review Office, 2022; Kearney, 2013). For the child to feel as though they belong, and are safe, it is paramount to have effective engagement in their learning (Alesech & Nayar, 2020; Gordon et al., 2014; F. Mitchell, 2023).

Over half of the participants were not consistently providing options to discuss goals with autistic learners and to make learning visible for them. Goal setting is an important part of the UDL framework, with personalised learning at the forefront (Bolstad & Gilbert, 2012; CAST, 2018c).

Using multiple means of representation

In a study conducted by Barker (2017), it was discovered that multiple means of representation was the principle that teachers found the most challenging. It suggests that participants are not as comfortable with understanding how to provide different ways for learners to make connections with concepts by considering sensory needs, language or cultural differences, and learning needs, all of which can be evident in autistic learners (CAST, 2018b; Whaikaha – Ministry of Disabled People and Ministry of Education, 2022). This is perhaps where the lack of understanding of the framework as a whole lets the teachers down (Education Review Office, 2022). Barker (2017) suggests that this may also be because it is harder to show and plan for representation strategies than engagement ones. A majority of the participants used scaffolding strategies to support autistic learners, with numbers then dropping to a concerning low when thinking about explicit teaching. Bolstad and Gilbert (2012) stated that explicit teaching is a part of the shift needed in education, with learners needing support to develop the capabilities needed to successfully engage in the world today. This is perhaps linked to teachers not being confident in teaching disabled learners, as stated by the Education Review Office (2022).

Using multiple means of action and expression

The principle of multiple means of action and expression had the least participants providing the opportunities that autistic learners need to interact with accessible materials and tools, work toward goals, and make the most out of their learning. The low percentage of teachers providing options for adapted equipment, physical accessibility and ways to respond differently to the same learning task is concerning. This does not align with literature that states equity, diversity and inclusivity are vital to autistic learners (Bolstad & Gilbert, 2012; Whaikaha – Ministry of Disabled People and Ministry of Education, 2022). The Education Review Office (2022) states that to thrive at school, learners “need to be fully included in all aspects of education and for education to be adapted to their needs” (p. 2). By not providing the adaptations that may be needed, autistic learners are being set up to fail (F. Mitchell, 2023; Smith & Lowrey, 2017). Explicit instruction also falls short under this principle of UDL, as discussed previously. UDL requires that explicit instruction is carried out for all learners. The *Aotearoa New Zealand Autism Guideline* recommends the prioritisation of skills for autistic learners that are required to participate fully, which often need to be explicitly taught (CAST, 2018b; Edyburn, 2010; Gordon et al., 2014; Whaikaha – Ministry of Disabled People and Ministry of Education, 2022). Another weak point in the data was related to feedback. This links to the low percentage of teachers who are providing opportunities for goal setting, as mentioned under the representation principle. Feedback is important as learning cannot happen without it. Autistic learners need a clear picture of progress so that learning can change to become more successful (Bolstad & Gilbert, 2012; CAST, 2018a; Whaikaha – Ministry of Disabled People and Ministry of Education, 2022). The Education Review Office (2022) also found through their research that too many disabled learners are not progressing sufficiently.

Conclusion with recommendations for future action

This study aimed to identify the extent that primary teachers used the Universal Design for Learning framework to support an inclusive education for autistic learners in New Zealand. It can be concluded that teachers use some strategies across the three principles of UDL: providing multiple means of engagement (the ‘why’ of learning); providing multiple means of representation (the ‘what’ of learning); and providing multiple means of action and expression (the ‘how’ of learning). Providing multiple means of engagement is represented well by most teachers within the study. Many of these strategies are strong factors within New Zealand schools, such as ensuring programmes are culturally responsive for learners. Overall, New Zealand teachers create safe environments for their learners, but more intentional thought needs to be put into ensuring this is true for all autistic learners (Education Review Office, 2022; Moffat, 2022).

Providing multiple means of representation, and action and expression, through evidence-based strategies for autistic learners, are not used as frequently by teachers within the study. Providing key information through multiple means of representation is not being used consistently to support autistic learners to build important knowledge and develop thinking around concepts. Action and expression links to the strategic network of the brain, and for autistic learners this needs to include opportunities to plan and organise, and then be able to demonstrate their learning in a range of ways.

