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Collaboration Innovations Supporting Improved Educational Outcomes for Students with Special Educational Needs (SEN)

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Collaboration Innovations Supporting Improved Educational Outcomes for Students with Special Educational Needs (SEN)

The Australian Cooperative Research Centre for Living with Autism (Autism CRC): Supporting Improved Educational Outcomes for Students on the Autism Spectrum

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Students on the autism spectrum present unique challenges to school systems. An inclusive approach to education requires teachers to address these challenges and to support the unique needs of students on the spectrum. The Cooperative Research Centre for Living with Autism (Autism CRC) is the world’s first national, cooperative research effort focused on autism. One initial research project conducted by Autism CRC researchers was the Australian Autism Educational Needs Analysis (ASD-ENA). This project produced the first Australia-wide needs analysis of students on the autism spectrum (aged 5–18 years). Utilising a mixed methods approach, the needs analysis collected information from four key stakeholder groups: educators, specialists, students on the autism spectrum, and parents. The research results highlight the social and emotional needs of students as a top priority for parents, students, and teachers. This emphasises the importance of helping school staff to manage the social environment in schools to ensure the social emotional needs of students on the spectrum can be effectively addressed.

**KEY WORDS**

Autism spectrum, Cooperative Research Centre for Living with Autism (Autism CRC), needs analysis, inclusion, inclusive education, social emotional needs
THE AUSTRALIAN COOPERATIVE RESEARCH CENTRE FOR LIVING WITH AUTISM (AUTISM CRC): SUPPORTING IMPROVED EDUCATIONAL OUTCOMES FOR STUDENTS ON THE AUTISM SPECTRUM

INTRODUCTION

Autism spectrum disorder (ASD) is amongst the most prevalent and heritable of all neurodevelopmental disorders affecting at least 1 in 100 Australian children (ABS, 2014). It is a lifelong condition with estimated annual support costs to Australia potentially exceeding $7 billion (Synergies Economic Consulting, 2011). In the past 30 years there has been a 25-fold increase in the number of diagnoses. Students on the autism spectrum present unique challenges to school systems. An inclusive approach to education requires teachers to address these challenges and to support the unique needs of students on the spectrum (Batten, 2005; Lynch & Irvine, 2009).

The Australian Bureau of Statistics (ABS) (2014) reported that in 2012, 5% of children on the spectrum attended school and did not experience any educational restrictions. Of the 95% of children who did experience some restrictions, 6% of children were not able to attend school because of their disability and 44% needed to attend either a special school or a special class in a mainstream school. For children on the spectrum who were attending school, an astonishing 86% reported “having difficulty” at school. These difficulties reflect the characteristics of ASD which make schooling so challenging (Iadarola et al., 2015). The difficulties are reflected in the attempts of young people to fit in socially, achieve success in their learning, and engage in positive and social communication.

Children on the autism spectrum often require a high level of support to attend school (Batten, 2005; Kasari & Smith, 2013; Koegel, Matos-Freden, Lang, & Koegel, 2012; Wei, Wagner, Christiano, Shattuck, & Yu, 2014), with 36% needing a counsellor or disability support person and 39% requiring special tuition (ABS, 2014). Of people with autism who had finished school, 81% had not completed a
post-school qualification. As a result, it is important for teachers and allied health professionals to focus on the strengths that children have, as well as acknowledging where the child needs support for their academic and social learning in order to support the long term success of students on the spectrum (Batten, 2005; Wei et al., 2014).

It is now well documented that students on the autism spectrum and their families require support to complete school successfully (Pellicano, Dinsmore, & Charman, 2014). In many situations, poorly equipped teachers are attempting to include students on the spectrum into the mainstream with limited knowledge of ASD and little knowledge of how to manage a range of behaviours associated with autism. The consequences are a disrupted learning environment for other students, interrupted schooling for the student on the spectrum through reduced attendance and retention, lower academic performance, exclusion, disengagement, and pressure on parents to make alternative arrangements for their child’s education (Parsons et al., 2013).

