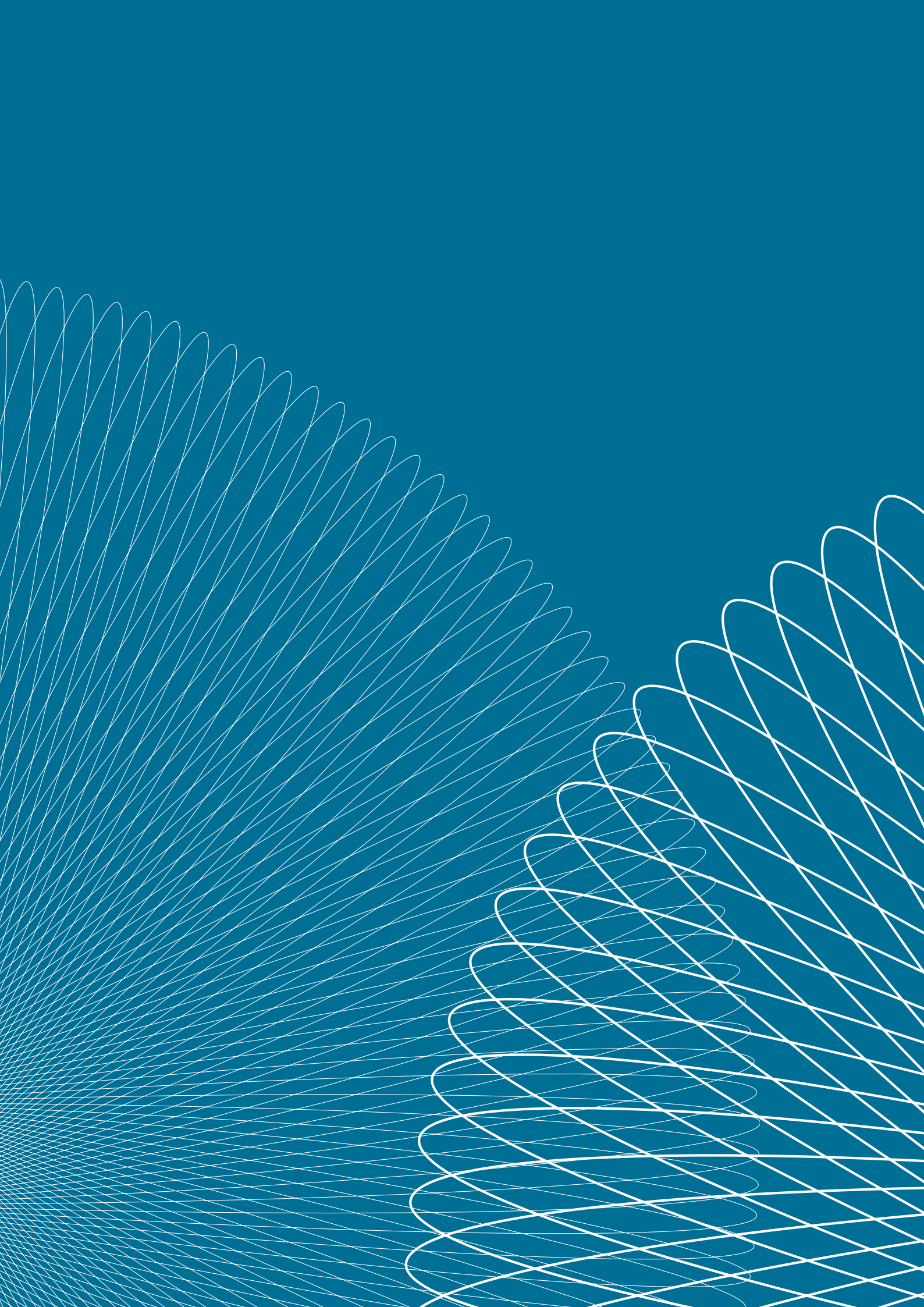




CENTRE FOR AUTISM
MIDDLETOWN

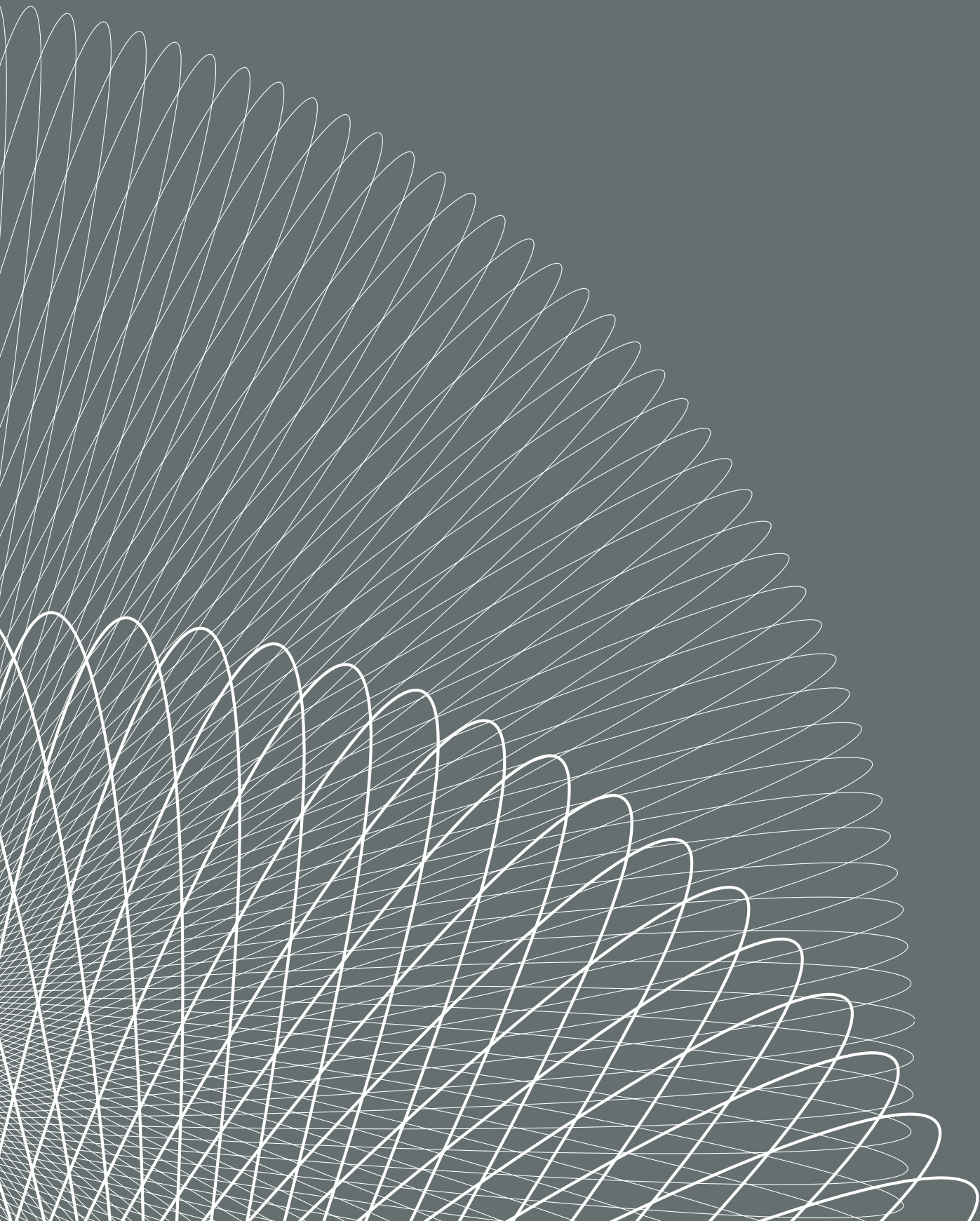
UNIVERSAL DESIGN FOR LEARNING





CONTENTS

Introduction	5
Interview with Zarah Doyle	6
Research Articles	11
1. What Universal Design for Learning principles, guidelines, and checkpoints are evident in educators’ descriptions of their practice when supporting students on the autism spectrum?	11
2. Compassionate pedagogy for neurodiversity in higher education: A conceptual analysis.	14
3. Leveraging the UDL Framework to Plan Grade-Aligned Mathematics in Inclusive Settings	17
4. A dual design thinking – universal design approach to catalyze neurodiversity advocacy through collaboration among high-schoolers.	20
5. Designing Inclusive Physical Education with Universal Design for Learning.	23
6. Learning from the experts: Evaluating a participatory autism and universal design training for university educators.	25
7. Universal design for learning in a music camp: Perspectives and musical self-efficacy of children with disabilities.	29
8. ‘How does universal design for learning help me to learn?’: students with autism spectrum disorder voices in higher education.	31
Conclusion	33



INTRODUCTION

Universal Design for Learning (UDL) is an approach to supportive learning that is growing in prominence. It is a framework that focuses on the development of flexible learning environments and learning spaces that can accommodate individual learning preferences.

In this Bulletin, we're exploring the concept through research that asks where UDL strategies might be most effective, how implementing can impact both student and educator and what students think about UDL practices.

The Bulletin begins with an interview with Zarah Doyle, Training and Accreditation Manager with AsIAM. Zarah is an expert in the theory and practice of Universal Design for Learning, and she shares background knowledge and practical tips.

Please note that the views represented in this document do not necessarily reflect the views of Middletown Centre for Autism.

