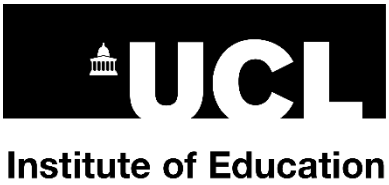
Doctorate in Professional Educational, Child and Adolescent Psychology



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Doctorate in Professional Educational Child and Adolescent Psychology

Year 3 Research Report

An evaluation of the effectiveness of the Local Early Autism Programme (LEAP)

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37753 words

Abstract

This research evaluated the Local Early Autism Programme (LEAP), a pilot intervention for twelve preschool children with autism aged between 3 years 6 months and 4 years 3 months in a South East local authority. LEAP specialists used different strategies with children, families and preschools to support the development of social communication, emotional regulation and transactional support (Prizant, Wetherby, Rubin & Laurent, 2003). Progress was monitored over the six months intervention at the beginning (T1), middle (T2) and end (T3) through observations at home and in preschool. Social communication, emotional regulation and transactional support scores improved significantly between T1 and T2 and between T2 and T3. Emotional regulation scores were also related to social communication scores at T2 and T3. An increase in transactional support from T1 to T3 was positively related to the number of LEAP sessions attended. Semi-structured interviews with parents and LEAP specialists were conducted at all time points and with preschool practitioners at T1 and T3. Parents, preschool practitioners and LEAP specialists commented on changes in children's speech, communication, composure, engagement and cooperation. Parents and preschool practitioners reported changes in play and interaction. Parents and LEAP specialists referred to changes in ability to share. Only parents reported changes in taking turns, and becoming independent was only mentioned in one preschool. Key features of LEAP linked to changes in children reported by parents were regular sessions at home and preschool, strategies being tailored to individuals' needs, and the relationship between

LEAP specialists and the children. Preschool staff, like parents, felt that regular sessions at home and preschool and the individualised nature of the intervention were important aspects. Preschool staff also believed the LEAP specialist's approach and knowledge along with everyone collaborating were key. Improvements to LEAP and the role of parents and preschool practitioner were also discussed.

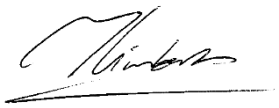
Declarations

Declaration of word count

The thesis is **37753** words (exclusive of abstract, declarations, appendices and list of references).

Declaration of own work

I, Elizabeth Mary Limbert, confirm that the work presented in this thesis is my own except data collection indicated below*. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.



*This thesis involved data collection from observations and interviews. All observations were conducted by employees of the Educational Psychology Service in the local authority. I conducted all calculations and statistical analyses relating to the observations. All interviews were conducted and analysed by me.

Acknowledgements

I would like to thank my husband, Mark. Without him I would not have been able to pursue this course or write this thesis. Thank you for providing the emotional and practical support I have needed over the last two years.

I would also like to thank my children, Joseph and Annabel for demonstrating resilience and resourcefulness enabling me to lock myself away to complete this work.

I would also like to thank Laura Wilby who devised the LEAP programme and approached me to conduct research to evaluate the programme. I am also very grateful to the parents, preschool staff and LEAP professionals who participated in my research and provided me with rich information relating to their experiences. Thank you for being so open with me.

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Chapter 1 Introduction

1.1 Overview of the chapter

The chapter first outlines my relationship with the research topic, the context for the research and explains why the intervention was developed and how the study arose. The chapter continues with details about the intervention with reference to similar interventions in other local authority (LA) areas. Next there is an explanation why LEAP needs to be evaluated. This is followed by a justification of the current research and its relevance to educational psychology practice is explained.

1.2 Researcher's relationship to the topic of research

I first became interested in autism through studying the work of Leslie and Frith (1990) and Baron-Cohen (1991) during undergraduate developmental psychology seminars related to deficits in theory of mind in individuals with autism. At the same time, a university friend of mine was mentoring a boy with autism and I was interested in discussing the strategies she used to support his communication. I also had the opportunity to participate in voluntary work supporting young people with autism after completing my degree. After I qualified as a teacher I worked with some young people with autism and explored ways to support them in the classroom. More recently, on placements in different Educational Psychology Services (EPSs) I became aware that a significant number of the children that I was working

with had autism spectrum disorders and often schools and preschools required additional support to work effectively with these young people. There were specialist facilities in these particular LAs, although there were limited places available and a high demand especially in preschool provision. My experience on these placements highlighted the need for early intervention for children with autism.

1.3 The research context

Autism spectrum disorder is a neurodevelopmental disorder with associated impairments in social communication and interaction as well as repetitive or restricted interests or behaviour (APA, 2013). An increasing number of children are being diagnosed with autism, perhaps because the condition is being identified more effectively or because the diagnosis is more readily applied (Hagberg & Jick, 2010). The growing number of children with autism has had an impact on the demand for LA services. This increasing demand for services has meant that there is probably a risk that gaps will occur in service provision for children with autism and their families (Brown, Ouellette-kuntz, Hunter, Kelley, Cobigo & Lam, 2011). It is also crucial that there is parity in terms of access to resources as not all families have benefitted to the same extent from the services available to them due to socio-economic factors (Siller, Reyes, Hotez, Hutman & Sigman, 2014).

Buescher, Cidav, Knapp & Mandell (2014) suggested that the total annual expenditure for supporting children with autism was approximately £3.1

billion in the United Kingdom (UK). One significant cost was due to special education including interventions. It would be highly beneficial to look to ways of reducing this expense with more advanced and cost-effective interventions. However, a limited body of research has addressed this because relatively little funding has been provided to investigate the effectiveness of interventions and services for autism in the UK (Pellicano, Dinsmore & Charman, 2014). A recent report published in the UK by the National Autism Project, emphasised that the needs of individuals with autism and their families have not been met effectively or in the most economical way. The report recommended that more funding and research was required so that more appropriate care and support could be provided (Lemmi, Knapp & Ragan, 2017). Buescher et al. (2014) noted that a better understanding about economical and effectual interventions and services was needed urgently because of the considerable costs to individuals and society. Therefore, interventions provided to support children with autism need to be effective and must demonstrate a valid and efficient use of funding.

Currently there is limited provision for preschool children with autism in my LA. However, a new intervention for preschool children with autism, the Local Early Autism Programme or LEAP, began in spring 2016 for 12 preschool children with autism aged between 3 and 5 years (11 started school in September 2016). The intervention ran through the spring and summer terms with transition support to reception in mainstream schools. The LA developed LEAP in response to the recognition that there was

insufficient provision for preschool children with autism in the local area. LEAP also provided a bridge between the end of Portage support and the start of school. Portage is a teaching service that provides additional support in the home to parents of children with developmental needs from birth to three years. There has been limited research investigating the effectiveness of Portage, therefore consideration of children who had been involved in Portage prior to LEAP might provide further insight to this area (Reed, Osborne & Corness, 2007).

1.4 The LEAP intervention

LEAP involved intervention staff working with children, families and preschools to support the development of communication, regulation of emotions and interaction skills. Different strategies were used depending on the different strengths and needs of the children. Individual children's progress in the different areas (social communication, emotional regulation, and transactional support) was monitored over the course of the intervention to measure any changes that occurred. LEAP specialists obtained scores for the different areas through observation of the children in different settings.

Interventions for children with autism can target specific skills (e.g. communication) or can be comprehensive, aiming to address a variety of areas of development (Boyd et al., 2014). LEAP was comprehensive because it focused on social communication, emotional regulation and the interactions between the child and adults and the support provided. Much of

the research evidence supporting interventions for autism centres on specific rather than comprehensive interventions (Odom, Boyd, Hall, & Hume, 2010). The current study has therefore added to the comparatively smaller body of research that has evaluated comprehensive interventions. This could provide greater insight into the delivery of comprehensive interventions and their benefits for stakeholders.

The LEAP intervention was new to the LA and used the social communication, emotional regulation and transactional support (SCERTS) model (Prizant et al, 2003). LEAP provided an individualised and comprehensive programme for children with autism based on the preschool child's social communication and emotional regulation needs. LEAP was developed by the educational psychology service (EPS) in the LA in the same way as other EPSs in LAs have developed their own autism intervention programmes in response to local needs for the Early Years. Examples of initiatives include Hampshire's Thomas Outreach Project (TOP) (Medhurst & Clay, 2008), Parents of Autistic Children Training and Support (PACTS) in Bexley (Reed, Osborne & Corness, 2010) and Barnet Early Autism Model (BEAM) (Reed, Osborne, Makrygianni, Waddington, Etherington & Gainsborough, 2013). Many LAs use the EarlyBird Programme (Shields, 2001) which has been valued highly by parents (Halpin, Pitt & Dodd, 2011) and is currently licensed in sixteen London boroughs and fifty two areas in England, Scotland and Wales (NAS, 2017).

1.5 Evaluating the intervention

Feedback about an intervention is essential in order to determine whether the service meets the needs of the service users. The LA's aim was that LEAP would be a holistic intervention which encourages cognitive, social, emotional and behavioural development for preschool children with autism. Parents and other service users were positive about TOP (Medhurst & Clay, 2008), and the current LA hoped that LEAP would also satisfy the needs of service users. It was therefore important that the different LEAP service users were represented in the current research so that their views about the intervention were considered. Consequently, it was important that parents, preschool practitioners and LEAP specialists were all interviewed about their views of the intervention. This was particularly important because LEAP involved parents, preschool practitioners and LEAP specialists collaborating to assist the child's development. With the necessity for the LA to use public money effectively it was important that the programme satisfied the needs of the parents as well as addressed the child's needs.

1.6 Need for the current research

The aim of the current study was to evaluate the impact of LEAP by analysing observational data and exploring the views of parents, LEAP specialists and preschool practitioners. Through evaluating LEAP, the research served to increase the knowledge base relating to LA provision for

preschool children with autism. LEAP aimed to address a gap in the current local provision and the current research aimed to inform future policy and provision of LA services. The LA needed to know whether the service provided by the intervention was the best it could be. In order to provide an optimal service, the intervention must meet the needs of the different stakeholders (children with autism, their families, the LEAP specialists and preschool staff). The LA seeks to learn from this evaluation and has stated an intention to modify LEAP based on research outcomes in order to optimise delivery during subsequent years. Hodgetts, Zwaigenbaum and Nicholas (2015) noted that by identifying families' (of children with autism) service needs, provision could be directed more effectively to meet these needs as well as improve the families' quality of life.

1.7 Relevance to educational psychology practice

The research was directly relevant to EP practice because it informed the LA evaluation of the LEAP intervention which enabled those involved to ensure the intervention was suitable and effective. It was important that the EPS delivered an effective intervention because it would have implications for how successfully the children made the transition to primary school and could impact on the children's development in general (Sainato, Morrison, Jung, Axe, & Nixon, 2015). EPs are in a useful position to promote and evaluate available resources and support families and schools through the transition (Fontil & Petrakos, 2015). Appropriate changes would be necessary if

aspects of the intervention were found to be unsuccessful. In the future, it would be important to see whether the time and resources employed in the intervention provided effective outcomes for children. It will be important to assess whether the intervention has provided value for the LA and offset the need for more complex and costly EPS involvement later once the children were in schools.

Children with autism are frequently brought to EPs attention by schools and preschools when staff find it challenging to support children effectively. This research could help to develop EPs views about comprehensive interventions for children with autism. It is hoped that an understanding of the impact of this intervention will assist EPs with their role to enable staff to support children effectively.

During the course of training as an EP the lack of sufficient support for preschool children with autism became clear. This highlighted the importance of the LEAP intervention and the need to research its impact and future delivery. The opportunity to evaluate LEAP was a really worthwhile prospect and because of my interest in autism I believed this would be an ideal focus for my thesis.

Chapter 2 Literature review

2.1 Overview of the chapter

The chapter begins with an account of how the literature review was obtained, then it continues by defining autism before outlining the prevalence and impact of autism on family functioning. This is followed by a discussion of family-centred interventions and how these affect parents alongside issues linked to parents' involvement in interventions. The chapter continues with a consideration of the effectiveness of interventions. Techniques and approaches used in LEAP are then presented. Next there is an outline of the framework used and its assessment process, as well as a summary of research using this framework, before a description of the delivery of LEAP is presented. After this, parental views about interventions are discussed as well as research into educational staff's views of interventions. The chapter finishes with the rationale and research questions.

2.2 How the literature review was conducted

An initial computerised search of literature was undertaken in November 2015. Web of Science and PsychInfo databases were used to select relevant research in the field. An initial search on Web of Science that used the terms "intervention" and "autism" led to 11020 articles, and the additional refinements of "parent" and "early intervention" identified 233 articles.

Articles which solely focussed on identification of autism or centred on parental experiences surrounding the diagnosis or transitioning to a new preschool or school setting were excluded because they were not deemed directly relevant to the current study. Other articles which concentrated on sensory or physical symptoms such as feeding or toileting difficulties were also omitted, as was research for interventions focused solely on reducing repetitive behaviour. An additional refinement of "interview" was used to reduce the total number of articles further in order to centre on studies which elicited views from participants.

In a separate search "SCERTS" was used as an initial key word to focus on articles relating to this in Web of Science and PsychInfo and resulted in 12 and 13 articles respectively. Inclusion criteria of autism and SCERTS resulted in 11 resources. The SCERTS model is relatively recent and this could partly account for the limited research relating to it. Additional searches using the terms “social communication” and “emotional regulation” were conducted to elicit other related articles. A further search of the same databases was conducted in April 2016 using the same terms and refinements to identify additional articles. When articles were found they were checked for relevance. A further search was conducted in April 2017 involving the same search criteria, with additional limits for age group “2 to 5 years” and year published “last year” in order to access more recent articles. Relevant articles were then added to this review.

2.3 What is autism?

Autism can be defined as:

> a lifelong, developmental disability that affects how a person communicates with and relates to other people, and how they experience the world around them.
>
> Autism is a spectrum condition. All autistic people share certain difficulties, but being autistic will affect them in different ways. (National Autistic Society, 2017)

The Diagnostic and Statistical Manual of Mental Disorders (5th Ed.) (DSM-5) now categorises autism and related conditions as autism spectrum disorders (ASD) because the difficulties may present as mild to severe. According to the DSM-5 the main difficulties that children with autism face relate to communication, interpreting nonverbal cues and forming relationships with their peers. The children may tend to rely on routines, be over-sensitive to changes that occur in their environment or may have repetitive behaviour or restricted interests. The key difficulties that LEAP focuses on are social communication and emotional regulation as well as the interactions between the child and adults.

2.3.1 Prevalence of autism

Some accounts have suggested that during the last decade, the number of children diagnosed with autism has appeared to be fairly consistent at approximately 1% of school aged children (Baird, Simonoff, Pickles,

Chandler, Loucas, Meldrum, & Charman, 2006; Rice, Rosanoff, Dawson, Durkin, Croen, Singer & Yeargin-Allsopp, 2012). However, reports from the United States (US), Autism and Developmental Disabilities Monitoring (ADDM) network have suggested that autism rates are increasing. Their most recent report showed a rate of 1.47% for children with identified symptoms of autism. Previous US reports suggested rates of one in 150 children in 2002, one in 110 in 2006, one in 88 in 2008 and one in 68 children with ASD in 2010 (Baio, 2014). Prevalence rates in different states varied widely with the lowest in Colorado and Wisconsin with 1 in 92 children with ASD and the highest in New Jersey with 1 in 41.

Numerous reasons could account for the observed increased prevalence rate for ASD such as different analytic tools, identification and assessment methods, adjustments in diagnostic criteria, increased cognizance in parents and professionals, and differences in the availability of services (Rice et al., 2012). Explanations for changes in prevalence rates aside, these figures highlight the importance of accurate identification of the disorder because there may be inconsistency in how the condition has been measured (Blenner & Augustyn, 2014). Brugha, McManus, Bankart, Jenkins, Smith and Scott (2014) suggested that there was probably an increase in identification but no increase in the rate of “true” autism cases. In addition to inconsistency in measurement, changes in the process for identification may have revealed cases that perhaps would have been unrecorded in the past.

It is essential to have accurate prevalence rates as this would have a bearing on the funding and provision of services for children with autism and their

families (Ramsey, Kelly-Vance, Allen, Rosol & Yoerger, 2016). Local prevalence rates are important to monitor in order for LAs to manage sufficient suitable provision. Local trends have suggested that there could be a 60% increase in the number of children with an autism diagnosis by 2020 in the current LA (Holden, 2014). Therefore, services such as LEAP could be an important addition to LA provision in the Early Years for children with autism.

2.3.2 The impact of autism on family functioning

In addition to the financial impact, families have reported that autism affects emotions and relationships within the family (Nealy, O'Hare, Powers & Swick, 2012). Parents' emotions about their child with autism could be deflected to other family members at times. Parents commented that more time was spent interacting with the child with autism than others in the family. Autism could also influence the interactions between parents and their children with autism, although parents might not be aware of this. Meirsschaut, Warreyn and Roeyers (2011) found wide variability in how parents interacted with their children. They noted that it would be extremely beneficial to encourage all parents of children with autism to consider their interactions. They remarked that effective interactions would improve outcomes for the children as well as enhance parents' feelings of proficiency and reduce their own stress. Empowering parents to interact effectively with their children was a key aspect of LEAP.

Karst and Hecke (2012) noted that for parents and families, looking after a child with autism can be “overwhelming” because of the persistent impact on the whole family. The quality of the family relationship may also impact on the child with autism. Difficulties in the family could have a reciprocal effect on children’s autism symptoms especially if there was distress in the family (Kelly, Garnett, Attwood & Peterson, 2008). In addition to this, distress in parents may work against the benefits of intervention in some cases (Osborne, McHugh, Saunders & Reed, 2008). Parental stress may in part relate to difficulties with communication in the family. Children with autism frequently cannot communicate their needs or desires to their parents who in turn may feel less effective as parents (Karst & Hecke, 2012). Parental stress may also be linked to the demand placed on parents in terms of time and resources when the intervention is intensive (Estes et al., 2014). It was therefore important that LEAP could be tailored to the family’s needs and that professionals provided emotional support to parents.

Parental stress is a widely-researched area in relation to parents of children with autism, although parental physical and mental health may also be impaired (Karst & Hecke 2012). Support services and the use of coping mechanisms could to a certain extent alleviate the impact of having a child with autism, although parents’ ability to rear their children is frequently hindered by time, finance or other practicalities (Karst & Hecke, 2012). Significantly more difficulties accessing services and coordinating care in addition to adverse impacts on the family were reported by caregivers of children with autism than with other developmental disabilities or mental health conditions (Vohra, Madhavan, Sambamoorthi & St Peter, 2014). It

was hoped that LEAP would empower families by helping parents interact effectively with their children without added stress.

2.4 Family-centred interventions

2.4.1 Supporting parents

Given the impact on the family of children with autism it seems appropriate to provide interventions which are family-centred and provide support for parents to function more effectively. Cassidy, McConkey, Truesdale-Kennedy and Slevin (2008) found that parents of preschool children needed family-centred support and guidance relating to managing behaviour, developing communication and children's relationships with their peers. Recent research has shown that there is insufficient support for parents of children with autism (Glazzard & Overall, 2012). Stahmer and Pellecchia (2015) suggested that interventions should be evaluated in terms of the support they provide for helping parents to enable their family to function better. In other words, they recommended that parents should be helped with their parenting skills.

Support could be provided in different ways. Moore et al. (2014) emphasised that early visits by the practitioners should focus on building a rapport with parents and should be an opportunity to model techniques, for parents to practise them and offer feedback perhaps with the aid of video recording. Having a strong trusting relationship would be crucial for this to happen in a conducive way. Parents' relationship with professionals providing interventions have been an important factor in parents' assessment of

interventions (Coogle & Hanline, 2016; Mackintosh, Goin-Kochel & Myers, 2012). Meadan and Daczewitz (2015) also noted that relations between the intervention workers and parents were important. If there were tense interactions between the parents and intervention workers then this could impact on the effectiveness of the intervention. Part of LEAP's evaluation needed to consider parents' views because it was a family-centred intervention. Therefore, it was important that parents had been provided with an opportunity to comment on the support they received and their relationship with the specialist because these factors could impact on the effectiveness of LEAP.

2.4.2 Gaining knowledge and skills

A key aspect of many interventions involving parents is to impart skills and knowledge. Senechal, Larivee and Thermidor (2013) showed that parents increased their knowledge and improved their practices when interacting with their children after involvement in their intervention. It is important that the intervention workers model the intervention effectively when coaching parents as well as when working with children. Rivard, Morin, Mercier, Terroux, Mello and Lépine (2017) found that quality of instruction was one of the most highly rated aspects in their training and coaching programme for parents. Using a sensitive approach reassures parents that the strategies they use are effective and increases their confidence to try other techniques (Coogle & Hanline, 2016). Parents also need to be receptive to the coaching and appreciate their role in the intervention. When parents feel empowered

by their involvement in interventions they become more engaged in implementing strategies (Beatson & Prelock, 2002).

Research has also shown that participation in an intervention can increase parents' feelings of competence (Poslawsky et al., 2015) although negative life events could reduce these feelings (Estes et al., 2014). However, sometimes parents can learn effective strategies and become responsive to their children even when stressed. In this case, it could be that the stress of parenting young children has a beneficial function. The stress could enhance parents' motivation to concentrate on the socio-emotional and developmental needs of their children (Alquraini & Mahoney, 2015).

Several recommendations have been proposed to improve parents' knowledge and experience of interventions (Moore, Barton & Chironis, 2014). Moore et al. (2014) recommended that group information sessions could be beneficial because the sessions encouraged parents to liaise and support each other and perhaps enhanced involvement in the programme. In addition, they were less time consuming than providing information individually to parents. However, they noted that individual sessions were important to identify techniques that were currently working for parents. Individual sessions were also useful for showing new techniques which could be implemented pragmatically into the family's home life. LEAP involved individual sessions where specialists demonstrated practical strategies for parents to use at home. A final group session was incorporated into the schedule, although not all children and parents were able to attend.

2.4.3 Parental involvement

Parents could be more involved during an intervention if the family's priorities are considered when children's targets are set. Stahmer and Pellecchia (2015) recommended that coaches should collaborate with parents to formulate targets for children with autism to increase the rate of parental participation for the duration of an intervention. They noted that there was a high level of attrition with parent implemented programmes. They believed that if parents were involved in initial target setting this could help to offset the attrition rate. Parental involvement is likely to be beneficial for the child when parents are motivated before the intervention and when fervour and hopes are maintained (Hastings & Johnson, 2001). This seems to suggest that parents should be consulted on an ongoing basis to discover whether an intervention is progressing as they wished. LEAP was reviewed with parents during the intervention and objectives were modified if necessary. This would have been a useful process because when families are more involved in the planning and implementation of an intervention they could be more engaged (Brookes-Gunn, 2000).

Parental involvement in interventions addressing social communication and emotional regulation could be beneficial. Aldred, Green and Adams (2004) found that a specific social communication intervention could improve reciprocal social interaction and expressive language in children with autism. This was seen when parents implemented strategies that had been specifically adapted to match identified parent and child communication needs. Tailored regular support for parents found an increase in use of

effective strategies to support emotional regulation in children with autism (Gulsrud, Jahromi, & Kasari, 2010). Both studies show that parental engagement in interventions have the potential to improve outcomes for children with autism. As LEAP targeted these areas it was important that child communication and parent needs were considered and tailored support was provided.

In addition to involvement in target setting and the provision of regular support, interventions need to be manageable for parents to implement. Parents are not likely to engage in time-consuming and difficult interventions. Koegel, Koegel, Vernon and Brookman-Frazee (2010) noted that techniques will not be implemented by parents if they feel the intervention strategies are onerous, need time devoted to one-to-one teaching, are stressful or do not match the family's values. Parents' engagement is crucial because adherence to an intervention may also influence the effectiveness of the intervention employed (McConachie, Fletcher-Watson & Working Group 4, 2014). LEAP tasks were planned to be implemented into everyday activities for parents' ease.

To improve engagement Moore et al. (2014) noted how parents should be trained to incorporate techniques into daily activities once practitioners have an understanding of the family's daily activities. The programme should be adapted as needs change. LEAP was flexible and could be modified when family needs changed. Moore et al.'s (2014) programme ran for up to 15 weeks and all parents increased their use of the techniques, although it seemed most parents failed to sustain the use of the techniques after three

months. However, an intervention which involved parents implementing techniques to assist cognitive and social ability was beneficial several months after the programme ended (Thomaidis, Kaderoglou, Stefou, Damianou, & Bakoula, 2000). In this case, the programme was running for two years and it is possible that the skills gained by parents had been more embedded because of this extra time. However, it is unknown for sure whether the duration of the programme improved its effectiveness. Difficulties determining effectiveness in research with children with autism and features of effective interventions will be considered below.

2.5 Effectiveness of interventions

McCauley (2010) noted that there was little research investigating the effectiveness of early interventions for preschool children with autism. This is because many intervention programmes for children with autism involve several components and so it is difficult to isolate the particular aspect that is effective. Methodologically it would be desirable to include a control group to measure effectiveness of interventions. However, there are challenges in realising this for practical and ethical reasons.

Smith et al. (2010) showed that a family-centred behaviourist intervention was effective for preschoolers with autism in community settings in Canada. They showed that language, cognition and behaviour improved to a greater extent than would be expected within a twelve-month period. However, the researchers recognised that there was no control group involved in the

research. This meant that it was not clear whether the observed gains were caused by the intervention itself or another factor such as the motivation of being involved in the research. This limited the ability to determine the relative effectiveness of the intervention to a certain extent.

However, Boulware, Schwartz, Sandall and McBride (2006) noted that placing children in a control group could have ethical implications because they could be deprived of possible beneficial provision. Still, if there was no control group for comparison it may be difficult to argue that a provision could be beneficial. In their intervention "Project DATA for toddlers", activities were adapted to meet the individual developmental needs of each child, and so a matched comparison group of children was not obtained easily. Goldstein and Naglieri (2013) noted such interventions were in keeping with a trend to focus on interventions for autism which involved family members and teachers in naturalistic settings rather than clinical settings. This implies a need for determining effectiveness in other ways. It would be sensible for parents and practitioners to be involved in the evaluation of interventions when they are directly involved in the delivery of them and after completion measure their effectiveness.

