Supporting the Implementation of Evidence-Based Practices for Children with ASD

Suminthra Singh

ABSTRACT

The primary objective of this small-scale study was to identify ways in which Resource Teachers: Learning and Behaviour (RTLB) can work with teachers to implement evidence-based practices for children with Autism Spectrum Disorder (ASD) within an inclusive educational system. With the increasing prevalence of children with ASD in mainstream classrooms, there is a critical need to support teachers with evidence-based practices (EBPs) to improve outcomes for all students. In this study, twenty four RTLB were surveyed about professional learning and development (PLD) related to their work with teachers to implement EBPs for children with ASD. Qualitative and quantitative methods of data gathering were employed in the form of an anonymous online self-administered questionnaire. The findings revealed that, overall, this group of RTLB has a preference for PLD in the form of ongoing coaching and support with the implementation of evidence-based practices tailored to the needs of their caseload students.

Research Paper

Key words:
RTLB; Autism Spectrum Disorder; evidence-based practices

INTRODUCTION

Resource Teachers: Learning and Behaviour (RTLB) are a group of itinerant fully-registered specialist teachers who work collaboratively with schools to develop effective classroom environments. This role includes supporting and building teacher and school capability in order to better meet the diverse needs of students within an inclusive education system (Ministry of Education, 2013). Across the United States the increased prevalence rates of Autism Spectrum Disorder (ASD) over the last 30 years has resulted in a significant increase in the number of children with ASD attending mainstream schools, and the range of impairment presents a significant challenge to the educational system (Crosland & Dunlap, 2012; Stichter, Riley-Tillman & Jimerson, 2016).

A study in Australia (Saggers, 2016) also showed that 77% of the 934 parents surveyed had children with ASD at mainstream schools. Although there is no definitive information on the prevalence of ASD in New Zealand, according to Autism NZ (n.d.), there are approximately 80,000 New Zealanders with ASD. This implies that education professionals in all schools are likely to work with children with ASD and this has intensified the need for teachers to expand their understanding and use of evidence-based educational practices for students with ASD (Maddox & Marvin, 2013). The challenge for general educators, who are often not provided with adequate training in EBPs for children with ASD is not only to be knowledgeable about ASD, but to also be competent in the use of strategies for teaching communication skills, teaching social skills, and managing behaviours.

Although there is substantial research available to inform practice, a significant gap exists between current knowledge about EBPs and their implementation by practitioners (Corona, Christodulu & Rinaldi, 2017; Koffel & Reidt, 2015; Pazey, Gevarter, Hamrick & Rojeski, 2014). Crosland and Dunlap (2012) therefore contend that the successful inclusion of children with ASD in general education classrooms may require additional support. RTLB are suitably positioned to provide this support, however it has been argued that PLD is particularly imperative for individuals who support students with ASD in inclusive classrooms (Barnhill, Sumutka, Polloway & Lee (2014).

The Inquiry Challenge/Issue

The referral data in one RTLB cluster in New Zealand has revealed that cluster-schools need guidance and support to develop and implement appropriate strategies to meet the learning and behavioural needs of students with ASD in inclusive settings. This trend aligns with the claim made by Boyle et al. (2011) that ASD has the most rapidly increasing prevalence rate of any disability, and Odom, Cox and Brock (2013) believe that this escalation has emphasised the need for high quality educational services in general school settings. However, many of the students with ASD

that RTLB work with in the aforementioned cluster do not fit the eligibility criteria for any other educational funding or support. As most general education teachers do not receive specific PLD on ASD, they often look to RTLB for support. Requests are received from cluster schools for support with individual students with ASD as well as requests for staff PLD on classroom management strategies for children with ASD. It is therefore crucial that RTLB have the knowledge, understanding and confidence to assist teachers with the implementation of evidence-based practices for children with ASD in general school settings.

Although I am not a practice leader, through having completed the Postgraduate Diploma in Specialist Teaching with an endorsement in ASD, I often have requests from my colleagues for support with their caseload students with ASD. I therefore wished to explore evidence-based practices that are available for children with ASD in general school settings. My inquiry question is: How can I support RTLB to assist teachers to implement evidence-based practices for children with ASD in the classroom? This is consistent with Tummons and Duckworth's (2012) assertion that being able to link research to professional practice is a central element of practitioner research.

This paper begins with a literature review followed by a description of the methodology, and finally a discussion of the findings and implications.

LITERATURE REVIEW

This literature review focuses on the use of evidence-based practices for children with ASD in general school settings, and the role of RTLB in working with teachers to implement these practices. The sections which follow include: an overview of the RTLB service; a description of ASD; evidence-based practice related to ASD; and implications for educators involved in supporting children with ASD with regard to translating research into practice in inclusive environments.

Overview of the RTLB Service

Resource Teachers: Learning and Behaviour (RTLB) are a group of itinerant fully-registered specialist teachers who work collaboratively with teachers and schools/kura and kāhui ako to help improve outcomes for students who have a range of learning and behavioural needs (MOE, 2018). This includes supporting and building teacher and school capability by providing PLD and facilitating communities of practice for teachers on a range of topics related to learning, behaviour, inclusive practice and school's learning and behaviour systems (MOE, 2013). The RTLB Professional Practice Toolkit (MOE, 2018) stipulates eight key principles for guiding all RTLB work, one of which is evidence-based practice. Other key principles underpinning RTLB work include using a strengths-based approach, being culturally-responsive and supporting inclusive practices (MOE, 2018).

Due to long wait lists for other specialised service providers, stringent eligibility criteria for some specialist services, as well as difficulties with accessing specialist services in specific areas of expertise, the role of RTLB has become more complex. The Education Review Office (2018) acknowledges that the accountabilities and responsibilities of the RTLB service have become more diverse as RTLB are becoming involved in, and contribute to, a wider provision of support through a variety of projects, programmes, and initiatives and interventions. This includes working with teachers to support children with ASD in inclusive classrooms.

Autism Spectrum Disorder

Autism is described as a neurodevelopmental condition that affects cognitive, sensory and social processing, changing the way people see the world and interact with others (Autism NZ, n.d.). The Diagnostic and Statistical Manual provides standardised criteria to help diagnose ASD which include persistent deficits in social communication and social interaction across multiple contexts and restricted, repetitive patterns of behaviour, interests, or activities (American Psychiatric Association, 2013). ASD has significant life-long implications (Howlin & Magiati, 2017) and there is wide variance with regard to developmental challenges and associated problems in individuals with ASD as the presentation of symptoms and the degree of impairment can differ among individuals and also within the same individual over time (Missouri Autism Guidelines, 2012). The number of individuals identified with ASD has increased dramatically during recent years (Corona et al., 2017) and while there is no definitive information on the prevalence of ASD in NZ, it is thought to affect more than 80,000 New Zealanders (Autism NZ, n.d.).

