

ORIGINAL ARTICLE

# ‘Our Classes Are Like Mainstream School Now’: Implementing Universal Design for Learning at a Special School<sup>†</sup>

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(Received 5 February 2023; revised 22 May 2023; accepted 23 May 2023; first published online 22 June 2023)

## Abstract

Students with emotional and behavioural disability who receive their education in special settings often do not have access to the curriculum through evidence-based pedagogies, such as direct instruction, and instead complete packets of worksheets or participate in distance education. The current study was a collaborative action research project involving a special school for students with emotional disability and a local university to examine the effects of replacing online distance education with in-person direct instruction underpinned by Universal Design for Learning. Researchers sought to discover teacher and student perceptions of Universal Design for Learning, enablers and barriers to its implementation, and its effect on attendance and behaviour. Results suggested satisfaction on the part of both students and teachers and a positive effect of Universal Design for Learning on both attendance and behaviour.

**Keywords:** Universal Design for Learning; UDL; special school; emotional and behavioural disorders; school–university collaborative research; special schools

Students with emotional and behavioural disability (EBD) often struggle in mainstream school settings, due to the large, noisy school environment, inflexibility in the way the curriculum is presented, and lack of teacher understanding and expertise of EBD (Cheney et al., 2013). Because of these and other reasons, 13%–16% of students belonging to this vulnerable population attend school in special rather than in mainstream settings (Australian Institute of Health and Welfare, 2020; Samuels, 2018). Once in special settings, students often are not accessing the curriculum via evidence-based pedagogical means, such as direct instruction, with many completing packets of worksheets or participating in distance education online (McKenna & Ciullo, 2016). This lack of direct instruction can be attributed to the wide variation in student ability and attainment in each specialised classroom, as students with EBD have historically had poor school attendance and/or concurrent learning disability (Cheney et al., 2013; Hunt, 2021; Mitchell et al., 2019; Zaheer et al., 2019).

Hunt (2021) found that despite students with EBD often experiencing poor academic performance, interventions are still mostly focused on behaviour rather than learning. This focus is problematic and counterintuitive, as eliminating barriers to learning can increase appropriate behaviour (Zaheer et al., 2019). The existing body of educational literature supports the logical assumption that when lessons are well designed and relatable to students, then students tend to be more engaged and less likely to be disruptive (Zaheer et al., 2019). Hunt (2021) suggested that students with EBD could be better supported when teachers use the Universal Design for Learning (UDL) framework to design lessons, as

<sup>†</sup>This manuscript was accepted under the Editorship of Michael Arthur-Kelly.

many evidence-based practices for students with EBD are well aligned with UDL's three main principles of representation, engagement, and action and expression.

### **Universal Design for Learning**

UDL is grounded in the belief that all learners, regardless of ability, benefit from curriculum planning that caters for a wide variety of learners (CAST, 2018). UDL places the student at the centre of instruction through a curriculum that is deliberately designed to reduce barriers to learning and to reach and accommodate *all* students before they experience academic or motivational failure (Nelson & Basham, 2014). The UDL guidelines are underpinned by research on cognition and learning (Meyer et al., 2014). UDL is based on three principles: *multiple means of engagement*, to tap into learners' interests, challenge them appropriately, and motivate them to learn; *multiple means of representation*, to give learners various ways of acquiring information and knowledge; and *multiple means of action and expression*, to provide learners alternatives for demonstrating what they know (CAST, 2018). These principles guide curriculum design with regard to providing content, activities, and pedagogy that address multiple means of representation, action and expression, and engagement. The three principles are further defined by nine guidelines and 31 checkpoints derived from best practices in the literature (CAST, 2018). The UDL guidelines can be applied in various ways and at different levels (e.g., educational environments, curriculum and instruction, and digital tools and online environments). As such, UDL serves as the conceptual framework for this study.

The literature in the field is replete with examples of UDL research (Crevecoeur et al., 2014; Ok et al., 2017; S. J. Smith et al., 2019). These studies mostly examine the theoretical aspect of UDL, evaluate teachers' fidelity of use, or explore teacher perspectives on using UDL. Although there is a wide literature base exploring student voice, democratic, and participatory education and Scarparolo and MacKinnon (2022) found that students had a desire to have both a choice and voice about their schooling, even in primary school, few studies could be found that specifically explored school-age student perspectives on learning in a UDL environment. Most of the studies that explored the perspectives of students, particularly those with disability, were focused on the tertiary education sector (Black et al., 2015; F. G. Smith, 2012). This lack of student perspective suggests a gap in the literature regarding student experiences with learning through UDL-designed pedagogies.

### **Background**

Programs for students in Grades 9–12 at the participating school were traditionally developed by the Sydney Distance Education High School, providing students with the opportunity to gain equitable access to the mainstream curriculum. Teachers and school leaders wanted to change the delivery of the curriculum to make it more engaging to students, while still meeting each of their individual needs and easing their reintegration into their home schools. This change in delivery required the development of a model that was flexible and could adapt to an ever-changing cohort and varying abilities in a small class setting.