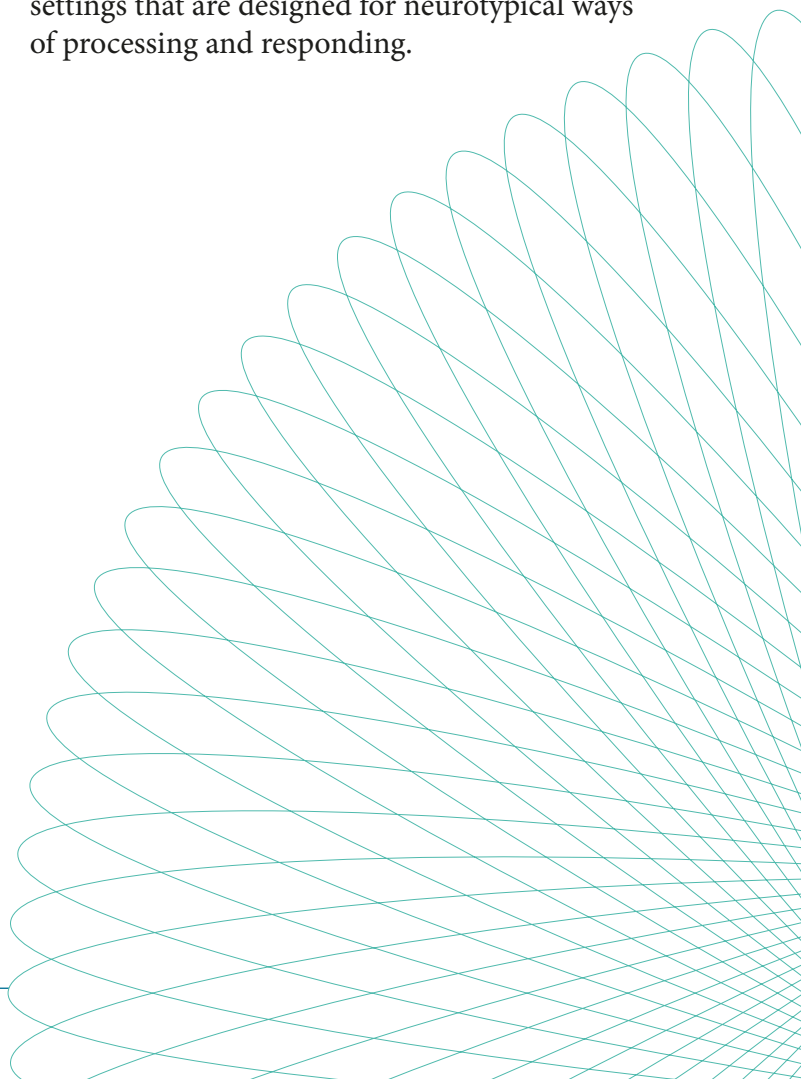
The language used in this Bulletin is autism-affirming and neurodiversity-informed. Some of the papers summarised use more medical and deficit-focused terminology and approaches. This Bulletin is created for autistic people, family members and professionals to learn more about research being conducted. The language chosen here is intended to be as inclusive as possible to the broad autism community.

Definitions:

Neurodiversity is the scientific truth that people vary in the way that their brains process and respond to information.

'Neurotypical' describes the majority of people. While all brains are unique, most people think, sense and communicate in similar ways. Traditional education and employment settings tend to suit neurotypical people well because they are systems built by neurotypical people for neurotypical people.

'Neurodivergent' describes the minority of people. The way that they process and respond to information differs from the majority. They may struggle in traditional education and employment settings that are designed for neurotypical ways of processing and responding.



INTERVIEW WITH ZARAH DOYLE

Zarah is a Training and Accreditation Manager with AsIAM. AsIAM are Ireland's Autism charity. They provide evidence-based advice, resources, and guidance to the community. They also strive to make Irish society a more inclusive and accepting place.

What exactly is Universal Design for Learning?

Universal Design for Learning (UDL) is a framework for designing inclusive learning environments that provide multiple means of engagement, representation, and action and expression to meet diverse needs of learners. The origins of Universal Design can be traced back to the 1970s with the work of Ronald Mace, John McCluskey and Ed Roberts whose advocacy focused on architecture and creating accessible learning environments for people of all abilities. The goal was to have barrier-free design with certain products and where spaces could be used by everyone with no need for adaptations or supports. In the 1980s the CUD (Centre for Universal Design) was established in North Carolina State University and then in the 1990s, CAST (Centre for Applied Special Technology) began to apply this concept to education-specific contexts. This research led to our UDL framework that we use today.

UDL aims to reduce barriers in the learning environment by providing choices appropriate for differences in language proficiency, preferences for visual/auditory input, motivation, physical/cognitive abilities, and other factors. When autistic visitors, for example, have options for sensory control and access to information in a format they can easily perceive, everyone benefits.

It encourages presenting information through a variety of methods right from the start.

This could mean using pictures and models in addition to text or allowing different pathways to demonstrate skills and knowledge. Offering multiple means of participation keeps requirements relative to a wider range of individual profiles. Learners are engaged through a variety of interests and preferred ways of interacting. UDL considers the broadest audience from the onset to ensure inclusiveness.

Whilst UDL is a well-intentioned framework there are some valid criticisms in terms of using this framework from an autistic support perspective. There can be a fear that the term UDL is another phrasing of 'one size fits all' and that the focus is primarily on neurotypical learning styles as the default. For some learners, having too much choice and flexibility can increase anxiety levels and cognitive load and have the reverse effect by creating barriers as opposed to designing barrier-free experiences. If UDL is to be meaningful it will encompass kinaesthetic, sensory and pattern-oriented ways of understanding and not be solely focused on auditory, visual and verbal modes of engagement. Implementers of UDL need to be mindful of superficial application and avoid the tick box mentality in order to create that deeper cultural shift towards autistic learners as equal partners to their neurotypical peers.

Are there particular areas in education that are more in need of a UDL revamp?

Recent findings from AsIAM's 'Same Chance' report reveal a troubling reality – 56% of autistic people in Ireland do not feel the education system is inclusive or accessible to their unique needs. Furthermore, 73% stated they lacked equitable opportunities to thrive and contribute their strengths within the community. This data underscores the critical need to re-envision educational approaches through an autistic-

affirming lens. While the UDL framework shows promise, the current implementation often falls short of truly centring autistic perspectives and ways of being.

A more holistic, neurodiversity-driven UDL model is required – one that honours the diverse learning profiles, sensory needs, communication styles and social-emotional experiences of autistic students. By consulting directly with autistic self-advocates, we can reshape curriculums, environments and teaching methods to nurture the inherent gifts of all neurodivergent minds.

After all, accommodations that empower autistic thriving also remove barriers for the wider student population. Whether it's providing structured routines, multi-sensory pathways to demonstrate knowledge, or regulating sensory input – what benefits autistic learners ultimately benefits everyone.

When we research the educational journeys of autistic individuals (Hannah, 2024), we are reminded of their remarkable resilience, intrinsic motivation and problem-solving abilities. These strengths should be amplified, not diminished, through an education system tailored to their needs. It is time to move beyond surface level compliance and embark on a transformative shift, one that fundamentally re-envision the purpose and methods of education to cultivate the unique gifts of all neurodivergent students. By centring autistic leadership and expertise, we can create a future where every mind is celebrated and empowered to soar.

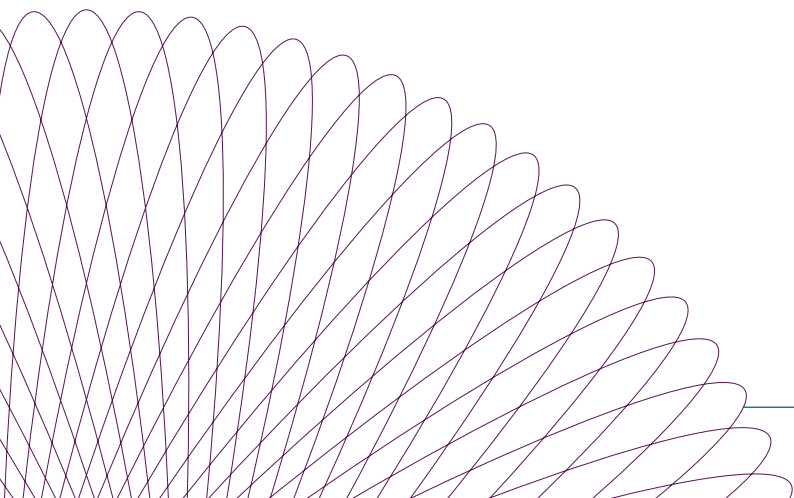
Specifically, the focus for UDL and effective implementation should be incorporated into key areas:

- **Curriculum development** – Ensuring core lessons, materials and activities are presented flexibly through multiple formats from the start helps meet diverse learning needs and abilities. Reimagining the status quo through the autism lens.
 - **Social-emotional supports** – Recognising and normalising that learners may require alternative organisational strategies or sensory breaks to self-regulate effectively. Visual schedules promote independence. Rigid social expectations around communication, group work and unstructured social time can present significant challenges. Providing visual schedules, scripts, and discreet tools for self-advocacy empowers autistic students to participate authentically.
 - **Sensory environments** – The sensory environment plays a significant role in influencing psychological safety, particularly in educational settings. Psychological safety is essential for fostering an inclusive learning atmosphere where all students, including those with diverse needs such as autistic individuals, feel comfortable expressing themselves, taking risks, and engaging fully in the learning process. Acknowledging and accounting for the impact that sensory accessibility has on an autistic student's mental load and psychological safety is essential in creating a positive learning space. Designing flexible low-arousal spaces with choices for sensory regulation is vital.
 - **Executive functioning skills** – Teaching in advocacy skill building, teaching how to articulate needs, time management, organisation in various structured and unstructured settings helps those requiring more explicit instruction or experiencing time blindness.
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- **Transition planning** – Applying UDL as students enter new educational phases by providing guidance customised to individual profiles eases change and fosters self-determination. Choice is crucial for a student. It fosters a sense of autonomy, independence, and personal development. Choice is essential for a person's overall development including their cognitive, social, emotional, and physical growth.
- **Whole School Training** – all involved in the school community to include management, educators, support staff, student body. Having access to trainings in understanding autism to include topics like co-regulation, de-escalation and fostering an accepting school culture designed by partnering community members.
- **Assessments** – Allowing options for demonstration of skills and knowledge beyond standardised tests accommodates differences in how students can express what they've learned. Project-based learning and flexible assessment options, adjusting the assessment environment accordingly, such as using noise-cancelling headphones or providing fidget tools. Provide specific guidelines for group work, including how to communicate effectively, resolve conflicts, and support one another. Use visual aids or scripts to help students navigate social dynamics.

From your experience, what are some of the most successful UDL adaptations that you've seen?

- Developing zoning within the classroom with low-sensory areas available as options for focus or relaxation.
- Using flexible seating alternatives like stability balls, cushions or stand-up desks allowing movement or grounding.
- Implementing open communication about sensitivities, so adjustments can be made cooperatively through UDL accommodations.
- Mindfully modifying interruptions and disturbances like PA announcements or transitions between activities.
- Including sensory/fidget toys with permission for voluntary self-soothing as concentration aids.
- Visual schedules and guidelines presented using icons, photographs or minimal words. Seeing the planned flow of a day or task list brings predictability and independence.
- Calming sensory rooms provide regulated breaks to self-soothe through strategies like weighted blankets, audiobooks, etc. to handle overwhelming feelings.
- Personal experiences are respected over one-size-fits-all rules.
- 3D maps and graphic organisers allow interpreting abstract concepts in a tactile, visual way that aids retention for those who struggle with auditory information.
- Choosing presentation topics linked to special interests creates intrinsic motivation.