New Zealand schools have binding obligations to include and provide a quality education for all learners (MOE, 2018). However, the range of diversity and the increase in the number of children with ASD in public schools presents a significant challenge to the educational system (Stichter, Riley-Tillman & Jimerson, 2016). Since teachers in all schools are likely to work with children with ASD, teacher professional learning is key to ensuring that children with ASD are included in regular classrooms (Booth & Ainscow, 2011; Humphrey & Symes, 2013).

Evidence-based Practice

Due to the heterogeneity of ASD, there is no evidence to show that any single practice is effective for teaching every goal to all children with ASD (NZ ASD Guideline, 2016). It is therefore essential that practitioners employ a variety of EBPs to fit the characteristics of the child and the learning situation and which focus on key features of ASD (NZ ASD Guideline, 2016). Bourke, Holden and Curzon (2005) and Macfarlane (2012) proposed a three-component model of EBP whereby EBP is located in the dynamic intersection between best available research evidence (tika), practitioner experience (pono) and student and whanau preference (aroha). Bourke et al. (2005) contend that evidence from each of the individual areas of knowledge is valuable, however it is not likely to produce as effective an outcome as when all three components are involved. NAC (2015) and Trembath, Sulek, Paynter, Simpson and Keen (2019) recommended a similar systematic approach and emphasised that professional judgement plays a central role in identifying the most useful teaching and learning approach.

There is little research available on the use of specific EBP with Māori or other cultural groups in NZ. However, in Bevan-Brown's (2010) report, parents' suggestions on particular strategies that had proved effective with their children were good general teaching practices which also have particular relevance to children with ASD. Furthermore, these practices are strongly evidence-based as they align with the recommendations and good practice points in the NZ ASD Guideline (2016). The NCSE Report (Bond et al., 2016), in a review of good practice guidance and case studies of five countries, one of which is NZ, also highlighted gaps in the evidence base, especially with regard to effective interventions for different groups of children, transferring evidence-based practices into school settings, and PLD for education practitioners.

The National Autism Center (NAC, n.d.) offers a list of established, emerging and unestablished interventions for students with ASD. Similarly, the National Professional Development Center (NPDC) have recognised twenty seven focused interventions (Wong et al., 2014). A comparative analysis demonstrates substantial agreement between the two reviews (NPDC, 2017). Three interventions were rated as having most evidence for school-aged children: peer-mediated interventions; multi-component social skills interventions; and behavioural interventions (Bond et al., 2016).

Research Autism (n.d.) has identified a number of limitations to the research studies published to date. One criticism is that most research studies seem not to involve people with ASD and it has been recommended that future research studies conduct intervention fidelity measures to determine correct implementation and follow-up studies to consider the viability and long-term impact of EBPs, compare intervention approaches to establish best practice, and involve people with ASD to review the efficacy of interventions (Cadogan & McCrimmon, 2015). There is also, to date, no comprehensive research studies that quantitatively analyses the effectiveness of EBPs for students with ASD in inclusive settings across skill domains such as functional communication, socialisation and behaviour (Watkins, Ledbetter-Cho, O'Reilly, Barnard-Brak & Garcia-Grau, 2019).

Implications: (From Research to Practice)

ASD has the most rapidly increasing prevalence rate of any disability (Boyle et al., 2011) and Odom, Cox and Brock (2013) believe that this escalation has emphasised the need for high quality educational services in general school settings through the implementation of EBPs. However, a significant gap exists between current knowledge about EBPs and their implementation by practitioners who are often not provided with proper PLD and face the challenge of accurately identifying EBPs, and then, gaining adequate knowledge and training before implementing these in inclusive classroom settings (Corona, Christodulu & Rinaldi, 2017). It is evident that practitioners require more instruction and guidance with regard to best practices for students with ASD in order to make the best decisions about intervention options that would match the developmental level and needs of children with ASD in particular settings (NZ ASD Guideline, 2016). The parents surveyed by Bevan-Brown (2010) in NZ also identified the need for better and more PLD for teachers.

The common approach of providing continuing professional learning and development (PLD) activities aimed at transforming educator practice are generally ineffective (Trembath et al., 2019), therefore embedded and sustained coaching may be necessary to change practice (Campbell & van Nieuwerburgh, 2017; Slavin, 2019); Fixsen, Blase, Metz and Van Dyke (2013) propose a combination of effective interventions and effective implementation methods to ensure consistent uses of EBPs. Odom et al. (2013) describe the Evidence-Based Individualised Program for Students with Autism (EBIPSA) model of PLD that has been shaped by the scientific literature on effective intervention practice and the principles of implementation science.

Furthermore, the shortage of specialists in ASD and the rising rates of ASD diagnoses has led to a service-need gap. One of the recommendations to overcome these barriers to implementing EBPs, and accessing PLD for practitioners who support children with ASD, is telepractice, which has emerged as a potentially effective means of service delivery in which professionals provide support through the use of technology (Mohammadzaheri, Koegel, Rezaee & Rafiee, 2014). However, Sam, Cox, Savage, Waters and Odom (2019) argue that online learning modules can only be one part of a process for supporting practitioners use of EBPs. Another recommendation is Suhrheinrich's (2014) proposal of a train-the-trainer (TTT) model as a cost-effective and sustainable way of supporting educators with EBPs. Hence, specialist teachers such as RTLB may be in a prime position to be trained as trainers so that they are able to utilise resources such as the online modules to disseminate information on the use of EBPs and provide ongoing support with implementation to staff involved with children with ASD in general school settings in a sustainable and ecologically valid manner.

This review shows that there has been much research to validate effective interventions for children with ASD. However, as there is no one intervention that works for all children with ASD, teachers in general school settings are required to be discerning in their selection of interventions and to implement these effectively into their practice to improve student outcomes. The importance of providing PLD and ongoing support in the dissemination and use of interventions with fidelity to teachers of children with ASD in inclusive settings has also been emphasised. Seeing that RTLB have a role which includes supporting and building teacher and school capability in order to better-meet the diverse needs of students within an inclusive education system, there is the possibility for RTLB to be coached to provide support to practitioners in general school settings. This could include: providing information on availability of resources; providing ongoing PLD on the use of evidence-based practices; and assistance with implementation in their work with children with ASD within an ecological and cultural framework.

METHODOLOGY

The methodology used for this inquiry is outlined below. This includes a description of the research, data gathering tools, participants, ethical considerations and data analysis.