The leadership team from the special school contacted the university researchers to discuss implementing UDL as part of a collaborative research project. The team decided to take a collaborative action research approach. The best evidence synthesis (BES) model (Timperley et al., 2007) lent itself well to frame and design the project. The goal of the model is for teachers to advance their own professional development through collaboration and learning, resulting in positive learning outcomes for their students. Teachers are encouraged to look at valued student outcomes as a part of the teacher inquiry and knowledge-building cycle (Timperley et al., 2007). In other words, the teachers begin by looking at the learning needs of their students and their own learning needs and using those answers to design tasks and experiences. This model was chosen for this project because it effectively illustrates the synthesis between teacher professional development and student outcomes, which were the two areas

that the team had committed to working on. The university partner fits into the BES model through the provision of professional development, consultation, and research.

The aim of this project was to explore the implementation of UDL as a replacement for distance education in a NSW Department of Education school for students with emotional disability. The research questions/hypotheses that guided this project were as follows:

1. What are teacher perceptions of the effectiveness of implementing face-to-face UDL to replace distance education?
2. What are student perceptions and opinions of UDL as a pedagogy?
3. What are the barriers and enablers in planning and implementation for face-to-face UDL to replace distance education?
4. What are the effects on attendance and behaviour when implementing face-to-face UDL?

## **Method**

### ***Research Design and Procedure***

The authors applied for and received ethics approval from the human research ethics committees at UNSW Sydney and the NSW Department of Education. The authors employed a qualitative research design with several types of data collection to gain an in-depth understanding of the experiences and perceptions of both teachers and students involved in the design and implementation of UDL in a special school for students with EBD.

The university partners met with teachers and the school's leadership team several times over the course of 2020 to provide professional development and guidance on preparing term-long instructional units that embodied the principles of UDL. The three professional development sessions were (1) Introduction to Universal Design for Learning, (2) Assessment, and (3) Working With Paraprofessionals/Paraprofessional Training. Each session was designed based on consultation with teachers about their professional learning needs. The lead researcher visited the school regularly throughout the study to consult with teachers and to provide advice on the instructional units they were developing. The team determined that instructional units would be developed to cover a 2-year cycle, with four termly units per year, for a total of eight units per subject area.

Data were collected from a range of sources to answer the research questions. They included (a) teacher surveys, (b) student interviews, (c) collection of teaching materials, (d) field notes from professional development and teacher consultation meetings, (e) classroom observations, and (f) attendance and discipline referrals. All data, except for classroom observations and attendance and discipline referrals, were analysed using a qualitative content analysis approach (Bengtsson, 2016). Because qualitative content analysis is not linked to any particular science, 'there are fewer rules . . . [and] the risk of confusion in matters concerning philosophical concepts and discussions is reduced' (Bengtsson, 2016, p. 8). Classroom observations, attendance, and discipline referrals were analysed using descriptive statistics.

### ***Setting***

The participating school was a special school in metropolitan Sydney, NSW, Australia. The school provided short-term intensive personalised educational programs and support for students in Grades 7–12 who had been diagnosed with mental health problems and/or emotional disorders. The school had a capacity of 42 enrolments, but generally had 20–30 students attending on any given day. One main goal of the school was to prepare students for their return to a regular secondary school or support their transition to other education and training opportunities.

**Table 1.** Student Demographics

Pseudonym	Age	Grade
Bluey	17	11
Jack	15	10
Myca	13	8
James	18	12
Tom	15	10
Emma	13	8
Archie	13	9
Sapphire	16	11
Ko	18	12
John	16	11
Pixie	16	11
Phoenix	15	12
Lamp	15	11
Raven	15	11

### **Participants**

All students at the school were invited to participate in the study and 14 agreed and provided their consent. They were in Grades 8–12 and aged 13–18 years. Table 1 contains limited demographic information, including the pseudonyms students chose to mask their actual identities. Due to the small size of the participating school, limited demographic information was reported for students to maintain their anonymity.

Most school staff agreed to participate in the study. Two staff members left the school after the professional development stage but before the implementation stage. One staff member joined the school and the study during the implementation stage. Overall, three teachers participated in the pre-, mid- and post-implementation surveys, classroom observations, and the collection of teaching materials. Because of the small number of staff, demographic information was not collected or reported, to maintain anonymity with the school leadership team and the wider community.

### **Analysis**

Thematic analysis of the data was conducted in three stages. In the first stage, data samples were open coded by two members of the research team. In the second stage, there was an exchange of the results of the coding over several meetings where the authors discussed the derived codes, subcategories and categories. Once agreement was achieved, all themes, categories and subcategories were carefully compared for any overlaps (Bengtsson, 2016). Triangulation of the data was achieved by collecting data from several sources and involving both authors in every stage of the data analysis to ensure credibility, validity, and trustworthiness (Flick, 2014).

Descriptive statistics were used to analyse the classroom observations, attendance, and discipline referrals. For the classroom observations, the UDL Observation Measurement Tool (Basham et al., 2020) was used to calculate a score based on the observer's overall perception of the UDL principles that were effectively implemented during the observation. The attendance and discipline referral data were collected over time and placed on a graph for visual analysis.