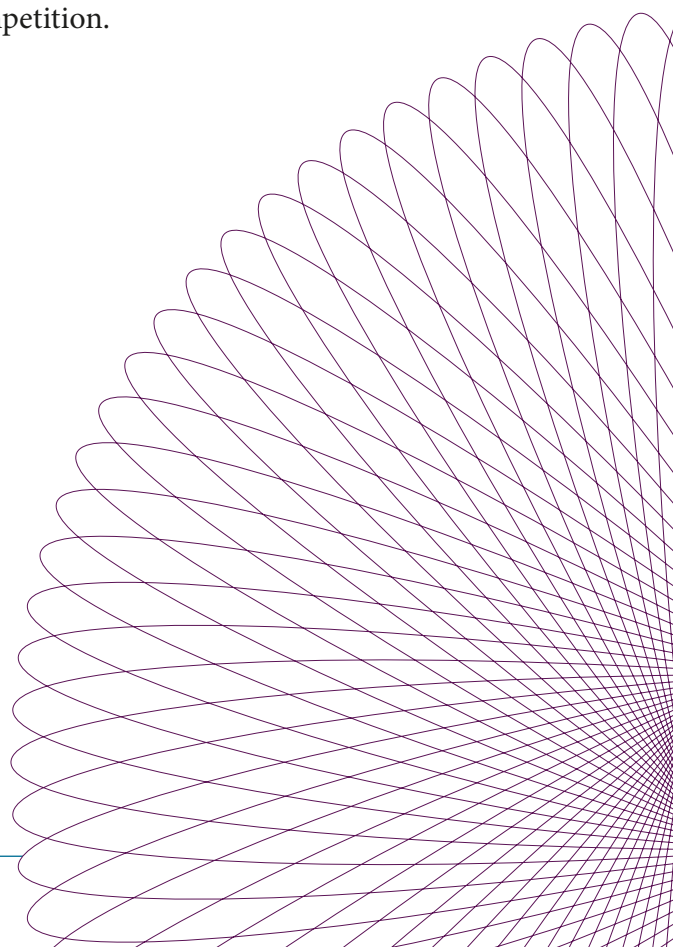
- Video captions or live transcription on whiteboards in classrooms to assist followers' sensory or language processing needs.

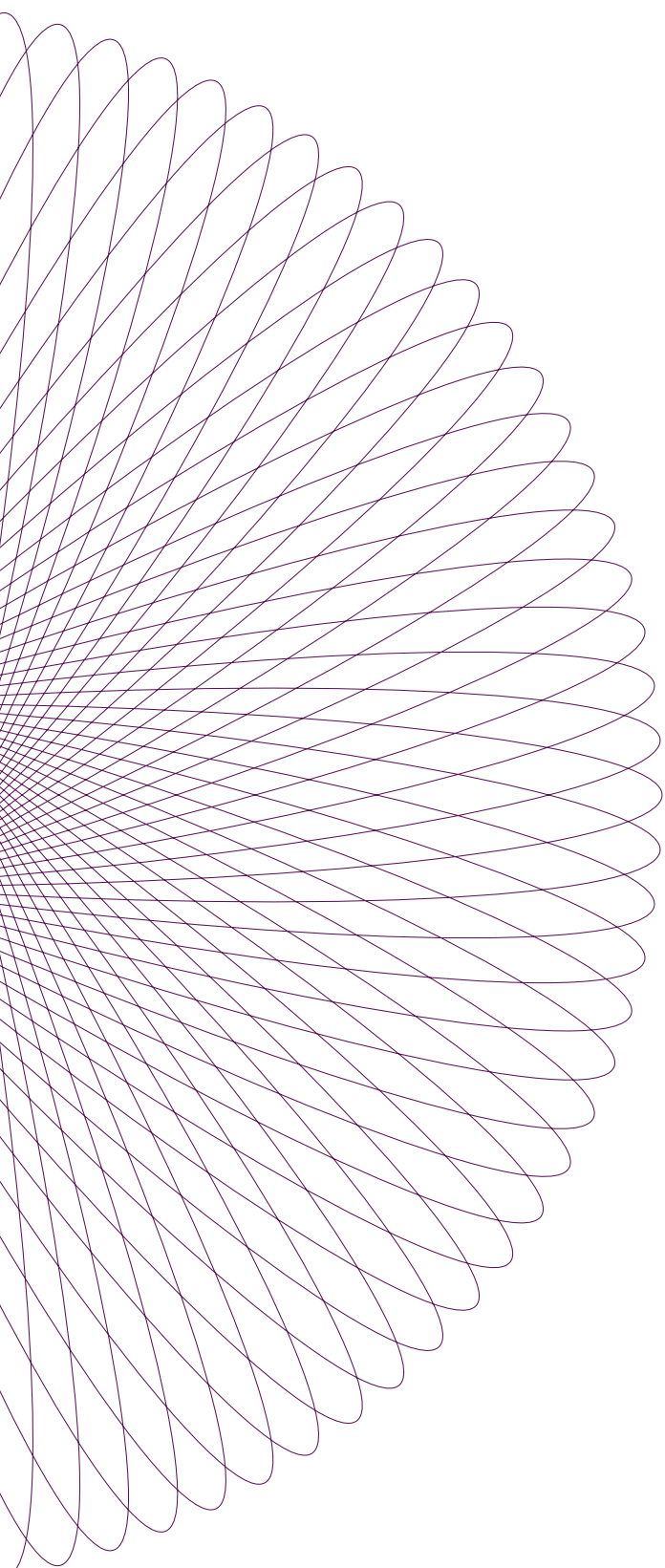
How can educators include the student voice in the UDL adaptations that they make?

- Form a neurodiversity student council to provide regular input on supports, resources, curriculum and facilities. Value lived expertise.
- Conduct one-on-one interviews to learn about individual sensory profiles, special interests, preferred modalities and potential triggers. Tailor accordingly.
- Distribute feedback surveys throughout the year to flag any environmental, social or instructional barriers encountered. Adjust promptly.
- Facilitate student-led teacher workshops to illustrate their minds, views on concepts of support and what inclusion means to them. Open dialogue inspires empathy.
- Conduct a sensory audit of the space, noting lighting, acoustics, materials, etc. Consider adjustments to reduce distractions and make areas conducive to self-regulation.
- Begin piloting options like flexible seating/ workstations, visual support tools, movement breaks as natural routines rather than special accommodations.
- Vary presentation methods for new lessons beyond lectures, incorporating videos, hands-on projects.
- Foster discussion about diverse thinking styles and how varied approaches can benefit all students through learning from neurodiversity.
- Monitor inclusion climate and check for misunderstandings, patiently offering resources, emphasising cooperation over competition.

What are the first steps that might be helpful for educators who are keen to implement UDL principles in their classroom?

- Educate yourself further through workshops, webinars or reading to better grasp neurodiversity and the rationale behind flexible options.
- Consult with autistic students and colleagues to gain autistic perspectives on daily obstacles and priorities for designing a low-arousal classroom environment with choices.





Are there resources that you'd recommend for someone who is just beginning to learn about UDL?

- Autistic Self Advocacy Network (autisticadvocacy.org) – ASAN's resources help apply an autistic lens to UDL, ensuring neurodivergent representation from the start.
- Awesome UDL (awesomeudl.blogspot.com) – Practical classroom UDL ideas and implementation support shared through an autistic educator's experiences.
- Centre for Applied Special Technology (<https://www.cast.org/our-work/research-design-development>) – Their research reports on UDL implementation and trends give the educational perspective.
- The CAST website ([cast.org](https://www.cast.org)) – The nonprofit that pioneered UDL has a wealth of free introductory information, articles, videos and even an online UDL curriculum course.
- UDL Guidelines (udlguidelines.cast.org) – The official UDL Guidelines document explains the three core principles (representation, engagement, action and expression) and provides concrete examples.
- Universal Design and Inclusion | NSAI.
- What we wish you knew: A rights-based analysis of school, A. Hanna 2024.
- www.universaldesign.ie

WHAT UNIVERSAL DESIGN FOR LEARNING PRINCIPLES, GUIDELINES, AND CHECKPOINTS ARE EVIDENT IN EDUCATORS' DESCRIPTIONS OF THEIR PRACTICE WHEN SUPPORTING STUDENTS ON THE AUTISM SPECTRUM?

BACKGROUND

Educators need to develop flexible approaches to curriculum and teaching to ensure all learners can access and participate in learning. This is particularly relevant for teaching autistic students. Universal Design for Learning (UDL) is a comprehensive framework which supports teachers to address diversity of learning in the classroom. The UDL framework has 3 guiding principles, underpinned by 9 guidelines, which are further broken into 31 checkpoints. These principles guide educators to support all learners by providing multiple ways of engaging students, representing knowledge and demonstrating understanding.

RESEARCH AIM

This study aimed to explore evidence of the principles, guidelines, and checkpoints of UDL in Australian classrooms. The researchers utilised a social constructionist lens to better understand how educators individually implemented support for learning via UDL for autistic students. The research question for the study is: What UDL principles, guidelines, and checkpoints are evident in educators' descriptions of their practice when supporting students on the autism spectrum?

RESEARCH METHOD

This study draws on a subset of qualitative data obtained through the larger Australian Educational Needs Analysis Project. This larger research project used a mixed methods approach consisting of both surveys and semi-structured interviews. For this subset study, data was collected from the interview stage with 20 teaching and specialist personnel in Australia.

Participants – this study included a total of 20 educators: 8 teachers, 2 school principals, and 10 specialists.

Data collection – all participants engaged in semi-structured interviews conducted on the telephone, interviews ranged from 15 to 45 minutes. Interviews were audio recorded and transcribed verbatim.

Data Analysis – transcribed interviews were de-identified and imported into NVivo where initial coding was conducted.

Words or concepts of similar meaning were organised into categories. The research team analysed the data and organised into broad categories based on UDL principles. Each category was then organised into sub-categories for further analysis, to explore if there was evidence of practice that supported the guidelines and checkpoints of UDL.

RESEARCH FINDINGS

Findings from the study show that all three principles of UDL, all nine guidelines, and many of the checkpoints were evident in the educators' descriptions of practice.

1. Multiple means of engagement – Strategies identified under this theme were those which enabled participants to engage and motivate students in different ways by helping them to link class activities with the 'why' of learning.
 - 1.1 Student interests/strengths – Responses indicated educators planning to incorporate student interests and structuring teaching to support optimal learning demonstrates a proactive approach and reflect the UDL framework.