Improving the capacity to successfully educate students on the autism spectrum in an appropriate environment so that they achieve their academic and social potential will offer significant cost savings to state and non-government education providers, further increase the productivity of parents of children on the spectrum, and provide a firm basis for post-school achievements and reduced adult dependency (Brown, Ouellette-Kuntza, Huntea, & Kelleye, 2010; Pellicano et al., 2014). The capacity of Australian schools to deliver a quality education to students on the autism spectrum will be enhanced by better training and professional development for teachers and other school staff. This will lead to a more inclusive and accepting school community where diversity is recognised and actively embraced. Teachers will have enhanced coping mechanisms and will feel more satisfied and confident that they can manage and relate to the needs of students on the autism spectrum with access to more appropriate resources, training and teaching strategies. With improved professional development and training,
teachers will feel more empowered to make a difference in children’s lives as better facilitators of children’s learning.

The Cooperative Research Centre for Living with Autism (Autism CRC)

The Cooperative Research Centre for Living with Autism (Autism CRC) commenced operation in July 2013 and is the world’s first national, cooperative research effort focused on autism. As one of the Australian Federal Government’s Cooperative Research Centres, it is funded by a mix of government, university and industry funding. The Autism CRC brings together a unique mix of participants – government, university, research and not-for-profit organisations, and world class researchers.

Taking a whole of life approach to autism focusing on diagnosis, education and adult life, Autism CRC researchers focus on the lived experience of those on the spectrum and on improving their lives in a practical way. The researchers work with end-users to provide practical solutions for governments, service providers, education and health professionals, families and people with autism. This enables researchers and industry partners to deliver new evidence based products and practice through knowledge translation. A unique aspect of the Autism CRC is the whole of life approach to autism research focusing on diagnosis, education and adult life.

The Autism CRC has three key goals including:

1. To provide practical solutions for governments, service providers, education and health professionals and families of people with autism to improve life outcomes.

2. To be recognised as the leading research collaboration/consortia in Australia (and the world) for improving the lives of people with autism.

3. To attract the brightest and best students, researchers, product developers and industry experts to find advanced solutions that benefit the end-user.
Researching autism across the lifespan, the Autism CRC focuses on three key research programs: (a) Program 1 (Diagnosis), (b) Program 2 (Education), and (c) Program 3 (Adulthood).

**Autism CRC – Australian Autism Educational Needs Analysis (ASD-ENA)**

One initial education project conducted by Program 2 in the Autism CRC was the *Autism and Autism Educational Needs Analysis* (ASD-ENA) (Saggers et al., 2015). The ASD-ENA produced the first Australia-wide needs analysis of students on the autism spectrum (aged 5–18 years) and their educational needs.

**METHOD**

Utilising a mixed methods approach, including a nationwide survey and follow up interviews, the needs analysis obtained information from the four key stakeholder groups (parents, educators, specialists and students on the spectrum) regarding the perceived educational needs of students on the autism spectrum (aged 5–18 years).

The ASD-ENA sought to answer the following research questions:

1. What do key stakeholders perceive are the educational needs of students on the spectrum (aged 5–18 years), particularly those with high impact social, emotional, behavioural and complex needs?

2. What do key stakeholders perceive are the supports required to successfully meet the educational needs of students on the spectrum (aged 5–18 years), particularly those with high impact social, emotional, behavioural and complex needs within school settings?

**RECRUITMENT AND PARTICIPANTS**

Selective sampling using a maximum variation sampling technique (Patton, 2002) was used to recruit participants in each state. The research team worked with a range of organisations and support
groups to support recruitment through electronic means and via social media. This type of sampling enabled a wide range of perspectives relating to the educational needs of students on the spectrum to be captured and similarities and differences in perspectives to be highlighted.

Overall, 1468 respondents participated in the survey. Survey participants came from every state of Australia and included 248 educators, 179 specialists, 107 students on the autism spectrum (aged 12–18 years of age), and 934 parents.

DATA COLLECTION

There were two means of data collection: a national online survey and semi-structured interviews. The online survey involved four separate surveys that were developed to collect qualitative and quantitative information about the experiences and perspectives of the four key stakeholder groups and their views of the educational needs of Australian school aged students on the spectrum. The surveys were followed up with semi-structured interviews with consenting participants. These interviews collected more in-depth qualitative data on the educational needs of students on the spectrum based on experiences and perspectives of participants. This paper will report on some preliminary findings from data collected from participants in the surveys.

DATA ANALYSIS

Data from all surveys were merged into one data file allowing for statistical analysis in SPSS (IBM, 2013). Descriptive analysis was conducted on variables extracting frequencies, percentages and mean scores to interpret the data collected.