## Results

### Teacher Surveys

Teachers were surveyed three times during 2021: a pre-implementation survey in January, prior to the start of the school year; a mid-implementation survey in April after one term of using UDL; and then a final survey in December, after the school had been using UDL for the whole year. Thematic content analysis revealed four main themes: (a) implementation, (b) enablers of UDL, (c) challenges to UDL, and (d) results of using UDL. In order to depict the results over time, the findings are presented and discussed within each survey phase as follows.

#### Pre-implementation surveys

Nine teachers completed the pre-implementation survey. Although there was a fair degree of positivity about adopting UDL in the school, this was accompanied by some hesitancy and anxiety from teachers about their capacity to implement UDL. Teachers felt that challenges to implementing UDL were (a) structural issues, (b) staffing issues, (c) knowledge and confidence, and (d) time needed to implement the new way of teaching. The teachers also identified some enablers to implementing UDL effectively: (a) having a complete understanding of what UDL entails, (b) information and guidance, (c) professional learning and support, and (d) collaboration. T3 felt that, in addition to this, teachers themselves were enablers: 'Being open to change, being willing to learn different frameworks and adapting the way I have created programs in the past'.

Answers to questions about differentiation and assessment confirmed that many teachers' understandings of UDL were still developing. Although most were able to describe teaching practices that included multiple forms of representation, and a little over half (five) could explain that differentiation involved providing multiple forms of engagement, very few teachers mentioned practices that allowed for multiple means of expression.

When asked how they thought students would respond to UDL pedagogy, almost all teachers felt it would be positively received. Reasons for this included more academically engaging lessons, individualised programs that offered choice and flexibility, and a greater level of differentiation (T1, T3, T5, T7). For example, T5 predicted that

*... they will mostly respond well as it will be providing them with more choices and flexibility. Some hesitation and uncertainty will be expected in some students, especially those who do not respond well to change, yet this should be temporary.*

Only two out of the nine teachers (T2, T6) expressed concern that there may be adjustment issues for students. T2 stated, 'If explained, I think they would prefer that their tasks are individually tailored'.

#### Mid-implementation surveys

Mid-implementation surveys were administered in April, after one term of the school's implementation of UDL. Only three teachers completed this survey, as they were the three teachers still using UDL when the pandemic restrictions were enacted. All three teachers continued to view the implementation of UDL from a pedagogical perspective, highlighting enablers and challenges that focused on either staffing or structural factors such as programming or technology. However, the general apprehension that was apparent among most teachers in the pre-implementation survey seemed to have eased, largely because of the support they had received. Results of this survey included a definite easing of teacher apprehension, as knowledge and confidence were still challenges, but teachers were able to suggest ways that they could address these on their own.

All three teachers cited guidance and professional learning as big enablers, including lesson observations, which were seen as valuable for building confidence, as they allowed teachers to confirm that their instructional design and practices were well aligned with UDL principles. T11 felt that the

upcoming teacher observations would help to improve their use of UDL, ‘... making sure I am doing it well, but I am sure I will get that from the observation’. Although teachers were still experiencing some confusion about assessment practices, there was an overall increase in autonomy and self-efficacy. Teachers’ focus with regard to support was on being allowed sufficient time for programming and working with colleagues to ‘iron out’ the issues encountered. All teachers perceived that UDL had been well received by students, whom they described as ‘*infinitely more engaged*’ (T1) and ‘*sociable*’ (T11). T4 stated, ‘Students tend to appreciate and engage better in this mode of delivery rather than distance education’. No mention was made of any student adjustment issues and there were no mentions of academic outcomes resulting from the introduction of UDL.

### *Post-implementation surveys*

The same three teachers who completed the mid-implementation survey completed the final survey in December. Their responses reflected the significant development of their capacity to implement and deliver UDL pedagogy in their classrooms. By the end of a year using UDL, the participants expressed that they felt well supported, had been allowed sufficient time to develop programs, and enjoyed a productive, collaborative environment. The initial apprehension among school staff was replaced by a general comfortableness with UDL design and implementation. T4 felt that the biggest enablers overall were ‘programming time and being given the time to really think through how to design and implement each lesson, and collegial support’. Any questions remaining about UDL were specific and teachers had a very clear idea of areas they would like to focus on in future professional learning sessions. For example, T11 wanted ‘more professional learning on assessment and using multiple methods to explain concepts’.

One teacher (T11) indicated that they did not think any challenges to UDL remained. The other two participants still felt challenged in places. T1 listed challenges to UDL as ‘students moving about the classroom, making it relevant to their lives & real life whilst allowing students sufficient time to increase their mathematical fluency’. T4 felt that problems with infrastructure were barriers to the effective implementation of UDL: ‘Presenting information in multiple formats can be tricky when computers don’t function reliably, watching videos, interactive activities, etc.’

Overall, teachers perceived that they had experienced an increase in confidence and capacity building over the year. By the end of the year, teachers were able to describe in considerable detail how the lessons they taught followed UDL principles, referring to multiple representation and engagement and describing a range of tools they used to provide students with choices in their learning. T1 described how they implemented UDL: ‘I use a flexible learning environment, UDL-style booklets, highly structured, yet flexible lessons, weekly feedback from students, task choice’.