- 1.2 Meeting sensory needs – Educators spoke of the need to support the sensory needs of autistic students as a pre-requisite to engaging them in classroom activities. Strategies described included allowing students to take sensory breaks and providing headphones for students with sensitivity to noise. Examples provided indicate that these educators have at least some knowledge and the skills as well as a positive attitude towards planning to support students who have sensory needs at school.
 - 1.3 Promoting self-regulation – Participants discussed providing students with materials and strategies to self-regulate and related the importance of this strategy in helping students to more successfully engage in learning. Teachers reported using calm breaks, sensory toys and recognising signs of distress early.
2. Multiple means of representation – Representation refers to the ways that educators present information to students, these included visual systems; alternative approaches to teaching; scaffolding activities; and teacher behaviour and language.
 - 2.1 Visual systems – One of the most commonly reported strategies was the use of visual systems, which participants felt helped them to support the learning needs of autistic students by presenting information and instruction in a visual manner. Organising a classroom, the daily timetable, and individualising instructions using visual supports can help students to summarise, categorise, prioritise, contextualise, and remember important information.
 - 2.2 Alternative approaches to teaching – Educators reported using role-modelling as an alternative approach used to assist students to learn positive behaviours and highlights the importance of providing options for comprehension.
 - 2.3 Scaffolding activities – Education personnel discussed scaffolding classroom activities and providing supplementary materials to support students’ learning such as multimedia.
 - 2.4 Teacher behaviour and language – Education personnel spoke of the need for teachers to ‘be aware of their own behaviours’ in classrooms and of the ways in which they needed to adjust their use of language in order to communicate key information to students. Examples provided were having options for language and symbols and using language that is accessible for all learners.
 3. Multiple means of action and expression – this refers to the ‘how’ of learning and is the third principle of UDL; it is offering students different options to demonstrate what they know.
 - 3.1 Providing alternative approaches to assessment – Flexible assessment to enable students to demonstrate their knowledge through options including physical action, expression, and communication. Participants discussed ‘breaking down’ an assessment piece or ‘spacing it out’ into smaller components and deadlines, which provided autistic students with a better system of defining tasks and monitoring their progress.
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3.2 Executive Function support – Participants discussed helping students with organisation as a means of supporting them to complete tasks and demonstrate their knowledge.

3.3 Accepting and facilitating alternative means of communication – Participants discussed giving students cards to signal they needed a break or to communicate when they were overwhelmed. An educator described the use of PECSs.

- The research findings reported in this paper address the need to listen to the voices of educators and better understand how UDL can be applied to curriculum and instruction to support diverse learners.
- The results of this study reinforce the need for specialists and educators to work collaboratively to meet the needs of autistic students in a way which is consistent with the principles of UDL.
- Feasibility of the application of UDL by teachers in whole class contexts was raised as a limitation of the study which focused on individual application. However, some of the teachers working in classrooms did employ class-wide strategies such as using visual schedules and role-modelling, and recognised that implementing strategies at the class level effectively supported autistic students as well as students in the class with other needs.

IMPLICATIONS FOR PRACTICE (by the authors)

- Results indicated evidence of all nine UDL guidelines, which included ways of teaching and providing support that reflected the following UDL checkpoints:
 - customising the display of information; illustrating language and symbols through multimedia
 - guiding information processing and visualising
 - maximising transfer and generalisation
 - using multiple media for communication
 - optimising individual choice and autonomy
 - minimising threats and distractions
 - varying demands and resources to optimise challenge
 - providing options to facilitate personal coping skills and strategies
 - developing self-assessment and reflection.

Reference

Carrington, S., Sagers, B., Webster, A., Harper-Hill, K. and 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, p.101583.

COMPASSIONATE PEDAGOGY FOR NEURODIVERSITY IN HIGHER EDUCATION: A CONCEPTUAL ANALYSIS

BACKGROUND

The neurodiversity paradigm considers diversity in brain functioning to be a natural feature of humans. In higher education there is a need for educational institutions to embrace neurodivergent students' differing learning styles and to provide a quality learning experience for all students. This can nurture graduates with multiple and diverse skillsets and the ability to engage with the issues arising in contemporary society.

The authors of this analysis consider how principles of compassion-focused psychology could support inclusion of neurodivergent students in universities, and they make recommendations as to how this could be achieved. The principles of Universal Design for Learning align with many of these recommendations.

RESEARCH AIMS

Neurodiversity is the way that people differ in their perception, experience and interaction with the world. Current studies show that neurodivergent people have poorer wellbeing and employment outcomes than others in society.

However, unique thinking and skills are ever more important in the world so it is necessary to support the diversity of students attending third level to achieve their potential.

This puts the responsibility for inclusion and success on the college and its staff and systems, rather than putting the onus on students to advocate for themselves in a system not designed for them.

NEURODIVERSITY AT UNIVERSITY

Neurodivergent students

While the number of neurodivergent students studying at higher level has increased in recent years, a considerable number of them do not complete their studies.

Not all students know that they have a neurodivergent condition, and other students are unwilling to disclose, so this population have not been well studied.

Navigating the 'hidden curriculum' of unwritten expectations, showing knowledge only through written exams, managing social situations and achieving a sense of belonging may all pose a challenge to autistic and other neurodivergent students.

Students may mask their differences which uses energy and can lead to exhaustion and mental distress. They may not hold a compassionate view of themselves as they can see themselves as not fitting in and as having to advocate for themselves in a system that does not understand them.

The Neurodiversity Paradigm

The neurodiversity paradigm has evolved the way we consider disability and difference.

- The person is no longer seen as faulty but is considered within their interaction with environments which may or may not be suitable.

- The double empathy gap shows that normative assumptions can disadvantage minority groups such as autistic people. A compassion-based approach involves mutual consideration of the other person's perspective and needs and addressing any stigma or normative assumptions that may be held.
- The language used to describe autism is moving from deficit-based to needs-based. However, students are still often obliged to present themselves in a negative way to access supports.

Applications of compassion

The tenets of compassion in the psychology literature are

- Noticing suffering in self and others.
- Wanting to act to prevent suffering.

Prior education experience for many neurodivergent students may have been lacking in compassion, which can lead them to no longer feeling the same level of compassion for themselves or others. This can be supported by access to positive, warm interpersonal relationships and access to 'safe spaces'.

Compassionate pedagogy is needed in the sense that higher level institutions consider what disadvantages any students may encounter and work to alleviate them.

Many neurodivergent students experience anxiety in part due to not understanding the hidden curriculum of expectations, executive functioning challenges, and social challenges. This compromises students' learning and ultimately their retention in college.

The authors consider ways to implement supportive environments grounded in compassion in a third level setting.

IMPLICATIONS FOR PRACTICE

A culture of strong compassionate leadership is needed involving open communication, acknowledging and working collaboratively to alleviate challenges and sourcing resources as needed.

The opportunity afforded by considering the needs of a neurodiverse student and staff population allows for reflective change that can benefit all students.

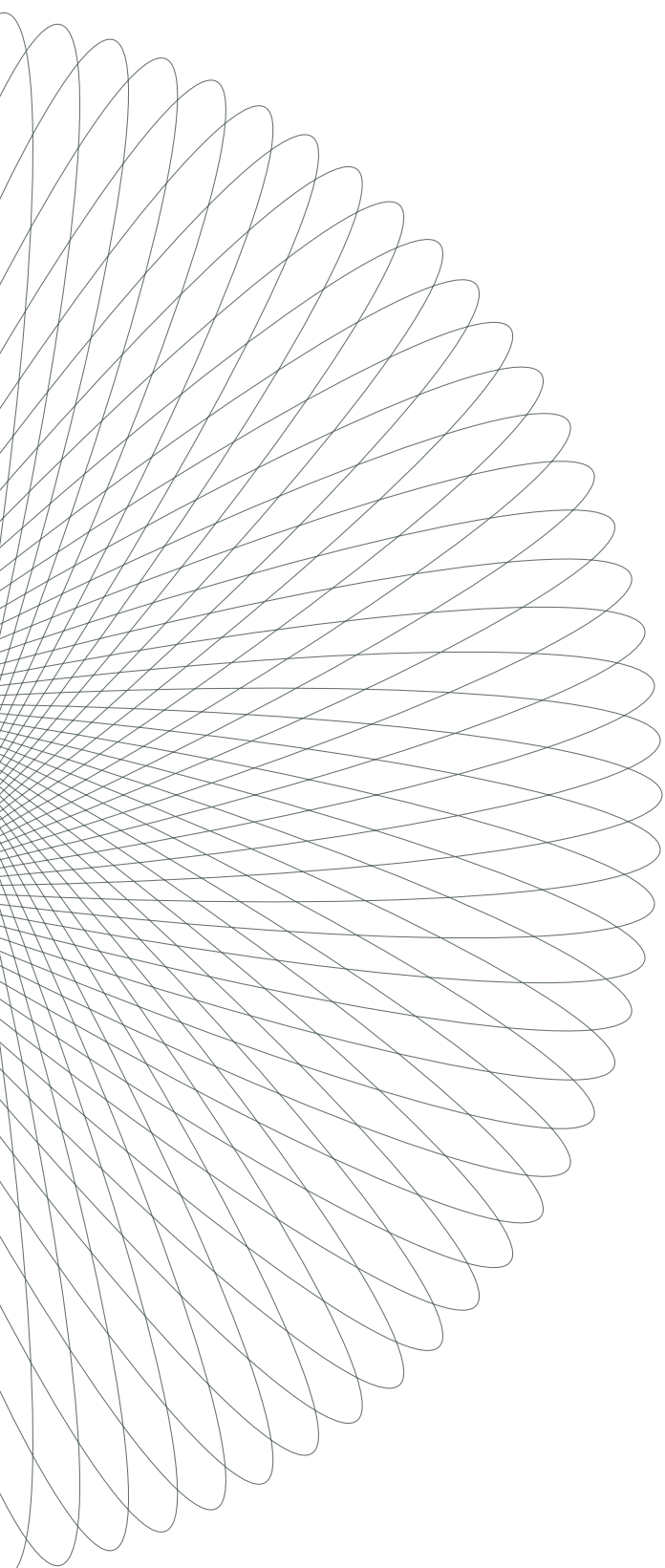
Any review should be undertaken by neurodiverse teams to ensure consideration of multiple needs including environmental, social, learning and vocational needs.

Neurodiversity should be classified as a dimension of difference that fits with the institution's equality policies and neurodiversity training should be offered.