While this research has addressed a gap in the knowledge around the understanding and use of Universal Design for Learning in New Zealand primary schools, there have been limitations to the study. Quantitative data was gathered through an online survey across New Zealand from primary teachers who currently teach an autistic child or group of children, or have had experience within the last five years. The study surveyed a small number of teachers (55) across New Zealand. As a quantitative study, participants were only asked to rate using a Likert scale how they felt each guideline of UDL was used in their class for autistic learners. Therefore, there was not the opportunity to observe strategies in place in classrooms, or discuss with teachers their use and understanding of UDL and inclusive practice.

Based on these conclusions, school management teams, and the Ministry of Education, need to recognise that inclusive practice and Universal Design for Learning are where teachers need more robust professional development to build the confidence of teaching autistic learners. Teachers need to be able to easily access the inclusive practice guides provided online by the Ministry of Education to enhance their understanding of what inclusive practice is and ways classroom programmes can be strengthened to be more inclusive. This may require breaking information down into manageable amounts (such as webinars) and a school-wide focus to be able to discuss and implement UDL effectively. Further research is needed to determine the barriers and enablers for teachers to implement the Universal Design for Learning framework consistently and consciously in their classes. Teachers have the scope to make major changes by implementing and sustaining inclusive practices for autistic children, and to honour the policies and conventions ratified in New Zealand that state all children have the right to an inclusive education, and the right to the chance of a successful, fulfilled and accepted life within the community.

References

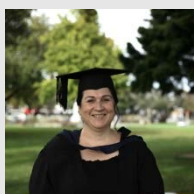
- Alesech, J., & Nayar, S. (2020). Acceptance and belonging in New Zealand: Understanding inclusion for children with special education needs. *International Journal of Whole Schooling*, 16(1), 84–116.
- Altogether Autism. (2018). *Strengths and abilities in autism*. <https://www.altogetherautism.org.nz/strengths-and-abilities-in-autism/>
- Barker, E. (2017). *Universal design for learning: Implementation and outcomes in a New Zealand primary school context* [Masters thesis]. The University of Auckland. <http://hdl.handle.net/2292/37014>
- Bennie, M. (2019). *The positives of autism*. Autism Awareness. <https://autismawarenesscentre.com/the-positives-of-autism/>
- Bishop, R., & Berryman, M. (2009). The Te Kotahitanga effective teaching profile. *Set: Research Information for Teachers*, 2, 27–34. <https://doi.org/10.18296/set.0461>
- Bolstad, R., & Gilbert, J. (2012). *Supporting future-oriented learning and teaching: A New Zealand perspective*. Ministry of Education. https://www.educationcounts.govt.nz/_data/assets/pdf_file/0003/109317/994_Future-oriented-07062012.pdf
- Butler, C. (2019). *Translating UDL: An Aotearoa/New Zealand story*. Learning Designed. <https://www.learningdesigned.org/resource/translating-udl-aotearoanew-zealand-story>
- Capp, M. J. (2017). The effectiveness of universal design for learning: A meta-analysis of literature between 2013 and 2016. *International Journal of Inclusive Education*, 21(8), 791–807. <https://doi.org/10.1080/13603116.2017.1325074>
- Carrington, S., Sagers, B., Webster, A., Harper-Hill, K., & Nickerson, J. (2020). What universal design for learning principles, guidelines, and checkpoints are evident in educators' descriptions of their practice when supporting students on the autism spectrum? *International Journal of Educational Research*, 102, 1–11. <https://doi.org/10.1016/j.ijer.2020.101583>
- CAST. (2011). *Universal design for learning guidelines version 2.0*. https://udlguidelines.cast.org/binaries/content/assets/udlguidelines/udlg-v2-0/udlg_graphicorganizer_v2-0.pdf
- CAST. (2018a). *UDL: Action & expression*. <https://udlguidelines.cast.org/action-expression>
- CAST. (2018b). *UDL: Representation*. <https://udlguidelines.cast.org/representation>
- CAST. (2018c). *Universal design for learning guidelines*. <https://udlguidelines.cast.org/>
- Chita-Tegmark, M., Gravel, J. W., Maria De Lourdes, B. S., Domings, Y., & Rose, D. H. (2012). Using the universal design for learning framework to support culturally diverse learners. *Journal of Education*, 192(1), 17–22. <https://doi.org/10.1177/002205741219200104>
- Cosden, M., Koegel, L. K., Koegel, R. L., Greenwell, A., & Klein, E. (2006). Strength-based assessment for children with autism spectrum disorders. *Research and Practice for Persons with Severe Disabilities*, 31(2), 134–143. <https://doi.org/10.1177/154079690603100206>