Teachers felt that they had more capacity in assessing student learning using UDL principles, with all using both formative and summative assessments with multiple options/means of accessing criteria and demonstrating skills and knowledge, negotiated between individual students and the teacher. However, assessment continued to be identified by the teachers as an area for future professional learning (both T4 and T11 specifically stated this on their surveys), particularly around providing choice effectively, in ways that foster the students’ self-determination skills.

### *Student Interviews*

At the beginning of the study, 14 students agreed to participate and were interviewed. Students were interviewed twice. The first round of interviews was conducted in February 2021, shortly after the introduction of UDL, and included 14 students. The second round was conducted in December 2021, after a year of the school using UDL, and included three students, Archie, Jack, and Sapphire, all of whom had participated in the first round. The disparity between the number of participants in the two interviews is attributable to the pandemic and low levels of attendance when students were finally permitted to return to school campus a few weeks before the end of the school year. Interview questions

focused on how students perceived the changes that had occurred in the way they learned and were phrased openly (What has changed? What do you like/dislike?) to allow students the freedom to share whatever they felt was relevant. Three main themes, Organisational, Learning, and Interpersonal, were identified, along with eight subthemes: (a) mainstream schooling, (b) structure, (c) academics, (d) direct instruction, (e) teachers, (f) self-instruction, (g) autonomy, and (h) social interaction. To depict the results over time, the findings are presented and discussed within each interview phase as follows.

### *Initial interviews*

During the first interview, students commented that the new approach to learning was closer to mainstream schooling than distance education, which was the school's previous mode of delivery. Many of these students were positive about this change, noting that it would support their transition back into mainstream school in the future. There were, however, adjustment issues for some students, with one student, Sapphire, even describing the change as 'daunting'. A small number of students (Jack, Sapphire, Raven) indicated that they had been having difficulty adjusting.

Six students mentioned a loss of autonomy (not being able to forge ahead and work on their own or choose what to work on when) as a disadvantage of the new UDL pedagogy. Pixie lamented, 'It is a little bit confusing — it can be a little bit hard to keep track of and I do not really like doing classes in person with so many other people just because I prefer working on my own'. Conversely, seven of them expressed an appreciation for the higher levels of academic support they were receiving from their teachers. One interesting finding was that John and Phoenix felt both a loss of autonomy and appreciated the extra support they were receiving from teachers. Ko felt overwhelmed by what they perceived as additional personal responsibility for their own learning: 'There is a lot more pressure on us to organise our own study and there are more responsibilities that some might not be able to uphold with their mental health'.

Two students (Archie and John) were not happy with being part of a class and expressed a clear preference for working alone (also noting they felt a loss of autonomy) and found the increased social interaction to be a negative aspect of this new learning mode. Five students (James, Phoenix, Lam, Pixie, and Tom) commented positively on aspects of social interaction that had increased, whereas Tom explained, 'It is good to kind of get that social aspect to it. One of the best things about it is the social aspect about it'.

Four students noted that they felt that teachers had less time for emotional support, since they had to focus on teaching now. Ko expressed, 'I think they could be more like hands-on, kind of . . . Understanding each student personally would help, so that certain people with problems could get the support they need'. Most of the students interviewed were more positive about this and commented explicitly on how much they enjoyed receiving direct instruction from a teacher, noting that it provided them with greater academic support and reduced the pressure of working alone they experienced in distance education. Phoenix revealed, 'It is a lot easier to get on top of because when we had distance learning it was almost like work after work; it was a lot all at once'.

Students also felt that teachers had more familiarity with the content due to writing and delivering the content themselves and therefore were better able to explain it. Jack and Raven both commented that they enjoyed the greater choice of learning materials and activities, whereas Bluey complained that using a paper booklet presented a physical challenge. Lastly, Myca, Pixie, and Archie felt that the new lessons did not challenge them enough.

### *Final interviews*

Archie, Jack, and Sapphire participated in the second round of interviews at the end of the school year. Their responses were mixed: Jack and Sapphire expressed frustration and overstimulation due to working with others, whereas Archie was more neutral. All students again referred to their classes as being similar to mainstream schooling, with the transition benefits also being highlighted — preparing




















Lesson 1: What makes humans happy?			
<b>Instructional materials</b>	PowerPoint presentation   Video with closed captioning and transcript   Worksheet  (  )		
<b>Learning intentions</b>	<b>Instructional methods</b>		<b>Assessment</b>
	<b>Representation</b> How will you present this concept?	<b>Engagement</b> How will it be engaging for <u>every</u> student?	<b>Action/ Expression</b> How will students show what they know?
1. Discuss what makes humans happy	Class discussion: In your opinion, what makes humans happy? 	Options that encourage collaboration and communication	Participation Primary: Verbal Optional: Written  (  )
2. Identify measures of wellbeing	Watch video: 200 countries, 200 years in 4 minutes Discuss and complete worksheet activity together  	Students choose groupings	Comprehension Multiple choice question on worksheet (digital or paper) Optional: Verbally respond to teacher  (  )
3. Develop a hierarchy of needs for a particular group	Lecture: Images, text, read aloud by teacher Worksheet provides hierarchy template  	Multiple examples - images and photos of models Themes based on topics likely to interest students	Project Representing group needs in a pyramid. Options: complete template on worksheet, make computer graphic, take a photo, draw a picture    

Figure 1. Example of UDL Lesson Plan.

them for graduation and mainstream schooling. Jack expressed his satisfaction: 'I think it is especially good to prepare to go back to mainstream. It is sort of like that structure, so it is slowly introducing me back into mainstream teaching'. Unlike the first round of interviews, where adjustment concerns had been expressed by a small number of students regarding the mainstream aspects of UDL, these students seem to have adjusted well and understood the potential transition benefits this type of learning offered.