Representation of difference is important so consideration should be given to hiring and supporting a neurodiverse staff team.

Considerations such as presentation of materials, location of delivery and modes of assessment could follow principles of Universal Design for Learning (UDL) which represents a helpful approach to a compassionate pedagogy.

Clarity of expectations and use of UDL supports can reduce anxiety in students leading to better availability for learning and improved educational outcomes.



Use of elements of UDL embeds flexibility and choice in curricular design, thus creating accessible environments that mean fewer students will need to access individual additional supports for learning.

Enabling students to practise self-care helps them know and meet their own needs without highlighting their difference to the accepted norms.

Positive academic experiences can support students' self-esteem and readiness for the workplace. However, until such supports are normalised, neurodivergent students have less chances of graduating and accessing suitable employment.

Society as a whole, as well as each individual student, benefits from confident, successful graduates, so the onus is on institutes of higher level education to create compassionate contexts for the neurodivergent population.

Full Reference

Hamilton, L. G., Petty, S. (2023). Compassionate pedagogy for neurodiversity in higher education: A conceptual analysis. *Frontiers in Psychology* 14 -1093290.

LEVERAGING THE UDL FRAMEWORK TO PLAN GRADE-ALIGNED MATHEMATICS IN INCLUSIVE SETTINGS

BACKGROUND

Co-teaching special education teachers reviewed the needs of their diverse range of students during mathematics class and found that as all learners learn in an individualised manner, an alternative approach may be preferable; the approach they considered was Universal Design for Learning (UDL). UDL is a framework designed to provide inclusive practice, in this case provision of mathematical instruction, teaching and learning, in an accessible manner for all students, following the core principles of UDL of multiple means of

1. Engagement
2. Representation
3. Action and expressions.

It is believed that competency in mathematical computation leads to improved future opportunities in terms of competitive employment, independent living, and engagement in the community. Yet, those with an identified learning need experience difficulty amassing such a degree of competency, as it is felt that they have not been afforded equity of opportunity with a traditional teaching approach, with other special education teachers espousing that they felt ill-prepared and equipped to deliver an adapted mathematics programme in the current format.

RESEARCH AIMS

This research was designed to see if the use of UDL principles would support teaching and learning of the abstract concepts surrounding mathematics, in particular, the area of linear algebra. Understanding and having the associated skills of linear algebra is seen as the foundation

for further success throughout the students' school career. It is the first building block. The emphasis was placed on focusing on the essential skills, as acquisition of such allows for future development and a greater skill set.

RESEARCH METHODS

Teachers' and Students' Responsibilities

1. Teachers forged a plan, with clear Learning Intentions (LI) and Success Criteria (SC), based on the teaching and learning of linear algebraic understanding adapted to encompass the individual learning style and needs of each student, based on the UDL framework.
2. As UDL focuses on student learning outcomes, it was deemed necessary to fully review each LI and clearly set out the range of SC, which was differentiated into Essential, Ideal and Possible Levels of success, thus including all of the students in the class and providing for their range of diverse learning needs. These levels also planned for progression for each student.
3. These LI and SC were restated and visually provided for, at the beginning of each class, combined with highlighting the meaningful and personal relevance of not only the task but also the value for future work and adaptations in life, thus, a contextualised approach.
4. The students were further supported as necessary vocabulary and knowledge were offered. This combined the important factor of numbers and words working together, reflective of 'real-life' scenarios.

5. Increase in the use of pictorial or visual supports, thus giving added meaning for visual learners. Such learners also saw themselves and their learning style positively reflected in each lesson.
6. Peer support partnerships, where a student with identified supports needs partnered with a student who has already acquired a grounding in the subject matter. These partnerships, being small, were designed not to intimidate anyone, but also to lay the foundations and confidence for future groupwork and teamwork.
7. Self and individual reflection on progressions, understanding and teamwork application was used, using the visual concept of emojis, an engaging and age relevant approach.
8. Peer to peer encouragement and involvement were fundamental aspects, providing for ownership of individual and partner's knowledge and skill acquisition, with planning for next class development.
9. Apps, thus operating contextual and cultural appropriateness, were utilised including text-to-speech and virtual algebraic tiles alongside more concrete, tangible articles.
10. Colour coding was encouraged as a visual aid, thus used by all students, developing an ethos of uniformity and inclusion, and providing a generalised visual concept.
11. Students were offered a range of options to record results and responses through the GoWorksheet app.

RESEARCH FINDINGS

Students will only be ready to learn and be motivated in class if they feel that they are engaged in the full process.

The students felt that by being offered a manageable range of choices, thus increasing their independence and ownership of the task and their learning, they had enhanced agency. They were offered the opportunity to take responsibility for their work, their actions, their goal setting and ultimately their achievement. Such benefits and independence of learning can add to the understanding of the relevance of the learning, its value to them now and in the future, and the differentiation of the SC allowed for levels of current and future challenge and means of addressing these.

The students were also motivated to engage by realising and recognising from the beginning the clear expectations and consistency of approach.

Interpersonal barriers between students and the difficulties in acquiring knowledge and skills can be minimised by adapting UDL principles with contextualised, intentional, flexible teaching. This approach can engage all of the students, thereby maximising learning.

IMPLICATIONS FOR PRACTICE (by the authors)

- The teachers began the teaching process from a strength-based viewpoint. The principles of UDL encouraged them to review their teaching practice and rather than spend vast quantities of time differentiating each aspect of each subject individually, they redesigned how they initially presented the teaching and learning but only after careful and evaluated observations of the students, their needs, and their strengths.
- The value of visual supports, response cards, even physical signals, cannot be overestimated when attempting to meet the needs of all students, including those with additional learning needs, and those who cannot or choose not to verbally interact at the time. These supports can be woven seamlessly into every instruction period or lesson.
- The explicit supports needed by students to support their understanding became embedded into the teaching practice and format of each class.
- The teachers proactively planned for differences in engagement, representation, action, and expressions and offered a range of suitable and effective supports to all of the students and guided the students to use the format they felt best suited and met their needs.
- Engagement is essential for learning, and offering a variety of ways of providing for engagement encouraged the students to immerse themselves in the lessons. They saw their essential supports, visuals, text-to-speech apps, and the GoWorksheet app, as being supportive for all and not simply kept for those with perceived difficulties. This added confidence and insight into their peers and allowed for development of self-esteem and desire to learn more.
- Students who, in the past, may have felt like ‘outsiders’ now saw themselves as intrinsic components of a team, giving and receiving support, encouragement, and guidance.
- All students benefit from having a variety of means of expressing their understanding, insight, and knowledge, while monitoring personal progression. Cognisance must be given that for some, guidance may need to be offered regarding choice and number of the formats used. Too much choice can be as impactful as too little.

Full Reference

Root, J. R., Jimenez, B. and Saunders, A. (2021). Leveraging the UDL Framework to Plan Grade-Aligned Mathematics in Inclusive Settings. *Inclusive Practices*, 1(1), pp.13-22.

A DUAL DESIGN THINKING – UNIVERSAL DESIGN APPROACH TO CATALYZE NEURODIVERSITY ADVOCACY THROUGH COLLABORATION AMONG HIGH-SCHOOLERS

BACKGROUND

Neurodiversity refers to the natural variations in human brain function, acknowledging the diverse ways in which individuals think, learn, and experience the world. While traditional views often pathologise these differences, framing them as conditions to be fixed, the neurodiversity lens respects differences and suggests that societal barriers, rather than individual traits, often hinder the full participation of neurodivergent people.

Though understanding of neurodiversity is gaining traction among the general public, there remains considerable stigma and prejudice towards neurodivergent people. This stigma can have profound effects on mental health and self-esteem, often resulting in people feeling pressured to ‘mask’ or hide their true selves to fit in with neurotypical expectations, which can lead to anxiety, burnout, and depression.

Research indicates that combining education about neurodiversity, inclusive environments, and direct interaction with neurodivergent individuals can reduce stigma and improve relationships between neurotypical and neurodivergent people. However, no study has yet combined these strategies in one singular programme.

A promising approach that would support a combined focus and also aligns with the principles of neurodiversity is Universal Design for Learning (UDL). For example, teaching educators about UDL has been shown to increase knowledge about autism and reduce stigma. Participants in these programmes report shifts away from deficit-based views of disability, recognising the importance of designing educational materials and environments that accommodate all types of learners from the outset.

RESEARCH AIMS

This study aimed to evaluate the effectiveness of a two-week summer camp designed to improve high school students’ attitudes towards neurodiversity and enhance their knowledge about it. The camp included structured teaching sessions covering various neurodiversity-related topics and a hands-on advocacy project. It used principles of UDL and design thinking to guide participants in creating initiatives that could benefit the neurodiverse community.

This research focused on three main questions:

- What impact does the summer camp have on participants’ self-reported stigma towards and knowledge of neurodiverse conditions, such as autism, ADHD, and dyslexia?
- What do participants feel are the best parts of the camp? What suggestions do they have for the future?
- In qualitative interviews, how do participants discuss their experiences in the camp? What take-aways are there?

RESEARCH METHODS

Participants

This study included 19 high school students (ages 14-18) from the Stanford Neurodiversity Project – Research, Education, and Advocacy Camp for High Schoolers Project 2022 summer camp (SNP REACH Camp). The group comprised 57.9% neurodivergent students and included students from diverse racial and ethnic backgrounds. Most participants (73.6%) had friends or family members who were neurodivergent.

Procedure

Before attending the camp, participants completed baseline surveys measuring their stigma, knowledge, and attitudes towards neurodiversity. After the camp, they filled out follow-up surveys and could participate in optional Zoom interviews. Data collection occurred immediately after the camp and three months later.

The SNP REACH Camp

The camp was conducted entirely online over two weeks, featuring six hours of daily sessions. Activities included expert lectures, small-group discussions, and advocacy project work (e.g. small-group problem-solving tasks) led by counsellors. Groups consisted of 7-8 campers and included a mix of neurodivergent and neurotypical counsellors trained in neurodiversity, UDL, and design thinking.

The curriculum encompassed a range of topics, such as the principles of neurodiversity, the challenges faced by neurodivergent people, and how to implement UDL and design thinking principles. The hands-on advocacy project component enabled participants to apply their learning by creating tangible tools or materials that benefit the neurodiverse community.