The heterogeneity of the condition also means there are difficulties having comparable clinical groups. There is such diversity in terms of individuals who are diagnosed with autism, it would be naive to expect that an intervention that is successful for one child could be equally effective for another (Worley, Fodstad and Neal, 2014). This diversity may be why Howlin (2010) reported that there was no research to show that one

intervention for autism is superior to any other. Therefore, any improvements are difficult to infer and comments about the effectiveness of interventions may seem inconclusive at times. However, there may be common features which have been found to be effective in some individuals.

It has been suggested that effective intervention programmes for children with autism usually comprise certain features (Wall, 2010). One such feature was that practitioners working with the children have a comprehensive understanding of how autism affects the children and their families. Practitioners should also have received training for the suitable techniques to use to support the children and be familiar with different intervention programmes. In addition to these features, the ability to observe effectively and respond to the children's needs were highlighted. Wall (2010) also noted early intervention, working closely with parents and other professionals, providing a routine, use of visuals for support and communication, an individualised programme and frequent observation were important features of effective intervention programmes. These features were key components of LEAP.

2.6 The LEAP intervention

2.6.1 Techniques and approaches used in the LEAP intervention

Different techniques and approaches were used for different children involved in LEAP depending on their needs and individualised goals. LEAP used components of Treatment and Education of Autistic and

Communication Handicapped Children (TEACCH). This is a programme that aims to help children with autism adapt to their environments. TEACCH provides "structured teaching" which involves focusing on the individual's learning style and needs (Mesibov, Shea, & Schopler, 2005). LEAP provided a structured environment and used visual supports to help the child to understand language and tasks (Mesibov, 1997). TEACCH has been found to reduce symptoms of autism when parents were involved in the intervention (D'Elia et al., 2013). The impact of the parent involvement in the LEAP programme will therefore be beneficial to consider. In addition, TEACCH has been found to be effective for school children with autism aged between 5 years and 14 years (Panerai, Ferrante, & Zingale, 2002) and more recently research has investigated the effectiveness of TEACCH with preschoolers with an autism diagnosis (Boyd et al., 2014; D'Elia et al., 2013). Tsang, Shek, Lam, Tang, & Cheung (2007) has also applied TEACCH effectively as a school-based intervention for preschoolers in Hong Kong. However, the ability to generalise the findings from their research in Hong Kong to a British context is problematic because of cultural differences as well as distinct educational systems.

In addition to TEACCH, LEAP applies the Picture Exchange Communication System (PECS) which involves the use of picture cards which the child learns to exchange for items that they request (Bondy & Frost, 1994). Therefore, with this system, the child learns to use the cards to communicate with others. There has been evidence that PECS is effective for request situations (Wendt & Boesch, 2010) but it might not promote speech (Flippin, Reszka & Watson, 2010). However, Lerna, Esposito, Conson and Massagli

(2014) showed that PECS was effective for improving social communication in preschool children with autism and the benefits were still present after twelve months.

LEAP also applies Intensive Interaction with the aim of teaching the non-speech aspects of communication. Intensive Interaction uses pre-verbal techniques to communicate (e.g. eye contact, facial expressions, mirroring and joint focus) similar to the interactions between an infant and parent (Nind & Hewett, 2001). However, Hutchinson and Bodicoat (2015) concluded that there are limitations to research investigating the effectiveness of Intensive Interaction (e.g. methodological issues and sample size) and so the benefits of its use within LEAP are uncertain.

LEAP also uses Attention Autism to encourage eye-contact and maintain interest in activities. Attention Autism was developed by a local speech and language therapist (Gina Davies - http://ginadavies.co.uk/). However, at this time, an evidence base to support this approach had not been established, although professionals in a LA maintained specialist school for autism had used the approach successfully.

2.6.2 The SCERTS model

LEAP employs the SCERTS model as a framework for evaluation. SCERTS stands for social communication, emotional regulation and transactional support. These are considered important interrelated developmental abilities which should be targeted in an intervention which assists children with autism and their families (Prizant, Wetherby, Rubin & Laurent, 2003). Social

communication relates to participating in social situations which will help children to interact and play with others (Yoder, Bottema-Beutel, Woynaroski, Chandrasekhar & Sandbank, 2013). Emotional regulation refers to the ability to control emotions and behaviour in order to navigate through social situations (Macklem, 2008). Emotional dysregulation is not a "core deficit" of autism but has been recognised by parents and researchers as an important difficulty of the condition (Berkovits, Eisenhower & Blacher, 2017; Magyar and Pandolfi, 2007; Samson et al., 2014). The regulation of negative emotions has been found to assist children to remember information and so is an important aspect of helping children with autism to learn (Rice, Levine & Pizzarro, 2007). Transactional support refers to the props or assistance provided by the individuals interacting with the child (e.g. parents or practitioners at the preschool) which help the child learn by responding to a child's needs (Prizant et al., 2003). For example, a visual support may be used to help with a transition from one activity to another (Prizant, Wetherby, Rubin, Laurent & Rydell, 2006).

Different assessment methods are used for SCERTS, namely interviews or questionnaires using the SCERTS assessment process report (SAP-R) forms and observations using the SCERTS assessment process observation (SAP-O) forms. Different versions of these forms are used depending on the children's initial levels of language use. There are also records which are provided by parents, preschool teachers and other individuals interacting regularly with the children that note the children's strengths and areas of need. The SCERTS assessment process was important for LEAP so that individual children's progress could be monitored systematically and

recorded in a structured way. However, the actual ease of using the assessment tools within SCERTS is an area discussed later in this research.

2.6.3 Previous research involving the SCERTS model

The SCERTS model has been found to be a beneficial model for service providers to use to implement an intervention for children with autism (Odom et al., 2010). A particular strength found by Odom et al. (2010) was that the SCERTS model could be followed easily once individuals were trained in its use. A comprehensive manual provides a thorough account of the guidelines for planning an intervention program. It includes goal setting as well as examples of activities to use and a guide to the assessment process (Prizant et al., 2006). Without training though the different terminology used on the forms may be extremely difficult to interpret.

Diverse interpretations may relate to why aspects of the model have been used in different ways. Chiengchana and Trakarnrung (2014) used an observation form from the SCERTS framework to record the change in joint attention before and after a music therapy and education intervention, although other aspects of the model were not employed because they were not directly relevant to their research. Walworth, Register and Engel (2009) focused on the usefulness of the SCERTS model for identifying music therapy goals. However, they remarked that the model was not used as intended in their study as it was not used to produce treatment targets and monitor a child's progress over time. Instead, it focussed on targets that music therapists had identified which related to SCERTS goals. It is believed

that the SCERTS tool could be usefully applied by a variety of professionals because of the range of potential targets addressed (Walworth, Register & Engel, 2009). This would be an asset for LEAP because of the wide range of children's needs.

These studies suggest that there is an interest in the SCERTS assessment tool especially in the area of music therapy, and this has been reflected to a certain extent in training wishes in this field (Kern, Rivera, Chandler & Humpal, 2013). A possible reason for this is that the overall goals (e.g. joint attention) are broken down into several systematic components which means the observation is highly structured and can be completed with validity and reliability. Walworth (2007) noted that the SCERTS framework enables different clinical and educational professionals to use a uniform assessment process for children with autism. This was an important consideration with LEAP because non-psychology specialists employed the model and so a structured framework was easier to follow and use consistently.

2.6.4 The delivery of LEAP

Research has shown that the involvement of parents in interventions (e.g. delivering the intervention at home and being consulted about their children's targets) was important for the success of the intervention because it meant that the skills learnt were more likely to generalise across home and preschool settings through a consistency of approach (Zachor & Ben Itzchak, 2010). Parental involvement enables the child to gain more exposure to the intervention (Burrell & Borrego, 2012) and involving staff in educational

settings means the effectiveness of the intervention for individual children can be monitored (Witmer, Nasamran, Parikh, Schmitt & Clinton, 2015). As recommended for effective interventions, LEAP staff were experienced in the autism field and received further training before implementing the intervention (Wall, 2010). Therefore, they were considered suitably qualified to plan and deliver the intervention because of their knowledge and training. LEAP specialists delivered the intervention to children in their homes, training parents in different approaches. They also employed the same methods at preschools involving preschool staff.

The teaching strategies and delivery were planned around the families' needs and therefore were individualised for all children, which was a recommended approach for young children with autism (Schreibman et al., 2015). Parents and preschool practitioners were coached in the techniques to use so that there was consistency at home and in the preschool. Coaching parents on a regular basis has been shown to be an effective approach for children with developmental disorders (Thomaidis, Kaderoglou, Stefou, Damianou & Bakoula, 2000) although short programmes of five weeks may not be sufficient for training parents (Senechal, Larivee & Thermidor, 2013). It was hoped that the sixteen weeks of parental training with LEAP would be sufficient.

Wetherby et al. (2014) showed that when parents were coached individually in techniques for supporting their toddlers with autism they were highly satisfied with their level of involvement and the impact of the intervention. Smith, Groen and Wynn (2000) showed that parents' ratings of their

children's progress were compatible with progress measured by the researchers. However, in these particular studies parental views were only obtained in the form of numerical scores after the nine-month intervention had ended, and qualitative responses could have provided richer detail. The current study aimed to obtain richer data through semi-structured interviews at different points so that parental views could be analysed in more detail. This qualitative data also provided illumination for observation scores obtained.

2.7 Views about interventions

2.7.1 Parental views about interventions

There is limited research investigating interventions which concentrate on the needs expressed by parents of young children with autism (Dababnah & Parish, 2016). Dababnah and Parish (2016) noted that parents who used their pilot intervention thought that the emotional regulation aspects were important as well the social support they gained from other parents in the group. The parents also believed that the fact that the program centred on strengths and was family-focused were both important factors. The provision of an effective intervention is obviously a crucial concern for parents. It is important that parents value the intervention and feel it is effective before it begins. Hastings and Johnson (2001) found that parental negativity could be predicted by their beliefs about the effectiveness of an intervention before it even began. Implementing techniques successfully with parental support

and full participation could be dependent on prior views about an intervention. Therefore, it was important to consider the information provided to parents before LEAP began.

Freuler et al. (2014) discovered that parents expressed positive and negative views about their involvement in their intervention. They noted that the majority of parents felt that a good relationship with the professional and feeling supported were important aspects of their intervention. An enhanced understanding and access to available resources were also seen as benefits of professional involvement. However, parents also reported anxiety about evaluating the outcomes and concerns with devoting time to implement the intervention. Practical concerns with applying interventions are therefore important views to consider. Samadi and Mahmoodizadeh (2013) found that parents in their study were satisfied and thought the activities provided in their resource kit could be applied to everyday activities. Therefore, the ability of applying LEAP to everyday contexts could be appealing to parents.

A variety of parent views have been investigated, some of which have centred on aspects relating to the beginning, during or end of the intervention. For instance, Hebert (2014) explored possible influences on parents' decisions regarding interventions available for their children with autism in a large American city. In addition to reasons for choosing an intervention, other views worth investigating would relate to the impact of an intervention. Pighini et al. (2014) looked at how parents viewed the impact of an early intervention on their child's development, their parenting, as well as the dynamics in the family. Their research was conducted in a large

Canadian conurbation although they recommended similar research should be carried out in smaller districts to see if similar views exist about the impact of services provided.

The delivery of an intervention may also be an issue for parents. Patterson and Smith (2011) found that parents were concerned about the responsibilities placed on them delivering the intervention and support once the intervention had ended. Parents suggested that individualised support would have been beneficial to make sure that they were implementing the intervention effectively. Sometimes research has shown that despite individualised sessions, parents would have appreciated more frequent and intense sessions than the one hour weekly training sessions in which they were involved (Rivard et al., 2017). However, parents remarked that the sessions had been beneficial for their psychological well-being, improved the child's behaviour and enhanced the family's quality of life. The current research explored parental views about LEAP as part of the evaluation.

2.7.2 Research into preschool and intervention staff's views of interventions

Preschool staff views and intervention providers' views of an intervention have shown that certain strategies are thought to be effective when used with children (Medhurst & Clay, 2008). Preschool staff and LEAP specialists reported that visual and symbolic strategies were most effective (e.g. use of visual time-tables and transition cues). A clear routine and consistency of the approach and expectations were also highly valued. An important factor recognised by Koegel, Matos-Freden, Lang and Koegel (2012) relating to the

implementation of interventions in the classroom was how related the intervention was to current practice. If the intervention needed to be adapted to "fit in" more effectively with preschool practices, this might have had implications for the effectiveness of the intervention while the child was at the preschool and would have implications for the delivery of LEAP.

Research has shown that time spent at preschool has a beneficial influence on children's achievement (Sammons et al., 2004). However, children do not necessarily spend the same proportion of time at preschool. This needed to be considered when evaluating LEAP because children's intervention experience could vary depending on the proportion of time spent at preschool. Practitioners' views could also vary depending on the amount of time they had to implement LEAP in the preschool.

2.8 Rationale for current research

The purpose of this research was to evaluate LEAP through observational and interview data. Effectiveness regarding LEAP could not be established from observational data alone. Therefore, it was fitting that parents and educational staff involved in LEAP were also asked for their views regarding its effectiveness (Goldstein & Naglieri, 2013). Research has shown that parents can collect reliable data such as rating their children's levels of emotional regulation across time effectively (Berkovits, Eisenhower & Blacher, 2017). Parents have also highlighted areas of satisfaction and disappointment with interventions which could guide LEAP's enhancement

(Rivard et al., 2017). Therefore, parents' and practitioners' views about LEAP's effectiveness could be important contributions to the evaluation.

The current research has considered parental views about an early intervention for children with autism within a different LA (Webster et al., 2004). Webster et al. (2004) concluded that interventions should be family-centred and use intervention techniques which are "flexible, realistic and relevant" (p.45) as well as adaptable to the home and preschool environment. LEAP aims to follow these recommendations by providing an intervention which is practical and family-centred. The current research investigated practitioners' and parents' views of their role in LEAP to consider whether LEAP is perceived as family-centred and adaptable in this way by the different stakeholders.

Little research so far has explored parental views over the duration of a programme (Pighini, Goelman, Buchanan, Schonert-Reichl & Brynelsen, 2014). Therefore, the current research has contributed further to this area. Webster, Feiler, Webster and Lovell (2004) explored parental views about the impact of an intensive early intervention for autism, but they only collected data at one point in time. The collection of views at different points during an intervention could provide more valid reflections because views were obtained while the intervention took place. This meant that issues and challenges might have been easier for individuals to recall and less likely to be distorted than if views were only obtained once an intervention had ended. A further benefit of views obtained at different points during an

intervention meant that adjustments could be made to the intervention if necessary.

There is also little research which explores the views of the staff involved in early intervention programmes and considers their thoughts about the impact of the intervention (Dev, 2014). Therefore, the current research found out LEAP specialists' and practitioners' views so that their different perspectives about the intervention were considered. Collecting the views from different parties meant that the data were triangulated which would provide a more detailed evaluation of the intervention. Robson and McCartan (2016) noted that it was beneficial to include participants in the evaluation process so that individuals felt involved rather than felt the evaluation was “something done to them” (p. 188). This would also have provided them with an opportunity to express possible concerns. There is limited research that has considered the impact of interventions over time. The current research involved observations of the children at three time points over the duration of the intervention alongside interviews at approximately the same points in time.

2.9 Research questions

To evaluate LEAP, it was necessary to explore whether there were changes in scores relating to children’s social communication, emotional regulation and transactional support. Parents’, preschool practitioners’ and LEAP specialists’ views were sought to obtain further insight into any changes. Suggested improvements to LEAP were considered as part of its evaluation.

Transactional support relies on adult involvement and so the evaluation of LEAP also considered parents' and practitioners' views about their role in LEAP. The current study therefore aimed to answer the following questions:

1. What do the observational and interview data reveal about social communication, emotional regulation and transactional support levels over the course of the intervention?

2. a. What are parents' views about the reasons for the impact of the LEAP intervention?

2. b. What are LEAP specialists' views about the reasons for the impact of the LEAP intervention?

2. c. What are preschool practitioners' views about the reasons for the impact of the intervention?

3. What improvements were suggested by parents, preschool practitioners and LEAP specialists?

4. a. What are parents' views about their role in the LEAP intervention?

4. b. What are preschool practitioners' views about their role in the intervention?

Chapter 3 Method

3.1 Overview of the chapter

The chapter begins with a brief explanation of the philosophical approach chosen. After this, the design of the study and the decisions made relating to this are considered and ethical considerations are reported. Following this, the characteristics of the sample and how it was obtained are outlined before a description of the development of the materials used in the research is presented. The next part summarises the piloting process for the interview schedules and the procedure used in the research. The chapter finishes with an explanation of how the data were analysed.

3.2 Philosophical approach and background to involvement in the research

3.2.1 Philosophical approach

A pragmatic approach was adopted to consider how the effectiveness of LEAP could be established. This approach believes that there is an external reality and that although there may be causal relationships, the actual causes may never be possible to identify (Tashakkori & Teddlie, 1998). The reason for adopting this approach was because the pragmatic approach accepts that researchers' values are an important factor in conducting research and in the interpretation of their findings (Tashakkori & Teddlie, 1998). This means that researchers' values influence what they believe are important areas for study (Morgan, 2007) as well as the conclusions that they

draw (Plano Clark & Ivankova, 2016). My value system is founded on democratic principles and humanism. I believed that those affected by LEAP should have the opportunity through my research to discuss their views about the public service. I felt that it was crucial to involve the views of the stakeholders in order to evaluate LEAP effectively. I regarded each participant had the potential to provide a unique perspective and aimed to obtain their subjective experiences of LEAP to supplement the observational data. In the current study, the researcher's value system about evaluating LEAP influenced the choice of research questions and methods used. Different methods of research were chosen in relation to the research questions and therefore were guided by the needs of the investigation (Biddle & Schafft, 2015).

3.2.2 Background to involvement in the research

At the beginning of my second year placement in September 2015 there was a meeting in my current local authority about research opportunities with two Educational Psychologists (EPs) and another second year Trainee EP. One EP was a university research methods tutor and the other EP was a specialist in autism. The EP who specialised in autism explained LEAP and how the programme was planned to start the following January. Funding had already been approved for three years before our placement began. The EP had developed the programme and arranged the recruitment of staff for LEAP. Children had not been selected at this point although EPs would have

been aware of families who had young children with autism. A newly appointed Assistant Educational Psychologist (AEP) would arrange the practical aspects of LEAP, such as developing a timetable and arranging any training for LEAP specialists. During the meeting, possible ideas for a variety of research were discussed and the meeting ended with the EPs leaving the other trainee and myself to consider research topics for theses. I was not involved in the planning or development of the LEAP programme but there was a need to evaluate the new service. My involvement was focused on evaluating LEAP and this included devising all interview schedules and conducting all interviews. I then analysed the data obtained from all the interviews and the data from observations conducted by the LEAP professionals.

3.3 Research design

A mixed methods design was used in this research. The quantitative data were observational records of the children's progress over three time points. All the interviews provided qualitative data. Parental, LEAP specialist and preschool staff views were obtained through interviews at the start, during (with the exception of preschool staff) and at the end of LEAP to provide more insight than would be possible from just one point in time. Initial interviews with preschool practitioners took place in April rather than immediately after the first parental interviews in March because it was more convenient for preschools due to Easter preparations and holidays. The timing of these interviews meant that no time two interviews took place at the

preschools because a subsequent interview in May would have been too soon after the initial interviews. Obtaining views at three time points has been recognised as more effective for gaining information about how views change over time (Brooks, 2016), and Ployhart and Vandenberg (2010) have remarked that when only two time points are used it is difficult to determine the course of any change that has taken place. The use of three time points for observations and interviews therefore provided more insight into whether any changes were noticed early in the intervention or later.

A mixed methods approach was considered appropriate because it would mean that complementarities could be obtained (Plano Clark & Ivankova, 2016). Gaining different perspectives in this way would mean there would be less reductionist understanding than if a single method was used (Mertens, 2010). In addition, Creswell (2009) has noted that mixed methods are suitable when using either quantitative or qualitative alone would be insufficient.

Conceptual issues including how those involved felt about the evaluation needed to be anticipated when the evaluation was devised (Patton, 1987). Therefore, political factors which related to the LEAP evaluation needed to be considered. The EP who developed the programme was obviously keen to know whether LEAP was beneficial but recognised that as it was a pilot programme, changes would be inevitable. This view meant that potentially some concerns about LEAP raised by participants before or during the programme would have the opportunity to be resolved providing confidentiality was not breached. When planning the LEAP evaluation, it

was important to consider how to conduct the research ethically, feasibly and skilfully while maintaining its usefulness for the stakeholders (Robson & McCartan, 2016).

A qualitative evaluation was useful to explore individuals' varied experiences of LEAP and capture an array of individualised outcomes (Patton, 1987). An evaluation using a traditional experimental evaluation would only have provided descriptions of the outcomes rather than provided explanations of why a programme might work or not (Pawson & Tilley, 1997). Greene, Caracelli and Graham (1989) proposed a conceptual framework relating to the design of mixed method evaluations presenting their different purposes. They noted that triangulation would seek corroboration of results from different methods while complementarity would seek elaboration. Both would increase the validity of constructs although complementarity would provide more flexibility of design and would be used, as in the case of evaluating LEAP, to assess aspects of a LEAP in addition to changes observed (Greene, Caracelli & Graham, 1989).

Pawson and Tilley (1997) note that the design of an evaluation should enable identification of subgroups where the programme has been more or less successful as this would help to provide insight into the possible reasons for the programme's success. It would be beneficial for this design to enable subgroups in LEAP to be considered. However, it would be important to be cautious with these interpretations about possible success or failure as the study is not experimental.

There was no control group in the study indicating that the design is quasi-experimental (Shadish, Cook & Campbell, 2001). There are limitations with this, such as alternative explanations for outcomes which should be specified in advance. However, it is difficult to consider all alternatives prior to the research as not all are predictable (Shadish, Cook & Campbell, 2001).

The type of intervention under investigation adopted techniques to best fit the individual family's and child's needs, and this was difficult to investigate empirically with a control group because all the children's needs were different. There was also no control group because of ethical concerns. There was no waiting list for children to commence LEAP and it would be inappropriate to expect children (and their parents) to experience the repeated observations both at home and in preschool settings if they were not involved in the intervention. A comparison group such as Portage was considered for the current study and has been used in prior research investigating LA services (Reed, Osborne, Makrygianni, Waddington, Etherington & Gainsborough, 2013). However, the Portage service in the current researcher's LA ends when children are three years old and so a group of children receiving Portage were not considered comparable in terms of chronological age.

However, without a control group the observation data alone cannot be used to establish the effectiveness of LEAP. Any changes that occur over time could be due to natural development rather than to the intervention (Shadish, Cook & Campbell, 2001). An additional method of investigating effectiveness was to examine parents, LEAP specialists and preschool

practitioners' views about whether the intervention had an impact. Using mixed methods in this way would also mean that possible reasons for any changes could be investigated. As Maxwell (2004) noted, involving different methods and individuals from different settings in investigations reduces biases occurring through use of limited settings or employing just one method.

SCERTS Assessment Process Observations (SAP-O) of the children were used because these are discreet methods for obtaining data relating to the children in different situations and settings (Prizant et al., 2006). The LEAP specialists were trained in using the SCERTS model and part of their role involved completing the SAP-O forms to record children's progress. Each SAP-O form was completed by two members of LEAP staff to improve the reliability of the scores recorded. The current researcher and LEAP specialists would not have had time to use any additional observational tools to record progress and such use would have been intrusive to children, families and the preschools. SCERTS observation scores for the children were not accessed until all time three interviews were conducted in order to avoid interviewer bias.

Semi-structured interviews were used to obtain views from adults involved in LEAP because they enable the interviewee to talk readily, points made can be clarified and comments can be probed further (Howitt & Cramer, 2007). Arguably an unstructured interview could encourage interviewees to focus on their main views. A semi-structured interview was preferable in this case because the discussion needed to centre on issues relating to the research

questions (Brinkmann, 2014). One researcher was involved in interviewing the participants, which enabled a consistent approach to be maintained across all interviews. Having one researcher meant that it was easier to refer to comments made by interviewees in earlier interviews and also meant that a rapport could be built up over time that was sensitive to the researcher-interviewee relationship (Galletta & Cross, 2013).

As a less experienced interviewer at the outset of this research it was more suitable to use complete questions rather than solely themes or topics in the interview schedule so that there was no need to devise the format of the questions during the interview (Horrocks & King, 2010). Horrocks and King (2010) also recommended including probes and prompts. Probes were included to enable further details about participants' responses. Prompts were added to the schedule to assist participants when they were uncertain about their response to a question.

3.4 Ethical considerations

Ethical approval was obtained in January 2016 by the ethics advisory committee of UCL Institute of Education's Department of Psychology and Human Development. LEAP specialists and Assistant Educational Psychologist (AEP) obtained parental verbal consent twice for the observations. Parents provided consent over the phone and again face-to-face prior to observations taking place. Written consent for the observations was also obtained through the LEAP referral form when parents agreed for

involvement in the intervention. The observers were instructed by the researcher to be sensitive to the needs and wishes of the child and only observe the child if it was acceptable to him or her.

All participants in the interviews were fully informed about the research, their involvement in it and their freedom to take part or not. This was provided in an information sheet (Appendix A) which was also given to participants by the AEP at least a week prior to the interviews taking place. Any possible concerns about the nature of the study were minimised by providing details about the study in the information sheet. Opportunities to answer any questions were provided as mobile and email details were presented on the information sheet. Any additional questions about the research were answered when collecting consent forms (Appendix B) prior to interviews taking place. The researcher also asked participants if they fully understood their involvement in the study before they signed the consent form. There was a further opportunity for participants to ask questions before signing the consent form. This enabled participants to be reassured about their involvement in the study.

Participants were informed that they could omit questions if they wished and that they were able to withdraw from the study at any time without suffering any adverse consequences. The participants were informed that all personal information would be kept confidential and all information would be anonymous. There were further opportunities to ask questions prior to subsequent interviews and for participants to confirm that they would like to continue to take part. Only questions pertinent to the research were asked

and no unnecessary stress or psychological harm was placed on participants.

Once the interviews had finished, participants were debriefed verbally. Data obtained were stored securely during and after the research. All answers obtained from participants were recorded on audio files and transferred to a password protected folder on the researcher's computer. Transcripts derived from these interviews were also stored securely in a password protected folder. The data in paper form would be kept for one year after the final submission date of the thesis before being destroyed. No personal details were reported or presented in any format.

3.5 Participants

Twelve child participants were observed in this study. Thirteen parents of the children, all three LEAP specialists, and ten practitioners from the children's preschools were interviewed.