Students were positive about the structural aspects of UDL. Only one comment was made about the increased movement between classes occasionally leading to overstimulation: '... now it just feels very like busy, like rushed, moving from classroom to classroom' (Sapphire). This observation seemed to be isolated to this student rather than being a widespread challenge. Only Jack made a comment that reflected a loss of autonomy: '... having to slow down for other people, like if they're not up to date then and I have to sit and wait for a time'. Although they had adjusted to the new pedagogy, Sapphire still expressed the need for more structured emotional support and missed the close-knit relationships they had with peers and teachers in earlier years. Some students enjoyed the greater challenge compared to distance education; others found the additional challenge stressful or said their lessons did not challenge them enough.

### Teaching Materials

An instructional unit of study was collected from teachers in each subject area (maths, history, geography, English, art, and personal development, health and physical education). These were analysed via content analysis according to the principles of UDL. Each unit was designed to last over a 10-week term, with direct instruction and learning activities lasting 7–8 weeks, giving students 2–3 weeks to complete a project of their choice to demonstrate their mastery of the unit's learning outcomes.

Analysis revealed that all instructional units included the three principles of UDL, but student choice was mostly reserved for the assessment portion of the unit. The template for lesson plans encouraged this by making options for representation, engagement, and expression integral parts of every lesson (see Figure 1 for an example of a typical lesson plan written on the template).



**What are you afraid of?** Name \_\_\_\_\_

Create a narrative telling a story about YOU or a fictional fear. Just like Conor your story should be about overcoming a deep fear. This narrative should include a fear that you are facing/overcoming, apply at least 3 literary/visual techniques and must include all elements of a narrative. The text you create to tell your story can be in a wide variety of formats including **annotated illustration, cartoon, podcast, script, interview, speech**, or any other format agreed with your teacher. Make sure your work meets the agreed learning intentions.

Learning Intentions	NA	1	2	3	4	Feedback
<b>Includes 3 key features of</b> <ul style="list-style-type: none"> <li>Consistent point of view</li> <li>The story aims to overcome a fear (eg, the fear of spiders)</li> <li>The story is short and contains no more than 5 characters</li> </ul> (knowledge comprehension)						
<b>Applies 3 language / visual techniques and uses them for an intended purpose, e.g</b> <ul style="list-style-type: none"> <li>Dialogue</li> <li>Symbolism / motif</li> <li>Imagery / <b>colour</b> / descriptive language</li> </ul> (analysis / application)						
<b>Design or adapt your own/ or a fictional fear using the elements of narrative including:</b> <ul style="list-style-type: none"> <li>setting (modern, ancient etc)</li> <li>character (motivations, actions, purpose)</li> <li>plot (conflict, resolution)</li> </ul> (synthesis / evaluation)						

NA = Failed to hand in a task  
 1 = Attempted the task but did not meet any of the components of the task  
 3 = Completed the task and addressed **two** of the components of the task  
 2 = Completed the task and met **one** of the components of the task  
 4 = Completed the task and addressed **all** the components of the task

Discussed with the teacher ( Y / N )    Choice made \_\_\_\_\_    Student/teacher Signature: \_\_\_\_\_  
 / \_\_\_\_\_

Figure 2. UDL Assessment Rubric.

Students had several options for assessment to choose from, including the option to come up with their own way to express what they had learned and negotiate this with their teachers. Examples of choice of expression included but were not limited to essay, song, poem, journal entry, video, podcast, interview, or speech. Teachers marked all assessments using a standard rubric that was created by the teachers during the UDL assessment workshop held prior to the implementation of UDL pedagogy (see Figure 2 for an example of an assessment rubric).

**Professional Development and Consultation**

Researchers employed content analysis procedures to analyse teacher comments during meetings, professional learning sessions, and researcher diaries. Some of the issues that emerged, especially during the early meetings, were related to staff anxiety. Staff were anxious around the change of model and being ‘de-skilled’ owing to a lack of programming experience in the distance education model used by the school to this point. They also expressed the concern that they had limited subject-specific curriculum knowledge, due to being a small staff and were concerned about who would do the programming for specific subjects if none of them were trained in those areas. This concern was addressed through staff meetings and professional learning sessions, where teachers worked with the curriculum to determine what the unit learning outcomes should be and how to provide the means for students to meet them.

During the first professional learning session, teachers expressed concern about what assessment would look like. They were worried that there were no prescriptive UDL models they could use for this. This was addressed by planning an additional professional learning session focused on assessment, in line with Timperley et al.’s (2007) model. During this session, teachers workshopped assessment ideas with each other and the university partners.