Research Design

Since my focus has been on RTLB and ways in which I could work with them to assist teachers to implement EBPs for children with ASD in their classrooms, I have used a mixed methods approach which involved the use of both qualitative and quantitative methods as a means of seeing things from different perspectives and to get a better overview of the subject (Denscombe, 2014). This aligns with Menter, Elliot, Hulme, Lewin and Lowden's (2011) recommendation on using the most advantageous method of data collection depending on the nature of the evidence that would satisfy the inquiry question which is: How can I support RTLB to assist teachers to implement evidence-based practices for children with ASD in the classroom?

Data Gathering Tools

The research was undertaken using an anonymous online questionnaire as a primary data gathering tool and the literature review served as a secondary source. I have used Google Forms as a tool to create, distribute and analyse the questionnaire as it was easily accessible within the targeted RTLB cluster. The use of a questionnaire as part of my small scale practitioner research has facilitated: relatively easy administration; anonymous responses; the collection of a large amount of information using open and closed questions within the three week timeframe; and an online format which was inexpensive to administer and was able to produce automated data analysis (Menter et al., 2011). The purpose of the questionnaire was to determine the preferred methods of delivering information required by RTLB to enhance the provision of services to teachers of children with ASD. Care had been taken to ensure that the questions were designed to elicit information that would fulfil the aims of the research and included a range of response formats from Likert scale questions to open-ended questions which addressed: PLD in the area of ASD; confidence levels in supporting teachers to implement EBPs; and some of the ways that RTLB could be supported in their practice with regard to the implementation of evidence-based practices for students with ASD in the classroom.

Some of the disadvantages of using the questionnaire included: a limited scope of data that could be collected; respondents could not ask for clarification; and the limited flexibility of responses (Menter et al., 2011). However, for the purposes of this inquiry, some of these disadvantages of using a questionnaire were mitigated by the use of tailored questions which were clear and unambiguous, and by conducting

a pilot amongst a few RTLB from another cluster to ensure that intended information had been captured.

Participants

Taking into cognisance that the inquiry question is directly related to RTLB practice, I opted to conduct my research with the RTLB within my own cluster. This aligns with Tummons and Duckworth's (2012) supposition that practitioner research centres directly on the concerns that practitioners raise about their own practice arising from their own professional experience. In addition, my use of a purposive sample aligns with Punch's (2013) assertion that "the sampling plan should have a logic that fits in with the logic of the research questions" (p. 244). Our cluster consists of a group of 30 RTLB who provide service to 33 schools in an ethnically diverse urban setting and includes primary, intermediate and secondary levels as well as Māori Kura Kaupapa. Emails were sent to all RTLB in the cluster inviting voluntary participation and providing sufficient and relevant information on the purpose and aims of the research. The completion and return of the questionnaire implied consent. Twenty four RTLB participants completed the online questionnaire and their teaching experience ranged from 7 years to 48 years, and their experience in the role of RTLB ranged from 6 months to 13 years. Six of the 20 participants who have worked with or are currently working with, children with ASD, have not had any PLD in ASD.

Data Analysis

Once the questionnaires had been completed, the response data was carefully scrutinised and coded using themes representative of the participants' responses. These patterns and trends were then organised into overarching categories and analysed against a theoretical background of the literature reviewed.

Ethical Considerations

The ethical principles as outlined in the Code of Ethical Conduct for Research, Teaching and Evaluations involving human participants (Massey University, 2017) also includes the Treaty of Waitangi obligations and principles. This inquiry project was deemed low risk by the Massey University Human Ethics Committee prior to commencement.

RESULTS

Research findings have been organised into the categories of professional learning and development, content and delivery of PLD, and evidence-based practices.

Professional Learning and Development (PLD)

RTLB were asked about professional development undertaken in the area of ASD - 24 participants responded to this question (see Figure 1). Of the 62% (n=15) who responded positively, 67% (n=10) had twenty or more years of teaching experience and five or more years of RTLB experience (Figure 2). Eight of these ten participants had rated their confidence levels with regard to supporting teachers to implement EBPs for caseload students with ASD as 3 or above on a 5-point Likert scale (1 = least confident to 5 = most confident). On the other hand, 37.5% (n=9) of participants indicated that they had not attended any professional development in the area of ASD (Figure 1). Of these, 22% (n=2) have had twenty or more years of teaching experience and five or more years of RTLB experience. More than half of the 37.5% (56%, n= 5) who have not had PLD in ASD rated their confidence level with regard to supporting teachers to implement EBPs for caseload students with ASD as 2 or below on a 5-point Likert scale (1 = least confident to 5 = most confident).

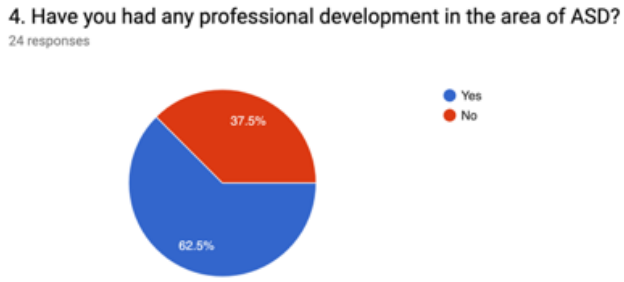

Figure 1. PLD in ASD.

Content and Delivery of PLD

This section consisted of items related to RTLB professional learning activities. Of the 62% (n=15) who responded that they had PLD in the area of ASD (Figure 1), the majority (80%, n=12) reported that they had received PLD in a workshop format. Fourteen participants added additional comments on the content they found most useful. Three of these participants mentioned the team-focused three day "Tips for Autism" course as being the most useful PLD attended. Interestingly, an evaluation of this course indicated that multidisciplinary, team-based programmes that are practical, child-focused, led by skilful, experienced facilitators, and integrate PLD and intervention, are effective (Bevan-Brown et al., 2011).