- Denning, C., & Moody, A. (2013). Supporting students with autism spectrum disorders in inclusive settings: Rethinking instruction and design settings. *Electronic Journal for Inclusive Education*, 3(1). <https://corescholar.libraries.wright.edu/cgi/viewcontent.cgi?article=1153&context=ejie>
- Education Review Office. (2022). *Thriving at school? Education for disabled learners in schools*. <https://ero.govt.nz/our-research/thriving-at-school-education-for-disabled-learners-in-schools>
- Edyburn, D. (2010). Would you recognize universal design for learning if you saw it? Ten propositions for new directions for the second decade of UDL. *Learning Disability Quarterly*, 33(1), 33-41. <https://doi.org/10.1177/073194871003300103>
- Engleman, M., & Schmidt, M. (2007). Testing an experimental universally designed learning unit in a graduate level online teacher education course. *Journal of Online Learning and Teaching*, 3(2), 112–132. <https://jolt.merlot.org/vol3no2/engleman.pdf>
- Evmenova, A. (2018). Preparing teachers to use universal design for learning to support diverse learners. *Journal of Online Learning Research*, 4(2), 147–171.
- Gordon, D., Meyer, A., & Rose, D. (2014). *Universal design for learning: Theory and practice*. CAST Professional Publishing.
- Hargraves, V. (2022). *Seven principles to effectively support Māori students as Māori*. The Education Hub. <https://theeducationhub.org.nz/seven-principles-to-effectively-support-maori-students-as-maori/>
- Kearney, A. (2013). Barriers to inclusive education: The identification and elimination of exclusion from and within school. In Centre of Excellence for Research in Inclusive Education (Eds.), *Inclusive education: Perspectives on professional practice* (pp. 40-51). Dunmore Publishing.
- Kenwright, D., McLaughlin, T., & Hansen, S. (2021). Teachers' perspectives about mindfulness programmes in primary schools to support wellbeing and positive behaviour. *International Journal of Inclusive Education*, 1–16. <https://doi.org/10.1080/13603116.2020.1867382>
- Kieran, L., & Anderson, C. (2018). Connecting universal design for learning with culturally responsive teaching. *Education and Urban Society*, 51(9), 1202–1216. <https://doi.org/10.1177/0013124518785012>
- Lakkala, S., & Kyrö-Ämmälä, O. (2021). Teaching for diversity with UDL: Analysing teacher competence. In A. Galkienė & O. Monkevičienė (Eds.), *Improving inclusive education through universal design for learning* (pp. 241–277). Springer.
- Macarthur, J. (2009). *Learning better together: Working towards inclusive education in New Zealand schools*. IHC New Zealand. <https://inclusive.tki.org.nz/assets/inclusive-education/resources/files/learning-better-together.pdf>
- McCombes, S. (2019). *How to write research methodology in four steps*. Scribbr. <https://www.scribbr.com/dissertation/methodology/>
- Ministry of Education. (2009). *Ka hikitia: Managing for success. Māori education strategy 2008-2012. Summary*. Ministry of Education.