3.5.1 Child participants

In the main study criterion sampling was used. This sampling technique was suitable because it was necessary to involve only individuals who were directly involved in the intervention or working directly with the children. Table 1 provides an overview of the details relating to each of the child participants.

Table 1: Details relating to child participants.

Child	Gender	Age	Language spoken at home	Communication stage	Diagnosis (age when diagnosed)
1.	Male	3 years 4 months	English	Social Partner	ASD (2 years 11 months)
2.	Male	4 years 1 month	Russian / English	Social Partner	ASD with severe communication delay (3 years 4 months)
3.	Male	3 years 9 months	English	Social Partner	ASD (3 years 6 months)
4.	Male	4 years 3 months	English	Conversational Partner	ASD (3 years 2 months)
5.	Male	3 years 6 months	English	Social Partner	ASD in severe range (3 years)
6.	Male	3 years 6 months	English	Social Partner	ASD in severe range (3 years 5 months)
7.	Male	4 years 3 months	Bengali	Language Partner	ASD (3 years 11 months)
8.	Female	4 years	English	Language Partner	ASD with strong autistic traits and hyperactivity (2 years 9 months)
9.	Male	3 years 6 months	English	Language Partner	ASD (2 years 8 months)
10.	Male	3 years 3 months	English	Social Partner	ASD towards severe end of spectrum (3 years 9 months)
11.	Male	4 years	English	Language Partner	ASD (2 years 7 months)
12.	Male	4 years 2 months	Afrikaans / English	Language Partner	ASD (3 years 1 month)

Twelve children (11 boys and one girl) who were involved in LEAP participated in the study. All were between 3 years 6 months and 4 years 3 months old at the beginning of the intervention. One child's parents were South African and spoke Afrikaans at home as well as English. Another child's parents spoke Bengali at home, and English was a second language for them. The mother of another child was Russian, and so was the child's nanny (one to one support at home and preschool). The father was Irish and

both Russian and English were spoken at home. The remaining children's parents only spoke English at home.

The children were composed of two sub-groups: those who at the start of the intervention did not use language regularly for reference or intention (six children) and those who did (six children). One of the children who used language was at the "Conversational Partner Stage" and five were at the “Language Partner Stage” as determined by the SCERTS model (see Appendix in Prizant et al., 2006). The children who did not use language for functional communication were at the “Social Partner Stage”. The children at the “Language Partner Stage” regularly used at least three words or phrases, including signs or symbols, referentially and with an intention to communicate. The child at the "Conversational Partner Stage" regularly used at least 100 different words or phrases as well as twenty different creative word combinations (Prizant et al., 2006). All children had been identified by the EPS initially because they had communication or interaction needs and/or an autism diagnosis and were not currently obtaining any additional LA service to support their needs. All had received an autism diagnosis before the LEAP sessions began. Appendix C provides further details relating to the LEAP sessions.

Ten children had received a diagnosis at the local assessment centre where paediatricians, occupational therapists (OTs) and speech and language therapists (SLTs) carry out a multi-professional assessment together. The assessment process involved the use of the Diagnostic Interview for Social and Communication Disorders (DISCO) by all SLTs involved. The

paediatricians did not use a specific tool for the diagnosis. Two children did not have the multi-professional assessment at the local assessment centre and one of these children received a diagnosis from a paediatrician at the hospital and another was diagnosed using the Autism Diagnostic Observation Schedule (ADOS) before moving to the area. The children received their diagnoses at different ages ranging from two years seven months to three years eleven months. Three of the diagnoses included "severe" and one included "strong autistic traits and hyperactivity" and one child's diagnosis also included a "severe communication delay".

3.5.2 Parent participants

Eleven mothers and two fathers took part in the interviews. One mother answered some questions with her husband in the initial interview. One mother was bilingual (English and Afrikaans) and two mothers spoke English as an additional language (EAL) with Russian and Bengali being their first languages. One father worked full-time and three mothers worked part-time and the remaining parents (interviewees) were not in paid employment. Three parents had paid for private interventions for their children prior to them being involved in LEAP. All parents had been approached by EPs recommending referrals to LEAP. Seven of the parents had also been approached by Portage workers advising referrals.

Six parents had Portage support prior to LEAP and six had not. Time spent with Portage involvement ranged between 4 months and 12 months. Of the

six children who did not receive Portage, the majority were too old to receive it once their applications were processed, although one child was receiving an Applied Behaviour Analysis (ABA) intervention on a regular basis as an alternative to Portage and two received private SLT.

Table 2 presents information relating to parents who participated in the interviews.

Table 2: Details relating to parents.

Parent	Gender	Language spoken at home	Paid employment	Intervention applied regularly at home before LEAP	Who made recommended LEAP referrals
1.	Female	English	Not working	Portage for 10 months	Portage / EP
2.	Female	Russian / English	Not working	Others e.g. private Occupational Therapy and SLT, Music Therapy	Portage / EP
3.	Female	English	Part-time	Portage for 4 months	Portage / EPs
4.	Male*	English	Full-time	Private SLT	EP
5.	Female	English	Part-time	Portage for 12 months	Portage / EPs
6.	Female	English	Not working	Private SLT	Portage / EP
7.	Female	Bengali	Part-time	None	EP
8.	Female	English	Not working	Portage for 7 months	EP
9.	Female	English	Not working	Portage for 8 months	Portage / EP
10.	Male	English	Not working	Portage for 4 months	Portage / EP
11.	Female	English	Not working	None	EP
12.	Female	Afrikaans / English	Not working	ABA	EP

* Mother also answered questions in initial interview.

3.5.3 LEAP specialist participants

All three LEAP specialists were interviewed in the study. All three were graduates. Two had completed teaching qualifications in the UK and the other was a psychology graduate originally from Poland. All three had experience of working with children with autism before starting the role with LEAP. One had worked with children for 20 years and had taught several children with autism during that time as well as engaged in one to one work with children with autism. Another had worked at a diagnostic centre for autism before coming to the UK and had worked with children with autism in a local mainstream school in the UK. The other had worked one to one with children with autism in a primary school. In addition to this she was a "Beaver" leader, and one of the children in the group had autism and was a member of her group for two years before progressing to "Cubs". The LEAP specialists were familiar with different techniques to support autism. The psychology graduate referred to ABA, TEACCH and PECS. Another had received a lot of Special Education Needs (SEN) training as a teacher and had implemented different strategies in the classroom such as visual timetables, now and next boards, TEACCH, Makaton and PECS. The other specialist had heard of ABA and was experienced with using Makaton. All received training relating to their role as LEAP specialists.

Table 3 provides a summary of LEAP specialists' experience and training as well as details about which children they worked with at home or at preschool.

Table 3: Details relating to LEAP specialists.

LEAP specialist	Experience / Training before LEAP role	Children worked with at home (within approximate time)	Children worked with at preschool (within approximate time)
1.	PGCE, 20 years teaching, one-to-one work with children with autism	C 10 (Monday 9-11 am) C 9 (Tuesday 1-3 pm) C 1 (Wednesday 9-11 am) C 4 (Wednesday 1-3 pm) C 3 (Thursday 1-3 pm)	C 11 (Monday 1-3 pm) C 2 (Thursday 9-11 am)
2.	MSc in Psychology, diagnostic centre for autism, one-to-one work with children with autism	C 5 (Monday 9-11 am) C 2 (Wednesday 9-11 am) C 7 (Thursday 11-1 pm) C 6 (Thursday 1-3 pm)	C 1 (Monday 1-3 pm) C 3 (Tuesday 9-11am) C 4 (Tuesday 1-3 pm) C 8 (Wednesday 1-3 pm)
3.	PGCE, one-to-one work with children with autism, beaver leader for child with autism	C 12 (Monday 9-11 am) C 11 (Tuesday 9-11am) C 5 (Thursday 9-11 am) C 8 (Thursday 1-3 pm)	C 7 (Monday 1-3 pm) C 6 (Tuesday 11-1 pm) C 9 (Wednesday 11-1 pm) C 10 (Wednesday 1-3 pm)

Key: C = Child

3.5.4 Preschool practitioner participants

Practitioners at nine preschools participated in the interviews. Three preschools were private, one was attached to an independent school, three were attached to mainstream schools and two were run in village halls where other groups used the same rooms at other times. One child did not attend a preschool, two children attended the same preschool and the LEAP specialists were not permitted to attend one preschool after the initial visits. One practitioner was male and the remaining practitioners were female. At two preschools, two members of staff were involved for part of the interviews because of the different roles they had in relation to working with the child and the LEAP team.

Prior experience of working with children with autism varied greatly across the practitioners. Four practitioners had no previous experience of working with children with autism and three of these practitioners had obtained no training relating to autism. The remaining practitioners had experience of working with children with autism either in their current or previous settings and all except one had received training relating to autism. Two of the practitioners had higher educational level qualifications, a SEN degree and a postgraduate certificate in autism spectrum disorders. Practitioners were familiar with a selection of approaches and techniques used to support children with autism. Practitioners referred to the following approaches and techniques: limited or simple language; PECS; Makaton; visual aids; visual timetables; hand over hand; copying the children; attention autism; sensory boxes; now and next boards; choice boards; intensive interaction; social stories; TEACCH; timers; making sure you've got the child's focus; and interest boxes.

Attendance at preschool varied from no sessions (one child) to five daily sessions each week. Seven of the children attended between 14 and 15 hours at preschool, one attended for 22 hours, one attended for 18.75 hours, one attended for 10.5 hours, and one attended for 7.5 hours each week.

Table 4 presents information regarding the preschool practitioners, the particular children they worked with as well as the type of preschool it was and when the child attended.

Table 4: Details relating to preschool practitioners.

Preschool Practitioner	Gender	Experience / training relating to ASD	Type of preschool	Child	Sessions that the child attended preschool each week
1	Female	worked with some children with ASD, SEN degree	Private	1	3 afternoons
2	Female	No previous experience, no ASD training	Attached to an independent school	2	5 mornings
3	Female	worked with some children with ASD, no ASD training	Attached to a mainstream school	3	5 mornings
4	Female	No previous experience, ASD training	Private	4	4 mornings
6	Male	No previous experience, no ASD training	Village	6	5 mornings
7	Female	worked with many children with ASD, PGCE in ASD	Attached to a mainstream school	7	5 afternoons
8	Female	worked with many children with ASD, ASD training	Village	8	5 days
9	Female	worked with some children with ASD, ASD training	Attached to a mainstream school	9	5 mornings
10	Female	worked with some children with ASD, ASD training	Attached to a mainstream school	10	2 afternoons
11	Female	No previous experience, no ASD training	Private	11	3 days

3.6 Materials

Initial assessments for language were obtained using the SCERTS worksheet for determining communication stage (see Appendix in Prizant et al., 2006).

3.6.1 Observations

SCERTS Assessment Process Observation (SAP-O) forms (see Appendix in Prizant et al., 2006) were used to record children's initial level, their level midway through the intervention and again at the end of the intervention. The observation forms were developed to provide a numerical score indicating the level for social communication, emotional regulation and transactional support for each child so that scores before, during and after interventions could be measured. Three different SAP-O forms are used depending on the communication stage of each child. Each SAP-O form was broken down into criteria relating to domains of social communication, emotional regulation and transactional support. Social communication was divided into criteria linked to joint attention and symbol use. Joint attention is the ability to maintain a shared focus with another person and symbol use is the child's ability to use something to represent something else (Prizant et al., 2006). Emotional regulation was divided into mutual regulation and self-regulation. Mutual regulation is where a child is assisted to control emotions and remain organised when a situation may be distressing and self-regulation is when the child is able to control emotions and remain organised independently (Prizant et al., 2006). Transactional support was divided into interpersonal support and learning support. Interpersonal support relates to adaptations in language or interaction provided by parents or preschool practitioners to help the child process language, interact socially, engage in an activity and remain emotionally regulated (Prizant et al. 2006). Learning support is the structure provided by parents or preschool practitioners to help the child understand an activity, support emotional regulation and provide

opportunities to participate and may involve use of visual aids and communication supports (Prizant et al., 2006). As recommended by Prizant et al. (2006), parents validated observations to confirm that the scoring captured an accurate record of the child.

3.6.2 Interviews

Examples of the interview schedules are shown in Appendix D. A different interview schedule was devised for the parents at each of the three time points. Most questions were devised through discussion with my supervisors, and consideration was given to questions used in other research (Dev, 2014; Webster et al., 2004). However, the questions had to relate to LEAP in particular and related aspects. The questions were sequenced so that related questions followed to aid the flow of the interview (Howitt & Cramer, 2007). Suitable prompts were considered and added below each of the questions. General questions were used initially to ease interviewees' experience of the interview (Galletta & Cross, 2013). Patton (1990) noted that six forms of question occur in interviews and elicit different kinds of response from interviewees. One type elicits how people have behaved, a second relates to their opinions, a third type refers to individuals' feelings, another examines their knowledge, a further type looks at people's sensory experience and a final type centres on their demographics. The LEAP specialists' questions at time one focused mainly on their knowledge although there were some questions to elicit opinions and feelings.

Knowledge about the intervention and possible training and supervision were considered important areas to include in the initial interview schedule for the LEAP specialists because it was a new programme and the staff were new to their roles. Questions also centred on knowledge of LEAP and other techniques used for autism, the expected impact of the intervention and factors that may influence its effectiveness. Subsequent interviews for LEAP specialists followed similar themes. The interview at time two also included a question relating to the techniques that the LEAP specialists had been using. The final interview also provided questions which enabled the LEAP specialists to reflect on their role, their views about LEAP, any challenges they had and any possible improvements.

Important areas for initial interviews with parents centred on knowledge about LEAP and other interventions for autism and reasons for participating in LEAP. Questions also focussed on the effects on the child they were hoping for and the possible impact they thought it would have on their family. Similar themes were explored in later interviews. In the second interview questions related to parents' knowledge of LEAP and whether it was as they expected. In the second and final interviews, there were questions relating to parents' involvement and the impact they thought LEAP was having on their child and their family. The final interviews also focused on key reasons for the effects on the child and suggested improvements for LEAP. There were also questions relating to parents' feelings about their involvement as well as their feelings about LEAP ending.

Initial interviews for preschool practitioners looked at previous experience and knowledge of LEAP and other interventions and strategies used for autism as well as any training they received relating to autism. Questions also focused on their views about the impact LEAP would have on the child, the family and preschool staff. The final interview also looked at the effects on the child, family and preschool staff as well as exploring the reasons for the impact and possible improvements to LEAP. Some questions also looked at feelings about preschool practitioners' involvement in LEAP and their feelings about it ending and whether they would continue using aspects from it.

3.7 Pilot study

The aim of the pilot study was to check whether the interview questions were feasible and involved the AEP in the EPS who coordinated LEAP. The AEP had an administrative role at this time and was writing a LEAP guide for the EPS. The AEP also was the primary contact for parents and preschools. The AEP had also obtained further details about the children who had been referred through telephone conversations with parents and preschool practitioners. Therefore, the AEP was more familiar with my potential participants than other members of staff at this stage of my research. The AEP was approached and provided with an information sheet to consider (see Appendix A). Ethical considerations were explained and informed consent was obtained to take part in the study. Within a week, the

researcher checked that the AEP was still willing to participate and whether she had any questions. The interview took place in a private room in the LA office. Standardised instructions and debriefing were used (Appendix E). All questions were found to be suitable except one which was discussed with my supervisor and rephrased. Because of the imminent commencement of LEAP there was not sufficient time to conduct a more thorough pilot study.

3.8 Procedure

After families agreed to be involved in the intervention, their children were assessed in relation to their initial level of communication (social, language or conversational partner) using specific criteria (Prizant, et al., 2006) by an AEP who visited their homes. The evaluation of LEAP involved independent observers (an AEP and three LEAP specialists not involved in the research) who initially obtained baseline levels for social communication, emotional regulation and transactional support for each child through observations conducted in January and February 2016 before LEAP started. The AEP and LEAP specialists also selected objectives. Four objectives for each child linked to social communication and emotional regulation were agreed with parents (Appendix F). Four objectives linked to transactional support were also chosen for the partners of each child (Appendix F). LEAP specialists then recorded the progress of each child and their partners using the appropriate SAP-O form at two different time points (May and July 2016). Total scores for social communication, emotional regulation and transactional support were calculated by the LEAP staff and recorded. Semi-

structured interviews were used for obtaining the views of parents, preschool practitioners and LEAP specialists.

3.8.1 Observations

Two initial observations on separate occasions were conducted (to obtain baseline scores) for each child and each lasted between one hour and one and a half hours. The initial observations were conducted in the home and preschool settings. LEAP specialists and the AEP made individual observations and used the scoring criteria proposed by Prizant et al. (2006). Two points indicated that the criterion was achieved consistently with at least two partners in two contexts. One point indicated that the criterion was met inconsistently or assistance was required and no points were awarded when the criterion was not reached. For example, the criterion within symbol use, "responds to own name" would be awarded one point when a child occasionally would look at his mother when his name was called. The criterion in learning support, "defines clear beginning and ending to an activity" would be awarded two points when parents and preschool practitioners consistently turn over a sand timer after saying, "ready, steady go" when starting any activity with the child and say, "all done" when finished. The AEP also provided details about LEAP to parents at these initial visits. Visits by the AEP and LEAP specialists were then made to each of the ten preschools (two children attended the same preschool and one child did not attend preschool). Objectives for each child were agreed after initial visits.

Table 1 summarises the objectives for each child into the social communication and emotional regulation dimensions. A detailed record of the objectives is displayed in Appendix F. The majority of children had at least two objectives which targeted aspects of social communication alone. All children except one had at least one objective which focussed on emotional regulation alone. Five children had one objective which combined aspects of both social communication and emotional regulation.

Table 5: The categories of objectives that were selected for each child.

Child	Child objective 1	Child objective 2	Child objective 3	Child objective 4
1	Joint attention	Joint attention	Symbol use	Self-regulation
2	Joint attention	Symbol use	Symbol use	Self-regulation
3	Joint attention	Joint attention and symbol use	Symbol use	Self-regulation
4	Joint attention and self-regulation	Symbol use	Mutual regulation	Self-regulation
5	Joint attention	Symbol use	Self-regulation	Self-regulation
6	Joint attention	Symbol use	Mutual regulation	Self-regulation
7	Joint attention	Symbol use	Self-regulation	Self-regulation
8	Joint attention	Symbol use	Mutual regulation and joint attention	Self-regulation
9	Joint attention	Symbol use	Mutual regulation and joint attention	Self-regulation
10	Joint attention	Symbol use	Mutual regulation	Self-regulation
11	Joint attention	Mutual regulation and joint attention	Self-regulation	Self-regulation
12	Joint attention	Joint attention and symbol use	Symbol use	Mutual regulation and joint attention

Key:

Social communication

Emotional regulation

Both social communication and emotional regulation

The information sheets were given to parents and preschool staff during the initial visits. The AEP and LEAP specialists conducted all observations in pairs. Separate notes were made and then the SCERTS Assessment Process - Observation (SAP-O) forms were completed together (Prizant, et al., 2006). Further observations were conducted in May and July to record levels of social communication, emotional regulation and transactional support at time points two and three respectively. The same procedure was used. Again, observations were conducted in both settings at each time point with the same duration for the observations as happened with initial observations. However, as one child's preschool did not permit LEAP involvement, hour-long observations for this child took place in the home setting only.

3.8.2 Parent interviews

Parents were contacted by the same AEP who had provided them with the information sheet when permission was obtained to take part in the intervention. The AEP confirmed whether they agreed to have contact details passed to the researcher. All parents agreed to have their details passed to the researcher and were contacted by telephone. The researcher checked with each parent that an information sheet had been received and a mutually convenient interview time was arranged.

Most parents were interviewed in their homes in March, after initial observations took place and prior to LEAP sessions starting. One parent

answered questions over the telephone because of other commitments around the time that the interviews were taking place. Parents were thanked for agreeing to take part in the study. Before interviewing, the purpose of the interview was explained. Parents were reminded about the information sheet and asked if they had any questions and invited to sign the consent form (see Appendix B). It was explained that the interviews would be recorded to assist with transcribing the data to make sure important details were not missed. Parents were informed that they would not be judged in any way by the answers they provided and there were no right or wrong answers to the interview questions. Parents were advised that the interview would last about thirty minutes.

Ten parents were interviewed again in their homes in May after they had experienced approximately half of the LEAP sessions. Two parents were interviewed at other locations at their convenience. Final interviews took place in July once the LEAP sessions had finished. Two parents required telephone interviews because of other commitments, one parent was interviewed at her son's preschool and another was interviewed at a location close to the parent's workplace. When each interview was completed, the parents were thanked for taking part. The purpose of the research was explained again to remind them what their answers related to and so that they were aware that there were no alternative aims to the study and no deception was involved. The interview responses were later transcribed onto a computer file and protected with a password.

3.8.3 LEAP specialist interviews

LEAP specialists were provided with an information sheet and interview times were arranged within seven days and consent was obtained. All initial interviews took place in the same private room at the LA offices, on the same day at consecutive times. The LEAP specialists were thanked for taking part, briefed (see Appendix E), invited to sign the consent form (see Appendix B) and asked if they had any questions. They were reminded that the interviews would be recorded and that questions could be omitted if they wished and there were no right or wrong answers. All interviews continued for up to thirty minutes. Similarly, time two LEAP specialist interviews were conducted individually in a room in the LA at consecutive times. Time three interviews were conducted at a mutually convenient location once LEAP had finished. After each interview, LEAP specialists were debriefed (see Appendix E) and any questions they had were answered.

3.8.4 Preschool practitioner interviews

Preschool practitioners were contacted by the AEP and information sheets were provided. If the practitioners expressed a wish to participate they were contacted by the researcher and an appropriate interview time was arranged. Practitioners in the preschools were interviewed once LEAP had started. However, because of time constraints and Easter preparation events it was not possible to conduct initial interviews at the preschools until April. Follow up interviews in May were not arranged as it was felt these may be intrusive to preschool staff and may not be a valuable use of time. The practitioners

were thanked for taking part. The purpose of the interview was explained to the practitioners and they were asked if they had read the information sheet and invited to sign the consent form (see Appendix B) and asked if they had any questions. They were reminded that the interviews would be recorded and that questions could be omitted if they wished and there were no right or wrong answers. All interviews continued for about twenty minutes. Interviews were conducted individually in a quiet room in the preschools. Once LEAP finished, final interviews were arranged and the same procedure was followed. Practitioners were debriefed after both interviews and thanked for taking part.

3.9 Rationale and approach to data analysis

Data obtained from participants was highly regarded in this research and an effort was made to ensure that comments were not distorted in any way. I realised that the interpretation in my research was not free from subjectivity and would be influenced by my past experience. The LEAP specialists and AEP completed the SAP-O forms and therefore their scoring was based on their interpretation of assessment using the SCERTS model (Prizant et al., 2006). To minimise inconsistent scoring SCERTS training had been provided by the LA. An integrated approach to data analysis was chosen in the current study. Caracelli and Greene (1993) believed that integration of data from different methods in evaluation studies was essential during the analysis process. Changes observed in the child, both quantitative data from

the observations and qualitative data from the interviews were considered. Data from the observations were analysed because these measured the child's progress at three time points over the course of the intervention and the interviews took place at similar points. Analysis of SCERTS Assessment Process Report (SAP-R) and other SCERTS records were not undertaken because of time constraints and because interview schedules directed specifically to LEAP were considered more appropriate for evaluation of the intervention. The SAP-R and other records also focus on the child rather than other factors. Data from the interviews relating to other factors linked with LEAP as an intervention were analysed qualitatively.

3.9.1 Analysis of quantitative data

The aim of the current research was to obtain a record of each child's social communication and emotional regulation as well as a record of their parents' and preschool practitioners' ("partners") transactional support. A numerical score for social communication and emotional regulation was obtained for February, May and July for each child, as well as scores for partners' transactional support at the same time points. This enabled any changes over time for each child (or partner) to be established.

3.9.2 Observations

Three total scores for social communication, emotional regulation and transactional support were obtained for each child for each observation by

adding points obtained for each criterion in each domain. For example, child 1 initially obtained 62 points out of a possible 116 points for social communication which was converted to 53% by dividing the obtained score by the total possible and multiplying this by one hundred. The three SCERTS scores for each child from February to May and May to July were analysed using Wilcoxon tests. These were appropriate for a repeated measures design with non-parametric data and for two time points. The Wilcoxon tests enabled a comparison of scores at each time point to ascertain whether there was a significant increase in social communication, emotional regulation and transactional support over time. If there were no changes in scores over time, then the intervention would not be effective and would suggest that the intervention arrested development. Further tests (e.g. Mann Whitney U tests) were required to investigate whether there was a greater difference in total scores (at time one, time two and time three) for the children who had Portage involvement prior to LEAP than those that did not. Correlational analyses were also used to investigate whether any links existed between social communication, emotional regulation and transactional support scores at various points. Correlational analyses were also undertaken to ascertain the links between the number of LEAP sessions experienced and the increase in social communication, emotional regulation and transactional support.

3.9.3 Analysis of qualitative data

Parental and LEAP specialists' views about the intervention were obtained on

three occasions. As there were sixty-four interviews to analyse, computer based qualitative data analysis software was chosen. Creswell (2014) notes that hand coding involves considerable time and effort even when there are only a few participants. Locating previously coded texts is faster with computer packages. Also, checking and modifying codes are more efficient. NVivo 10 (developed by QSR International) provided an effective and efficient approach to handling the current data (Bazeley & Jackson, 2013; García-Horta & Guerra-Ramos, 2009). Less time was needed arranging data, meaning that more time could be devoted to analysis. A further advantage with NVivo was that it enabled models to be created which represented links between themes and facilitated thorough searches of data using specific terms which may have been missed if performed manually. Bazeley & Jackson (2013) suggested that qualitative data analysis software could therefore add to the rigour in the analysis of qualitative data. However, the benefits of its use could be limited by the researcher's capability of the using the software as Gilbert (2002) remarked that novices may not realise that they have made any mistakes.