When asked to identify preferred modes of delivery that they would consider most effective in supporting them in their role as RTLB, 50% (n=11) of the 22 participants selected 'coaching with a specialist teacher in ASD' as a delivery option. Comments here

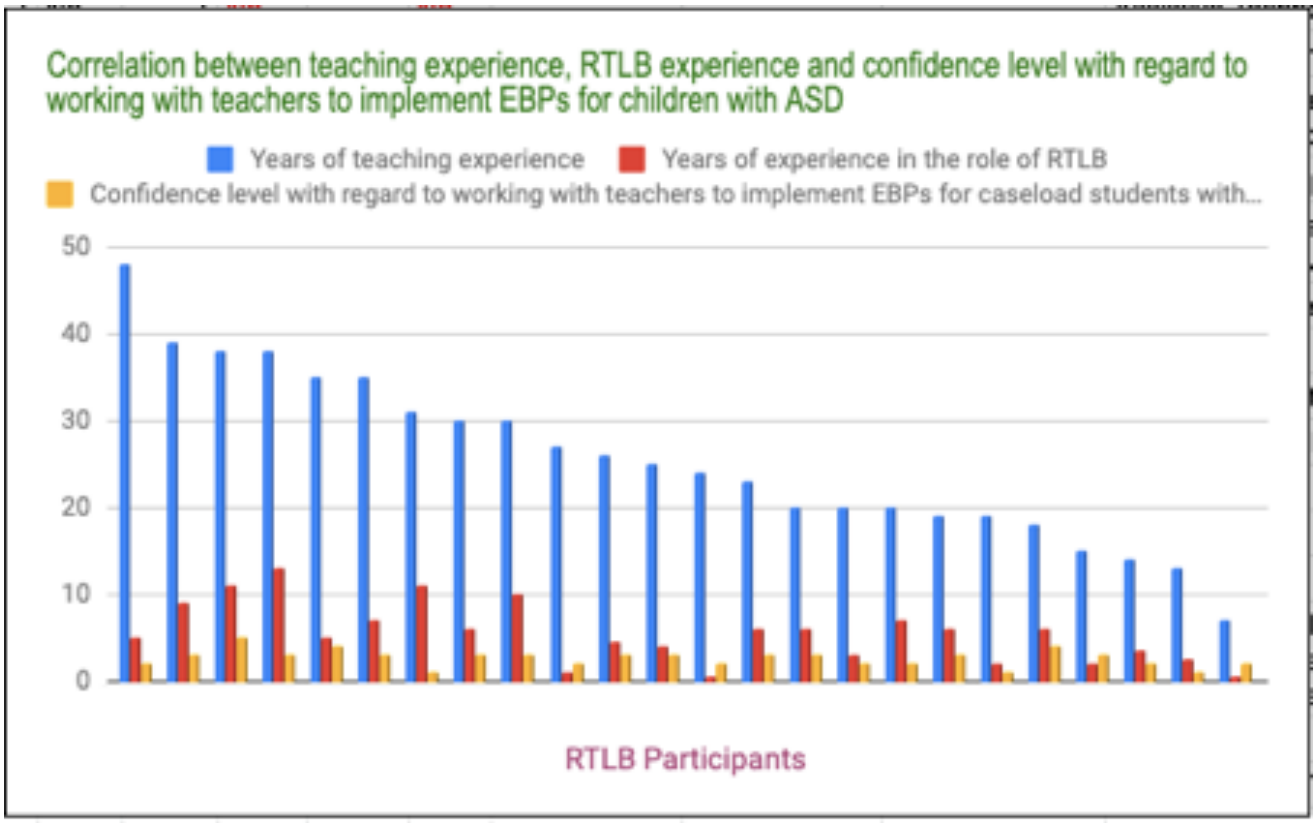

Figure 2. Correlation between teaching experience, RTLB experience and confidence level with regard to working with teachers to implement EBPs for children with ASD.

remark on the importance of tailoring support based on the needs of students and the context.

All 24 RTLB who responded to this survey believe that it would be of benefit to have the support of a colleague who has undertaken further study in ASD and the most preferred specific area of ASD for support is evidence-based practices (95.8%, n=23) followed by positive behaviour support (83.3%, n=20).

A significant percentage of participants (91.7%, n=22) identified ongoing coaching as a way of assisting RTLB to work with teachers to implement evidence-based practices for children with ASD in the classroom (Figure 3). Other methods of support identified by a large percentage of respondents were gaining information on availability and access to resources (87.5%, n=21) and PLD on the use of specific evidence-based practices in a workshop or online module format (87.5%, n=21).

Evidence-based Practices (EBPs)

The purpose of this section is to gain an understanding of EBPs used by RTLB in their practice. 23 responded to this question. Of the 27 focused interventions recognised by the NPDC (Wong et al., 2014) as having met the criteria for being evidence-based practices for students with ASD, RTLB made mention of the use of visuals as the most commonly used strategy (65%, n=15). This was followed by social skills training (13%, n=3), Picture Exchange Communication System (9%, n=2), assistive technology (9%, n=2) and video modelling (4%, n=1). Thirty percent (n=7) use social stories.

When asked to identify which areas of ASD RTLB would like support with, the most preferred area selected by the majority of participants (95.8%, n=23) was evidence-based practices. RTLB next favoured PLD on positive behaviour support (83.3%, n=20) and the least preferred area was visual supports (54%, n=13).

In response to the question about ways that would assist RTLB to provide better support to teachers to implement EBPs for students with ASD in the classroom, the majority of participants (91.7%, n=22) identified ongoing coaching and support with intervention implementation related to their caseload students. A large percentage (87.5%, n=21) selected PLD on the use of specific EBPs in a workshop or online module format.

One participant made an additional comment on the need for "interventions that are in te reo Maori and which are particularly suited to students working in Maori medium school settings" whilst another participant remarked that "No two kids have the same