Staff were concerned about getting the units written and ready to go by the start of the school year in 2021. The school's leadership team collaborated with teaching staff to design a way to provide extra preparation time for each staff member to get this done. This enabled staff to finish some units early and pilot them at the end of 2020. By the beginning of 2021, teachers were well on their way to having all four units for the year designed, and by the end of 2021, they were all ready to teach in 2022. Quality control was another issue raised by teaching staff. This was resolved by again using the BES model (Timperley et al., 2007), with the university partner providing consultation and evaluation through classroom observation and advice on the unit designs. Teachers also worked in pairs to assist each other with ideas and ensure conformity to the principles of UDL.

### ***Classroom Observations***

The first author observed five classes, one time each, during 2021 (COVID-19 restrictions prevented continued observations). The UDL Observation Tool (Basham et al., 2020) was used to collect data during classroom observations. The tool is a checklist that asks the observer to tick a box if students experience ideas and information in multiple ways, express their comprehension in multiple ways, and are provided multiple options for engagement.

The observer ticked every box in each observation, which indicates a high level of fidelity (100%) to the principles of UDL when teachers were designing and implementing instructional units. She also observed that students were very engaged throughout the lessons and that teachers provided students with a balance of teacher- and student-focused teaching and learning. The observer made several suggestions, including finding more ways to involve the students kinaesthetically and to provide students with more choice. When debriefing with teachers afterwards, the discussion revealed that teachers were hoping to support the development of students' self-determination skills by providing them with only a limited amount of choice at first, then slowly increasing the number of decisions they had in terms of their learning.

### ***Attendance and Discipline Referral Data***

Attendance and office discipline referral data were collected from the beginning of the school year in 2019 to the end of the school year in 2022. These data were analysed via descriptive statistics and plotted on graphs. It should be noted that the onset of the global pandemic in 2020 resulted in lockdowns in 2020 and 2021, affecting how students were able to access education.

#### ***Attendance***

Records indicated an improvement in attendance from 2019, when the students were still doing distance education, to 2021, the year of full implementation of UDL. Average daily student attendance was 53% in 2019. In 2020, teachers began to pilot UDL units and attendance increased to an average of 66%. In 2021, attendance remained steady in Terms 1 and 2, but a lockdown precipitated by the global pandemic resulted in no students attending school in Term 3, and difficulty encouraging students to attend in Term 4. This still resulted in an average of 63% of students attending for the year. In the following year, 2022, lockdowns had ceased and attendance remained stable, with an average of 62% of students attending. A graphic representation of attendance can be found in Figure 3.

#### ***Office discipline referrals***

Office discipline referrals occur when a student requires more emotional and/or behavioural support than can be given in the classroom during a lesson. The teacher typically ensures the student is safe and is escorted to the office, where a member of the school's leadership team can provide individual intensive support. Although there was a definite reduction in office referrals from 2019 to 2020 (62%) and again from 2020 to 2021 (65%), with an overall 89.3% reduction in referrals, care must be taken

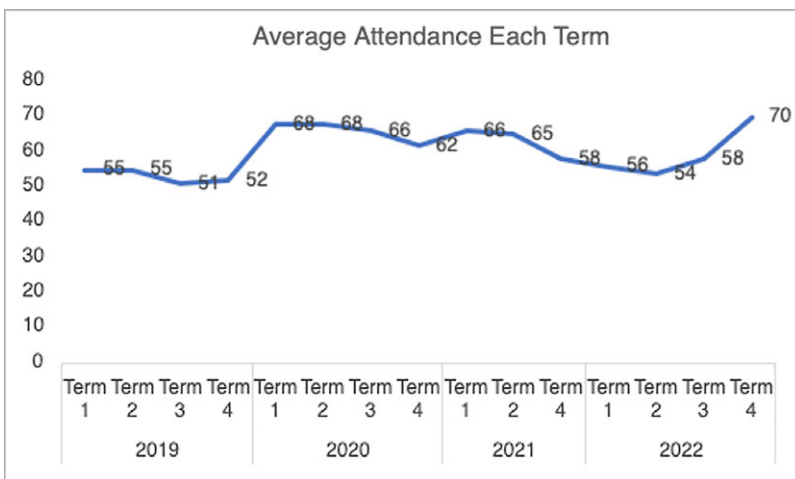


Figure 3. Average Attendance.