Four areas of concern have been raised regarding the use of computers for qualitative analysis: researchers become detached from their data; the computers are used predominantly for coding and accessing data rather than alternative methods; the mechanistic approach to the analysis will be closer to quantitative than qualitative methods; and the misunderstanding that computers create the analysis or can only be used for grounded theory (Bazeley & Jackson, 2013). To address each of these I made sure that I fully understood how to use NVivo 10 by attending a university workshop and

accessing online training videos from Youtube and other resources (Bazeley & Jackson, 2013; Garcia-Horta & Guerra-Ramos, 2009). I transcribed all sixty-four interviews myself so that comments could be represented consistently and to maintain a close connection with the data. An example of a transcription is shown in Appendix G. Transcription issues linked to these were raised by Jenks (2013). I was careful not to solely use the data quantitatively, so data were interpreted as well as coded and accessed. Bazeley and Jackson (2013) felt that some tasks such as searching for particular terms would be mechanistic, although this would be minimal to the interpretation and engagement with the data that still took place as the data analysis was determined by the researcher rather than by the use of a computer package.

3.9.4 Interviews

The views of parents, practitioners at the preschools and LEAP specialists regarding the intervention and its effectiveness were elicited in the interviews. A thematic analysis (Braun & Clarke, 2006) was used to examine the responses. Themes were compared across the three categories of participants: parents, preschool practitioners and LEAP specialists, as well as at different time points. Responses to questions relating to changes noted in the child were analysed as well as responses linked to possible reasons for these changes. Comments from participants about the role they played in LEAP and their suggested improvements to LEAP were also analysed. Each transcript was coded and analysis of the codes led to the identification of themes. For example, fourteen themes relating to changes

in the children were derived for the parent time three interviews initially (see Appendix H). During the coding process, it was noticed that the themes tended to relate to social communication and emotional regulation. The themes from the SCERTS SAP-O forms were used to assist categorising the comments made by parents, LEAP specialists and preschool practitioners about changes in the children. The SAP-O forms were used to assist this process by comparing whether an interviewee's comments would indicate an aspect of symbol use or joint attention for instance. Further details relating to this process are described in appendix H.

Chapter 4 Changes observed and reported in the LEAP children

4.1 Overview of the chapter

The findings from this study are presented here and in the following chapter. This chapter begins with a description of how findings relating to the first research question were addressed and presented in the study. Individuals' scores for social communication, emotional regulation and transactional support are presented in tables before graphical displays present the data in summarised form. Parental, preschool practitioner and LEAP specialist views relating to any changes noticed in social communication and emotional regulation are reported following the respective quantitative data. Relationships between social communication, emotional regulation and transactional support are then presented as well as links between these and the number of LEAP sessions experienced.

4.2 Outcomes for social communication, emotional regulation and transactional support

Research question one related to the scores obtained from the observations of the children and their parents at home and with a practitioner in the preschool. It was also concerned with changes mentioned in interviews with parents, preschool staff and LEAP specialists.

4.2.1 What do the observational and interview data reveal about social communication, emotional regulation and transactional support levels over the course of the intervention?

Individuals' scores for the three elements of the SCERTS model (social communication, emotional regulation and transactional support) were considered separately. Total raw scores obtained for each child from the SAP-O forms were converted to percentages because different communication stages have different total scores. This conversion meant comparison of gains obtained for all children was possible. The difference between time one and time three was calculated in order to obtain the gain in scores over the course of the intervention. Parents' views about changes relating to social communication and emotional regulation were examined after the analysis for the observations. The total number of LEAP sessions was also considered important because there was variability in the number of sessions attended due to illness, holidays and other factors. The total number of LEAP sessions included all one to one sessions that took place at home and at the preschool. Initial visits by LEAP specialists and the AEP for determining the child's language stage, selecting targets and providing information to parents and preschools were not included.

4.3 Social communication

4.3.1 Observational data relating to social communication

The observations for social communication were obtained at three time points (T1, T2, T3) before LEAP began, approximately half way through the

weekly sessions and at the end of the intervention. Table 2 below displays the total scores obtained for social communication for each child at each time point. Data presented in this way enabled individual scores to be reflected on and initial explorations of the changes in individual's social communication to be considered.

Table 6: Social communication percentage scores for each child at each time point as well as the difference between time 1 and time 3 and total number of sessions attended.

Child number	Percentage score for T1	Percentage score for T2	Percentage score for T3	Difference between T1 and T3	Number of LEAP sessions
1	53	77	81	28	27
2	25	44	45	20	28
3	32	49	65	32	29
4	32	67	68	35	23
5	48	76	84	35	24
6	28	44	55	27	30
7	31	43	49	18	21
8	35	58	63	28	31
9	70	84	88	19	32
10	23	35	45	22	30
11	38	52	69	31	26
12	37	47	51	14	12

Table 2 shows that social communication scores increased from time one to time two and again from time two to time three. Interestingly the children who obtained the two scores which show the least increase in social communication received the least number of LEAP sessions. One child missed five consecutive weeks from a total of sixteen biweekly LEAP sessions because of a family holiday (child 7) and another child only received one session a week because of the preschool not being involved (child 12). This may suggest that there is a link between the gains obtained in social communication and number of sessions attended. The relationship between the number of sessions experienced and social communication is examined later in this chapter.

However, child 9 who obtained the third least increase in scores received the most number of LEAP sessions which may suggest other factors are involved. Child 9 had the highest initial score for social communication and therefore there would have been less scope for improvement in social communication. Two children who obtained the greatest increase in social communication (child 4 and child 5) also received relatively fewer sessions than the majority of children, which seems to suggest that increase in social communication is not directly related to the number of LEAP sessions experienced. These two children also had the greatest increase at time two as well. This may suggest that improvements in social communication could occur fairly soon after LEAP has started.

To explore the data more thoroughly it was important to consider the scores obtained for social communication by the group as a whole, in addition to

examining the individual children's scores for social communication. Therefore, measures of central tendency and dispersion were used to summarise the scores for social communication.

A boxplot shown below in figure 1 was chosen to display the medians and dispersion of the social communication scores across the time points. The median was chosen as a measure of central tendency to represent the data for two reasons. Firstly, the data were ordinal rather than interval level, and secondly, there were outlying scores (e.g. the outlying score 70% obtained by child 9 at time one) which distorted the mean.

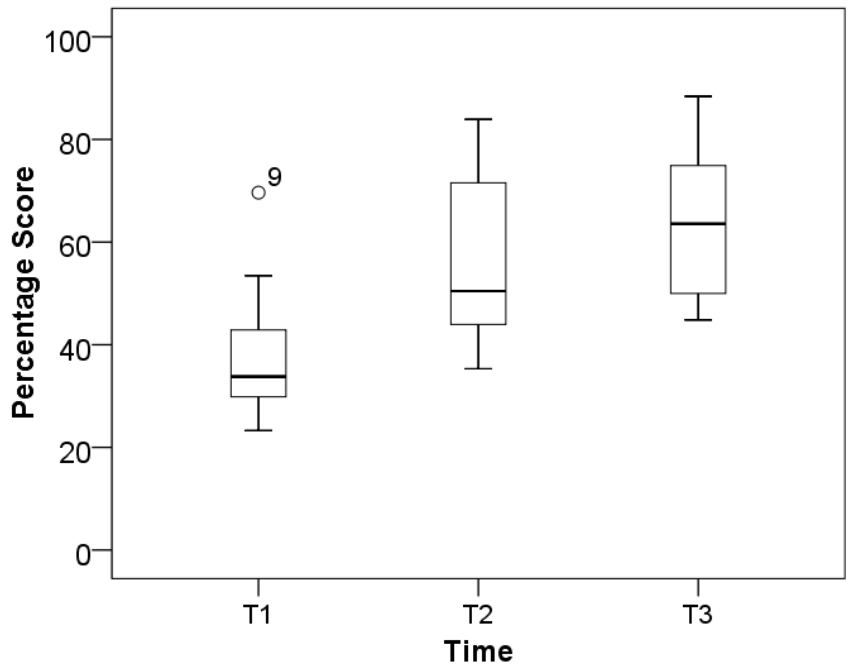

Figure 1. A box plot showing the percentage scores for social communication across time.

Wilcoxon signed-ranks tests indicated that time two social communication scores were significantly higher than time one social communication scores (Z = -3.061, p = 0.002) and time three social communication scores were

significantly higher than time two social communication scores (Z = -3.062, p = 0.002).

The median scores also reflect that there was an increase in social communication scores over time. Apart from the outlying score at time one, scores tended to be more clustered initially as the interquartile range displayed above shows. There was a greater difference between time one and time two scores than obtained between time two and time three scores. This may reflect to a certain extent when exactly data were obtained. Time one data were collected in January and February. Time two data were collected in May and time three data were collected in July. Therefore, more time had passed between time one and time two than time two and time three which may mean some increase may be the result of natural development over time. The LEAP sessions started in March. There is also the possibility that there was a greater initial increase in scores and less impact from LEAP as the sessions progressed.

4.3.2 Interview comments relating to changes in social communication

Comments made by interviewees relating to the changes in the child were categorised into themes based on the items in the SAP-O forms. Themes and subthemes relating to social communication are presented in figure 2 below.

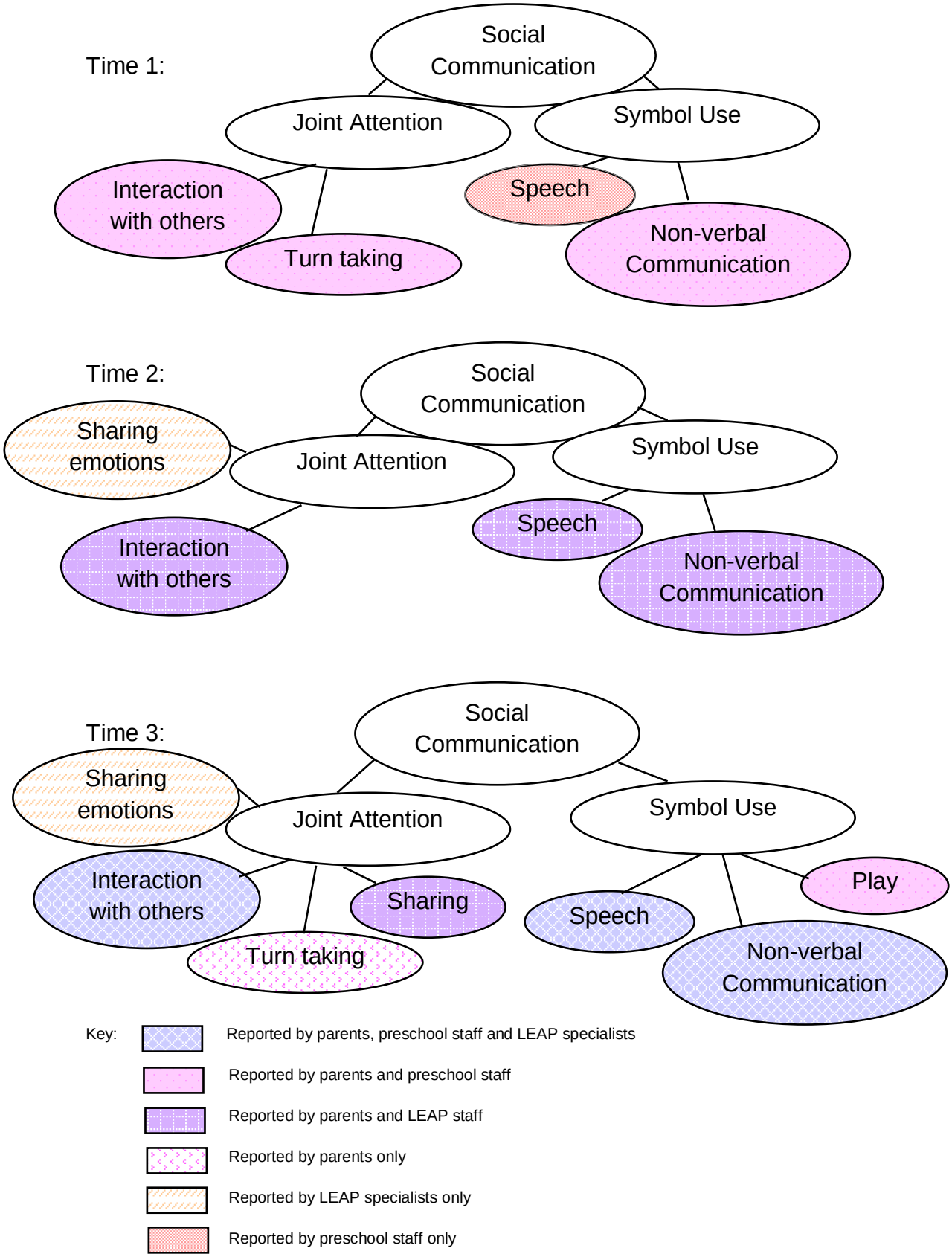

Figure 2. Changes relating to social communication referred to by parents, preschool practitioners, and LEAP specialists in time 1, 2 and 3 interviews.

As the intervention progressed more changes in social communication were reported. More comments were made relating to "Interaction with others" by parents than other themes in time two and time three interviews. Preschool staff also commented on changes in "interaction with others" more frequently than other themes. LEAP specialists made isolated comments relating to sharing emotions, speech and nonverbal communication in time two interviews but "interaction with others" received more comments than other themes in the time three interviews. This seems to suggest that being involved in LEAP may benefit the child's level of interaction with others.

Table 7 presents the number of changes relating to social communication which were described in interviews with participants over the course of LEAP.

Table 7: Number of changes in social communication referred to by parents, preschool practitioners and LEAP specialists at different time points.

Participants	Changes in social communication (JA and SU) commented on at time 1	Changes in social communication (JA and SU) commented on at time 2	Changes in social communication (JA and SU) commented on at time 3
Parents	1 (1 SU)	11 (10 JA and 5 SU)	11 (10 JA and 8 SU)
Preschool practitioners	3 (2 JA and 3 SU)	No views obtained	7 (6 JA and 3 SU)
LEAP specialists	No changes reported	2 (1 JA and 2 SU)	3 (5 JA and 4 SU)

Key: JA = Joint attention SU = Symbol use

In the final interviews a large proportion of the participants referred to changes in social communication. Both joint attention and symbol use were

reported to a similar extent by parents and LEAP specialists, while preschool staff referred to symbol use (e.g. speech and communication) to a lesser extent than joint attention. This may suggest that improvements in speech and language were more noticeable at home at this point.

There were fewer comments made by LEAP specialists at time two interviews compared with time three interviews. Most parents remarked on changes in social communication. Therefore, the majority noted changes at this point. Again, ten parents referred to changes in joint attention and this time fewer comments related to symbol use. Two LEAP specialists referred to changes in social communication, both commenting on symbol use and one also referred to changes in joint attention. A review of the children's progress had recently taken place with the parents and LEAP specialists and any changes may have been discussed at this point. No time two preschool interviews took place and so no views were obtained at this point from preschool staff.

No changes were reported by LEAP specialists in the initial interviews because these took place just after initial visits and before the intervention commenced. During the initial parent interviews one commented on a change in social communication she had noticed since the intervention began in symbol use. Three preschool practitioners commented on changes in social communication. All three referred to changes in symbol use and two referred to changes relating to joint attention. As the initial preschool interviews took place a little later than parental initial interviews this may account for more comments made by these participants compared with

parents. It was interesting at this stage that both components were reported on to a similar extent again.

Subthemes linked to joint attention and symbol use will be discussed below.

4.3.3 Interaction with others

Eight parents and six practitioners made comments which related to the subtheme of interaction with others at time three. This means that two thirds of parents and preschool staff remarked on this subtheme.

> "… definitely been progress … his eye contact is better … his interaction ... I know here (at nursery) has come on in leaps and bounds ..." (P6)
>
> "… he's much more sociable now than he used to be even with his peers he's more sociable …" (PP9)

Both comments illustrated here refer to changes in children's interaction that the parents feel have taken place. This is important as it suggests that the participants have a memory of what the child referred to was like before LEAP began. Six parents had noted changes at time two although at this stage the comments seemed to recognise the impact of other factors such as preschool.

> "…certainly … at nursery we're seeing huge improvements in his social interaction, some of this I think we can put down to the fact he's been there quite a long time now, but I do think that there has been a definite improvement since LEAP started, so I do think LEAP has definitely had some impact on it …" (P1)
>
> "… there's a lot of the interaction is very good … I mean that was improving before LEAP … don't get me wrong … that was improving

> but ... I do ... again I can't say whether it's definitely down to LEAP… whether it's nursery … you know I'm not going to keep blowing their trumpet … but you can see a difference in him … since LEAP started … but you know … I'm not saying that's just LEAP… that's nursery obviously you can't leave nursery out … because they're doing a very good job as well …" (P9)

This highlights the difficulty of identifying whether LEAP had an impact beyond typical preschool influences especially as LEAP was involving preschool staff. Changes in "interaction with others" are perhaps easier to notice, especially at a preschool setting where children will be sharing the environment with their peers.

4.3.4 Turn taking

Six parents at time three and five parents at time two made comments relating to turn taking.

> "… he learnt about the turn taking as well …" (P7)

The reason this was reported on by half of the parents may have been because it linked with one of the objectives for a large number of the children. This was a key focus in sessions and could account for parents' readiness to report changes. These types of activities also may have been easier for parents to incorporate into daily routines. Parents may have easily identified changes that took place in turn taking if it occurred on a regular basis and improvements may have been easy to observe in a game or activity. Preschool practitioners and LEAP specialists did not note any

changes in turn taking in the children at time three. However, this does not mean that these changes did not take place; it may instead be the case that parents and LEAP specialists either did not think the changes were substantial or possibly neglected to report them. It is also possible that the child's turn taking skills had not changed between these times at the preschool.

4.3.5 Sharing

Two parents and one LEAP specialist referred to sharing at time three. For example:

> "… she is better at sharing things like this (a toy) now she won't just snatch it off you ... she'll say "that's mine" or "I try" if she wants something that you've got ..." (P8)

This subtheme was not highly reported. It may be the case that a change in "sharing" was particular to two children. Perhaps this was an area which these specific parents were aware needed to improve and also may have been focussed on this.

4.3.6 Speech

Two parents, two LEAP specialists and two preschool practitioners reported changes in children's speech at time three. Three parents and one LEAP specialist commented on changes at time two.

> "… his speech is coming on really nicely … obviously … that's what they were kind of concentrating on was his speech ... there were other areas but it was mostly on speech ..." (P9)
>
> "... we've definitely seen a lot of improvement with language ... a lot of improvement ... so it's all been very positive ... well ... he's gone from being fairly non-verbal to actually using language to communicate ..." (PP1)

It is interesting that the same number of parents, LEAP specialists and preschool staff noted the changes at time three. It is unusual that one parent reported an improvement in speech at time two but not at time three. This parent focussed more on how calm the child was in time three. It is possible that any changes in speech were less apparent and there was a greater improvement in speech noticed at time two.

4.3.7 Nonverbal communication

Four parents, one LEAP specialist and one preschool practitioner referred to changes in nonverbal communication at time three. Three of the parents and one LEAP specialist had reported the changes at time two.

> "… he's signing quite a lot more … so when I look at the difference in the last particularly three or four months there's been a marked improvement ... in his communication …" (P1)
>
> "… actually him asking to want to do things, because he's got no speech … and you just know … and he wouldn't have done that before …" (PP10)

Both of these comments suggest that there have been significant changes in communication. At initial interviews a number of parents mentioned that they hoped that their children would improve their communication skills and a number of the children had targets which centred on communication.

4.3.8 Play

Five parents and one preschool practitioner commented about changes in play. No comments were made about changes in play at time two.

> "… he dibbled and dabbled and he really went for it and from that he likes playing ... we've got a water table for outside and he loves splashing about ... he never done all that before ..." (P10)

During the LEAP sessions, the children were interacting with a variety of new toys and this may have related to reasons why some comments were made.

Comments by parents, preschool practitioners and LEAP specialists suggest that levels of social communication have increased over the duration of LEAP which is line with the scores obtained through the observations. Comments made by parents also reflected the individual nature of the disorder and their perceptions of changes.

4.4 Emotional regulation

4.4.1 Observational data relating to emotional regulation

Scores for emotional regulation for each child were obtained by LEAP specialists at the three time points (T1, T2, T3). Table 3 below shows the total emotional regulation scores obtained for each child at each time point.

Table 8: Emotional regulation percentage scores for each child at each time point as well as the difference between time 1 and time 3 and total number of sessions attended.

Child number	Percentage score for T1	Percentage score for T2	Percentage score for T3	Difference between T1 and T3	Number of LEAP sessions
1	64	76	78	14	27
2	15	42	47	32	28
3	51	63	69	18	29
4	38	68	68	30	23
5	58	74	77	19	24
6	38	45	53	14	30
7	36	32	45	9	21
8	29	58	59	29	31
9	44	75	93	49	32
10	46	54	72	26	30
11	20	41	55	35	26
12	28	38	40	12	12

Child 9, who obtained the greatest percentage increase for emotional regulation from time one to three, obtained the most LEAP sessions (32) but also had the highest initial social communication score. Child 7, who missed five consecutive weeks of biweekly LEAP sessions, and child 12, who received one session a week, obtained the lowest time three scores as well as the lowest increase in scores from time one to three. Both child 2 and

child 11 began the intervention with particularly low scores for emotional regulation, suggesting that they were less available to learn at this point than the other children. By the second time point their scores had improved and they had surpassed two of their peers (child 12 and child 7) who had received fewer LEAP sessions. Interestingly, unlike the other children, child 7 obtained a lower score for emotional regulation at time two than time one. This may be related to the timing of his time two observation as I believe this took place soon after him returning from a long holiday.

As noted earlier, to explore data more thoroughly measures of central tendency and dispersion were used to summarise the scores for emotional regulation in general. A boxplot is shown below which was chosen to display the medians and dispersion of the emotional regulation scores across the time points. Although there were no outlying scores on this occasion it was considered more suitable to maintain the same measures to provide consistency and also because data were ordinal rather than interval level.

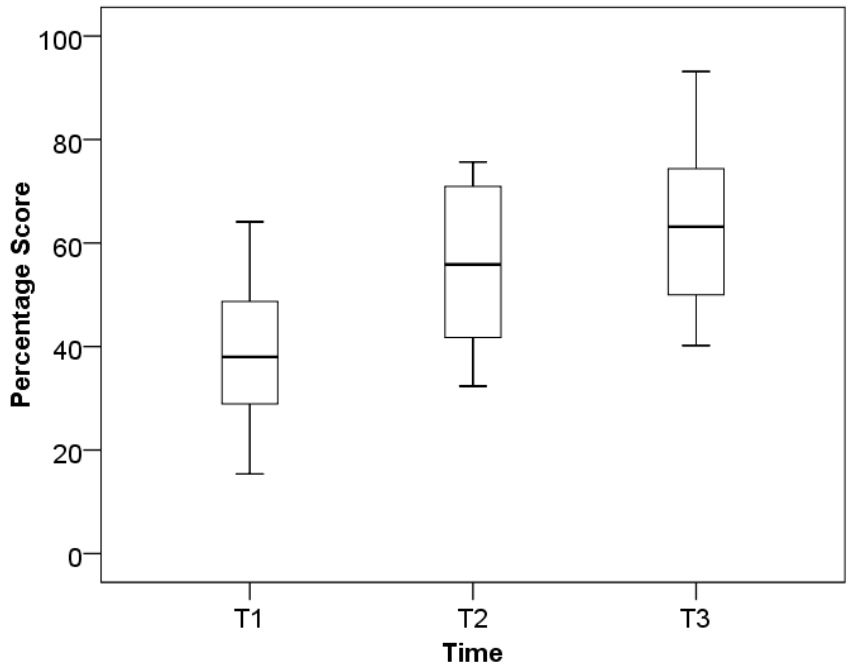

Figure 3. A boxplot showing the percentage scores for emotional regulation across time.

Wilcoxon signed-ranks tests indicated that time two emotional regulation scores were significantly higher than time one emotional regulation scores (Z = -2.982, p = 0.003) and time three emotional regulation scores were significantly higher than time two emotional regulation scores (Z = -2.934, p = 0.003).

As with social communication, median scores for emotional regulation increased over time. The range of scores showed that there was wide variability at each time point especially at time point three. The median scores showed an increase in emotional regulation scores over time. Scores appear more clustered at the second time point as seen in the interquartile range displayed above. As with social communication, there was a greater difference between time one and time two scores than obtained between time two and time three scores. Again, this may reflect to a certain extent

when exactly data were obtained as discussed in relation to social communication (p. 88).

4.4.2 Interview comments relating to changes in emotional regulation

Comments made by interviewees relating to the changes in the child were categorised into themes based on the items in the SAP-O forms. Themes and subthemes relating to emotional regulation are presented below in figure 4.

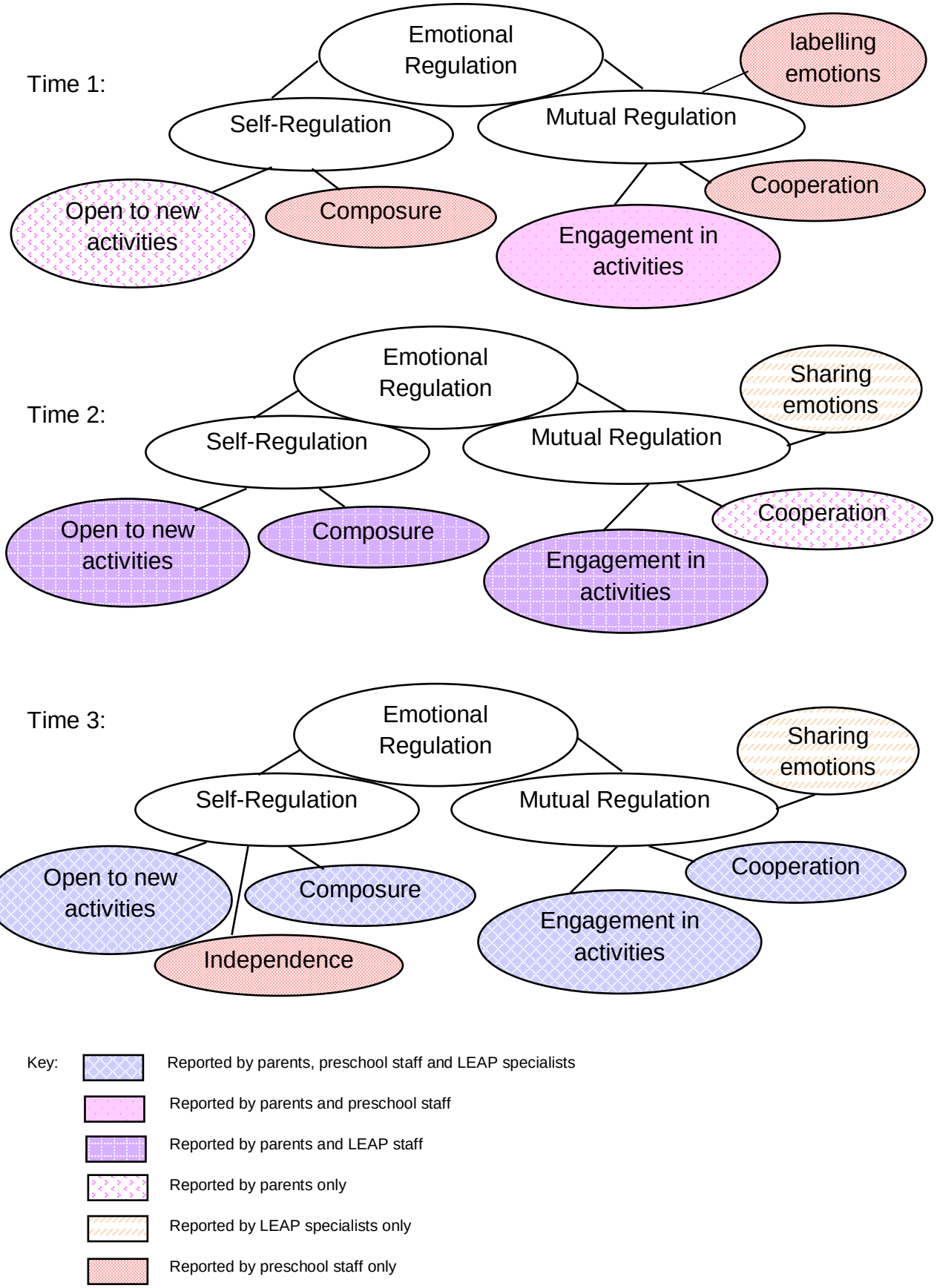

Figure 4. Changes relating to emotional regulation referred to by parents, preschool practitioners and LEAP specialists in time 1, 2 and 3 interviews.