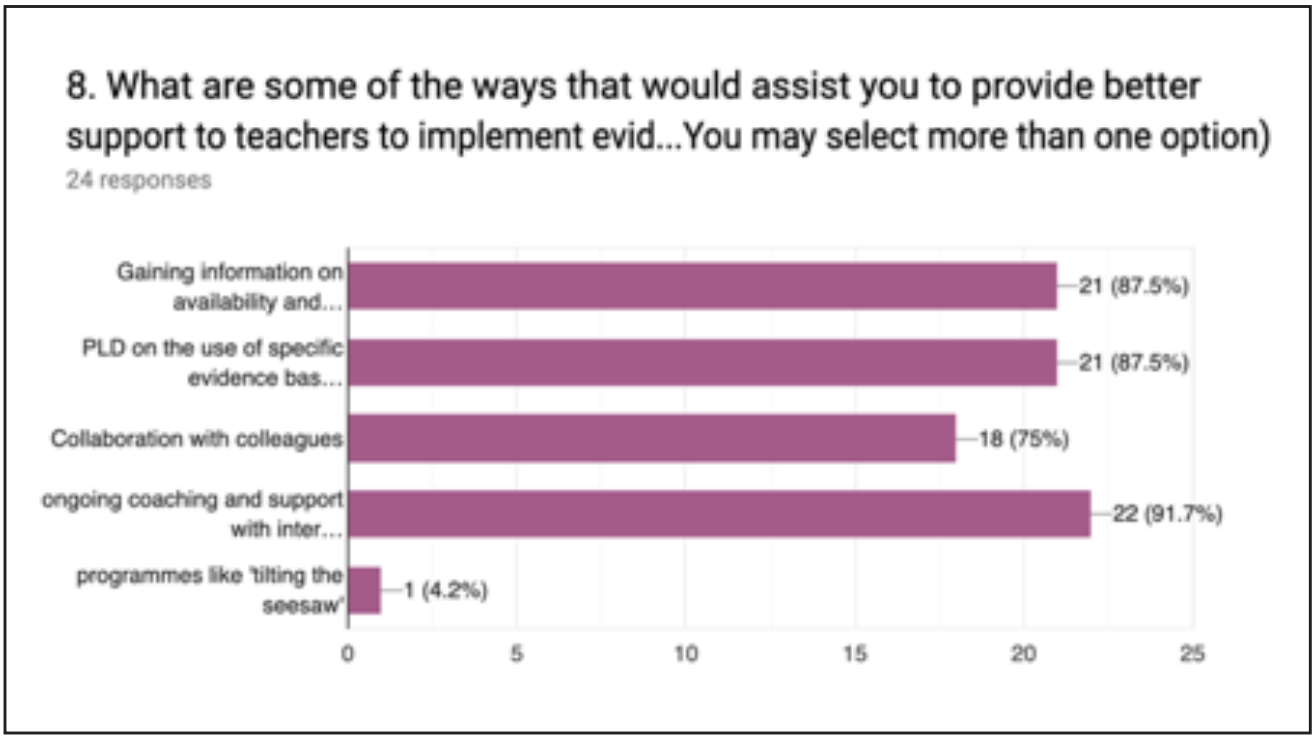

Figure 3. Ways that would assist RTLB to provide better support to teachers to implement EBPs for children with ASD in the classroom.

needs so there is no one-size-fits-all intervention that I am aware of."

Twenty two participants responded to the question on enablers to implementation of EBPs and the most common enabler identified was teacher engagement (54.5%, n=12) while 32% (n=7) mentioned support for the teacher. On the other hand, 21 participants responded to the question on barriers to implementation of EBPs and the most common barrier identified was lack of teacher engagement (48%, n=10). A small percentage (14%, n=3) recognised a lack of, or inconsistent, support for the teacher as a barrier.

The majority of participants (87.5%, n=21 of 24) rated themselves as 3 or below with regard to supporting teachers to implement EBPs for caseload students with ASD on a 5-point Likert scale (1 = least confident to 5 = most confident). In their additional comments, 58% (n=14/24) mentioned that they would like more PLD in ASD. As one participant remarked: "I have some knowledge but as every student on the spectrum is unique, and interventions should be needs-based, I feel there is so much more that I have to learn in order to provide the best support."

DISCUSSION

This study aimed to identify ways in which I can support RTLB to assist teachers to implement evidence-based practices for children with ASD in general classroom settings. Some of my findings fit closely with the research literature on evidence-based practices for ASD reviewed for this inquiry. Participant responses were analysed based on questions about professional learning and development, content and delivery of PLD, and evidence-based practices for children with ASD.

Professional Learning and Development

With regard to PLD undertaken in ASD, findings suggest that RTLB who have had more years of experience in the role of RTLB within an inclusive model of educational provision, may have had more opportunities and access to PLD related to ASD. These more experienced RTLB have rated their confidence levels slightly higher with regard to supporting teachers to implement EBPs for caseload students with ASD than the RTLB who have had little or no ASD-specific PLD. Although it is mandatory for all RTLB to complete a postgraduate qualification in specialist teaching, this course of study does not include a compulsory component with a focus on ASD. As mentioned earlier, schools often look to RTLB for support to improve outcomes for the increasing number of students with ASD in general education settings (Stichter, Riley-Tillman & Jimerson, 2016) due to the shortage of specialist teachers in ASD.

Since the RTLB role includes supporting and building teacher and school capability to better meet

the diverse needs of students within an inclusive education system, there is a need for ongoing PLD in ASD for RTLB to enable them to provide flexible and tailored support to teachers of children with ASD in general school settings. Saggers (2016), based at Queensland University, is of the opinion that it is not enough to give teachers PLD on autism as they need additional help from appropriate specialist staff to make adaptations to fit the context of their classroom. Moreover, teachers want services and professional learning that address all the specific needs of their child including communication, social skills, learning, sensory issues, behaviour and transitions (Ministries of Health & Education, 2016; Saggers et al., 2018).

RTLB have knowledge of individual schools and are therefore well-placed to support schools to identify appropriate EBPs and to support implementation based on the consideration of a range of factors. Fixsen et al. (2005) therefore advocate that "purveyors" such as RTLB are critical for utilising their proposed seven core implementation components to achieve broad and sustained implementation of EBPs: staff selection; preservice and in-service training; ongoing consultation and coaching; staff evaluation; programme evaluation; facilitative administrative support; and systems interventions. This is reiterated by Hamilton, Marsh and Pane (2006) who contend that PLD should also be continuous and ongoing, involving follow-up and support for further learning including support from sources external to the school that can provide the necessary resources and new perspectives. These researchers have highlighted some of the key factors that may be considered when planning PLD options in a NZ context.

Content and Delivery of PLD

Results indicate that the majority of RTLB have had PLD in a workshop format. They have, however, identified coaching with a specialist teacher in ASD as the most preferred mode of delivery in supporting them in their role in the future. This aligns with the view that embedded and sustained coaching may be necessary to change practice (Campbell & van Nieuwerburgh, 2017; Slavin, 2019). Moreover, research indicates that sustained and intensive PLD has a greater effect on changing practice and is more likely to be effective in improving teachers' knowledge and skills if it forms a coherent programme of teacher learning and is connected to practice (Opfer & Pedder, 2011).

One of the major challenges that general educators face related to the education of children with ASD in Canada is the delivery of EBPs within an inclusive system (Corkum et al., 2014). It is therefore not surprising that a significant number of RTLB within this study identified ongoing coaching and support with intervention implementation based on the needs of their caseload students and context. Moreover, participants mention of the "Tips for Autism" course as being the most useful PLD attended highlights the need for ASD-specific PLD that includes the development of specific goals and personalised plans for children in authentic contexts as well as the need for interprofessional collaboration. This results in more successful learning for the participants, as well as for the child (Bevan-Brown et al., 2011). This is reinforced by Parsons et al. (2013) belief that considerable research is available to inform intervention practice, however, a significant gap exists between current knowledge about EBPs and their implementation by practitioners. Continuous PLD at school level is considered to be a better model for helping teachers expand their knowledge and expertise in many other countries (Hamilton, Marsh & Pane, 2006) and this may be extended to a NZ context. Therefore, for RTLB, translating research to practice may be achieved through ongoing PLD in ASD-specific EBPs and guidance with providing tailored support to teachers based on the developmental level and needs of children with ASD in particular settings (NZ ASD Guideline, 2016).