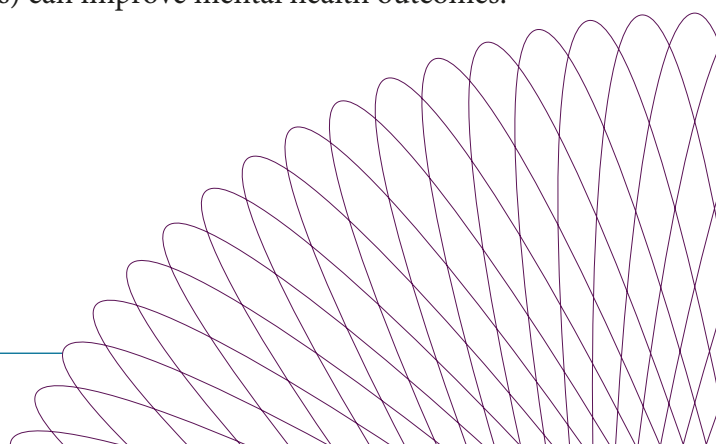
RESEARCH FINDINGS

The SNP REACH Camp demonstrated promising results in reducing stigma and enhancing knowledge about neurodiversity among high school students. Post-camp, there was a notable decrease in autism stigma and an increase in both autism and ADHD knowledge. However, no significant changes were observed in ADHD stigma or dyslexia-related attitudes or knowledge.

One of the camp's most impactful elements was the interactive nature of the programme. Research suggests that personal connections between neurodiverse individuals, as seen through cross-neurotype interactions at camp, positively influence attitudes. The inclusion of neurodivergent campers likely contributed to this shift, as participants had real, immersive experiences interacting with people from diverse neurotypes.

Qualitative interviews revealed positive changes in participants' empathy and understanding. Campers reported feeling less judgemental and more compassionate towards neurodivergent peers. Several participants cited real-world examples where they exhibited greater understanding or made accommodations based on what they learned at camp. For example, one camper mentioned redesigning club advertisements to be more accessible to neurodiverse individuals. This suggests that the camp's effects went beyond improving knowledge and attitudes; it also positively influenced actual behaviours towards neurodivergent people.

The camp had a particularly positive impact on neurodivergent campers. Interviews with these participants revealed that they felt a stronger sense of community, learned valuable self-advocacy skills, and gained greater self-acceptance. This is crucial, as a positive disability identity is linked to higher self-esteem, and reducing masking (i.e. hiding neurodivergent traits) can improve mental health outcomes.



Limitations

The study's sample size was small, and participants were self-selected, meaning they likely had pre-existing knowledge and interest in neurodiversity, which may limit the generalisability of the findings. Additionally, the camp's structure and leadership, including highly motivated counsellors, may not be replicable in other settings.

IMPLICATIONS FOR PRACTICE

Educational professionals and parents could aim to replicate the positive results of this study by:

- Gaining training and education on autism and neurodiversity and sharing this knowledge with children and young people
- Creating opportunities for discussions and small-group projects that focus on topics related to neurodiversity, equality and advocacy
- Encouraging reflection on how attitudes and behaviours have changed following group projects
- Celebrating success and acknowledging good practice
- Using UDL principles to deliver inclusion programmes which can offer a range of tools that may suit a diverse group of learners.

Full Reference:

Schuck R. K. and Fung L. K. (2024). A dual design thinking – universal design approach to catalyze neurodiversity advocacy through collaboration among high-schoolers. *Frontiers in Psychiatry* 14.

URL: <https://www.frontiersin.org/journals/psychiatry/articles/10.3389/fpsy.2023.1250895>

DOI: 10.3389/fpsy.2023.1250895

DESIGNING INCLUSIVE PHYSICAL EDUCATION WITH UNIVERSAL DESIGN FOR LEARNING

BACKGROUND

The article explores the application of the Universal Design for Learning (UDL) framework in designing inclusive physical education curricula. UDL, developed in the 1970s from the broader concept of universal design, provides a structured approach to ensure that educational experiences are accessible and engaging for all students, including those with diverse learning needs. Unlike some traditional models, UDL promotes proactive modifications that are incorporated from the start of curriculum design, making lessons more adaptable for a range of abilities without requiring last-minute adjustments.

UDL focuses on three core principles:

- **Multiple means of representation:** varied methods of instruction
- **Multiple means of action and expression:** diverse ways students can demonstrate their understanding
- **Multiple means of engagement:** different approaches to motivating and interacting with content.

By integrating these principles, UDL ensures that curricula are not only accessible but also offer meaningful and challenging experiences for all students, including those in general and special education.

UDL is increasingly being applied to academic subjects, however its integration into physical education is still relatively new. This research suggests strategies for applying UDL specifically to physical education.

RESEARCH AIMS

This study aims to illustrate how UDL can be applied in physical education classes. The article presents two hypothetical classes: a 5th-grade unit on hitting a ball over a net and an 8th-grade dance unit.

RESEARCH METHODS

UDL principles are applied to both physical education classes by designing tasks that accommodate various skill levels. For instance:

- **Progressive challenges:** Activities are structured to provide appropriate progressions for students of different abilities, ensuring that everyone can experience success.
- **Time-based tasks:** Rather than setting a number of required attempts, students are given a set amount of time to complete tasks, ensuring that the class finishes together and no student is singled out. This reduces pressure and supports inclusivity.
- **Choice of equipment:** Students are provided with different tools for each task, allowing for creative expression and varied approaches to the task.
- **Group collaboration:** As part of the dance task, students work in small groups to develop their routines, promoting peer interaction and cooperation, which fosters engagement for a range of learning styles and abilities.

RESEARCH FINDINGS

The use of UDL in physical education not only facilitates the inclusion of students with disabilities but also enhances learning for all students by providing multiple ways to access, engage with, and demonstrate understanding of the content. In the examples provided, UDL supports student success by accommodating a variety of needs and strengths from the start, avoiding the need for 'last-minute' adjustments that can sometimes feel isolating or inadequate.

The inclusive nature of UDL, promotes equal participation by ensuring that tasks are structured to minimise performance anxiety and supports cooperation between neurotypes (e.g. by giving all students a set time to complete tasks or encouraging teamwork through group projects).

Limitations

The author suggests that training and resources may be needed to help physical education teachers effectively incorporate UDL principles into their lesson planning.

IMPLICATIONS FOR PRACTICE

This study highlights how UDL can be implemented in practice. Educational professionals and community group leaders could be inspired by the clear examples provided in this study and could replicate the group tasks designed by the author or use the strategies highlighted to make group activities more accessible and enjoyable for all students.

The author recommends that professionals should focus on an inclusive curriculum incorporating multiple means of expression, representation and engagement (CAST, 2018).

Full Reference:

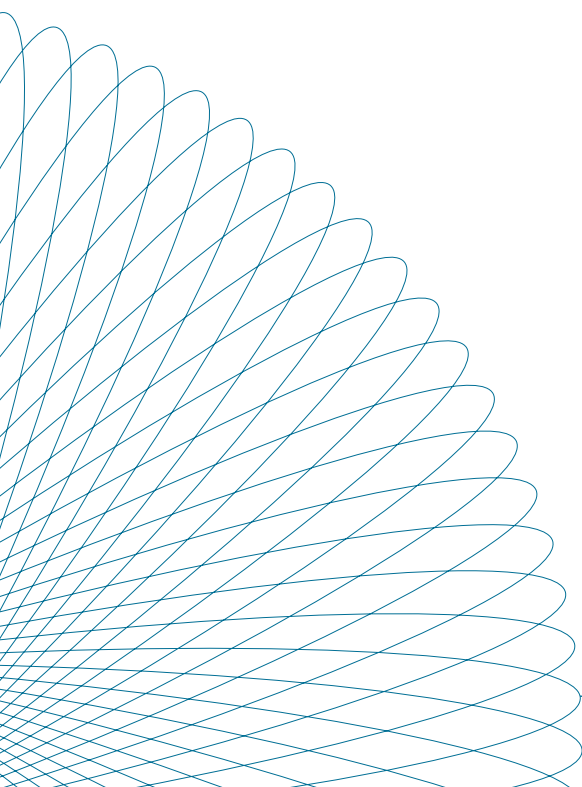
Gilbert, E. N. (2019). Designing Inclusive Physical Education with Universal Design for Learning, *Journal of Physical Education, Recreation & Dance*, 90:7, 15-21.

URL: <https://doi.org/10.1080/07303084.2019.1637305>

DOI: 10.1080/07303084.2019.1637305

Other Reference:

CAST (2018). Universal design for learning guidelines version 2.2. Retrieved from <http://udlguidelines.cast.org>



LEARNING FROM THE EXPERTS: EVALUATING A PARTICIPATORY AUTISM AND UNIVERSAL DESIGN TRAINING FOR UNIVERSITY EDUCATORS

BACKGROUND

Autistic university students present with academic strengths such as heightened writing skills and intellectual self-confidence. However, they also present with challenges relating to stigma, executive functioning, sensory overwhelm, mental health, isolation and difficulties advocating for themselves.

Individual differences in autistic students' strengths and needs can make it difficult for staff to understand and effectively support students. Even when universities/colleges provide academic supports there is often inadequate support around mental health, opportunities for students to connect with others and managing daily living skills. Autistic students often do not disclose their diagnosis to university staff due to ongoing concerns around stigma. In some situations, where an autistic student has disclosed their diagnosis and requested accommodations, they have been refused access for the following reasons: academic staff disagreeing with the diagnosis, lack of resources and funding, some staff considering accommodations to be an 'unfair advantage'.

University staff have identified the need for further training to improve staff and students' understanding of autism. While training programmes have been designed, many fail to include autistic people's voices and experiences. Research has shown that when training is designed in collaboration with autistic people it is more effective at reducing autism stigma and improves attendees' knowledge and attitudes towards inclusion. The current study aims to build on this earlier research by focusing on the maintenance of benefits over time and focusing on training educators and universal design.

Universal Design for Learning (UDL) is based on the premise that all students learn differently. Therefore educators need to be more flexible in how they teach information and assess students' understanding and knowledge. Greater opportunities for students to engage in learning opportunities and demonstrate their knowledge and skills is an important part of UDL.

Identifying supports for autistic students usually has a focus on UDL e.g. valuing difference, providing clear and consistent expectations while also being flexible, offering hands-on learning opportunities, scaffolding and environmental modifications. Educators who were identified as 'exceptionally supportive' of their autistic students tended to use UDL principles such as: developing a trusting relationship with students, adapting their own teaching styles to encompass their students' strengths and interests and an ongoing commitment to social justice.

RESEARCH AIMS

The aim of this study was to create an online autism and universal design course for university staff. Eight autistic and seven non-autistic researchers developed an autism and universal design training programme. This training programme was specifically designed for educators working at college/university level.