Two parents and three preschool staff commented about changes in emotional regulation in their first interviews. As the intervention progressed more changes in emotional regulation were reported. Preschool staff at time three made more comments relating to emotional regulation than parents. "Composure" and "cooperation" were the most common themes referred to by preschool staff. Perhaps this may be because willingness to learn and calmness may be more noticeable in preschool settings and perhaps prioritised. More comments were made relating to "engagement in activities" by parents than other themes in time three interviews and comments which related to being "open to new activities" were reported slightly more often than other themes by parents in time two interviews. Many comments made were brief. Again, LEAP specialists made isolated comments where all themes (except independence and cooperation) were referred to in time two interviews and all themes except (independence) in time three interviews.

The number of changes relating to emotional regulation which were described in interviews with participants over the course of LEAP are presented in table 9.

Table 9: Number of changes in emotional regulation referred to by parents, preschool practitioners and LEAP specialists at different time points.

Participants	Changes in emotional regulation (MR and SR) commented on at time 1	Changes in emotional regulation (MR and SR) commented on at time 2	Changes in emotional regulation (MR and SR) commented on at time 3
Parents	2 (1 MR and 1 SR)	11 (6 MR and 9 SR)	9 (7 MR and 8 SR)
Preschool practitioners	3 (3 MR and 1 SR)	No views obtained	8 (7 MR and 7 SR)
LEAP specialists	No changes reported	3 (2 MR and 2 SR)	3 (2 MR and 4 SR)

Key: MR = Mutual regulation SR = Self-regulation

In the final interviews three quarters of the parents and most preschool practitioners referred to changes in emotional regulation. Many of these parents commented on changes in self-regulation and changes in mutual regulation. Similarly, most preschool practitioners referred to changes in self-regulation and changes in mutual regulation. LEAP specialists made four comments overall relating to changes in self-regulation and provided two comments relating to changes in mutual regulation.

In time two interviews, more parents remarked on changes in emotional regulation than in the final interviews. Nine parents referred to changes in self-regulation and six stated changes relating to mutual regulation. All three LEAP specialists referred to changes in emotional regulation, two mentioned changes in self-regulation and two referred to changes in mutual regulation. Changes in emotional regulation were therefore widely reported by participants. All children had at least one objective and half of the children

had two objectives which focussed on emotional regulation. Therefore, participants may have been focusing specifically on changes relating to the child's objectives.

As noted earlier, the initial LEAP specialist interviews were conducted prior to the start of the intervention and so there were no changes reported by LEAP specialists at this stage. During the initial parent interviews two commented on changes they had observed in emotional regulation since the intervention began. One parent's comment related to self-regulation and the other to mutual regulation. Three preschool practitioners commented on changes in emotional regulation. All three referred to changes in mutual regulation and one referred to changes relating to self-regulation. Again, the timing of the initial preschool interviews compared with the initial parental interviews may have accounted for more comments made by the former at this stage.

4.4.3 Composure

Five parents, two LEAP specialists and six preschool practitioners made comments relating to composure at time three. This was the most frequently reported emotional regulation subtheme by preschool practitioners. This may be because being composed would be an important quality in the preschool setting and a change in this may be more noticeable.

> "… once he's melted down ... we can give him a tissue and then it's over ... whereas before it would just kind of continue and it would take

a long time for him to get to that point where he would just give up ..." (PP3)

Having an upset child in the setting is likely to be upsetting for others as well and so this may be a higher priority for preschool staff. It could also be the case that children were less likely to lose their composure in the home, and so it may not be such a key factor for parents to report. However, seven parents and one LEAP specialist commented on composure at time two and one preschool practitioner mentioned composure at time one, which may suggest that changes in composure may have been more perceptible earlier in LEAP.

4.4.4 Open to new activities

Six parents spoke about their children being open to new activities in the time two and time three interviews.

"… he's more willing to try new things …" (P2)

This was the second most common subtheme linked to emotional regulation referred to by parents at these points. One parent referred to a change in this subtheme in the initial interview and two LEAP specialists in their second and third interviews. Only one preschool practitioner referred to a change in this subtheme at time three. A reason for this difference may have been that the activities used at the home were used in different ways. Frequently a selection of toys were used at home and this was a regular part of the

session at home. Therefore, parents may have noticed changes in children's reactions to the new toys more easily than the preschool practitioners.

4.4.5 Independence

Two preschool practitioners referred to independence in the final interviews but this subtheme was not reported at other points or by other participants.

> "… we did what we set out to do which was for him to separate from mum and that was our main issue …" (PP11)

In this particular preschool, the child had great difficulty settling without his mother present. The preschool therefore focussed on this particular aspect. The reason this subtheme was not mentioned by other participants was that independence was not a main concern for them.

4.4.6 Engagement in activities

Engagement in activities was the most commonly reported subtheme by parents during the time three interviews. Seven parents spoke about the subtheme.

> "… he also can now sit down for forty-five minutes to concentrate …" (P5)

Although frequently reported by parents only one LEAP specialist and two preschool practitioners mentioned the subtheme in the final interviews. Four

parents and two LEAP specialists spoke about this subtheme in the time two interviews. One parent and one preschool practitioner commented on engagement in activities during their first interviews. These findings suggest that some changes were noticed in some children early in LEAP.

4.4.7 Cooperation

Six preschool practitioners, one LEAP specialist and one parent commented on cooperation with adults in the time three interviews. Four parents also commented at time two. Three preschool practitioners made comments linked to cooperation in the initial interviews.

> "… starting to follow an adult led activity … again if it's with a familiar adult … and when he's in the little room …" (PP7)

Many tasks in the preschool require cooperation so perhaps it was not surprising that this subtheme was referred to more frequently by preschool practitioners than other participants.

In line with the observational data, more comments were made about emotional regulation by participants as LEAP progressed. Apart from "independence", other subthemes were raised by parents, LEAP specialists or preschool practitioners at various points suggesting that changes in these aspects had been noticed in the children. However, it was not possible to say whether these particular changes noted in the children are directly linked with the changes in scores obtained in the observations.

4.5 Transactional support

4.5.1 Observational data relating to transactional support

The observations for transactional support were obtained at three time points (T1, T2, T3) before LEAP began, approximately half way through the weekly sessions and once LEAP finished. Table 2 below displays the total scores obtained for transactional support for each child at each time point. This table enables values relating to individual children to be considered in relation to other children. The total number of LEAP sessions experienced by the children is also included in the table to see if there may be any apparent links between transactional support which may be worth investigating further.

Table 10: Transactional support percentage scores for each child at each time point as well as the difference between time 1 and time 3 and total number of sessions attended.

Child Number	Percentage Score for T1	Percentage Score for T2	Percentage Score for T3	Difference between T1 and T3	Number of LEAP sessions
1	56	75	77	21	27
2	17	28	27	9	28
3	70	88	88	18	29
4	67	91	93	26	23
5	29	48	58	28	24
6	21	74	78	58	30
7	56	73	74	18	21
8	45	75	77	32	31
9	39	68	77	38	32
10	26	46	52	26	30
11	46	72	82	36	26
12	62	62	63	1	12

Child 6 obtained the greatest percentage increase for transactional support from time one to three although not the greatest number of LEAP sessions. Initially this child received the second lowest score for transactional support and so there was considerable scope to improve. This may be part of the reason for the comparatively high difference in percentage obtained at time three. Child 7 and child 12 were amongst those who obtained the lowest increase in scores from time one to three. Child 2 had the lowest initial score

for transactional support and had a Russian-speaking nanny working with him at the preschool and at home. This child also received the lowest score at time two and one of the lowest percentage increases overall. Interestingly at time three the total score child 2 obtained was lower than time two and there was also no increase in score for child 12 at this point. One possible reason for this may relate to English not being the first language of the adults supporting the children. Another reason might be that the adults were not using the methods demonstrated by the LEAP specialists. These two issues were reported in two interviews even though questions about transactional support were not asked directly.

> "… sometimes ... the one-to-one does misunderstand but ... I can see what's been modelled to her and it's very simple ... and it's been actually shown ... it's been modelled it hasn't just been explained ... but it's not been taken on board ..." (PP2)
>
> "… possibly because the family are not so engaged in the programme either … it probably literally is just one visit a week …" (LS3)

These issues may be linked to the effectiveness of the LEAP intervention and will be explored in the next chapter.

Data relating to transactional support were explored more thoroughly using measures of central tendency and dispersion. A boxplot devised from the data is presented below in figure 5.

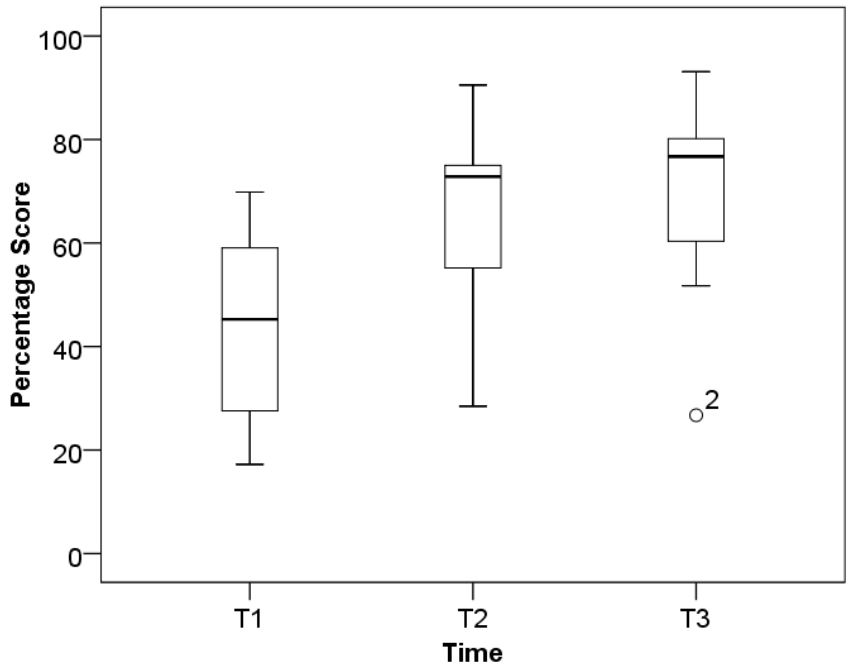

Figure 5. A box plot showing the percentage scores for transactional support across time.

Wilcoxon signed-ranks tests indicated that time two transactional support scores were significantly higher than time one transactional support scores (Z = -2.936, p = 0.003) and time three transactional support scores were significantly higher than time two transactional support scores (Z = -2.492, p = 0.013).

The box plots indicate that there was an increase in the transactional support median scores from time one to time two with greater clustering within the interquartile range at time two than time one. This seems to suggest greater variability initially. The percentage scores for child two decreased between time two and time three. Child 2 had a nanny and the transactional support score reflected the support she provided. The range of scores was distorted because of the scores for child 2. For example, at time three 27% was an

outlying score with the next lowest score being 52%. The range for the other children's scores decreased at time two and time three.

The median scores show a great increase for transactional support from time one to time two with a further minimal increase from time two to time three. This may suggest that adult supports increase their scores initially as they learn to apply the strategies modelled by the LEAP specialists. Minimal increase after time two might show that while some adults were still developing their strategies others had implemented the methods and therefore may not have shown much increase in their scores at time three.

4.4.2 Interview comments relating to changes in transactional support

Although parents and preschool practitioners were not asked directly about changes in transactional support, responses to questions relating to their role in the intervention and continuing aspects of the interventions were linked with this. It would be assumed that when individuals were more engaged in using strategies demonstrated by LEAP specialists then their scores for transactional support would be higher.

Ten parents interviewed during LEAP commented that they learnt strategies during the sessions to implement with their children. Another parent noted that the sessions stimulated her recall of strategies.

> "… also … just taking the lessons … you know … really paying attention during the sessions … so you can learn from what they are doing … what successes they have and then using that when they're not there … so yeah … it seems like a catalyst … to teach us …" (P4)

> "… getting a bit of inspiration … I won't say I'm learning new techniques … but just sometimes reminding me of what … you know … I need to do …" (P12)

Six parents and two preschool practitioners described strategies linked with interpersonal support and ten parents and six preschool practitioners referred to strategies linked with learning support. Parents' comments reflecting interpersonal support focussed on being responsive to the child; encouraging initiation such as using choices; waiting for the child; obtaining the child's attention; and adjusting the language for the child. Preschool practitioners' comments related to obtaining attention and interaction.

> "… I've learnt of ways that I can interact with him … of ways that will make it easier for him to focus ……I've reduced the speech right back … I give him maybe a choice of one or two and make him make the choice … even in the bath and things like that …" (P6)

This particular parent referred to several strategies she had learnt and it was interesting to note that the score for transactional support for her child increased considerably more than scores for the other children. As the transactional support score would also include observations of the practitioner at the preschool's interaction with the child, consideration of this involvement is also necessary. The practitioner was also responsive to suggestions made by the LEAP specialist.

> "… it was nice being there to take on the knowledge … and to see what behaviour (LEAP specialist 3) was demonstrating … and try to mirror those outside of the session …" (PP6)

In terms of learning support, parents' and preschool practitioners' comments

focussed on structuring the task for the child; using augmentative communication support; providing visual supports; and modifying the tasks.

> "… some of the strategies we've learnt with turn taking … and getting him to wait … and the idea that he has to put something away … before he starts something new …" (P1)

Strategies to assist with turn taking were mentioned in a number of parent interviews, perhaps the fact that many of the children had objectives which linked to taking turns could be a reason for this being a popular task which parents continued with at home. Two practitioners mentioned turn taking although other preschool staff did not, perhaps because it was not one of the partner objectives.

> "… it's not dissimilar to something I would do anyway with a child ...it was specifically for communication and interaction with other children ... I feel my children coming in at three and four ... they're things I would use anyway ... you know ... turn-taking … sharing ..." (PP2)

However, another reason it was not focussed on much by practitioners may have been because it was something that is used frequently with all children in preschools and so may not have been considered noteworthy. Four practitioners made comments relating to using augmentative communication support. This was the most common subtheme of transactional support reported by practitioners.

> "… using Makaton … and I know that is something that LEAP have been supporting us with in the setting … from a point of kind of bringing in resources … and laying out an expectation of doing one sign a week … and things like that …" (PP1)

Eight children had objectives linked to speech and communication and this may have related to why this subtheme was commented on by some of the practitioners. However, other practitioners may have been using the strategies but did not refer to them in the interviews. In general, eight practitioners reported that they continued using LEAP strategies. Not all referred to specific techniques they used.

> "… we will keep going with what we've been asked to do … we're using picture cards we're making her ask for things … we're encouraging her to join in with groups of other children … when she's in a very self-directed mode we're interrupting her and making her … sort of interact with us …" (PP8)

Comments such as this suggest that some practitioner staff were really trying hard to implement strategies in the preschools, although not all preschools implemented all strategies.

> "… quite a bit of the stuff that they've suggested has not necessarily been appropriate … for some of our children just yet … because they're not at that … at that stage … so therefore for us implementing the things that they want us to implement it is pointless … so that's quite hard …" (PP3)

This comment also links to the areas for improvement which are discussed later.

As well as examining social communication, emotional regulation and transactional support as separate components it was important to consider the relationships that existed between them rather than just looking at them in isolation. The next section explored these relationships.

4.6 Relationships between social communication, emotional regulation and transactional support

Correlational analyses were conducted to investigate whether any relationships were found in the observational data relating to social communication, emotional regulation and transactional support levels over the course of the intervention.

4.6.1 Social communication and emotional regulation

No significant correlation was found between social communication scores and emotional regulation at time one (r_s = .273, p = .391). Significant positive correlations were found between social communication and emotional regulation at time two (r_s = .788, p = .002) and time three (r_s = .687, p = .014). This indicates that higher scores for emotional regulation were linked with higher scores for social communication. Figure 6 below displays scatter graphs depicting the relationships found at time two and three. It is interesting that no relationship between social communication and emotional regulation existed at time one but a relationship was found later. There may be a reason for this. There are links between components of social communication and emotional regulation. For example, monitoring the partner's attentional focus reflects joint attention as well as self-regulation. Therefore, if a child was improving this component of social communication over the course of LEAP the child's emotional regulation score would be increasing too. The initial scores at time one may have reflected more

components which were specific to either social communication or emotional regulation.

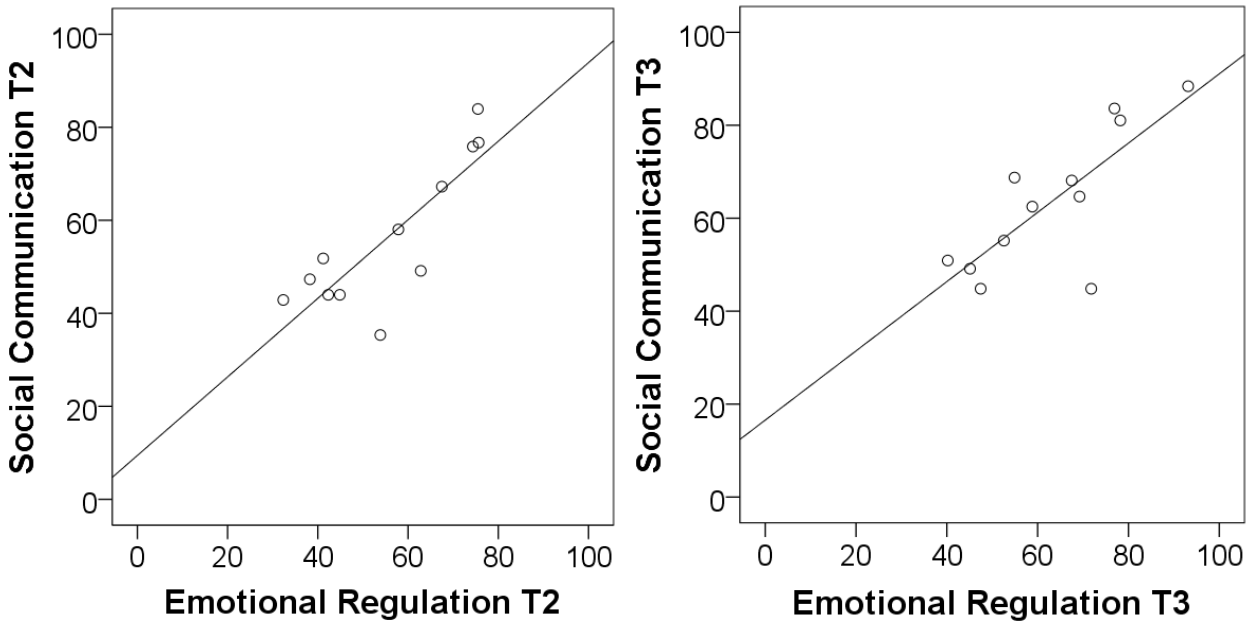

Figure 6. Relationship between social communication and emotional regulation between time 2 and time 3.

4.6.2 Social communication and transactional support

No significant correlations were found between social communication scores and transactional support at time one (r_s = .298, p = .347), time two (r_s = .330, p = .295) or time three (r_s = .462, p = .130). As transactional support was a measure relating to the key adults who interacted with the child, the relationship between transactional support at time three and the change in social communication from time one to time three was also investigated. A relationship which approached significance was found (r_s = .519, p = .084). This suggests that there might have been a link between the increase

observed in social communication from time one to time three and scores for transactional support at the end of LEAP. However, as these were correlational data, this does not mean that higher scores for transactional support have caused the increase in social communication. The increase in the child's social communication could have impacted on the individual's transactional support or another factor may have influenced them both.

4.6.3 Emotional regulation and transactional support

No significant correlations were found between emotional regulation scores and transactional support at time one (r_s = .123, p = .704), time two (r_s = .305, p = .336) and time three (r_s = .134, p = .678). Again, as in the case above, the relationship between transactional support at time three and the change in emotional regulation from time one to time three was also investigated. No significant relationship was found (r_s = .120, p = .710).

4.6.4 Relationships between number of sessions experienced and social communication, emotional regulation and transactional support

A popular theme raised by participants in the interviews was the regularity of the sessions at home and in the preschool. The number of sessions children experienced varied because of holidays and illness, although in one case it was affected by the preschool not being involved in LEAP.

> "… I think for the child that I only see at home (child 12) … not having that work going on in the nursery is significant … I think … look at the progress and I think it's been a lot less …" (LS3)

The scores for this child were generally lower than for the other children and a possible factor was that having sessions only at home meant fewer sessions overall to have any impact. However, an alternative explanation could be that LEAP practices were not taking place when the child was at preschool. Therefore, an association between number of sessions experienced and the children's scores were investigated to see if a link existed for other children as well.

No significant correlation was found between the difference in social communication from time one to time three and the number of LEAP sessions experienced in the home (r_s = .171, p = .596) or in the preschool (r_s = .014, p = .965). Similarly, no significant correlation was found between the difference in emotional regulation from time one to time three and the number of LEAP sessions experienced in the home (r_s = .242, p = .449) or in the preschool (r_s = .459, p = .133). A significant correlation was found between the difference in transactional support from time one to time three and the number of LEAP sessions in the home (Figure 7: r_s = .578, p = .049) but not the number of LEAP sessions at preschool (r_s = .476, p = .118). This indicates that the increase in scores from time one to time three obtained by the parents (and nanny) for the transactional support they provided for their children was linked with the number of sessions that they had been involved with in the home. Although the data were correlational and so it could not be

concluded that the number of sessions experienced affected the improvement in transactional support, this was a possibility.

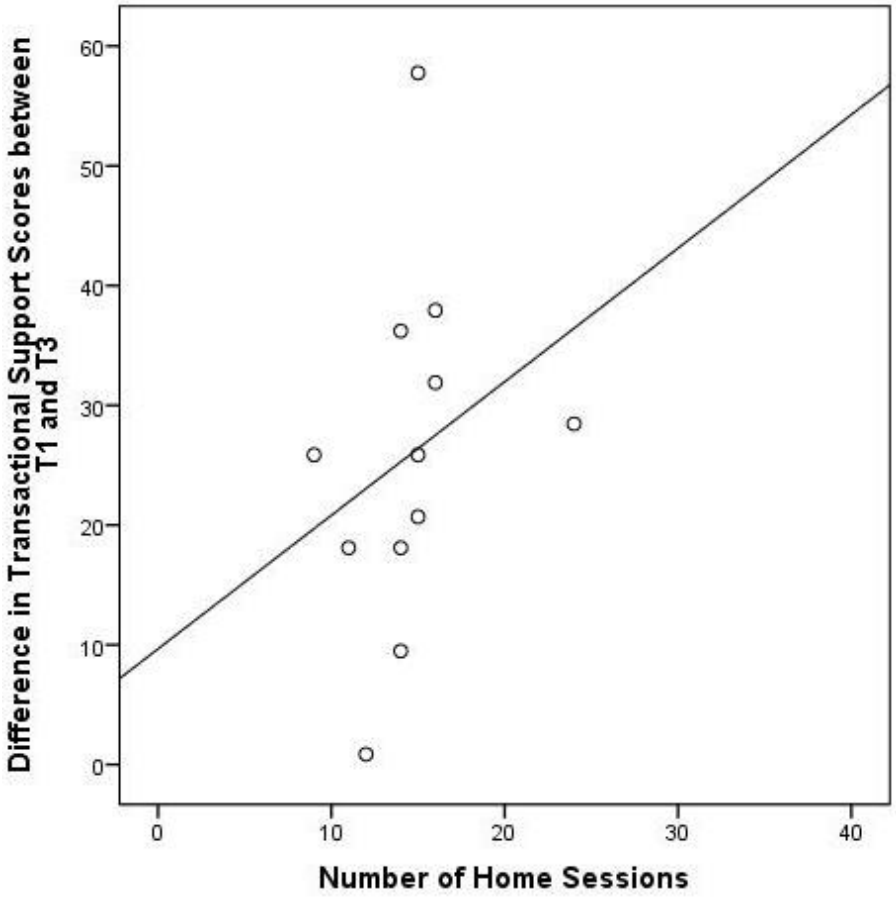

Figure 7. Relationship between the number of LEAP home sessions and the difference in transactional support from time 1 to time 3.