Evidence-Based Practices

The most preferred area for further support selected by the majority of RTLB within this study was EBPs and positive behaviour support. Visual supports may not have been identified as a priority area for support for RTLB as the use of visuals was cited as the most commonly used strategy, indicating confidence in their use. RTLB also indicated the use of only a few other EBPs recognised by the NPDC (Wong et al., 2014): social skills training; Picture Exchange Communication System; assistive technology; and video modelling. This lack of application of EBPs in schools may be attributed to selection bias as RTLB may naturally default to familiar or well-known evidence-based interventions without attempting to learn about or trial different interventions which may lead to better outcomes for children with ASD (Stichter et al., 2016). It is important for educators to understand that EBPs that have met a high standard for empirical support are highly likely to be effective for the target population when implemented appropriately (Cook & Cook, 2011).

Some RTLB commented on the fact that children with ASD have their own unique needs and there is no one-size-fits-all intervention. This aligns with the NZ ASD Guideline (2016) which states that there

is no evidence to show that any single practice is effective for teaching every goal to all children due to the heterogeneity of ASD. It is therefore important for practitioners to utilise a variety of EBPs to fit the characteristics of the child and the context, and these interventions need to focus on key features of ASD (NZ ASD Guideline, 2016).

The majority of RTLB have rated themselves as average or less than average in terms of confidence levels with regard to supporting teachers to implement EBPs for caseload students with ASD. This is similar to the findings of a study in Australia where, in general, teachers only felt slightly confident in their ability to support students with ASD, while parents were even less certain of teachers' confidence to teach their children with ASD (Saggers, 2016). Parents in NZ have also emphasised the need for better PLD for teachers (Bevan-Brown, 2010).

RTLB have named the most common enabler to the implementation of EBPs as teacher engagement and conversely, the most common barrier as lack of teacher engagement. Many factors can impact on teacher uptake of EBPs, however, ineffective PLD processes can be a major barrier. Educators who are often not provided with proper PLD in EBPs for children with ASD face the challenge of identifying and implementing EBP without adequate knowledge and training in inclusive classroom settings (Corona et al., 2017). The use of the three-component model of EBP (Bourke et al., 2005; Macfarlane, 2012) consisting of the best available research evidence (tika), practitioner experience (pono) and student and whanau preference (aroha) can support RTLB to facilitate the use of EBPs more efficiently in schools.

The majority of RTLB in this study identified ongoing coaching and support with intervention implementation related to their caseload students as a way that would assist them to provide better support to teachers of students with ASD in the classroom. This aligns with the view of Stahmer et al. (2014) that supporting educators in the US to implement EBPs with children with ASD requires extensive training, ongoing coaching and time. It is critical for RTLB to provide high quality educational services in an inclusive environment as teachers need to have the essential understanding and skills to implement effective intervention and educational programmes for children with ASD (Lane, Carter, Common & Jordan, 2012). These include devising individualised plans, adaptation and modification of curriculum content and learning environments, and addressing challenging behaviours.

A large percentage of RTLB in this study have also indicated their preference for PLD on the use of specific EBPs in a workshop or online module format, although Trembath et al. (2019) assert that the common approach of providing PLD activities including staff seminars, workshops and self-study modules aimed at transforming educator practice, are generally ineffective.

CONCLUSIONS AND RECOMMENDATIONS FOR FUTURE ACTION

The findings from this study reveal implications for ongoing RTLB work with teachers. RTLB participants in this small scale study have highlighted their need for professional learning and ongoing support in the dissemination and use of EBPs for children with ASD in inclusive environments. Considering the growing need for specialist services, the dissemination of information on how to implement EBPs is an acknowledged priority (Cook & Odom, 2013; Klingner, Boardman & McMaster, 2013). With the increased prevalence of children with ASD attending mainstream schools (Crosland & Dunlap, 2012), a challenge that faces teachers is the selection of ASD-specific EBPs and the implementation of these in their classroom contexts. To exacerbate matters, there is no single intervention that works for all children with ASD (NZ ASD Guideline, 2016) and there is a dearth of research available on the use of specific EBPs with Māori or other cultural groups in NZ. Given these considerations, it is clearly a huge task for RTLB to support and build teacher and school capability to better meet the diverse needs of students within an inclusive education system. Not surprisingly, the majority of RTLB participants have identified ongoing coaching and support with intervention implementation related to their caseload students as one of the ways that would assist them to provide better support to teachers in classroom settings. This aligns with the research that shows that PLD connected to practice is more likely to be effective in improving teachers' knowledge and skills (Opfer & Pedder, 2011).

There have been some recommendations for practitioners with regard to accessing PLD on implementing EBPs with children with ASD. These include: Evidence-Based Individualised Program for Students with Autism (Odom et al., 2013), the use of telepractice, and a train-the-trainer (TTT) model which involves training individuals with specific strategies in order to train others (Suhrheinrich, 2014). As mentioned earlier, in a NZ context, specialist teachers such as RTLB are in a prime position to be trained as trainers and Fixsen et al. (2005) reinforces

that "purveyors" such as RTLB are essential as they can use research-based methods to achieve broad and sustained implementation of EBPs. It would be interesting to explore the feasibility of this option in a larger scale research project across all clusters. RTLB could utilise cost-effective resources such as the online Autism Focused Intervention Resources and Modules (AFIRM) to disseminate information on the use of EBPs for ASD and provide additional ongoing coaching and support with implementation to fit the characteristics of the child with ASD and the learning situation.

I would like to acknowledge the limitations in the data sources of this small-scale practitioner inquiry. My sample is relatively small and not selected in ways that represent RTLB across NZ. Results cannot therefore be generalised to other contexts, however it would be interesting to explore the relevance of these findings across all clusters. It could also be used as a basis for formulating questions that might be explored in future research on examining ways of providing more effective PLD to RTLB to improve their confidence in working with teachers of children with ASD in inclusive educational settings. Furthermore, future research studies by RTLB into effective EBPs for different groups of children with ASD, transferring EBPs into school settings, and PLD for teachers would be valuable as these have been highlighted earlier as gaps in the evidence-base on ASD (Bond et al., 2016).