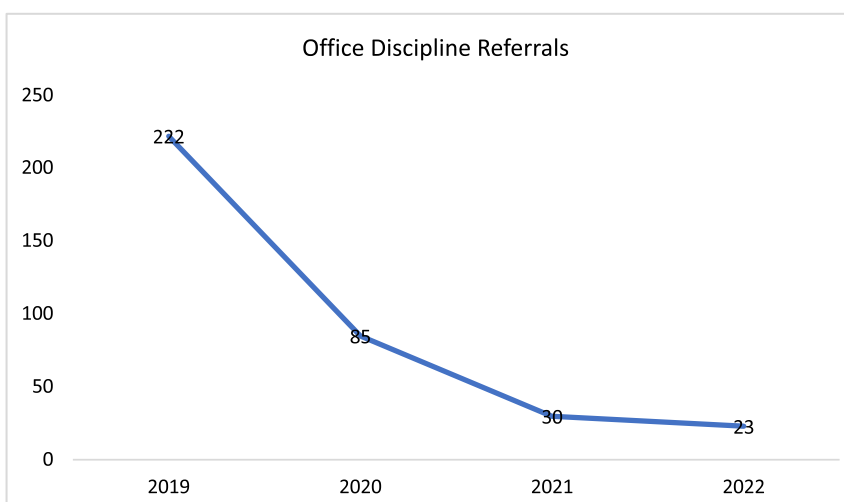


Figure 4. Office Discipline Referrals.

when interpreting these results, as there were nearly 15 weeks of reduced numbers in 2021 because of pandemic lockdowns. Promisingly, referrals were reduced again in 2022 (23%), when there were no lockdowns and students returned to a regular school schedule (see Figure 4 for a visual representation).

### Discussion

The aim of this project was to explore the implementation of UDL as a replacement for distance education in a special school in NSW, Australia. This study was innovative in that it is the first of its kind in Australia to investigate the use of UDL in a special school for students with EBD. Another unique feature of the study was its collaborative nature. Using the BES model (Timperley et al., 2007) as a guide, the preparation phase of the project highlighted the benefits of collaboration between a school

and a university partner, as well as the advantages of working in instructional design teams. One of the most important aspects of this phase was the willingness of the school leadership team to hear the concerns of the teachers and work with them and the university partners to make sure teachers felt heard, valued, and supported.

Results of the teacher surveys indicated that teachers appreciated the synergy between the university and school partners, particularly around professional learning, advice on unit design, and classroom observations. This finding is well aligned with the first inquiry of the BES (Timperley et al., 2007), which asks teachers to determine their own learning needs, action this, then engage students in new experiences. The second inquiry has teachers involved in evaluating the impact of these actions, which is the purpose of this study.

The first research question asked about teacher perceptions of the effectiveness of implementing face-to-face UDL to replace distance education. The results of the analysis of the teacher surveys revealed that, despite initial hesitancy, overall, teachers perceived UDL to be very effective in improving teaching and learning, especially when compared to distance education. Results of teacher surveys indicated that teachers felt that students were more engaged, and they perceived themselves to be more efficacious. This is supported by the results of a study by Hainline (2022), who found that teachers perceived that UDL improved the engagement of students who were previously unengaged.

Overall, the teachers at the school developed a sound understanding of UDL principles and demonstrated a strong capacity to implement these in their lesson planning and delivery. They expressed in each round of surveys that they had felt well supported during the implementation, highlighting the importance of strong, effective leadership that supported but also empowered teachers, leading to the successful implementation of UDL in this school.

The second research question was centred on student perspectives, which was a unique characteristic of the current study. Like teachers, students were hesitant initially about the transition from distance learning, but most came to appreciate the structure of the pedagogy and felt it would prepare them for learning in future settings. Although the development of autonomy is one key principle of UDL (CAST, 2018), almost half the students felt that the introduction of UDL and direct teaching had negatively impacted their autonomy.

Although the school provided a 'safe haven' for many students who had not coped in traditional schools, students were very aware that their future education would likely involve a transition back into some form of mainstream schooling. From their perspective, the structural aspects of UDL pedagogy provided an opportunity to adjust to this reintegration. This finding suggests that one of the key aims of introducing UDL — to facilitate students' reintegration into their home schools — had been conceptually met. Although no students were actually reintegrated, they were open to the idea. Since student views were a unique aspect of the current study, no similar research could be found with which to compare these findings. Research on the perspectives of students with disability around the implementation of UDL in higher education settings is mostly positive, with students suggesting that UDL is helpful in improving their learning (Black et al., 2015) and engagement (F. G. Smith, 2012).

A comparison between teacher and student perceptions revealed disparities between teachers' views on how students responded to UDL pedagogy, and what students reported their actual experiences to be. The results of the pre-implementation teacher survey indicated that student adjustment was not a strong concern. This contrasts with the first round of student interviews, in which students described having quite significant difficulties adjusting and lamented the loss of emotional support because of their teachers' new focus on direct instruction. In the mid-implementation survey, this disparity continued, with teachers again failing to identify adjustment as a potential challenge for students, although some students continued to struggle with adjustment.

The second area of disparity relates to what teachers expected would be the learning benefits from UDL pedagogy. Although both groups cited learning outcomes as a major benefit of UDL, the focus was quite different. Most teacher responses focused on systemic benefits of UDL and a more streamlined approach to learning, citing clearer learning expectations, greater consistency and more choice or flexibility as reasons students might appreciate the new pedagogy. No teachers mentioned the

change in their own role as a reason students may benefit from UDL. This contrasts with student responses, which placed a very high value on the benefits of their teachers having greater input into programming and delivering face-to-face instruction themselves.