4.7 Summary of chapter

This chapter considered data relating to changes that were observed in the children and were described in the interviews at the different time points. Therefore this chapter focussed on the first research question, what do the observational and interview data reveal about social communication,

emotional regulation and transactional support levels over the course of the intervention? Individual children's scores for social communication increased at each time point. The majority of scores increased between 20 to 35% during LEAP. Significant increases in social communication scores from observations were found. More comments relating to social communication were made by parents, preschool practitioners and LEAP specialists over time. Children's scores for emotional regulation also increased at each time point, except one child's score which did not change between time 2 and 3. There was considerable variation in individuals' scores for emotional regulation. Most parents and preschool practitioners reported changes in emotional regulation in their children. Scores for transactional support tended to increase by a greater extent between time 1 and 2 than between time 2 and 3. Again there was wide variation in scores. Most parents reported that they had implemented techniques that they had learnt or been reminded about by LEAP. Relationships between scores for social communication, emotional regulation and transactional support were investigated. Significant relationships were found between social communication and emotional regulation at time 2 and 3. A significant relationship was also found between the increase in scores for transactional support and the number of home LEAP sessions attended.

Chapter 5 Views regarding LEAP

This chapter will focus on the views about possible reasons for any changes in the children since the LEAP intervention began. Related to this will be a discussion about parents' and preschool practitioners' perception of their role in LEAP and their engagement in the programme. Views about possible ways the intervention could have been improved will also be discussed. There are other factors that will not be focused on in detail because they were beyond the scope of the current thesis.

5.1 What are parents' views about the reasons for the impact of the LEAP intervention?

Five themes were obtained from parents' interviews which focused on the reasons for the changes noticed in the child. Nine parents referred to the regularity of sessions at home and at the preschool. Eight parents noted that the individualised nature of LEAP. Seven parents raised working together as a beneficial factor and seven also referred to the positive relationship between the child and the LEAP staff. Five parents believed the way LEAP was delivered by the LEAP specialists was beneficial.

> "… the fact that they do it at home and nursery … so they're supporting you as well as giving nursery tips on what works best ..." (P8)

> "… the tailoring was really impressive because they focussed heavily on his specific challenge ... which is great … because every child has different priorities and different things to focus on ..." (P4)

> "... he definitely looks forward to seeing them ... I think it makes it easier that he likes them otherwise he wouldn't want to be round them ... so I think that is definitely one of the best bits of it …" (P11)

> "… it's just the way they teach ... it's just the way they sit down with him ... it's always eye level ... and they're always talking and getting him to repeat words and things like that ..." (P9)

Although, these comments focus on different themes, I feel they all reflect parents' views of LEAP specialists. The parents appeared to appreciate what the LEAP specialists were doing and respected them. One parent's comment above also recognised the support as a parent. Support for parents was clearly an important aspect of LEAP and at various points in their T2 interviews several parents made comments relating to the support they received.

> "… LEAP and Portage play a really important role in stopping parents from being isolated … because generally they have quite a lot of information … you know … they can put you in touch with other services … and give you ideas on things … that aren't sort of LEAP related … and they're always really good for a chat …" (P1)

> "… it's nice to have an outside source … it's nice to have someone to talk to …" (P10)

> "… we live a very quiet … sort of … almost I'd say sometimes … isolated life … so it's nice always to have them … it's nice to see them … a change of atmosphere … to inspire ... for inspiration …" (P12)

As well as showing that providing support for parents is important, these quotes also illustrate the sense of isolation that parents may experience with young children with autism. Having the regular contact with an understanding professional was important to them. Therefore, the

relationship between the LEAP specialist and the parent appeared to be important and, although not raised as an important factor by parents, was discussed by the LEAP specialists and will be returned to later.

The parent who believed there was no effect from LEAP and received no sessions at preschool provided the following comment:

> "… it's an hour a week and not during holidays ... I don't think anybody ... you know whatever ... therapy or whatever you follow ... can achieve much in that time ..." (P12)

This seems to illustrate two key points: the parent believed that the effectiveness of LEAP was related to the number of sessions experienced; and the parent perhaps did not fully understand or possibly accept her role in the intervention. This could have been partly due to her expectations. Parents had different expectations of their role in LEAP and this will be discussed later. This parent's view that the effectiveness of LEAP was linked to the number of sessions experienced seems to correspond with an earlier finding. The correlational analysis which looked at the links with the number of LEAP sessions and transactional support discussed in the previous chapter relate to this. Similarly, the most common theme for the part of LEAP that made the greatest difference, the regularity of sessions at home and at the preschool, also seems to link these two variables (number of sessions and effectiveness).

5.2 What are LEAP specialists' views about the reasons for the impact of the LEAP intervention?

The journey that the LEAP specialists went on over the duration of the intervention was stimulating. As well as considering some of the factors which the family and preschools raised, there were also issues which were specific to them as individuals and as a group. It was interesting to see how the different LEAP specialists viewed their role as this seemed to link to the reasons for the impact.

Nine themes were commented on by LEAP specialists which they felt made the greatest difference to the impact of LEAP on the children. No themes were reported by all LEAP specialists. Two LEAP specialists commented on: targeting individual needs; preschool involvement; family involvement; early intervention; stimulating toys; the relationship with the parents; and the relationship with the child. One LEAP specialist referred to the relationship with the preschool and one also commented on sessions at home and at preschool.

LEAP specialist views varied regarding what they felt were the most important factors. One LEAP specialist believed the targeting of individual needs and the relationship with the child and family were crucial. Another felt it was the family's engagement in the programme and having sessions at home and at the preschool. The other LEAP specialist felt that building relationships with the family and preschool were most important. Relationships formed were therefore considered to be important factors and explicitly referred to by two of the LEAP specialists in time three interviews.

However, the other LEAP specialist raised the importance of relationships during the time two interviews.

> "… you know it's that real two way thing … building up that relationship … showing that you're consistent … that you're there to support them and you're not there to be criticising them …" (LS3)

It is interesting that other important factors raised by LEAP specialists differed. This probably reflects the fact that the LEAP specialists were working in different homes with different families and what was found to be important working with one family may not have been as important with another.

5.3 What are preschool practitioners' views about the reasons for the impact of the intervention?

At time three, a variety of reasons were suggested by preschool practitioners for the impact of LEAP on the children. These were grouped into seven themes. It was felt by five practitioners that the bespoke nature of LEAP was a key aspect of its effectiveness.

> "… I think also it's that individualised approach … because obviously … all children with autism are still very separate individuals with different needs … and it's being able to key in to that individual child's needs … and know this is where they are … and this is where I want them to be … and this is how I can move them there …" (PP7)

Four practitioners referred to the benefits of sessions at home and at the setting and four also mentioned that the consistency of all involved in supporting the child was beneficial. Four practitioners also believed that the LEAP specialists' knowledge of autism and their approach was an important reason for the impact on the child.

> "… you're not being told by speech therapists one thing and an educational psychologist another … it's just for that child … and everybody involved … parents … the LEAP specialist … the preschool … are all in on it …" (PP8)

> "… she was able to engage with him ... brilliantly … get his attention … so that was really useful for me … because obviously … I can use what she did … and it wasn't anything specific … it was more her voice than her ... the way she managed to get him … to even sort of concentrate on a book from beginning to end … just because she made it more interesting ..." (PP4)

Both comments above also suggest that the preschool practitioners value being involved with LEAP and although not explicitly expressed, appear to show they have bonded with the LEAP specialists.

Three preschool practitioners explicitly commented on the importance of their relationship with the LEAP specialist and one practitioner commented on the LEAP specialist's relationship with the child. Another preschool practitioner felt the regular contact with professionals was an important factor which related to LEAP's effectiveness.

> "… I think it's the support and relationship that has been built up between the staff and the LEAP specialist ..." (PP1)

The regular contact with the LEAP specialist enabled the relationships to be built up and so these factors were all linked to regularity and the familiarity that this brought.

5.4 Comparison of views about the reasons for the impact of the intervention

There were common themes reported by parents and preschool practitioners. Two of the frequently reported themes by both parents and preschool practitioners were regular sessions at home and at the preschool and the individualised nature of LEAP. Interestingly although seven parents reported the relationship between the child and LEAP specialist being important, only one practitioner noted this. A possible reason for this might have been that parents were more focused on the relationships their children formed and perhaps because they believed it was an area that their child had difficulty with. The fact that more preschool staff commented on their relationship with the LEAP specialist might relate to their feelings about visitors to the setting and their past experiences of this. For example, during another point in the interview one practitioner noted:

> "… she can see what it's like … whereas the educational psychologist or the paediatricians give these targets and they've got no idea what a child's like in that environment … and it's on their terms and they don't come out here and they don't come to the meetings … and often their report carries the most weight and they know the child least well …" (PP8)

This comment seems to reflect a particular view about professionals outside the setting. This may suggest that some practitioners were a little uncertain about professionals and believed they were detached from the preschool setting. Therefore, this may have meant that they viewed the development of a relationship with the LEAP specialists as important for moving forward.

Both preschool practitioners and parents focussed on aspects linked with the LEAP professional's approach in the sessions. However, some of the preschool staff comments also tended to focus on how this benefitted them. For example,

> "… I think it's given me more ideas of things to try … even for children where they may just have a bit of a speech and language problem … not necessarily ASD … it's given me a few little ideas of stuff to try … that would benefit other children … not just children with ASD … so I think that's kind of what I've taken away from it … the new ideas really … to implement … yeah …" (PP3)

Learning directly from the LEAP specialists was referred to by five of the preschool practitioners. This variability was noted by the LEAP specialists in their interviews and will be discussed later.

It is interesting that the regularity of the sessions was raised by parents and preschool practitioners but not LEAP specialists. Perhaps this may have been because LEAP staff appreciated the importance of parents and preschool staff continuing the programme outside of sessions rather than the regularity of sessions *per se*. Two LEAP specialists commented on families' and preschools' engagement in LEAP in their interviews.

> "… I think preschools … some of my preschools have taken on board exactly what has been kind of recommended and are just working just

so well … and yet others will be like yeah yeah yeah … and actually they've not … and that's such a shame … because that's what makes the difference …" (LS3)

As each LEAP specialist visited four different homes and at least three different preschools this could have accounted for a wider range of factors provided by them than parents and preschool practitioners. It also provided a broader and possibly more systemic perspective. For instance, the family's and preschool's engagement in the programme was not mentioned by any parents and preschool staff but was raised as an important factor linked to effectiveness by two LEAP specialists. LEAP specialists also commented on factors which were pertinent to them perhaps because of their knowledge and experience. For example, two LEAP specialists believed that early intervention and stimulating toys were important for the programme's effectiveness.

5.5 Parent and preschool engagement in LEAP

5.5.1 Parents' views about their role in LEAP and their previous experience of interventions

Parents' views about the role they played varied. Seven parents were content about the role they played.

"… yes … it's for the children but what a benefit it was for me as well ... it's been great …" (P10)

Three other parents commented that they did not feel they had a major role.

> "… I don't think I've played much of a role ... it's been mostly (LEAP specialist 1) and (LEAP specialist 3) ... obviously … I do get involved ... but it's mostly ... as I said like at home ... it's mostly been (LEAP specialist 1) and (son) playing themselves ..." (P9)

Some parents also commented about the importance of their role in LEAP.

> "… I think it's important that the parent ... if the parent's not going to take an active role I think it's a waste of time ... I don't think the scheme would work ... because it's too ... you know ... twice a week is fab but two hours out of a week isn't a lot ... so if you're not going to add any more to it ... then I don't think it's going to be beneficial to the child ... so doing something every day is essential I think ... I have to be actively involved in the sessions to know what to carry on between sessions ... so definitely the parent's role is really important ..." (P5)

Different interpretations of the parents' role in LEAP could have been partly a result of different information provided initially. However, it is possible that parents are likely to create their own perceptions of their role because of their previous experiences and perhaps because of the amount of time they were actually able to devote to their role in LEAP. Parents who had Portage involvement prior to LEAP commented on its links with LEAP.

> "… it seemed like a good … natural progression from Portage and to support the work that they're doing at nursery with him as well…" (P1)

To explore whether there were any differences in SCERTS scores obtained from children who had experienced Portage or not prior to LEAP, Mann-Whitney U tests were conducted. Mann-Whitney U tests showed that emotional regulation scores for children who had experienced Portage were significantly higher, at time one (Mdn = 48.5, U = 3.00, p = .016), time two

(*Mdn* = 68.5, *U* = 3.00, *p* = .016) and time three (*Mdn* = 74.5, *U* = 1, *p* = .006) than those who had not (*Mdn* = 32, *Mdn* = 41.5, *Mdn* = 50). This may indicate that children who experienced Portage prior to LEAP had already developed some skills linked with readiness to learn through this involvement. It may also suggest that these children were responding to their parents and practitioners more than children who had not received Portage. However, with just six children in each group it was very difficult to conclude that Portage alone accounted for the higher scores in emotional regulation. There may also be characteristics which related to the parents who were involved in Portage prior to LEAP. For instance, perhaps parents who had been involved with Portage may had been alert to their children's conditions earlier or had more time to explore support available than those without Portage involvement. It was also possible that previous experiences also impacted on parents who had not been part of Portage and their perception of their role. It may be the case that prior experiences determined their concept of LEAP and their engagement with the programme.

> "… I didn't always ... well I never tried to play a leading role ... because I felt that it was this woman's job ... she is coming in here with her ideas and her agenda ... and I should play a supportive role ..." (P12)

> "… Maybe my role was too active … I didn't mean to offend anybody … but I apologise if I came across as too harsh at certain moments … but you know … obviously we had interventions … different interventions before … and I had some experience … and I know obviously my child … and I thought it would be beneficial to bring … you know … things that I know … and I think that work well … and so I was very proactive in giving my opinions …" (P2)

I think that both quotes seem to indicate that past experience may be a factor

here. Both parents had paid for interventions prior to LEAP and so it was possible their views may have been influenced by what experiences they encountered before. I feel both comments illustrate the parents had a detached relationship with the LEAP specialist. The first comment seems to reflect the lack of a mutual understanding and the absence of a shared aim between the parent and LEAP specialist. It seems the LEAP professional had not secured the participation of the parent. The second comment implies that the parent felt there were differing views at times. The parent may have felt that LEAP's approach was not relevant to her child and other techniques may had been better. This comment also implies that perhaps not all aspects of LEAP were accepted by the parent and so she was not fully engaged. It seems she would prefer to negotiate methods based on her own experience which again suggests she was not committed to LEAP's approach. For instance, in relation to parents being involved in the sessions.

> "… I just wish they worked more independently with the child rather than involving parents … … I guess it depends on the parent because we are quite experienced and we did a lot of interventions before LEAP…" (P2)

This appears to suggest this parent believed the sessions were not a learning experience for her and may indicate that she felt she already had sufficient knowledge about how to work with her child.

5.5.2 Preschool practitioners' views about their role in LEAP and their previous experience of interventions

The importance of the preschool role in addition to the role of the family was raised by one practitioner.

> "… so just having someone working with their child and seeing what their child's capable of … it must … some of it must rub off even if they're in … in denial of it … I think obviously if the parents are more positive and if the setting is very positive then it's going to have a … a more positive impact … I think if you've got negative staff that aren't going to … they'll go yeah yeah … and and not do anything with it … then it's not going to be as effective …" (PP8)

This practitioner felt that a positive attitude to LEAP was beneficial. All practitioners made positive comments about the role they played in LEAP although one practitioner reported that she was unsure of her role initially.

> "… initially … with (LEAP specialist 2) … I did feel a bit like a spare part … I wasn't quite sure … like I said she followed (child) around and … so after a couple of weeks of being here … I tended to let her get on with it … because I wasn't quite sure what … I wasn't learning anything from it … and so I just thought I'd leave her to it …it was wasting a staff member … to have me following her following him … if you see what I mean …" (PP4)

This comment shows that staffing implications and learning from the LEAP experience were important aspects for this practitioner. This seems to suggest the preschool practitioner did not feel fully included. A consequence of this may have been that the preschool would not continue the good work on their own. This would therefore be a barrier to progress. Learning through LEAP was important for preschool staff. Seven practitioners

commented on this. They specifically referred to learning through observing the LEAP specialists who would be modelling good practice.

> "… sometimes I could just step back a little bit and just watch ... how she did something ... so it was quite nice ... I didn't really feel that I was ... you know someone was standing over me watching every move I make ... it was quite relaxed..." (PP3)

The LEAP specialist's manner and approach appeared to be important factors here and it seemed that practitioners and LEAP specialists had worked hard at building those relationships. Availability on a regular basis seemed to be important especially for building that relationship but also answering practitioners' questions.

> "… I've tried to take on board everything that is being done … and follow it through … and it's just so nice to have somebody to ask once a week … you know if there's anything that strikes me at 11 o'clock at night … and I think oh! … then I know … she will be in and I can ask her ..." (PP10)

Three practitioners commented on collaborating with the LEAP specialists in this way. This suggests that they saw their role as working closely with the LEAP specialists and would be important for implementing LEAP. Two other practitioners implied that their role was somewhat supervisory rather than working in partnership with the LEAP specialists.

> "... I don't have time because I'm the main key worker for eighteen children ... so I wouldn't have had time to deliver it myself ... so the fact that somebody else came in was great ... because we still had regular meetings and discussed it ... we still chat about it and how it's going ..." (PP2)

This may suggest that in some cases the LEAP specialists were valued by staff but they may not have had such a close working relationship as with other practitioners. However, these two practitioners and six others referred to benefits they acquired from LEAP. Five practitioners commented on gaining skills or confidence and five also reported obtaining suggestions for activities. Four practitioners noted that the provision of resources was beneficial. Three practitioners found that having LEAP specialists in was reassuring for them to know that their practice was suitable. Two practitioners noted that LEAP specialists provided recognition for their work.

> "… I think it will make me much more confident … in dealing with … children with this condition … because they're all different … strategies that have possibility been used in the past … for some children … don't necessarily work … with this particular child or with any … subsequent children …" (PP8)

Previous experience of working with children with autism and prior training relating to autism would perhaps have been factors influencing how practitioners responded to LEAP. As four practitioners had no prior experience it may be the case that these practitioners found LEAP particularly beneficial. However, as noted by the practitioner above confidence is likely to increase with a greater knowledge of activities and resources to use.

5.6 Improvements suggested for LEAP by parents, preschool practitioners and LEAP specialists

One purpose of the interviews was to modify LEAP if necessary for future years based on the comments made. The interviews during LEAP also provided opportunities for changes to be made before LEAP finished its course. The majority of parents were positive about LEAP and suggested few if any changes. Five parents and two preschool practitioners at time three commented that LEAP could not be improved.

> "… I can't personally praise LEAP enough ... so I'd be very hard to find how it could be improved ..." (P10)

However, during their time three interviews, eleven parents and nine preschool practitioners referred to possible improvements for LEAP. The most popular comments by parents related to having more sessions, either starting earlier, having sessions in the holidays or replacement sessions for ones missed. Nine parents at time three would have liked more sessions. Two preschool practitioners at time three and time one also suggested more sessions or longer sessions. Two practitioners at time three recommended sessions at different times and having the same LEAP person involved at home and in the setting. Initial high targets and reviewing targets were also raised by individual practitioners.

Six preschool practitioners mentioned aspects for improvement at time one and six parents at time two referred to ways they believed that LEAP could be improved or had already been modified. Many parents' comments related

to specific modifications required for their own children's needs. Three parents referred to how timings or locations of the sessions were improved during the course of LEAP. Two preschool practitioners also commented on the benefits of sessions at different times. Two parents referred to changes needed in the LEAP specialist's choice of a particular toy or activity. Two parents and one preschool practitioner referred to the desire for feedback from the sessions in the other setting. One parent and one preschool practitioner felt that the original targets were too high for her child. One preschool practitioner suggested reviewing targets more regularly although one parent felt reviews were too frequent. One parent mentioned how the initial SCERTS information was complicated and this was raised by a preschool practitioner also.

> "… I think just more of an explanation around it (SCERTS) … … I wonder if parents are receiving that … how … what their kind of … interpretation of it … would be … I think it's making it that really kind of user-friendly for parents …" (PP1)

Two preschool practitioners but no parents mentioned how it would be beneficial for LEAP to collaborate with professionals such as speech and language therapists and one practitioner reported how it would be effective for LEAP to have closer links with schools. Changes that could have been made were implemented during the course of the LEAP programme such as modifications to targets, activities, liaison with schools and timings and duration of sessions. Other suggestions were implemented for the following year such as greater collaboration with professionals. A few improvements were suggested in the later interviews such as providing information about

LEAP to parents alone, small group sessions for LEAP children, and one LEAP person involved with the family and preschool. These will be elaborated on in the next chapter. Not all suggestions were able to be implemented by LEAP. One preschool practitioner referred to having the LEAP specialists contribute to staff meetings at the school but this was something that the EP assigned to the school would be able to provide. One preschool practitioner would have liked a plan of the LEAP session in advance, however, the LEAP specialists noted that the sessions often were led by the child and so would be changed from the plan.

LEAP specialists recognised areas for improvement in the second interviews. A main issue surrounded having a different person working at home and at preschool.

> "… one person to the home and one person to the nursery … it doesn't allow you to do everything but also it doesn't give you a full picture of the child … you only know half the child … because they respond so differently in different places … … to develop a programme that works for that child I think we really need to know them in both locations to bring out the best …" (LS3)

Key concerns were highlighted here by this LEAP specialist who felt this was a major limitation in LEAP's delivery and effectiveness. Having two different specialists not only had an impact on working with the child, it also had implications for communication between them and for providing feedback to parents about how the child was responding at preschool.

The benefits of working with other professionals was also highlighted by LEAP specialists

> "… so at the moment we are not privy to the programs that speech and language are implementing for the children so that I think is going to be ironed out … … we can work together … … because we've got the time, whereas speech and language is a set period of time, whereas we're every week, in two locations, so that I think will come …" (LS3)

Also, the importance of setting objectives once they knew the children better.

> "… we can do our assessments with SCERTS, but we need to get to know the child so much better before we write the objectives …" (LS3)

There were also comments made by LEAP specialists linked to the extent of control they had over their role.

> "… not being allowed to organise your day … what you're doing … how you're feeding back … what resources you can have … has been completely overwhelming …" (LS3)

> "… I think the way our schedules are ... have been set up, need to be reviewed because it's very set in stone and there's not much flexibility …" (LS1)

Points raised here overlapped to a certain extent with comments made by preschool practitioners and parents regarding the timing of sessions, providing feedback and the activities used in sessions. There were comments raised by LEAP specialists which were not an issue for parents or preschool practitioner as well as managing their own day another issue raised related to supervision.

> "… if the supervision was more often I would probably be more happy …" (LS2)

As this was a pilot programme there were issues raised that would not be issues in further years related to the structure of LEAP. Although an AEP was involved in the supervisory role initially this did not seem to be most effective because the AEP was not able to answer all the LEAP specialists' concerns either because she did not have the authority or because she was unsure of the processes. Also, the AEP organised the LEAP specialists' timetable and was the primary contact for parents and preschools if sessions needed rescheduling.

Some changes may not have appealed to all involved but were necessary to assist the effectiveness of the programme and to ease communication between LEAP specialists and parents. For example, two parents thought it was beneficial to have two LEAP specialists involved.

> "… I like you know that he's getting used to two ladies because that will be good for him for school …" (P5)

This particular child was not at a preschool and therefore the parent was keen for her child to have experience of different adults prior to starting school.

5.7 Summary of chapter

This chapter discussed parents', preschool practitioners' and LEAP specialists' views about changes they had noticed in their children. Many parents suggested more than one reason for the changes. The frequency of sessions at home and at preschool and its tailored approach were most

commonly reported by parents as key reasons for the changes. LEAP specialists had different views about reasons for the changes in the children and all suggested more than one reason for the changes. Relationships was a key theme which was referred to by all LEAP specialists. Again, a range of reasons for the changes were mentioned by preschool practitioners. The fact that LEAP was individualised was referred to most often. The similarities and differences in the different participants' views of the reasons were discussed. Following this there was an exploration of parents' and preschool practitioners' views about their engagement in LEAP and how this may have been linked with prior experiences. Suggested improvements to LEAP were made. Some improvements were possible during the course of LEAP others were recommendations for future programmes. A greater number of LEAP sessions was the most popular improvement suggested by parents. Preschool practitioners referred to a greater variety of improvements, some of which tended to relate to specific children rather than the programme. LEAP specialists identified key modifications which related to delivering the programme such as having the same LEAP specialist involved at home and the preschool. LEAP specialists also commented on the benefits of working with other professionals and having more autonomy.

Chapter 6 Discussion

6.1 Overview of the chapter

The previous two chapters presented the findings from observations measuring social communication, emotional regulation and transactional support relating to the child participants, as well as any relationships between these and links with the number of LEAP visits. Comments from interviews with parents, preschool practitioners and LEAP specialists exploring their views about LEAP were also analysed. This chapter will initially consider what the findings relating to the research questions suggest. Other findings will be interpreted further before consideration of these in relation to previous research. Limitations of the study will be reflected on as well as any suitable modifications. Improvements to LEAP will also be considered. Implications of my findings for EP practice will be discussed before suggestions for possible future research.

6.2 What do the observational and interview data reveal about social communication, emotional regulation and transactional support levels over the course of the intervention?

6.2.1 Changes in social communication, emotional regulation and transactional support levels over time

There were significant increases in social communication, emotional regulation and transactional support scores over all timepoints of the study. Therefore, the observational data indicate that there was improvement in

social communication, emotional regulation and transactional support over the course of LEAP. Some of the increase in social communication and emotional regulation scores could have been due to developmental factors and in the case of transactional support in response to the child's development, although the extent of this could not be determined in this study because there was not a matched control group for comparison. However, interview data also revealed that there were increases in social communication and emotional regulation as LEAP progressed. Comments related to transactional support were also reported during interviews with parents and preschool practitioners suggesting that generally more transactional support was used during LEAP than before it commenced. These results would suggest that in general LEAP was effective for those involved in terms of the skills acquired by children and their partners. LEAP specialists also noted that children's progress surpassed their expectations (for example, " … they've just exceeded our expectations …" LS3) and felt that more was achieved than they anticipated in a relatively short period of time and remarked that pivotal changes in the children seemed to occur around Easter time.

However, the individual results show that a few children's scores improved considerably less than others. Many different factors could account for this variability, such as the severity of the child's autism, the amount and effectiveness of the strategies implemented, prior experiences before LEAP, and the number of sessions experienced.