REFERENCES

American Psychiatric Association (2013). *Diagnostic and statistical manual of mental disorders: DSM-5* (5th ed.). Arlington, VA, US: American Psychiatric Publishing, Inc. http://dx.doi.org/10.1176/appi.books.9780890425596

Autism *Focused I*ntervention Resources and Modules (AFIRM). Available from: https://afirm.fpg.unc.edu/afirm-modules

Autism New Zealand (n.d-a). Available from: https://www.autismnz.org.nz/

Autism New Zealand (n.d-b). What is autism? Available from: https://www.autismnz.org.nz/what-is-autism/definitions/

Barnhill, G. P., Sumutka, B., Polloway, E. A., & Lee, E. (2014). Personnel preparation practices in ASD: A follow-up analysis of contemporary practices. *Focus on Autism and Other Developmental Disabilities, 29,* 39–49. doi:10.1177/1088357612475294

Bevan-Brown, J. (2010). Messages from parents of children with autism spectrum disorder. *Kairaranga, 11,*(2), 16-22.

Bevan-Brown, J., Bourke, R., Butler, P., Carroll-Lind, J., Kearney, A., & Mentis, M. (2011). *Evaluation of the 'tips for autism' professional learning and development programme Massey University College of Education.* Available from: https://www.educationcounts.govt.nz/publications/special_education/evaluation-of-the-tips-for-autism

Bond, C., Symes, W., Hebron, J., Humphrey, N., Morewood, G., & Woods, K. (2016). *Educating persons with autistic spectrum disorder: A systematic literature review.* 2008–2013. NCSE Research Reports No: 20. Available from: http://ncse.ie/wp-content/uploads/2016/07/4_NCSE-Educating-Persons-with-ASD-No20.pdf

Booth, T., & Ainscow, M. (2011). *Index for inclusion: Developing learning and participation in schools.* Bristol., UK: Centre for Studies on Inclusive Education.

Bourke, R., Holden, B., & Curzon, J. (2005). *Using evidence to challenge practice. A discussion paper.* Wellington: Ministry of Education, New Zealand.

Boyle, C.A., Boulet, S., Schieve, L.A., Cohen, R.A., Blumberg, S.J., Yeargin-Allsopp M., Visser, S., & Kogan, M.D. (2011). Trends in the prevalence of developmental disabilities in US children. *Pediatrics, 127*(6):1034-42.

Cadogan, S., & McCrimmon, A.W. (2015). Pivotal response treatment for children with autism spectrum disorder: A systematic review of research quality. *Developmental Neurorehabilitation, 18*(2), 137-144.

Campbell, J., & van Nieuwerburgh, C. (2017). *The leader's guide to coaching in schools: Creating conditions for effective learning.* Thousand Oaks, CA: Corwin Press.

Cook, B.G., & Cook, S.C. (2011). Unravelling evidence-based practices in special education. *The Journal of Special Education, 47*(2), 71–82.

Cook, B. G., & Odom, S. L. (2013). Evidence-based practices and implementation science in special education. *Exceptional Children, 79,* 135–144.

Corkum, P., Bryson, S. E., Smith, I. M., Giffin, C., Hume, K., & Power, A. (2014). Professional development needs for educators working with children with autism spectrum disorders in inclusive school environments. *Exceptionality Education International, 24,* 33-47. Retrieved from: https://ir.lib.uwo.ca/eei/vol24/iss1/4

Corona, L., Christodulu, K. V., & Rinaldi, M. L. (2017). Investigation of school professionals' self-efficacy for working with students with ASD: Impact of prior experience, knowledge, and training. *Journal of Positive Behavior Interventions, 19*(2), 90–101. https://doi.org/10.1177/1098300716667604

Crosland, K., & Dunlap, G. (2012). Effective strategies for the inclusion of children with autism in general education classrooms. *Behavior Modification, 36*(3), 251–269. https://doi.org/10.1177/0145445512442682

Denscombe, M. (2014). *The good research guide for small-scale research projects* (5th ed.). Maidenhead, Berkshire: McGraw-Hill Education.

Education Review Office (2018). *National report summary. Resource Teachers: Learning and Behaviour: Governing and managing RTLB clusters.* Available from: www.ero.govt.nz/publications

Fixsen, D., Blase, K., Metz, A., & Van Dyke, M. (2013). Statewide implementation of evidence-based programs. *Exceptional Children, 79*(2), 213–230. https://doi.org/10.1177/001440291307900206

Fixsen, D. L., Naoom, S. F., Blase, K. A., Friedman, R. M., & Wallace, F. (2005). *Implementation research: A synthesis of the literature.* Tampa, FL: University of South Florida, Louis de la Parte Florida Mental Health Institute, The National Implementation Research Network (FMHI Publication #231).

Hamilton, L., Marsh, J., & Pane, J. (2006). *Making sense of data-driven decision making in education: Evidence from recent RAND research.* Santa Monica, CA: Rand Corporation. Available from: https://www.rand.org/pubs/occasional_papers/OP170.html.

Howlin, P., & Magiati, I. (2017). Autism spectrum disorder: Outcomes in adulthood. *Current Opinion in Psychiatry, 30*(2), 69–76. https://doi.org/10.1097/YCO.0000000000000308.

Humphrey, N., & Symes, W. (2013). Inclusive education for pupils with autistic spectrum disorders in secondary mainstream schools: Teacher attitudes, experience and knowledge. *International Journal of Inclusive Education, 17*(6), 32-46/ https://doi.org/10.1080/13603116.2011.580462.

Klingner, J. K., Boardman, A. G., & McMaster, K. L. (2013). What does it take to scale up and sustain evidence-based practices? *Exceptional Children, 79*, 195–211. https://doi.org/10.1177/001440291307900205.

Koffel, J., & Reidt, S. (2015). An interprofessional train-the-trainer evidence-based practice workshop: Design and evaluation. *Journal of Interprofessional Care, 29*(4), 367-369.

Lane, K. L., Carter, E. W., Common, E., & Jordan, A. (2012). Teacher expectations for student performance: Lessons learned and implications for research and practice. *Classroom Behavior, Contexts, and Interventions, 25*, 95-129.

Macfarlane, S. (2012). *Culturally responsive evidence based practice in special education: Whaia ki te ara tika.* PhD Theses. Christchurch, NZ: University of Canterbury Press.

Maddox, L. L., & Marvin, C. A. (2013). A preliminary evaluation of a state-wide professional development program on autism spectrum disorders. *Teacher Education and Special Education, 36*(1), 37–50. https://doi.org/10.1177/0888406412463827.

Massey University (2017). *Code of ethical conduct for research, teaching and evaluations involving human participants.* Available from: http://www.massey.ac.nz/massey/research/research-ethics/human-ethics/code-ethical-conduct.cfm

Menter, I., Elliot, D., Hulme, M., Lewin, J., & Lowden, K (2011). *A guide to practitioner research in education.* London UK: Sage Publications.