The following hypotheses were made:

1. Based on previous research around stigma and prejudice, participants who scored higher on the pre-test measure were more likely to advocate for their autistic students.

2. Female teaching staff and those with prior training on autism and/or UDL would present with more positive pre-test attitudes towards UDL. Researchers hypothesised that a more positive pre-test attitude towards UDL would be linked to lower stigma.
3. Researchers considered the differences in attitudes towards autism and/or UDL in relation to different disciplines. Researchers hypothesised that educators in 'helping fields' (nursing, education, therapies) would show more positive pre-test attitudes towards autism and/or UDL, in comparison with non-helping fields like STEM (engineering, maths) disciplines.
4. Researchers expected that participation in their training would result in increased autism knowledge, reduced stigma towards autistic learners and improved attitudes towards UDL.

RESEARCH METHODS

A total of 98 educators from 53 colleges/universities across 5 countries completed the pre-test assessments. 89 completed post-test and 82 completed maintenance assessments (one month after the post-test).

The research team used a technique called 'snowball sampling' to recruit potential participants. This is where researchers ask participants to identify other participants.

All participants were employed in a higher education setting (college/university) and actively involved in teaching students. The study consisted of five stages: 1. A pre-test assessment, 2. Completion of an autism module, 3. Completion of a UDL module, 4. Post-test, 5. Completion of a maintenance questionnaire one

month after the post-test. All aspects of this study were completed online. Participants were asked to complete each stage of the study within one week of beginning it.

Prior to enrolment, participants were asked questions about their gender, education, ethnicity, teaching experience (including autism training) and their past experiences of autistic people. They also answered two questions from a social dominance orientation tool: (1) 'An ideal society requires some groups to be on the top and others on the bottom' and (2) 'We should work to give all groups an equal chance to succeed'. Participants were asked to rate each question on a 7-point scale.

Pre-test, post-test and maintenance measures:

Participants completed the following measures as part of the pre-/post-test and maintenance assessment:

- Autism acceptance scale
- Participatory autism knowledge measures
- Inclusive teaching strategies inventory
- Open-ended questions

Participants completed two separate modules on 1. Autism and 2. Universal Design for Learning.

RESEARCH FINDINGS

Hypothesis 1: What predicts pre-test autism stigma?

Results of this study indicated that the following factors were associated with higher pre-test stigma scores:

- Being male.
- Having less knowledge of autism and/or feeling that inequalities were justified.
- A greater belief in social dominance was associated with higher stigma.

The effect of prior autism training on pre-test stigma was 'so small it was unlikely to be meaningful'.

Hypotheses 2 & 3: What predicts pre-test attitudes towards UDL?

Results indicated that once all potential predictors were accounted for, only higher pre-test stigma was meaningfully associated with less positive pre-test attitudes towards UDL.

Primary Hypothesis: Did autism and UDL training impact knowledge and attitudes?

Autism knowledge improved with training and this improvement was maintained at one month post-test. This means that attending and completing autism-specific training is associated with sustained improvements in autism knowledge. There is some loss of information one month post-test.

Autism stigma was reduced from pre-test to post-test and at maintenance. Similarly, at post-test and maintenance, participants reported more positive attitudes to UDL following completion of the UDL module.

Participants' perspectives

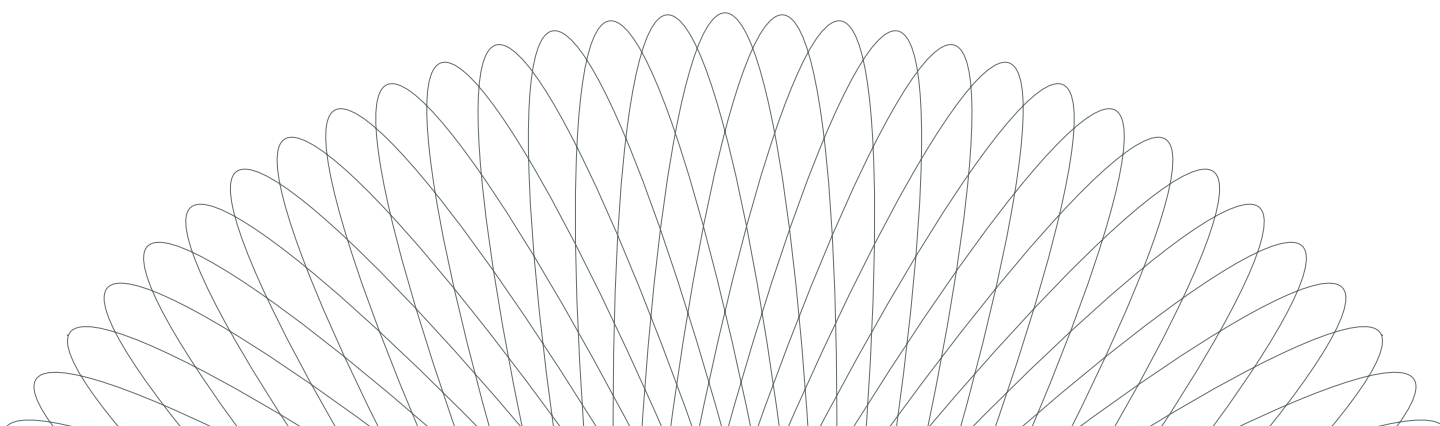
When asked, most participants enrolled in this course because they were interested in neurodiversity. Some participants enrolled to learn about UDL or because they had a personal relationship with autistic people. 87% of participants reported at maintenance that they used UDL-aligned strategies when supporting autistic students. However, some participants highlighted barriers to implementing strategies learned during the UDL and autism modules.

When asked at post-test for two things they planned to do differently when supporting autistic and/or neurodivergent students, 80% of participants reported using UDL-aligned plans. At maintenance, 64% of participants reported following through with this and implementing UDL-aligned strategies.

IMPLICATIONS FOR PRACTICE

This study suggests that online training for university educators can help improve their knowledge and appreciation of Universal Design for Learning and autism. Further training should also provide educators with information on how to support neuro-minorities to advocate for themselves.

Prior training on autism and/or UDL, employment in 'helping roles' and being female did not impact on the level of stigma and/or attitudes towards autism/UDL as originally



hypothesised. This may be due to selection bias, as participants in this study were predominantly female and already self-motivated to learn about supporting autistic students. This selection bias has previously been highlighted as an ongoing issue in studies examining faculty autism understanding.

Similarly, researchers highlighted that people avoid those they are prejudiced against. Therefore, educators who are prejudiced against autistic students or UDL principles will not be attracted to join training on neurodiversity, as offered in this study. It is difficult to determine how effective this training programme would be when offered to educators who are less interested in supporting autistic individuals or adapting their teaching styles.

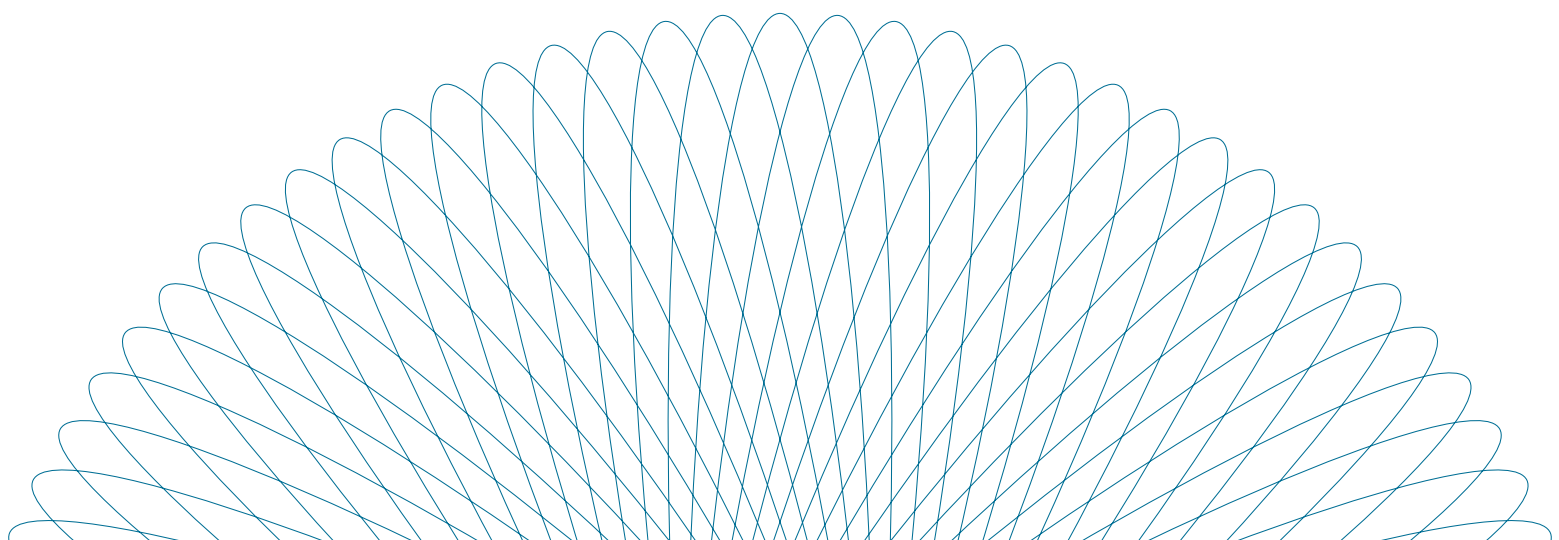
While educators reported improved knowledge and understanding of autism upon completion of this study, participants were not observed teaching students. Perspectives of their students were also not obtained.

This study continues to highlight the importance of offering training that focuses on improving Social Dominance beliefs and neurodiversity appreciation to all staff working in an academic setting, including administrative and managerial staff. The introduction of UDL training should be used as a means of empowering educators and students to co-create 'learning opportunities that are better tailored to the students' interests and strengths'.

Researchers highlighted that non-speaking autistic individuals and those with intellectual disabilities were not represented when researching and developing the autism training module. Further inclusion of members of the autistic community whose voices are usually left out of research needs to be prioritised.

Full Reference

Waisman, T. C., Williams, Z. J., Cage, E., Santhanam, S. P., Magiati, I., Dwyer, P., Stockwell, K. M., Kofner, B., Brown, H., Davidson, D., Herrell, J., Shore, S. M., Caudel, D., Gurbuz, E. and Gillespie-Lynch, K. (2022). Learning from the experts: Evaluating a participatory autism and universal design training for university educators. *Autism* Vol 27 (2) 356-370.