- Ministry of Education. (2012). *NZC updates: Curriculum resources*.
<https://nzcurriculum.tki.org.nz/Curriculum-resources/NZC-Updates/Issue-16-January-2012>
- Ministry of Education. (2013). *Ka hikitia: Accelerating success 2013-2017*. Ministry of Education.
- Ministry of Education. (2015). *The New Zealand curriculum*. Learning Media.
- Ministry of Education. (2018). *Why UDL is valuable*. Inclusive Education.
<https://inclusive.tki.org.nz/guides/universal-design-for-learning/why-udl-is-valuable/>
- Ministry of Education. (2021). *Overview of ongoing resourcing scheme (ORS)*. Education in New Zealand. <https://www.education.govt.nz/school/student-support/special-education/ors/overview-of-ors/>
- Ministry of Health. (2016). *New Zealand autism spectrum disorder: Guideline summary*. Ministry of Health.
- Mirfin-Veitch, B., Jalota, N., & Schmidt, L. (2020). *Responding to neurodiversity in the education context: An integrative literature review*. Donald Beasley Institute.
https://www.educationcounts.govt.nz/_data/assets/pdf_file/0018/208503/Responding-to-neurodiversity-in-the-education-context.pdf
- Mitchell, D. (2010). *Education that fits: Review of international trends in the education of students with special educational needs*. University of Canterbury.
https://www.educationcounts.govt.nz/publications/special_education/education-that-fits-review-of-international-trends-in-the-education-of-students-with-special-educational-needs
- Mitchell, D., & Sutherland, D. (2020). *What really works in special and inclusive education: Using evidence-based teaching strategies* (3rd ed.). Routledge.
- Mitchell, F. (2023). The implications of a non-inclusive education for autistic children and young people. *Kairaranga*, 24(1), 33–42. <https://doi.org/10.54322/kairaranga.v24i1.160>
- Moffat, T. (2022). The beauty of universal design for learning (UDL) and why everyone in early childhood education and intervention should be using it. *Kairaranga*, 23(1), 66–73.
<https://doi.org/10.54322/kairaranga.v23i1.281>
- National Center on Universal Design. (2014). *ENGAGEMENT: Universal design for learning principle 3*. The Center for Excellence in Teaching and Learning.
- New Zealand Government. (2020). *Education and training act 2020*.
<https://www.legislation.govt.nz/act/public/2020/0038/latest/LMS170676.html>
- Office for Disability Issues. (2016). *Outcome 1: Education*. <https://www.odi.govt.nz/nz-disability-strategy/education/>
- Ok, M. W., Rao, K., Bryant, B. R., & McDougall, D. (2016). Universal design for learning in pre-K to grade 12 classrooms: A systematic review of research. *Exceptionality*, 25(2), 116–138.
<https://doi.org/10.1080/09362835.2016.1196450>
- Ratima, K., & Ratima, M. (2007). *Māori experience of disability and disability support services*. In B. Robson & R. Harris (Eds.), *Hauora: Māori standards of health IV. A study of the years 2000-*

- 2005 (pp. 189-198). University of Otago. <https://www.otago.ac.nz/wellington/otago067751.pdf>
- Rose, D. H., & Meyer, A. (2002). *Teaching every student in the digital age: Universal design for learning*. Association for Supervision and Curriculum Development.
- Schwartz, S. (2022). *4 principles of a universal design for learning approach*. Edutopia. <https://www.edutopia.org/article/4-principles-universal-design-learning-approach>
- Smith, S. (2023). Engaging potential: Using the UDL principle of engagement to motivate year 7-8 learners with autism in writing tasks. *Kairaranga*, 24(1), 57–70. <https://doi.org/10.54322/kairaranga.v24i1.344>
- Smith, S. J., & Lowrey, K. A. (2017). Applying the universal design for learning framework for individuals with intellectual disability: The future must be now. *Intellectual and Developmental Disabilities*, 55(1), 48–51. <https://doi.org/10.1352/1934-9556-55.1.48>
- United Nations. (1989). *Convention on the rights of the child*. <https://www.ohchr.org/en/instruments-mechanisms/instruments/convention-rights-child>
- United Nations. (2019). *Article 24: Education*. <https://www.un.org/development/desa/disabilities/convention-on-the-rights-of-persons-with-disabilities/article-24-education.html>
- Whaikaha – Ministry of Disabled People, & Ministry of Education. (2022). *Aotearoa New Zealand autism guideline: He waka huia takiwātanga rau* (3rd ed.). Whaikaha – Ministry of Disabled People. <https://www.whaikaha.govt.nz/assets/Autism-Guideline/Aotearoa-New-Zealand-Autism-Guideline-Third-Edition.pdf>

AUTHOR PROFILE



Fiona Mitchell

Fiona Mitchell is a Specialist Outreach Teacher with Arahunga School, working in the Manawatū/Horowhenua area. She has many years of experience working with a range of diverse learners. She has recently completed a Master of Specialist Teaching (ASD) through Massey University. Fiona is passionate about inclusive practices that allow for equitable, strengths-based approaches for all children to be able to access education.

Email: fmitchell@welearn.school.nz