The third area of disparity was the similarity to mainstream. Although students in the first round of interviews identified this as a major change in approach, with many saying it provided a helpful transition for their future education, none of the teachers noted this as a barrier or benefit of UDL. One reason for this may be that the teachers, through their professional learning, had learned about the differences between UDL pedagogy and traditional, mainstream approaches to education, and were more focused on the learning benefits that UDL could provide. Students' responses, on the other hand, tended to focus more on structural issues. When asked how their classes had changed, they mentioned things like changing classrooms and teachers for different subjects, working in groups, and receiving direct instruction rather than working alone on distance education courses.

The final area of disparity was loss of autonomy. Students in the first round of interviews felt that the introduction of UDL pedagogy had impacted negatively on their autonomy, yet this issue was not raised at all by teachers in their survey responses. This may be due to the nature of the instrument, with the survey allowing only limited space for answers, and teachers may have provided more nuanced answers in interviews.

The third research question sought to discover the barriers and enablers of UDL design and implementation. Interestingly, most facets that teachers cited as barriers were also cited as enablers; these were (a) structural and staffing issues, (b) knowledge and confidence, (c) time, (d) understanding of UDL and how to implement it, (e) information and guidance, (f) professional learning and support, and (g) collaboration. Many of these were cited as barriers in the first survey but ended up being enablers at the end of a year of implementation. The school leadership team was able to facilitate these changes by listening to teachers and providing them with support to eliminate the barriers — for example, the provision of bespoke professional learning based on teacher requests and rearranging the timetable so that teachers had extra time to plan units of study and collaborate with each other and university partners.

Hainline (2022) found that teachers valued both the training and use of UDL. The teachers in that study felt that student engagement and participation increased, as did student enjoyment of content. They also mentioned that they themselves had more open mindsets regarding students and increased confidence in their abilities to help all learners. It should be noted that as there is no accepted prescription of how schools/classrooms should implement UDL, there is variation throughout the literature on how it is implemented and its efficacy (Ok et al., 2017). In this particular case, the use of Timperley et al.'s (2007) BES model in the current study, where barriers were identified and addressed throughout the year, may account for the change in teacher perceptions over time (i.e., barriers becoming enablers).

Lastly, the researchers sought to identify any effects that replacing distance education with face-to-face UDL instruction had on attendance and behaviour. Although the effects of lockdowns and school closures caused by the global pandemic likely affected the results regarding attendance and office referrals, the results are promising, with improvements in attendance and a significant reduction in office discipline referrals continuing into the end of 2022. This finding is in alignment with the work of Zaheer et al. (2019), who found that when lessons are well designed, engaging, and relevant to students, they are less likely to be disruptive.

### **Strengths and Limitations**

The main strength of this study is that it was the first of its kind to explore the use of UDL implementation in a special school for students with EBD. It was also the first study to seek school-age student perspectives about whether UDL helped to improve their learning and to explore the effects of UDL on attendance and behaviour. The authors recognise that the study also had several limitations.

The first and main limitation is that the study was largely action research, conducted in a small special school in metropolitan Sydney, therefore resulting in a very small sample of teacher and student participants. Although there were initially 10 teacher and 14 student participants, by the end of the school year there were only three teacher and three student participants. This drop in numbers (and limitation) is attributable to the effects of the global pandemic and the subsequent lockdowns, which very negatively affected school attendance overall. The professional learning, UDL design, and implementation were very contextualised to this setting. The second limitation was the global pandemic, which caused two separate lockdowns in 2020 and 2021, thus impacting the data on attendance and behaviour. Considering these limitations, care should be taken when interpreting and generalising the results of the study.

### **Recommendations for Practice and Future Research**

As with any educational initiative, the school should continue to collect data on student attendance, behaviour, and academic outcomes and adjust their responses accordingly. There are several recommendations for schools (especially special schools) that intend to implement UDL. School leaders should survey teachers to tailor any professional development to their needs. Professional development in UDL should also provide teachers with information about how to support students' self-determination skills in the context of the UDL principle of choice. Teachers in the current study valued teamwork and peer review of their unit plans and UDL practices. In addition to professional development, prioritising staff collaboration may go a long way in alleviating any anxiety teachers may feel about using UDL to design and deliver their instruction, therefore building capacity.

The results of the analysis suggest three student-focused recommendations for practice. Students should be monitored closely for distress, especially during the early implementation phase, and be supported appropriately, as this may be a significant change for them. Monitoring is particularly relevant for students with emotional disability, who often have difficulty with change. Teachers should ensure that lesson/unit design and programming allow for extension activities for students with high ability. The provision of social skills training on effective group work and providing students with more choice around whether they work in groups or independently will support student behaviour, social skills, autonomy, and self-determination.

Although the results of this study were favourable regarding replacing a distance education model with UDL pedagogy at a special school, there are areas that would benefit from further research. Future research could include empirical research with larger participant groups. Student perceptions should be included in future studies in both inclusive and special settings to provide a level of social validation. Studies that include data about attendance and behaviour for all students when UDL practices are implemented could provide more insight into the effects of UDL on student social and emotional outcomes.

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**Cite this article:** Cumming, T. M. & Gilanyi, L. (2023). 'Our classes are like mainstream school now': Implementing universal design for learning at a special school. *Australasian Journal of Special and Inclusive Education* 47, 63–77. <https://doi.org/10.1017/jsi.2023.7>