As part of the surveys, participants were also asked various open ended questions that were then qualitatively analysed. Qualitative analysis of data from both the open ended survey questions and the follow-up interviews was conducted using a thematic approach. “Thematic analysis is a method for identifying, analysing, and reporting patterns (themes) within data” (Braun & Clarke, 2006, p. 79). Using
an essentialist or realist method the analysis was data driven, and used an inductive approach to generate themes which reported on the experiences, meanings and the reality of participants’ responses. This allowed important details about the data in relation to the research questions to be captured and a rich thematic description of the data set to be developed with the themes identified being strongly linked to the data (Braun & Clarke, 2006; Patton, 2002).

ETHICAL CONSIDERATIONS

Primary ethics approval to conduct the study was initially obtained from the lead university involved. The educator, specialist and parent surveys were considered low risk and ethical approval was received from the lead university Research Ethics Approval Committee (No. 1300000790). Due to the more high risk nature of the student population, a separate ethics approval was sought through the National Ethics Application Form (NEAF) and the lead university Research Ethics Approval Committee (No.1400000501). Additional ethics approval was also obtained from three participant organisations and gatekeeper approval letters obtained from three other organisations involved in recruitment.

FINDINGS

A focus of the surveys was to obtain participants’ views of the educational and school based needs of school aged students on the autism spectrum. The following sections outline some preliminary results based on the quantitative and qualitative data collected from the surveys on educators’, specialists’, parents’ and students’ perceptions of the needs of school aged students on the spectrum which may influence their learning, participation and engagement within the school context.

When educators, specialists and parents were asked to identify the needs that had the most impact and required the highest level of support in schools for students on the spectrum, the following results were collected. There was strong agreement across the stakeholder groups in relation to the top four needs of students with ASD identified within educational contexts. The quantitative survey data indicated
stakeholders recognised social emotional needs had the highest impact and required the highest level of support in schools (see Table 1). Behavioural needs were identified by the stakeholder groups as the second most important area requiring support, followed by communication needs and sensory needs. These results highlight the importance of addressing these needs in school settings, particularly those related to the social emotional challenges faced by students with ASD (Koegel et al., 2012; Reichow & Volkmar, 2010; Schmidt, Stichter, Lierheimer, McGhee, & O’Connor, 2011; Schreiber, 2011).

Table 1. 
*Needs of Students on the Autism Spectrum that have Most Impact and Require the Highest Level of Support in Schools*

<table>
<thead>
<tr>
<th>Top 4</th>
<th>Educators</th>
<th>Specialists</th>
<th>Parents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>social emotional needs</td>
<td>social emotional needs</td>
<td>social emotional needs</td>
</tr>
<tr>
<td>2</td>
<td>behavioural needs</td>
<td>behavioural needs</td>
<td>behavioural needs</td>
</tr>
<tr>
<td>3</td>
<td>communication needs</td>
<td>communication needs</td>
<td>communication needs</td>
</tr>
<tr>
<td>4</td>
<td>sensory needs</td>
<td>sensory needs</td>
<td>sensory needs</td>
</tr>
</tbody>
</table>

In addition, educators, specialist and parent participants were asked to identify and rate the factors that had the most effect on students on the spectrum and their capacity to participate at school on a 1–5 point scale. The following factors were rated by the three participant groups as having the most influence on learning: (a) executive function activities such as attention to task, difficulty organising their thoughts, failure to complete tasks, and difficulty organising themselves and their belongings (Rosenthal et al., 2013); (b) emotional regulation such as dealing with stress and anxiety (McCoy, 2012; Thompson, 2012); (c) receptive skills such as difficulty understanding what to do (Venker, Eernisse, Saffran, & Weismer, 2013); (d) dealing with transitions such as resistance to change and rigidity (Chan & Naumer, 2014); and (e) being unable to ask for help (Humphrey & Lewis, 2008).
Further, barriers to supporting students with ASD with complex and challenging needs were identified by educators, specialists and parents (Matson & Nebel-Schwalm, 2007; Matson, Terlonge, & Gonzalez, 2006). All three groups identified inadequate funding to support student needs as the greatest barrier. Other significant barriers included: lack of suitable education and training for staff; lack of time; and lack of specialist support (see Table 2).