Ministries of Health and Education. (2016). *New Zealand autism spectrum disorder guideline.* Wellington: Ministry of Health. Available from: http://www.health.govt.nz/publication/new-zealand-autism-spectrum-disorder-guideline

Ministry of Education (2013). For principals: 'At a glance' information about the national RTLB service. Available from: http://rtlb.tki.org.nz/The-RTLB-service/The-RTLB-service

Ministry of Education. (2018). *RTLB professional practice toolkit.* Available from: http://rtlb.tki.org.nz/Professional-practice

Missouri Autism Guidelines (2012). *Autism spectrum disorders: Guide to evidence-based interventions.* Available from: http://autismguidelines.dmh.mo.gov/documents/Interventions.pdf

Mohammadzaheri, F., Koegel, L.K., Rezaee, M., & Rafiee, S.M. (2014). A randomized clinical trial comparison between pivotal response treatment (PRT) and structured applied behavior analysis (ABA) intervention for children with autism. *Journal of Autism and Developmental Disorders, 44*(11), 2769-2777.

National Autism Center (n.d.). *National standards project (2015).* Available from: http://www.nationalautismcenter.org/national-standards-project/

National Autism Center (2015). *National standards project, Phase 2*. Available from: http://www.nationalautismcenter.org/resources/

National Professional Development Center on Autism Spectrum Disorder (2017). *Comparison of NPDC and NSP practices.* Available from: http://autismpdc.fpg.unc.edu/sites/autismpdc.fpg.unc.edu/files/imce/documents/Matrix%20NPDC%20NSP%20v3.pdf

Odom, S. L., Cox, A. W., & Brock, M. E. (2013). Implementation science, professional development, and autism spectrum disorders. *Exceptional Children, 79*(3), 233–251. https://doi.org/10.1177/001440291307900207.

Opfer, V., & Pedder, D. (2011). The lost promise of teacher professional development in England. *European Journal of Teacher Education, 34*(1), 3-24. http://dx.doi.org/10.1080/02619768.2010.534131

Parsons, S., Charman, T., Faulkner, R., Ragan, J., Wallace, S., & Wittemeyer, K. (2013). Commentary—Bridging the research and practice gap in autism: The importance of creating research partnerships with schools. *Autism, 17*(3), 268–280. https://doi.org/10.1177/1362361312472068.

Pazey, B. L., Gevarter, C., Hamrick, J., & Rojeski, L. (2014). Administrator views and knowledge of instructional practices for students with autism spectrum disorders. *Research in Autism Spectrum Disorders, 8,* 1253–1268. http://dx.doi.org/10.1016/j.rasd.2014.06.013

Punch, K.F. (2013). Introduction to social research: *Quantitative and qualitative approaches.* London: Sage Publications.

Research Autism (n.d.). *Our Research.* Available from: http://www.researchautism.net/research-autism-our-research

Saggers, B. (2016). Supporting students with autism in the classroom: What teachers need to know. Available from: https://kidslink.co.nz/supporting-students-with-autism-in-the-classroom-what-teachers-need-to-know/

Saggers, B., Klug, D., Harper-Hill, K., Ashburner, J., Costley, D., Clark, T., Bruck, S., Trembath, D., Webster, A. A., & Carrington, S. (2018). *Australian autism educational needs analysis – What are the needs of schools, parents and students on the autism spectrum? Full report and executive summary, version 2. Cooperative Research Centre for Living with Autism, Brisbane.* Available from: https://www.autismcrc.com.au/knowledge-centre/resource/educational-needs-analysis

Sam, A. M., Cox, A. W., Savage, M. N., Waters, V., & Odom, S. L. (2019). Disseminating information on evidence-based practices for children and youth with autism spectrum disorder: AFIRM. *Journal of Autism and Developmental Disorders.* Available from: https://doi-org.ezproxy.massey.ac.nz/10.1007/s10803-019-03945-x

Slavin, R. (2019). *The fabulous 20%: Programs proven effective in rigorous research.* Available from: https://robertslavinsblog.wordpress.com/2019/04/18/the-fabulous-20-programs-proven-effective-in-rigorous-research/

Stahmer, A. C., Reed, S., Lee, E., Reisinger, E. M., Connell, J. E., & Mandell, D. S. (2014). Training teachers to use evidence-based practices for autism: Examining procedural implementation fidelity. *Psychology in the Schools, 52*(2), 181–195. https://doi.org/10.1002/pits.21815.

Stichter, J. P., Riley-Tillman, T. C., & Jimerson, S. R. (2016). Assessing, understanding, and supporting students with autism at school: Contemporary science, practice, and policy. *School Psychology Quarterly, 31*(4), 443–449. https://doi-org.ezproxy.massey.ac.nz/10.1037/spq0000184

Suhrheinrich, J. (2014). A sustainable model for training teachers to use pivotal response training. Autism. *The International Journal of Research and Practice 19*(6), 713-723.

Trembath, D., Sulek, R., Paynter, J., Simpson, K., & Keen, D. (2019). Staff views on supporting evidence based practice for children with ASD. *Disability and Rehabilitation, 41*(4), 436-444. https://doi.org/10.1080/09638288.2017.1396367.

Tummons, J., & Duckworth, V. (2012). *Doing your research project in the lifelong learning sector.* Maidenhead, Berkshire: McGraw-Hill Education.

Watkins, L., Ledbetter-Cho, K., O'Reilly, M., Barnard-Brak, L., & Garcia-Grau, P. (2019). Interventions for students with autism in inclusive settings: A best-evidence synthesis and meta-analysis. *Psychological Bulletin, 145*(5), 490–507. https://doi-org.ezproxy.massey.ac.nz/10.1037/bul0000190

Wong, C., Odom, S. L., Hume, K. A., Cox, C. W., Fettig, A., Kurcharczyk, S., Brock, M. E., Plavnick, J. B., Fleury, V. P., & Schultz, T. R. (2014). *Evidence-based practices for children, youth, and young adults with autism spectrum disorder.* Chapel Hill: The University of North Carolina, Frank Porter Graham Child Development Institute, Autism Evidence-Based Practice Review Group. Available from: http://autismpdc.fpg.unc.edu/sites/autismpdc.fpg.unc.edu/files/2014-EBP-Report.pdf

AUTHOR PROFILE

Simi Singh

Simi has been an RTLB for 11 years and is currently based in the Manurewa Cluster. Prior to this role, she was a mainstream classroom teacher in South Africa. Since coming to NZ, Simi has become involved in special education and has had the privilege of working with a range of students and families over the years. She has a special interest in ASD and has just completed a Master of Specialist Teaching: Autism Spectrum Disorder.

Email: s.singh@rtlbcluster12.school.nz