6.2.2 Relationships between social communication, emotional regulation and transactional support levels as well as links with the number of LEAP sessions

Spearman's rank-order correlations showed that social communication and emotional regulation at time two and time three were significant. This implied that social communication scores increased in accordance with emotional regulation scores. This supports the view that these domains are interrelated (Prizant, et al. 2006). This may mean as children increased their language and or interaction skills their readiness to learn and ability to regulate their emotions also increased. This appears to make sense as children are likely to become less frustrated when they are better able to communicate and are able to understand language which may be used to assist engagement in activities (Prizant et al., 2003). A Spearman's rank-order correlation found a significant positive relationship between the number of LEAP sessions parents experienced in the home and the increase in transactional support from time one to time three. This seems to suggest that transactional support scores increased in line with the number of LEAP sessions at home and that parents seemed to gain more skills through having a greater number of sessions. However, the underlying reasons for fewer sessions at home may have impacted on particular children's lower scores. There is the likelihood that if children had intermittent breaks or illness, they may not be as responsive in the following session, and parents may not be prioritising LEAP at this time because of other concerns they may have in terms of their children's health.

6.3 Views about the reasons for the impact of LEAP

6.3.1 What are parents' views about the reasons for the impact of the LEAP intervention?

Parents felt that the changes they observed in their children related to a number of different factors such as: having regular LEAP sessions at home and at the preschool; LEAP's individualised approach; collaborating as a team; the child and the LEAP staff having a strong bond; and how the LEAP specialists conveyed LEAP. It is interesting that parents felt sessions at both settings and working together were important because both factors seem to suggest a desire for consistency in the approach used as well as maximising the intervention time available. Unfortunately, it was not possible to investigate the consistency of the approach in both settings, although there was a relationship between the number of sessions (albeit at home) and transactional support which supports parents' views about regular sessions at home being important. Parents were well aware of the diversity of needs associated with autism and range of individual presentations and so a tailored intervention appears to be a well-reasoned suggestion for LEAP's impact. Parents' views also suggest that the person delivering LEAP needed to be highly skilled not only in terms of their knowledge of autism and strategies to use but also with their ability to build relationships.

6.3.2 What are LEAP specialists' views about the reasons for the impact of the LEAP intervention?

LEAP specialists' views relating to the impact of LEAP varied. The following factors were considered important aspects of LEAP: individualised objectives; involvement of families and preschools; early intervention; inspirational resources; and their relationships with parents, children and preschools. The reasons provided by the LEAP specialists suggest that they had an awareness of strategies and approaches which had been found to be effective for children with autism. This would be expected due to the training they had received for LEAP and their previous experience of working with children with autism. Visiting four different preschools and homes also would have provided them with an overview of factors which may have had a positive or negative impact on LEAP. Different experiences by the LEAP specialists may have accounted for the range of suggestions provided.

6.3.3 What are preschool practitioners' views about the reasons for the impact of the intervention?

Preschool practitioners reported several reasons for the impact of LEAP. Again, they believed that the individual nature of LEAP was important as well as sessions at home and in the preschool. They also felt that everyone involved should have a consistent approach and the LEAP specialist's expertise and methods were key. Preschool practitioners valued being involved in LEAP and gained knowledge and skills through their involvement. The good relationships they built up with the LEAP specialist through regular sessions were considered important as well as being beneficial for the child.

6.3.4 How do these views compare?

Several themes emerged in the analysis as important for the effectiveness of LEAP after comparing parental views as well as those of preschool practitioners and LEAP specialists. Recurrent themes were frequent sessions at home and at preschool and the personalised nature of LEAP. Strong relationships with the LEAP specialist and the LEAP professional's proficiency in the sessions were also reported by parents and preschool staff. LEAP specialists also commented on the importance of parents and preschools being engaged in LEAP. LEAP specialists also noted that early intervention and stimulating toys were important for LEAP's effectiveness.

6.4 Engagement in the intervention

6.4.1 What are parents' views about their role in the LEAP intervention?

There were not consistent views about the role parents played although parents were pleased to be involved in LEAP. Previous experience before LEAP and possibly inconsistency in information provided seemed to influence parents' views of their role. Previous experiences of programmes where parents had a different role than what was expected in LEAP also may have influenced parents' engagement. It seemed that expectations may also have impacted on parents' relationships with the LEAP specialists and meant that rather than working together to support the child the differing views of support in some cases meant that LEAP strategies were not continued beyond the sessions.

Parents' who had Portage involvement noted similarities in LEAP. Scores obtained suggested that experience of Portage prior to LEAP appeared to be highly beneficial for emotional regulation. The finding that children who had Portage had significantly higher scores at each time point compared with children who had not had Portage suggested that the increase not only provided an initial boost in scores, but that this advantage was sustained throughout LEAP. This difference in scores may have been linked with Portage children becoming familiar with sitting down and interacting in a one-to-one situation and extending their ability to respond to and engage with an adult. Their parents were also likely to be accustomed to interacting in this way. This would have been likely due to the Portage practice with a focus on supporting interaction and development of play. These parents would also have been aware of the need to continue the techniques outside of sessions. As this was an ad hoc investigation, it would be beneficial to investigate this finding further.

6.4.2 What are preschool practitioners' views about their role in the intervention?

All of the practitioners were content with the role they played in LEAP. Previous knowledge and training relating to autism seemed to influence some practitioners' engagement with LEAP. It seemed that in the majority of settings, strategies used by LEAP specialists were continued by the practitioners when the LEAP specialists were not there. For many practitioners, engagement in the sessions was a learning experience

enabling them to acquire skills to use with the child and others in the setting. For those practitioners with experience and training it appeared that they were already using skills that they had gained previously and so may not have been gaining as much from the LEAP sessions. However, relationships between practitioners and LEAP specialists were important and the visits were valued for reassurance, ideas about activities, resources and providing information. Compared with parents there were additional factors influencing practitioners' ability to engage in LEAP. The position held by the practitioner in the preschool varied and to a certain extent could affect the extent of autonomy they had to implement LEAP. In many cases the practitioner was not solely responsible for one child and therefore may not have been able to implement LEAP strategies at all times.

6.5 What improvements to LEAP were suggested by parents, preschool practitioners and LEAP specialists?

6.5.1 Improvements suggested by parents

Having a greater number of sessions was the improvement suggested most frequently. This may have been suggested because the programme started later than planned and so there were fewer sessions overall than had been intended. Therefore, it seems reasonable to assume that parents would have preferred more sessions. This sentiment also suggests that, if parents wished for further sessions, this is because they found them productive. Also, because the number of LEAP sessions experienced at home was related to the increase in transactional support scores from time one to time

three, it seems to suggest that parents were gaining from a greater number of sessions and therefore more sessions would have been beneficial. Flexibility in terms of the timings and location of sessions was beneficial in some cases and emphasised the importance of a tailored programme which addresses individual needs. Apart from suggesting more sessions, parents mainly focussed on improvements to suit their own children, perhaps because these were more pertinent to them than improvements to LEAP in general.

6.5.2 Improvements suggested by preschool practitioners

Similar improvements were suggested by preschool practitioners. No particular improvement dominated over others. Flexibility of sessions, and having the same LEAP specialist at home and at the setting, were reported to the same extent as a greater number of sessions. This may suggest that practitioners in a lot of cases were applying what they had observed in the sessions and may not have felt more sessions were necessary. Interestingly there was no significant relationship found between transactional support and number of sessions at the preschool. This would suggest that a greater number of sessions at preschool was not a key factor and would suggest that there was variability in terms of the application of LEAP but this was not related to number of sessions experienced. The fact that some practitioners were experienced and others were not could also account for some variability. No preschool practitioners raised the need for sessions in the holidays but as many of the preschools were term-time only this would not be

a benefit. Having more sessions at the preschool may have been more difficult for planning and assessing the children using their own measures and this may have meant that preschools were content with their existing schedule of sessions. Preschool practitioners reported the benefits of links with speech and language therapists and schools while parents did not. These points seemed to be related to having consistent targets and skills to focus on which would also be useful for children once at school.

6.5.3 *Improvements suggested by LEAP specialists*

LEAP specialists felt that the main improvement was to be involved at the home and preschool setting for the same children. The LEAP specialists explained that only seeing the child in one setting meant that strategies that may have worked in one setting with one of them, may not necessarily have worked in the other setting for the other LEAP specialist. They also felt that being in one setting also restricted their knowledge of the child and limited their ability to choose suitable targets for the children. They therefore felt that this impacted on the effectiveness of LEAP. Liaising with their colleagues frequently, often in the evenings had clearly been a major stressor for them although it had been identified as important in order to be effective in their role.

LEAP specialists also believed there were limitations of working independently from other professionals such as speech and language therapists as there had been instances where agreed targets were different.

During the time two interviews it was clear that LEAP specialists were frustrated by the lack of autonomy with some aspects of their role such as their schedule and access to resources. Not having the ability to organise their own timetables had meant that any changes required because of illness or school visits were arranged by the AEP. This therefore limited their power in certain situations to reschedule appointments. Feeling to a certain extent powerless was likely to have frustrated them and could also have impacted on their feelings about their role. A lack of familiarity with the LA procedures also meant that communication at times with the AEP was limited and resulted in delays and further frustration.

6.6 How do the findings relate to previous research?

6.6.1 Other local authority research for young children with autism

The current research found that parents and others valued the intervention and spoke positively about LEAP which corresponds with previous research conducted in local authorities (Medhurst & Clay, 2008). There were also similarities in terms of comments expressed by the parents and LEAP specialists about children starting to speak, becoming calmer, being more tolerant of others and engaged with activities (Medhurst & Clay, 2008).

LEAP's benefits for children and their families support research by Reed et al. (2013). Over nine months Reed et al. (2013) found greater improvements in children's language and adaptive behaviour in the LA intervention compared with children having Portage. The current research also showed

that improvements in social communication and emotional regulation could occur over a short period of time. Although these findings appear consistent with Reed et al. (2013) in general, they used more measures in their research and the intervention did not involve preschool practitioners as it was home-based. The current study also did not compare LEAP with Portage, although it appeared that former experience of Portage was an advantage for children on the LEAP programme.

Reed, Osborne and Corness (2010) integrated training for parents with a home-based approach over 10 months. Although there were specific improvements in educational and intellectual functioning for children involved in the intervention, scores for overall improvement were negatively related to hours spent in the intervention each week. This contrasts to a certain extent with the current findings, where a positive relationship was found between the number of LEAP home sessions and improvement in transactional support. This may indicate that separate sessions could be more beneficial than increased time during the same session, although this would need investigating further. One reason for this could be that there would be more stimulation through different activities introduced on separate occasions and perhaps less repetition and potential habituation in the same session. These factors could influence effectiveness (Reed, Osborne and Corness, 2010).

6.6.2 Using the SCERTS model

The current research also considered the LEAP specialists' views whereas the previous studies did not. Through this aspect of the research it was

possible to discover that the SCERTS model was not complicated to follow just as Odom et al. (2010) noted. In the same way that Walworth (2007) showed that using SCERTS within a three-month time frame could be effective, the current research demonstrated that LEAP objectives could be assessed cohesively over a similar time scale. The LEAP specialists did not report encountering any difficulties in recording individual progress.

6.6.3 Involving parents in the intervention

The progress of the children and comments by parents suggested that parental involvement in LEAP was beneficial, as has been found in other programmes (Burrell & Borrego, 2012; Coogle & Hanline, 2016; Smith et al., 2010; Zachor & Ben Itzchak, 2010), and parents' comments supported research showing they were pleased to be involved (Wetherby et al., 2014). The significant improvements recorded in children's social communication and emotional regulation during the course of LEAP also supports earlier research (Aldred et al., 2004; Gulsrud, et al., 2010). As Meirsschaut, Warreyn and Roeyers (2011) showed, different interaction styles were used by different parents and it is therefore important to consider this in relation to intervention outcomes. In the current study, transactional support was considered in this way. Transactional support scores for parents suggested that some parents effectively implemented activities that they had learnt. Having regular input from LEAP specialists provided a coaching opportunity for parents on a regular basis which seemed effective, as past research has also shown (Thomaidis et al., 2000). Few parents in the current study

showed concern about LEAP ending in the way that others have been worried about their responsibility when a programme ends (Patterson & Smith, 2011). This may have been because the majority of children in the current study were starting school soon after and several parents mentioned that was the next step for their children. Many were sad that LEAP was ending, but this seemed because they had formed good relationships with the LEAP specialists and were going to miss them.

6.6.4 The nature of the intervention

The provision of an individualised programme, collaboration with parents and professionals, a regular routine, and early intervention were viewed to be effective by some parents, preschool practitioners as well as LEAP specialists. These features were recommended by Wall (2010) and were reported by participants in the current study. However, no participants suggested the use of visual supports or regular observations being important which were other recommendations suggested. LEAP supports others' findings which have shown that individualised programmes were effective (Boulware et al., 2006). Building a rapport with parents and preschool practitioners was a key factor reported by the LEAP specialists and supports past research (Coogle & Hanline, 2016; Freuer, et al. 2014; Meadan & Daczewitz, 2015; Moore et al. 2014). Although Moore et al. (2014) showed that techniques acquired by those involved in the programme were not sustained after three months, it was not possible to investigate this in the

current research because children were moving on to school and following them up would have been beyond the scope of the thesis.

6.6.5 Involvement of preschool

Although one of the children did not attend preschool the child's progress was in line with his peers. Current findings differ from Sammons et al. (2004) who found that time at preschool was beneficial. No significant correlation was found between the amount of time children were at preschool and their increase in scores between time one and time three. However, the current study did not look at other factors that may have impacted at preschool such as the number of different members of staff working with the children and their expertise of working with children with autism. Also, the more time children spent at preschool may have meant less time for parents to implement LEAP at home and so the results may not solely be related to the preschool environment. Preschools were effective at monitoring LEAP and the children's progress, as other researchers had found (Witmer et al., 2015).

6.7 Limitations and modifications

6.7.1 Limitations and modifications to the research

As autism is a diverse condition and the sample was not homogeneous, no claims could be made about the ability to generalise or apply the findings to

other populations. It would have been beneficial, and if resources were available, to obtain measures of the severity of each child's autism in LEAP to see if severity was linked to the scores obtained and any progress made. Prior to the LEAP programme a rating scale for autism could have been administered to obtain an additional measure to SCERTS and could have been used again on completion of LEAP to measure any change.

Another limitation was the timing of the first observations. The first observations took place in January and February while the second series took place in May and the final ones in July. This meant that there were about twice as many weeks between the first and second observations as the second and third. Ideally the first observations should have been conducted in April so that there was a comparable time between observation points. This would have meant the scores obtained at time two would just reflect changes since the visits began rather than also including the time waiting since the introductory visits. A further benefit, if resources had allowed, would have been to have kept the first observations but have an additional series of observations in March which could then have been used to obtain any changes over time before LEAP started. In that way, there would be approximately eight weeks between each series of observations and there would be greater insight into developmental change prior to LEAP. According to Shadish, Cook & Campbell (2001), having an additional pre-test measure such as this would improve the design when no control group is used.

Scheduling the times of the interviews was difficult on occasions. This was especially the case with preschool practitioner interviews. This meant that interviews with two practitioners were not with the child's key worker but with another member of staff who knew the child well. Staff illness on a couple of occasions also meant interviews required rearranging. It would have been better if there was more flexibility in my availability. Having two weeks free from completing other tasks to conduct all interviews at each of the time points would have been ideal.

Another limitation related to the individuals' scoring of the observations. Although, through discussions with the LEAP specialists, it appeared that a process of standardisation of their scoring had taken place. The LEAP specialists spent longer on their initial observations and checked that there was an agreed approach to scoring. This process was not witnessed directly by the researcher and could have been improved if there was time and permission for the researcher to observe also. Through this inter-observer reliability could have been obtained and statistically verified.

It is also important to note that the researcher was aware of a risk of potential bias influencing the scoring and interviews because all participants were involved in LEAP and had an invested interest in the programme's success. Instances of behaviour may be considered from memory in a biased way which may confirm details in questions (Kahneman, 2012). However, Nickerson (1998) proposed that confirmation bias may serve some useful purposes and is a widespread phenomenon. Questions with prompts which were directly geared to obtaining examples where LEAP may have failed

perhaps could have extracted less biased information than asking directly about improvements.

Construct validity could have been hindered because the intervention was administered by the same individuals who recorded the observations and may have unintentionally made the intervention appear more appealing (Shadish, Cook & Campbell, 2002). When the possibility of this was discussed with the EP who developed LEAP, she explained how this could be a problem, although she was involved with discussions about the scoring and had a duty as a psychologist to make sure scores were representative. She also believed that parents would not have confirmed the scores if they had not agreed. However, having independent observers would have resolved any potential bias related to this issue.

It may have been better if LEAP specialist interview questions focussed on the changes in specific children rather than changes observed in the children they worked with in general. Many of the questions focussed on the delivery and structure of the programme as these were important considerations for ways to improve the programme as necessary in following years. However, when asked about the impact of LEAP on the children, not all children were discussed individually. It would have been better to have questions relating to each child they worked with separately. Also, specific questions were not asked about transactional support. It would have been useful for parents and preschool practitioners to be asked questions relating specifically to the support they provided. However, the questions would require careful wording to be sensitive and retain validity.

As parents and preschool practitioners were not observed throughout the course of LEAP it was impossible to measure the fidelity of LEAP. This was also an issue raised by Reed et al. (2007). However, when LEAP specialists were present they would hopefully reinforce its delivery but this is not a certainty. It would have been useful to observe how practitioners interacted with the children when the LEAP specialists were not there, however this would not have been feasible or ethical.

Another limitation links to the coding and using the SCERTS framework for this. Certain criteria fall into two areas for example, JA3.1 (joint attention) and MR1.1 (mutual regulation) both relate to sharing negative and positive emotions. On occasions where comments could be both emotional regulation and social communication, comments were coded in both. However, this was not ideal as the comments would be recorded in two areas. This happened for three comments which are illustrated in Appendix I with other examples of coding. In this case, my research supervisors were able to verify the coding.

6.7.2 Modifications to LEAP

Some adaptations were made before LEAP ended although some changes could not be made during the course of LEAP and these were implemented the following year. One key modification was to provide the same LEAP specialist at home as at preschool for each family. This appeared to be useful to resolve some concerns raised by parents in relation to receiving

feedback from the setting as they would be just interacting with one LEAP specialist. This would also mean that LEAP specialists would no longer need to communicate with each other on a daily basis about children and also would mean they could gain a more complete picture of the child and build a rapport with the child sooner. Through acquiring a fuller understanding of the child, it would also be easier for LEAP specialists to set more suitable targets and select appropriate activities. It was also agreed that targets would not be set on initial visits but would be agreed after LEAP specialists had a better understanding of the children's needs. Also, as each LEAP specialist would be involved with fewer parents and preschools this would mean there would be greater flexibility for timings of visits and schedules could be rearranged more easily.

A further modification centred on ensuring that all parents were provided with a thorough description of LEAP initially which clearly outlined the role of LEAP specialists, parents and preschools. Further simplification of the SCERTS terminology was also proposed. Before piloting LEAP, a variety of EPs as well as Portage teachers provided information about LEAP. However, it was difficult to know whether the information provided was delivered and received consistently by parents. Therefore, holding an initial information workshop for parents was arranged for the following September. The workshop provided an opportunity for parental expectations to be highlighted in a consistent way so that the same message was addressed to all. This could mean there would be less variation in terms of views about the parents' and preschool practitioners' role in LEAP in the future. Two parents who had been involved in LEAP also spoke about their experience of

LEAP.

It was recognised that forming relationships would be beneficial for some parents as the issue of isolation was raised during interviews by two of them. Therefore, to increase opportunities for social interaction for parents and children, regular coffee and play mornings were planned so families and children could interact in groups. As well as providing a vehicle for children to become more familiar with other children with autism and the benefits this would produce, this would be an opportunity for parents to exchange ideas and to gain mutual support. With the LEAP specialists and possibly the EP present as well this would also be a further forum to discuss and clarify issues related to LEAP.

Another modification related to the duration of LEAP. The programme was planned to start earlier and run for the complete school year so that there would be considerably more sessions than in the pilot which would be more appealing to parents given their comments.

A modification was also established to the management and supervision of LEAP. The management structure was changed and this appeared to improve LEAP specialists' feelings about their work considerably. Although an AEP was involved in the supervisory role initially this did not seem to be most effective and therefore the EP who devised the programme became the manager and supervisor instead. This meant that issues surrounding resources were resolved. LEAP specialists had greater autonomy and were provided with control of their own timetables. Supervision sessions also became more effective with an experienced and knowledgeable EP rather

than the AEP. Termly individual supervision sessions were added alongside the existing group sessions.

LEAP specialists also recognised the importance of collaborating with other professionals so that there was parity in targets set so that preschools would be clear about how they were supporting and working with the children. This meant that before September links were made with the speech and language therapy service and occupational therapy service and liaison between LEAP and other professionals was established.

6.8 Implications and further research

6.8.1 Implications for practice

The findings from the current research offer an insight into how an Early Years local authority based intervention could impact on children, parents, preschool practitioners and LEAP specialists. For the LA, it provides evidence that early intervention for children with autism can produce positive outcomes for children with significant needs. The EPS would benefit from the research because the findings show that through working closely with parents, preschool practitioners and other professionals an effective individualised service can be delivered. Individual EPs would also be confident that their service could meet the needs of Early Years children with autism they encounter through referring them to LEAP. EPs would also be able to reassure parents that LEAP would nurture their ability to interact with

their children in effective ways. The Early Years are an important time when bonds are forming and so easing parents with this process and boosting their confidence to interact would be beneficial. This research is also important for preschools because it shows how an intervention such as LEAP provides ongoing coaching and support to staff. It shows how being involved in interventions such as LEAP can be rewarding for staff and enhance their confidence in working with children with autism. Through being involved in LEAP the practitioners would also be provided with a framework to apply the skills to other children they may work with in future.

As scores and views were obtained at three time points it also provides insight into how the children and views about LEAP developed. An awareness of the views would be useful for EPs when working with families of young children with autism. It would also be beneficial to increase awareness of how preschools feel about being involved in programmes such as LEAP. The current research will help to inform future policy and provision of services within the local authority. The findings will also be useful for other local authorities who might be considering implementing an intervention for Early Years children with autism. The findings will also help them make appropriate decisions regarding resources and necessary training and supervision for individuals running the intervention. The research showed that LEAP was highly valued by parents and preschools and meant that all children were able to access local authority provision in September. This seemed to provide further support that through monitoring the needs of families, resources could be targeted more efficiently and effectively (Hodgetts, Zwaigenbaum & Nicholas, 2015).

The current findings also demonstrate the benefits of early intervention for children with autism and how an intervention such as LEAP could build on the work introduced by Portage teachers. The findings help to support the importance of relationships in empowering parents and preschool practitioners in the delivery of Early Years interventions for children with autism.

The findings from this research were arranged to be presented to the EPS at a recruitment day and at a continuous professional development day. A summary was to be forwarded to appropriate managers in the LA. The EP who developed LEAP had planned to make a proposal to the LA for further funding for extending LEAP so that it could be provided throughout the county and these research findings would be included in the proposal.

6.8.2 Suggestions for further research

The results from the observations suggest greater initial impact. It would be interesting to investigate whether there is an optimum point beyond which continued intervention is less effective for children, parents and preschool practitioners. This could be achieved by comparison of one term, two terms and three terms programmes. It would also be beneficial to confirm that the higher initial increase in scores was not related to the greater duration between time one and two than between time two and three. As results show that transactional support increased with a greater number of sessions it would be useful to discover at what point the scores reach their optimum

point as this would mean that resources could be used more effectively in future years.

It would also be beneficial to conduct a follow up series of observations and interviews similar to the research by Moore et al. (2014). This would provide insight into whether the SCERTS improvements were sustained after three months or continued to increase. Part of this investigation could also explore the effects of LEAP on the family over time which was not able to be investigated here due to other areas of focus.

Another area of consequence worthy of investigation would be to consider how parents' and preschool practitioners' knowledge about LEAP and terms linked with autism changed over time. It would be appealing to explore whether different terminology was used in interviews later in the process of an intervention than the language used prior to interventions starting. The use of terminology could be explored in relation to greater understanding of autism. This could provide greater insight into the suitability of terms used when discussing autism with parents and preschool practitioners.

It would be beneficial to explore whether children who were involved in Portage or not prior to LEAP obtain different scores over the course of the intervention. In the current study this was the case. A further investigation could therefore centre on parents' experiences prior to LEAP. This would be useful to know in order to allocate resources efficiently. If parents involved in Portage scored consistently higher than other parents, it could mean that parents who were involved in Portage prior to LEAP may not require as

many sessions. Therefore, this may mean that spaces on the programme could become available for other families more frequently.

A longitudinal study would be interesting to measure the use of EP services by individuals involved in LEAP over time. Data relating to service users could be examined to determine whether children and families who were part of LEAP availed of more or less EP services when the children were in school compared with children with autism who had not been part of LEAP.

6.9 Conclusion

This study evaluated the influence of LEAP through examining data relating to social communication, emotional regulation and transactional support and parents', preschool practitioners' and LEAP specialists' views about LEAP. Data appeared to suggest that LEAP was beneficial. LEAP seemed to be particularly effective for building on the emotional regulation scores of children who had experienced Portage. Significant associations were obtained between emotional regulation and social communication during and after LEAP. A significant relationship was also found between transactional support scores and the number of LEAP sessions experienced at home.

Ways to improve LEAP for future years were also explored. LEAP specialists voiced concerns which were resolved during the programme. It seemed that necessary changes were made to the management structure of LEAP to ease communication. LEAP specialist autonomy with regards to organising their sessions at homes and preschools was an important

change. LEAP specialists' job title changed during the programme to "LEAP Specialist". LEAP was extended the following year to provide sessions from September through July.

These findings present the evaluation of an evidence based Early Years intervention for children with autism provided by a local authority. Other local authorities considering implementing such an intervention could find this research useful in order to maximise the benefits for children, families and preschools. Information provided here would also be beneficial for considering supervision, training and the satisfaction of the staff delivering the intervention.

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Appendices

Appendix A – Information sheet

Doctorate in Professional Educational, Child and Adolescent Psychology

Institute of Education

Programme Director: Vivian Hill

Information Sheet

About the project

My name is Mary Limbert and I am a Trainee Educational Psychologist at the UCL Institute of Education, London. I am conducting a research project as part of my doctoral thesis which will be an evaluation of the Local Early Autism Programme (LEAP). The programme is an exciting new intervention developed by North West Surrey's Educational Psychology Service.

The purpose of my research is to find out the views of parents of children participating in the LEAP and LEAP specialists about the LEAP intervention and its impact on children with autism and their families. I will also be seeking the views about the intervention from practitioners at the nurseries where the children attend.

Your views are important to me and the educational psychology service as part of the evaluation of the programme.