Table 2.
**Top Four Barriers Identified to Supporting Students on the Autism Spectrum in Schools**

<table>
<thead>
<tr>
<th>Top 4</th>
<th>Educators</th>
<th>Specialists</th>
<th>Parents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Inadequate funding to support the student’s needs</td>
<td>Inadequate funding to support the student’s needs</td>
<td>Inadequate funding to support the student’s needs</td>
</tr>
<tr>
<td>2</td>
<td>Lack of suitable education and training for staff</td>
<td>Lack of time</td>
<td>Lack of suitable education and training for staff</td>
</tr>
<tr>
<td>3</td>
<td>Lack of specialist support available from external organisations and specialists</td>
<td>Lack of suitable education and training for staff</td>
<td>Lack of time</td>
</tr>
<tr>
<td>4</td>
<td>Lack of time</td>
<td>Lack of specialist support available from external organisations and specialists</td>
<td>Lack of specialist support available from external organisations and specialists</td>
</tr>
</tbody>
</table>

Similar findings emerged from the students’ perspective, with the 107 students on the autism spectrum (aged 12–18 years) completing the survey rating the following as the most difficult tasks to cope with in school settings: (a) executive function skills including planning for assignments (Rosenthal et al., 2013); (b) social skills such as working as part of a group and dealing with bullying (Humphrey & Lewis, 2008; Humphrey & Symes, 2010, 2011); (c) emotional regulation skills such as managing anxiety and stress (McCoy, 2012); (d) managing transitions (Chan & Naumer, 2014); and (e) tasks requiring
handwriting (Grace, Rinehart, Enticott, & Johnson, 2017). A list of their top 10 most difficult tasks is provided in Table 3.

Table 3.

*Tasks Rated as Most Difficult for Students on the Autism Spectrum*

<table>
<thead>
<tr>
<th>Top 10</th>
<th>Tasks Rated as Most Difficult to Cope</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Planning for assignments</td>
</tr>
<tr>
<td>2</td>
<td>Working as part of a group</td>
</tr>
<tr>
<td>3</td>
<td>Handwriting – being neat</td>
</tr>
<tr>
<td>4</td>
<td>Coping with change (e.g., changes in teachers or the timetable)</td>
</tr>
<tr>
<td>5</td>
<td>Coping with bullying or teasing</td>
</tr>
<tr>
<td>6</td>
<td>Handwriting – being quick enough to keep up</td>
</tr>
<tr>
<td>7</td>
<td>Copying information from the board</td>
</tr>
<tr>
<td>8</td>
<td>Doing homework</td>
</tr>
<tr>
<td>9</td>
<td>Staying calm when other kids annoy me</td>
</tr>
<tr>
<td>10</td>
<td>Staying calm when the classroom is very noisy</td>
</tr>
</tbody>
</table>

The students in the survey had the opportunity to rate a range of supports to meet their educational needs on a scale from 1 = *most helpful* to 5 = *least helpful*. These supports included being able to use technology, get help with executive function skills such as organisation and planning as well as support to manage social situations and anxiety. One helpful strategy identified by the students was being able to use technology for academic and handwriting support (Cardon, 2016). Other strategies included supports for social emotional learning, executive function skills, sensory needs and transitions (Ashburner, Ziviani, & Rodger, 2010; Chan & Naumer, 2014; Rosenthal et al., 2013; Thompson, 2012). A full list of the top 10 most helpful strategies identified by the students is provided in Table 4.
Table 4.

*Top 10 Most Helpful Strategies as Identified by Students on the Autism Spectrum*

<table>
<thead>
<tr>
<th>Top 10</th>
<th>Most Helpful Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Being able to use technology to help with my school work (e.g., iPad or laptop)</td>
</tr>
<tr>
<td>2</td>
<td>Being able to use technology (e.g., laptop) to type instead of handwrite</td>
</tr>
<tr>
<td>3</td>
<td>Being able to take a break</td>
</tr>
<tr>
<td>4</td>
<td>Time away from others when I need it</td>
</tr>
<tr>
<td>5</td>
<td>Being reminded when a change is going to occur</td>
</tr>
<tr>
<td>6</td>
<td>Getting a copy of the things the teacher writes on the board</td>
</tr>
<tr>
<td>7</td>
<td>Doing projects on special interests</td>
</tr>
<tr>
<td>8</td>
<td>Help to organise myself</td>
</tr>
<tr>
<td>9</td>
<td>Receiving rewards for doing things well</td>
</tr>
<tr>
<td>10</td>
<td>A quiet space to do assessment</td>
</tr>
</tbody>
</table>

This is an initial report of some preliminary findings from survey data collected. The research team are working on future publications to report in more detail on topics such as social emotional wellbeing, behavioural, learning and communication needs of school aged students on the autism spectrum and this will include a particular focus on the importance of school connectedness for students on the autism spectrum.