UNIVERSAL DESIGN FOR LEARNING IN A MUSIC CAMP: PERSPECTIVES AND MUSICAL SELF-EFFICACY OF CHILDREN WITH DISABILITIES

BACKGROUND

While many students often receive their musical education within inclusive classes, many professionals also report that they feel ill-equipped to meet the diverse needs of their students. Children may also find it difficult, for example, to learn within a classroom environment that is not truly designed to be inclusive of them, which may lead to low self-efficacy. This study investigated the use of Universal Design for Learning (UDL) principles in music education, within a week-long summer music camp setting for children with disabilities.

UDL is described as an educational framework that advocates for flexible learning environments to assist in supporting individual differences.

RESEARCH AIMS

The primary aim of this research study was to assess how the implementation of UDL in a music camp setting impacted the musical self-efficacy (i.e. the belief in one's own musical abilities) of children with disabilities, and to understand how UDL may create a more inclusive music education environment for different learners. Three research questions were addressed with the aim to establish:

1. How elementary school children with disabilities perceived their participation in a summer music camp designed using principles of UDL.
2. How parents perceived their child's perception in a summer music camp designed using principles of UDL.
3. If children with disabilities showed changes in musical self-efficacy over the course of a week-long half-day summer music camp designed using principles of UDL.

RESEARCH METHODS

This research was qualitative in nature employing an action-research methodology whereby researchers sought to improve their practice in the design and implementation of a summer camp for children with disabilities based on using UDL principles.

The participants consisted of four children (who identified as male aged 5 to 8 years). Three were autistic, and one child had a diagnosis that was not specified by his mother.

Data was collected through semi-structured parent-child group interview (with mothers), child interviews, observations, drawings by the children of what they did every day and explanations of their drawings, in addition to a children's musical self-efficacy rating scale which reported measures of musical self-efficacy both prior to and after the camp.

The study also included interviews with camp instructors to gauge how they employed UDL in their teaching and to identify any challenges they may have faced.

RESEARCH FINDINGS

Findings from parents' and children's perceptions of the camp respectively revealed three themes. From the children's perceptions the three themes which emerged included: social interaction/play, enjoyment of making music and positive representation of people with disabilities. From the parents' perceptions the three themes included: camp structure, camp teachers and benefits to the children.

While the musical self-efficacy ratings scale showed there were no changes, the children's explanations of the sources of musical self-efficacy indicated that half of the children may have experienced positive changes to musical self-efficacy. This discrepancy could possibly be due to the instructions on responding to the question about musical self-efficacy being unclear to some children or because they could clarify their perceptions better using other forms of communication such as drawings. Furthermore, it may also have been the case that one week may not have been long enough to change their general perceptions on musical self-efficacy.

Participants did, nonetheless, report feeling more confident about their music abilities and more willing to learn and perform with a new instrument. The flexibility of the teaching methods of UDL such as various forms of engagement, expression and representation permitted children to participate in music activities at their own pace and level.

Children also expressed positive experiences in the camp, most notably the inclusive and supportive environment which was central to their enjoyment and learning. Additionally, instructors reported that while UDL helped them address and provide support to the individual needs of children, in doing so, they experienced challenges in balancing the diverse needs of participants.

IMPLICATIONS FOR PRACTICE

This study suggests that UDL principles in music can be successfully implemented in the musical education of children with disabilities, creating a more inclusive learning environment, enhancing access to and enjoyment of music education. As suggested by the authors, having a summer camp for children with disabilities only may offer

more opportunities for social interaction and encourage positive representation.

This study also reinforced the importance of asking children the right questions and listening to their responses when conducting research, as they may add clarity and better understanding, particularly when using self-reported rating scales.

People with disabilities should be positively represented in the musical curriculum through sources such as media, videos, children's books and through invited guests to allow the voice of the person to be heard first hand.

Furthermore, this research highlights the need for music educators to adopt more flexible teaching strategies, such as providing multiple ways for students to engage with and express their music. Training educators in UDL is vitally important to better meet the diverse needs of students.

The study highlights that using UDL can generate a more dynamic and engaging learning environment for all students.

Overall, this research contributes to the growing body of evidence supporting UDL as a means to enhance inclusive education. The researchers called for wider adoption of these principles in music and other creative fields.

Full Reference

Yinger, O. S., Vasil, M., Robinson, A. S., Jaspersen, M., Eisenbaum, E. and Mullis, L. C., 2023. Universal design for learning in a music camp: Perspectives and musical self-efficacy of children with disabilities. *Update: Applications of Research in Music Education*, 42(1), pp.33-42.

‘HOW DOES UNIVERSAL DESIGN FOR LEARNING HELP ME TO LEARN?’: STUDENTS WITH AUTISM SPECTRUM DISORDER VOICES IN HIGHER EDUCATION

BACKGROUND

Inclusion and equity of access are terms frequently heard in relation to education both nationally and internationally. However, agreement as to how this might be realised has yet to be achieved. In reality, despite the increase in autistic students attending university, it is widely acknowledged that many barriers still continue to impact on student learning and participation. A number of these barriers have been ascribed to teaching practices. Based on the Universal Design for Learning (UDL) concept that each student’s diversity is a central consideration in their learning, this study sought to understand what teaching practices supported autistic students in university, from the perspectives of the students themselves.

RESEARCH AIM

The aim of the study was to understand which UDL-aligned inclusive teaching practices facilitated learning for autistic students at university.

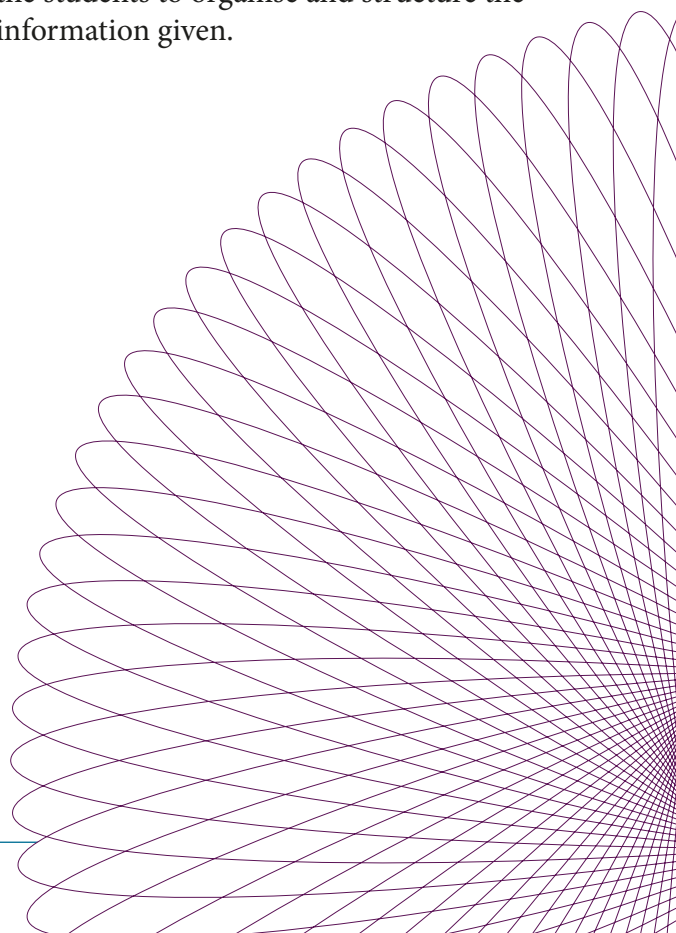
RESEARCH METHODS

A qualitative approach was taken in this research with data gathered through semi-structured interviews with seven (six male and one female) autistic undergraduate level university students. Field notes were also taken during each interview to aid the researchers in better understanding the perspectives of their participants. Interviews were conducted in one-to-one sessions with more than half of the interviews held online. The data gathered was interpreted through a qualitative content analysis.

RESEARCH FINDINGS

The findings were considered with respect to the three principles of Universal Design for Learning.

1. Provide multiple means of representation
 - A combination of visual support alongside oral information was appreciated by the students as it improved attentional focus.
 - Greater retention of information was achieved when teaching staff were competent in their communication.
 - Highlighting the key concepts within the curriculum aided the students in identifying areas on which to focus.
 - Information received progressively was important in supporting student understanding, and in allowing time for the students to organise and structure the information given.



2. Provide multiple means of action and expression

- Students found merit in being able to demonstrate and showcase their knowledge through a variety of means.
- Of clear support was the option to communicate with teaching staff through a range of media, for example in-person, online or via email.
- Teacher feedback was also highlighted as an enabler for student self-directed improvement.
- Providing clear expectations of goals alongside guidelines to support their attainment was found to be of benefit to the student cohort.

3. Provide multiple means of engagement

- Students felt more engaged in their learning when their opinions were considered by teachers regarding the design and planning of activities.
- Being able to choose the level at which they completed the task, and being able to complete it in their own way, was valued by students.
- Capturing the interest of the student their understanding of the information presented.
- Teacher acknowledgement of student effort provided encouragement and increased student motivation.

IMPLICATIONS FOR PRACTICE

- Utilising multiple media (e.g. visual, auditory or tactile) to disseminate information is vital for many autistic students.
- Highlighting key curriculum concepts is invaluable to autistic students, as is the provision of clear guidelines and support with information organisation.
- Providing autistic students with multiple ways in which to demonstrate their knowledge will allow each individual student to choose which best suits their abilities and aligns with their learning preferences.
- Individual and frequent feedback, along with regular assessment, is of preference to autistic students.
- Providing autistic students with clear and specific expectations will increase student confidence in meeting their learning objectives.

Reference

Barrera Ciurana, M. & Moliner García, O. (2023). 'How does universal design for learning help me to learn?': students with autism spectrum disorder voices in higher education. *Studies in Higher Education*, 49(6), 899–912. <https://doi.org/10.1080/03075079.2023.2259932>

CONCLUSION

Universal Design for Learning is an approach to education supports that offers an inclusive and tailored curriculum to benefit students across all neurotypes. While the concept of UDL has existed for decades, research into UDL practices for autistic learners is still in its relative infancy and the perspective of autistic students needs to be centred. Nevertheless, research suggests that UDL can positively impact learning, the learner and the educator.

Thanks to Zarah for sharing her time and expertise.

YOUR OPINION

The Centre trusts that you have found this Research Bulletin informative. It would be appreciated if you would take a few minutes to provide the Centre with feedback in relation to this Bulletin by clicking on the survey link below.

[Research Bulletin Feedback Universal Design for Learning](#)



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