**DISCUSSION**

Educator, specialist, parent and student participant groups were surveyed about the needs of students on the autism spectrum that had the most impact and required the most support in educational settings. Educator, specialist and parent groups unanimously agreed that the social emotional needs of ASD students required the most support, supporting previous research (e.g., Roberts & Simpson, 2016;
Osborne & Reed, 2011; Waddington & Reed, 2006, 2017) and highlighting the importance of social emotional learning for academic success in students with autism. Other areas identified by the three participant groups that influence the students’ capacity to participate in school included emotional regulation and more specifically anxiety, as well as executive function difficulties influencing organisation, planning and attention to task (Asburner et al., 2010; Pellicano et al., 2014; Roberts & Simpson, 2016; Rodriguez, Saldana, & Javier Moreno, 2012). A lack of funding was highlighted as the biggest barrier to supporting students with ASD, as perceived by the educators, specialists and parents.

Listening to and reflecting on the personal stories of students with ASD is critically important for developing more supportive approaches to their education and needs (Saggers, Hwang & Mercer, 2011). The current research highlighted that from the students’ perspectives, tasks that they found most difficult related to social, emotional and executive function issues they experienced. They identified the use of technology (e.g., iPad or laptop) to help with their school work and relieve handwriting demands, social and emotional learning support, assistance with their executive function skills, and support for transitions as some of the most helpful strategies to assist their learning and success at school (Roberts & Simpson, 2016).

It is now well documented that students on the autism spectrum require a high level of support to complete school successfully (Pellicano et al., 2014). Improving the capacity to successfully educate students on the autism spectrum in an appropriate environment so that they achieve their academic and social potential will offer significant cost savings to education providers, further increase the productivity of parents of children on the spectrum, and provide a firm basis for post-school achievements and reduced adult dependency (Brown et al., 2010; Pellicano et al., 2014).

The results of the ASD-ENA will enable teacher and allied health professionals to be better equipped to effectively meet the needs of students on the spectrum. This, in turn, will allow them to tailor
support to focus on the strengths that students have as well as acknowledging where the student needs support for their academic and social learning (Batten, 2005; Wei et al., 2014). Additionally, improved professional development and training will assist teachers to feel more empowered to make a difference in students’ lives and be better facilitators of children’s learning. Further, the educational approaches utilised to enhance the learning of students on the spectrum can also have a broader application to all learners in classrooms (Ainscow & Sandill, 2010; Batten, 2005; Lynch & Irvine, 2009).

Ultimately, these initial ASD-ENA findings can inform the development of models of support for students on the spectrum in educational settings. In addition, the detailed findings that will be reported on in upcoming journal publications will inform future professional development, and help tailor educational and support practices to meet the needs of students on the spectrum. Ultimately, this will reinforce the implementation of strategies that will ensure maximum success, retention, participation and engagement of students on the autism spectrum. Most importantly, these findings highlight the importance of an integrated approach to addressing the needs of students on the spectrum which considers different stakeholders’ views in an equitable manner to inform policy, practice and most importantly professional development for all stakeholders. Future research in the field can use this research as a basis of their investigation into areas highlighted as priorities by the different participant groups.

LIMITATIONS OF THE STUDY

Future research would benefit from gaining access to the voices of a larger representation of the different stakeholder groups. Not all stakeholder groups were adequately represented or were represented in the research. For example, students on the autism spectrum of lower cognitive ability or with limited communication ability are not adequately represented in this study. Similarly, participants from alternative or segregated setting are unrepresented. It would also have been useful to have gained information from adults on the spectrum about their schooling experiences. There is a higher
representation of some participant groups over others in the current study and some geographical locations or educational settings have stronger representations.

CONCLUSION

The Autism CRC offers an Australia-wide and international collaboration and cooperative approach to research in the field of autism. This research will help address the challenge of effectively supporting improved educational outcomes for students on the autism spectrum. The ASD-ENA is one example of research being generated by the Autism CRC and identifies practices to support improved educational outcomes for students with autism. This research highlights the importance of supporting the social emotional needs of students on the autism spectrum. Through the promotion of social competence and social emotional wellbeing the individual needs of the child with autism can be addressed and positively influence their participation and engagement within inclusive classroom environments. Research of this kind will not only support the improved educational outcomes for students with autism but can help to generate support for children with a range of needs within the classroom context.

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