What are you being asked to do?

I am inviting parents of children participating in the LEAP, LEAP specialists and practitioners in the nurseries to take part in a one-to-one interview to find out in greater detail what their views and experiences are of the LEAP

intervention. I am hoping to interview parents and LEAP specialists at the start, about half way through and at the end of the LEAP intervention. I am hoping to interview practitioners at the nurseries at the start and the end of the intervention. I will be able to carry out the interviews whenever and wherever it is convenient for you. Each interview will take no more than 30 minutes on each occasion.

Confidentiality

All information you give me and everything we talk about will be confidential. You will not be identified in any report.

Your rights

It is up to you whether or not you take part in this research. Nothing negative will happen if you decide not to take part. If you do take part, you also have the right to withdraw at any time. All data obtained will be anonymous which means that I will not refer to you by name in the interview and everything and everyone we talk about will be anonymous. There are no right or wrong answers to the interview questions. You will not be judged in any way by the answers you provide. With permission, I will record the interviews to assist me with transcribing the data to make sure I do not miss important details. The transcripts and interview sheets will be kept securely.

What do you need to do now?

If you have any questions or would like more information please call XXXXXXXXX or email XXXXXXXXX . I will contact you again soon to talk in greater detail about this research and answer any questions you might have.

I hope you will agree to take part. Your participation would be very much appreciated.

Thank you.

Mary Limbert

Appendix B – Participant consent form

Title of project: The Local Early Autism Programme (LEAP) - What are parents' and LEAP specialists' views regarding its effectiveness?

Researcher: Elizabeth Mary Limbert, Trainee Educational Psychologist, UCL Institute of Education, London.

1. I have read and understood the purpose of the research and what's involved.
2. I understand my role in the research and had the opportunity to ask the researcher any questions that I had about the research or my role in it.
3. My decision to take part is entirely voluntary and I understand that I am free to withdraw at any time without giving a reason.
4. I understand that data gathered in this research may form the basis of a report or other form of publication or presentation.
5. I understand that my name will not be recorded and the answers I provide will be identifiable only with a participant number or letter.

Participant's signature: .....

Participant's name (in CAPITALS): .....

Date: .....

Researcher's signature: .....

Date: .....

Appendix C – The LEAP sessions

Each child typically had two play based sessions with stimulating toys per week for 1- 1½ hours, one at home and one at preschool. A variety of activities and strategies were identified to be used in the sessions and to be used by parents and preschool practitioners at other times. Rather than learning skills isolated to the task, activities were meaningful and purposeful which increased their ability to be applied to other situations as recommended by Prizant et al. (2006). This meant that the activities could be integrated into daily routines. LEAP sessions early in the programme would involve the LEAP specialist developing a positive bond with the child.

In a session, the LEAP specialist might approach the child with something fun and interesting such as a novel toy and kneel on the floor nearby. It would be important that the LEAP specialist's item was more appealing than what the child already had. The LEAP specialist would be welcoming and use appropriate facial expressions and a calm voice. After about 5 minutes the LEAP specialist would place the toy in a bag and a new one would be taken out. This process would then be repeated. After some time, the child might approach and show interest. The LEAP specialist would make eye contact and wait. At this point the LEAP specialist might use a Makaton sign for "more". The LEAP specialist might present the toys for a shorter period of time to encourage the child to use the "more" sign. A visual schedule might be used to indicate which activity is next and a sand timer might be used to indicate the duration of the activity. An activity might be used to promote turn-taking such as building a tower of cups together. The LEAP specialist

would use language to emphasise this by stating, “my turn, your turn, mummy’s turn”. Another activity might involve looking at a story book together and naming the animals shown and the sounds they make. Each activity would be taken out only once the previous activity had finished and been put away.

Appendix D – Interview schedules for time 1, 2 and 3.

Interview Schedule for LEAP specialists - (Time One)

For researcher's reference only:
Participant Code:…… Interview Date:……
Children currently working with: Child 1 2 3 4 5 6 7 8 9 10 11 12

1. Do you have any previous experience of working with children with ASD? If so, please can you elaborate? *(If not, continue to next question)*

2. Before training for your current role, were you familiar with any techniques or interventions used to support children with autism?

   If so, which ones? Can you tell me a bit about them? *(If not, continue to next question)*

   (prompts: e.g. PECS)

3. Why did you decide to apply to be a LEAP specialist?

4. What, if anything, do you know about the LEAP intervention?

   (prompts: structure, role of parents, techniques used (e.g. PECS), timescale, assessment of child's progress)

   (If not discussed above) Are you aware of any theory behind the LEAP intervention? If so, can you tell me? *(If not, continue to next question)*

5. Can you tell me a bit about the training you received for LEAP? What did it involve?

   (prompts: SCERTS, TEACCH, PECS)

6. And the training for LEAP you have received, do you feel it has prepared you sufficiently? *(If not, continue to next question)*

How has it prepared you?

(prompts: techniques used (e.g. PECS), assessment of child's progress, use of observation tools)

7. What, if any, further training would you have liked? *(If not, continue to next question)*

   (prompts: techniques used (e.g. PECS), assessment of child's progress, use of observation tools)

8. And now that the LEAP intervention has started, what, if any, supervision arrangements are in place for you to discuss any concerns you have about the children you work with?

   (prompts: individual or peer, weekly, monthly,)

   Are these arrangements sufficient? *(If so, continue to next question)*

   How could these arrangements be improved?

9. What, if any, impact do you think the LEAP intervention will have on the children you are working with? If so, how? *(If not, continue to next question)*

   (prompts: Help them to understand emotions, help them to communicate)

10. And how about the children's families? What, if any, impact do you feel the intervention will have on the families involved?

    (prompts: help them to bond, alter their stress levels)

11. It's still very early days but are there particular aspects of the intervention that you feel will influence its effectiveness?

    (If not, continue to next question)

    If so which ones?

    (prompts: how it's structured, role of parents, techniques used (e.g. PECS), theory (e.g. SCERTS), timescale, assessment of child's progress)

12. What impact, if any, do you feel the intervention will have on you as a professional?

    (prompts: develop skills further, provide experience, alter stress levels)

13. Is there anything you would like to add about the LEAP intervention that I have not asked?

Thank you for your time! I just want to remind you that I will be in touch again in a few weeks to arrange to meet again and see how things are going.

For researcher's reference only:

Interview Schedule for Parents - (Time One) Date:……
Participant Code:…… Days / Sessions in Nursery: ……
Child's stage of Social Communication: Social; Language; Conversational Partner

1. Tell me a bit about your child and who is in your family.

2. Why did you decide to participate in the LEAP intervention?

   (prompts: to help to understand child better, to help child to learn new skill, to help child to control emotions, to help child to adapt, to help to reduce family stress)

3. Was it recommended to you? *(If not, continue to next question)*

   If so, who recommended it and why?

   (prompts: e.g. Nursery - to help child to communicate better, EP - to help child to regulate emotions)

4. Do you remember what you were told about the intervention when it was recommended? If so, can you tell me what you remember? *(If not, continue to next question)*

   (prompts: how it's structured, role of parents, techniques used (e.g. PECS), theory (e.g. SCERTS), timescale, assessment of child's progress)

5. Are you aware of other interventions, besides LEAP, that support children with autism and their families?

   If so, can you tell me which ones you have heard of *(If not, continue to next question)*

6. How do you think the LEAP intervention will benefit your child?

   (prompts: my child will be able to communicate with others, to help my child to control emotions, to help my child to adapt, to help to reduce family stress)

7. Are there specific needs that you would like the intervention to address? *(If not, continue to next question)*

   If so, what are these?

   (prompts: for my child to speak so he is understood, for my child to play with others)

   (If not answered above) What changes are you hoping for?

   (prompts: child will initiate interactions with other children)

8. What impact, if any, do you feel the intervention will have on your family?

   (prompts: help us to bond, alter stress levels)

9. Is there anything you would like to add about the LEAP intervention that I have not asked?

Thank you very much for your time. I will be in touch again in a few weeks to arrange to meet again and see how things are going.

For researcher's reference only:

Interview Schedule for Preschool Practitioners - (Time One)

Participant Code:……. Interview Date:…….

Working with: Child 1 2 3 4 5 6 7 8 9 10 11 12

1. Do you have any previous experience of working with children with ASD? If so, please can you elaborate? *(If not, continue to next question)*

2. Are you familiar with any techniques or interventions used to support children with autism?

   If so, which ones? Can you tell me a bit about them? *(If not, continue to next question)*

   (prompts: (e.g. PECS)

3. What, if anything, do you know about the LEAP intervention?

   (prompts: structure, role of parents, techniques used (e.g. PECS), timescale, assessment of child's progress)

4. Have you required any training to help you with the LEAP intervention? *(If not, continue to next question)*

   What did it involve?

5. What, if any, impact do you think the LEAP intervention will have on the child you are working with? If so, how? *(If not, continue to next question)*

   (prompts: Help them to understand emotions, help them to communicate)

6. And how about the child's family? What, if any, impact do you feel the intervention will have on the family involved?

   (prompts: help them to bond, alter their stress levels)

7. It's still very early days but are there particular aspects of the intervention that you feel will influence its effectiveness? *(If not, continue to next question)*

If so which ones?

(prompts: how it's structured, role of parents, techniques used (e.g. PEC*S), theory (e.g. SCERTS), timescale*, assessment of child's progress)

8. What impact, if any, do you feel the intervention will have on you as a professional?

   (prompts: develop skills further, provide experience, alter stress levels)

9. Is there anything you would like to add about the LEAP intervention that I have not asked?

Thank you for your time! I just want to remind you that I will be in touch again in a few months to arrange to meet again and see how things went.

Interview Schedule for LEAP specialists – (Time Two)

For researcher's reference only:

Participant Code:…… Interview Date:……

Children currently working with: Child 1 2 3 4 5 6 7 8 9 10 11 12

1. Now that LEAP is at its half way point, what if anything, have you learnt about it that you didn't know before? If so, can you tell me? *(If not, continue to next question)*
   (prompts: structure, role of parents, techniques used (e.g. PECS), timescale, assessment of child's progress)

2. Last time you spoke about the training you received for LEAP and how you were still awaiting other training for PECS and attention autism. Has this now taken place? What did that training involve? How did you find it?
   (prompts: online activities, workshops, in house training)

3. And all the training for LEAP you received, do you feel it prepared you sufficiently for your role? *(If not, continue to next question)*
   (prompts: techniques used (e.g. PECS), assessment of child's progress, use of observation tools)

4. What, if any, further training would you have liked? *(If not, continue to next question)*
   (prompts: techniques used (e.g. PECS), assessment of child's progress, use of observation tools)

5. Last time you talked about the supervision arrangements in place for you to discuss any concerns you have about the children you work with. Are these still in place?
   (prompts: individual or peer, weekly, monthly,)
   Are these arrangements sufficient? *(If so, continue to next question)*
   How could these arrangements be improved?

6. Have you used particular techniques or approaches to support the children with autism that you are working with?
   If so, which ones? *(If not, continue to next question)* Can you tell me a bit about what you have done? (prompts: e.g. PECS, Makaton, intensive interaction)

7. What, if any, impact do you think the LEAP intervention is having on the children you are working with? If so, how? *(If not, continue to next question)*
   (prompts: Helping them to understand emotions, helping them to communicate)

8. And how about the children's families? What, if any, impact do you feel the intervention is having on the families involved?
   (prompts: helping them to bond, altering their stress levels, providing a support)

9. Are you aware of particular aspects of the intervention that you feel are influencing its effectiveness? *(If not, continue to next question)*
   If so which ones?
   (prompts: how it's structured, role of parents, techniques used (e.g. PECS), timescale, assessing progress)

10. What impact, if any, do you feel the intervention is having on you as a professional?
    (prompts: develop skills further, provide experience, alter stress levels)

11. Is there anything you would like to add about the LEAP intervention that I have not asked?

Thank you for your time again! I just want to remind you that I will be in touch again in a few weeks to arrange to meet again and see how things went.

For researcher's reference only:

Interview Schedule for Parents – (Time Two) **Date:..……**

Participant Code:…… Days / Sessions in Nursery: ……

Child's stage of Social Communication: Social; Language; Conversational Partner

1. How are you finding the intervention?

2. What do you now know about the LEAP intervention? (prompts: how it's structured, role of parents, techniques used (e.g. PECS), theory (e.g. SCERTS), timescale, assessment of child's progress)

3. Is the LEAP intervention as you expected? *(If not, continue to next question)*
   If so, in what ways? (prompts: timings of sessions, settings)

4. Are there any ways LEAP is different to what you expected? If so, can you tell me how? (prompts: how it's structured, role of parents, techniques used (e.g. PECS), timing of visits, assessment of child's progress)
   Can you give me some examples?

5. How do you see your role in the intervention?
   (prompts: to keep out of specialist's way, to get house and child ready, to observe and model practices at home, use specific techniques (e.g. PECS), to inform workers of recent changes in child, to keep child calm)

6. Do you continue aspects of the intervention when the LEAP specialist has gone? *(If not, continue to next question)* If so, what do you do? Have you any examples?

7. Have you been taught particular techniques to use with your child? If so, can you tell me?
   (prompts: e.g. PECS, Makaton, intensive interaction, attention bucket)

8. With your knowledge of the LEAP intervention now, how do you think it is affecting your child?
   (prompts: my child is able to communicate with others, my child controls emotions, my child adapts)

9. Is the intervention addressing the needs you hoped? *(If not, continue to next question)*
   If so, what are these? Can you give me any specific examples?
   (prompts: for my child to speak so he is understood, for my child to play with others)

And what about your needs, is it addressing any? (prompts: obtain ideas, for support, time for myself)

10. Now that the LEAP intervention has started, does it "fit in" with daily activities? (prompts: easy, difficult)
    Do you have any examples?

11. What impact, if any, do you feel it is having on your family? (prompts: helping us bond, altering stress levels)
    Can you give me any specific examples?

12. Is there anything you would like to add about the LEAP intervention that I have not asked?

Thank you very much for your time. I will be in touch again in a few weeks to arrange to meet again and see how things went.

Interview Schedule for LEAP specialists – (Time Three)

For researcher's reference only:
Participant Code:…… Interview Date:……
Children currently working with: Child 1 2 3 4 5 6 7 8 9 10 11 12

1. How would you describe your role in the intervention? (prompts: delivering intervention, support to parents, liaison with SEN) How do you feel about the role you played in the intervention? (prompts: good that I was doing something, enjoyed it, good that I could help parent) Why do you feel that way? (prompts: because child was engaging, without my involvement child would not have made the progress he did)
   Did your role change during the intervention? If so, how did that make you feel?

2. What effect, if any, do you think the LEAP intervention had on the children you worked with? *(If not, continue to question below)* When did you notice any change? Can you give me any examples? (prompts: helping them to understand emotions, helping them to communicate)

   How do you know there was no impact? (prompts: there is no change) What do you think was the reason for this? (prompts: the only twelve weeks, sessions too short, missed sessions, child didn't engage, techniques weren't suitable)

3. What part of the LEAP intervention do you think has made the greatest difference? (prompts: relationship with child, how it was structured (e.g. at nursery and at home), role of parents, techniques used (e.g. PECS), timescale, assessment of child's progress) Why do you think that?

4. Last time you talked about the supervision arrangements. Were any further changes made to them? Can you elaborate? (prompts: now EP involved every two weeks) How do you now feel about the supervision you received?

5. What are your views now the intervention is over? (prompts: really pleased, excited, exhausted) What are your future plans regarding LEAP? (prompts: continuing in September, handed in notice) If you are still involved, what changes do you plan to make? (prompts: same worker in pre-school and home, less reviews, less time initially)

6. What effect, if any, do you feel the intervention had on you as a professional? (prompts: develop skills further, provide experience, alter stress levels) Did the intervention meet or not meet your expectations?

7. Did you find any aspects of the intervention challenging? If so, can you explain? (prompts: working with parents, liaising with SEN, working in the pre-schools)

8. Are there any ways the LEAP intervention could have been improved? If so, can you tell me how? (prompts: how it's structured, role of parents, techniques used (e.g. PECS), timing of visits, assessment of child's progress) Why do you think this would be better?

9. Are you aware of particular aspects that you feel limited the effectiveness of the intervention? *(If not, continue to next question)* If so which ones? (prompts: how it's structured, role of parents, techniques used (e.g. PECS), timescale, assessing progress)

10. What effect, if any, did the intervention have on the families you worked with? (prompts: helped them bond, calmer now, played with siblings, provided support) Can you give me any specific examples?

11. Is there anything you would like to add about the LEAP intervention that I have not asked?

Thank you for your time again!

For researcher's reference only:

Interview Schedule for Parents – (Time Three) **Date:..……**

Participant Code:……Days / Sessions in Nursery: ……

Child's stage of Social Communication: Social; Language; Conversational Partner

1. What changes, if any, do you feel the intervention has had on your child? *(If not, continue to question below)* When did you notice this? Can you give me any examples? (prompts: my child is able to communicate with others, my child controls emotions, my child adapts)

   Why do you think that? (prompts: only twelve weeks, sessions too short, missed sessions, child didn't engage, techniques weren't suitable)

   When we first met, you talked about your hope to see improvements in * (* based on T1 responses). Do you feel that these have been addressed? (prompts: Yes. My child is speaking more, to a certain extent. My child is showing an interest in others)

2. What part of the LEAP intervention do you think has made the greatest difference?
   (prompts: relationship between the LEAP specialist and child, how it was structured (e.g. at nursery and at home), role of parents, techniques used (e.g. PECS), timescale, assessment of child's progress) Why do you think that? (prompts: my child needs to be comfortable with the person, consistency in different settings, being able to continue with tasks)

3. Are there any ways the LEAP intervention could have been improved? If so, can you tell me how? (prompts: how it's structured, role of parents, techniques used (e.g. PECS), timing of visits, assessment of child's progress) Why do you think this would be better?

4. How do you feel about the LEAP visits coming to an end? (prompts: good - that we had a chance to be involved, learnt a lot, sad - will really miss the contact and support, worried – about the future, coping without the intervention)

5. Are you planning to continue using parts of the intervention with your child now that the LEAP visits have ended? *(If not, continue to question below)* If so, what will you do? (prompts: revert to what we did before, continue to implement a regular routine, continue to implement as many ideas as possible)

   What are your future plans for supporting your child? (prompts: child is starting in specialist provision and do not feel the need, having an ABA tutor)

6. Now that the intervention has finished, how do you feel about the role you played in the intervention? (prompts: good that I was doing something, guilty that I wasn't doing more, good to have been able to mediate between child and LEAP specialist, good that I was keeping the LEAP specialist informed, I didn't really have a role, without me there the child would not have engaged, enjoyed it, good that I could help, be an extra person) Why do you feel that way? (prompts: because child was (not) engaging, child did not progress much, without my involvement child would not have made the progress he did)

7. What effect, if any, did the intervention have on your family? (prompts: helped us bond, calmer now, plays with siblings now) Can you give me any specific examples?

8. Is there anything you would like to add about the LEAP intervention that I have not asked?

Thank you very much for your time.

For researcher's reference only:

Interview Schedule for Preschool Practitioners – (Time Three)

Participant Code:…… Interview Date:…….

Working with: Child 1 2 3 4 5 6 7 8 9 10 11 12

12. What effect, if any, do you think the LEAP intervention had on the child you are working with? If so, how? *(If not, continue to question below)* Can you give me any examples? (prompts: the child started to use more eye contact after a couple of weeks, the child is better at sharing)

    How do you know there was no effect? (prompts: there is no change) Why do you say that? (prompts: the only twelve weeks, sessions too short, missed sessions, child didn't engage, techniques weren't suitable)

13. What part of the LEAP intervention do you think has made the greatest difference?
    (prompts: relationship between the LEAP specialist and child, how it was structured (e.g. at nursery and at home), role of parents, techniques used (e.g. PECS), timescale, assessment of child's progress) Why do you think that? (prompts: my child needs to be comfortable with the person, consistency in different settings, being able to continue with tasks)

14. And how about the child's family? What, if any, impact do you feel the intervention had on the family involved? (prompts: helped them to bond, calmer, more positive)

15. What effect, if any, do you feel the intervention has had on you as a professional? *(If not, continue to next question)* Why do you say that? (prompts: developed skills further, provided experience, thought about alternative career)

    And what about the pre-school as a whole, did the LEAP specialist visits have any impact? If so, how?

16. Are there any ways the LEAP intervention could have been improved? If so, can you tell me how? (prompts: techniques used (e.g. PECS), timing of visits, assessment of child's progress) Why do you think this would be better?

17. How do you feel about the LEAP visits coming to an end? (prompts: good - that we had a chance to be involved, learnt a lot, sad - will really miss the contact and support, glad it was a bit of extra work,)

18. Are you planning to continue using aspects of the intervention with the child now that the LEAP visits have ended? *(If not, continue to question below)* If so, what will you do? Have you any examples? (prompts: revert to what I did before, continue to implement strategies used, continue to implement as many ideas as possible)

19. How do you feel about the role you played in the intervention? (prompts: interesting, good to have been able to mediate between child and LEAP specialist, good that I was keeping the LEAP specialist informed, awkward, uncomfortable) Why do you feel that way? (prompts: because child was (not) engaging, without my involvement child would not have made the progress he did)

20. Did the intervention address all the needs you hoped? *(If not, continue to next question)*
    If so, what were these? Can you give me any specific examples?
    (prompts: for the child to speak so he is understood, for the child to play with others)

21. Is there anything you would like to add about the LEAP intervention that I have not asked?

Thank you for your time!

Appendix E – Instructions and debriefing

Instructions / Briefing

Thank you for agreeing to be interviewed today.

The purpose of the interview is to find out your views about the Local Early Autism Programme (LEAP) intervention and its impact on children with autism and their families. As this is a new intervention there is no research yet evaluating it, so it will be important to find out your views.

Just to remind you, all data obtained will be anonymous. There are no right or wrong answers to the interview questions. You will not be judged in any way by the answers you provide. You have the right to withdraw from the interview at any time and if you do not wish to answer a question please say.

As I mentioned on the information sheet I will record the interviews to assist me with transcribing the data to make sure I do not miss important details. Recordings and transcripts obtained will be kept confidential.

I expect the interview to last a maximum of 30 minutes. They never take that long.

Please read the consent form and sign it if you wish to take part.

Do you have any questions or need anything clarifying before we begin?

I will now turn on the voice recorder.

Debriefing

Thank you for taking part in my research. This research was to find out your views about the Local Early Autism Programme (LEAP) intervention and its impact on children with autism and their families.

Do you have any questions?

Would you like me to email you my report when I have finished?

Appendix F – Objectives selected for each child and each child's partner

Objectives selected for each child (summarised)

JA – Joint Attention; SU – Symbol Use; SR – Self Regulation; and MR – Mutual Regulation (Prizant, Wetherby, Rubin, Laurent & Rydell 2006).

Child	Child Objective 1	Child Objective 2	Child Objective 3	Child Objective 4
1	JA 1.4 takes four turns	JA 7.1 communicates	SU 2.6 responds to visuals	SR 2.3 regulates emotions
2	JA 1.3 takes two turns	SU 1.2 imitates sounds or actions	SU 2.6 responds to visuals	SR 2.3 regulates emotions
3	JA 1.4 takes four turns	JA 6.1/SU5 points to picture or shows toy	SU 1.2 imitates sounds or actions	SR 2.3 regulates emotions
4	JA 4.1/SR1.3 - takes four turns in conversation	SU 3.5 plays alongside others	MR 1.4 expresses emotions in appropriate ways	SR 2.2 uses strategies to manage emotion
5	JA 1.4 takes four turns	SU 5.3 starts to use three words	SR 3.2 participates in new activities	SR 2.3 regulates emotions
6	JA 1.3 takes two turns	SU 1.1 copies sounds or actions four times	MR 2.6 makes choices when offered by partner	SR 2.3 regulates emotions
7	JA 1.3 takes four turns	SU 5.1 coordinates words with gaze	SR 1.7 engages in adult led task for ten minutes	SR 2.2 uses strategies to manage emotion
8	JA 1.3 takes four turns	SU 5.1 coordinates words with gaze	MR 1.2/JA 3.2 uses words to express emotions	SR 4.1 participates in new activities
9	JA 8.1 talks about past experiences	SU 5.6 starts to use 3 or 4 word phrases	MR 1.2/JA 3.2 uses words to express emotions	SR 4.1 participates in new activities
10	JA 1.3 takes two turns	SU 1.1 copies sounds or actions four times	MR 2.6 makes choices when offered by partner	SR 1.7 responds with different emotions
11	JA 1.3 takes four turns	MR 1.2/JA 3.2 uses words to express emotions	SR 1.7 engages in adult led task for five minutes	SR 5.2 uses strategies to calm self when upset
12	JA 1.3 takes four turns	JA 6.1 / SU 5 comments on action or event	SU 5.6 starts to use 3 or 4 word phrases	MR 1.2/JA 3.2 uses words to express emotions

Objectives selected for each child's partner (summarised)

IS - Interpersonal support and LS - Learning Support (Prizant, Wetherby, Rubin, Laurent & Rydell 2006).

Child	Partner objective 1	Partner objective 2	Partner objective 3	Partner objective 4
1.	IS 5.1 encourages imitation	IS 7.2 models communication	LS 3.3 uses visuals for smooth transitions	LS 4.4 arranges learning environment
2.	IS 2.1 offers choices	IS 3.2 provides time to complete activities	IS 5.1 encourages imitation	LS 2.3 uses symbols to support emotions
3.	IS 1.6 imitates child	IS 7.2 models communication	LS 2.4 uses symbols to help manage emotions	LS 4.1 adjusts social situation to support interaction
4.	IS 5.1 encourages peer interaction	LS 3.4 structures day using visuals and language	LS 4.4 arranges room to enhance attention	LS 4.8 provides activities to interact
5.	IS 2.2 waits for and encourage initiations	LS 2.2 use visuals to help understand language	LS 3.4 uses visuals to define structure of day	LS 4.1 adjusts social situation to support interaction
6.	IS 2.2 waits for and encourage initiations	LS 1.4 offers repeated learning opportunities	LS 2.2 uses visuals to help understand world	LS 4.3 modifies sensory learning environment
7.	IS 2.2 waits for and encourage initiations	IS 7.4 models appropriate safe behaviour	LS 2.1 use visuals to help express wants and needs	LS 2.4 uses symbols to help manage emotions
8.	IS 2.2 waits for and encourage initiations	IS 7.4 models appropriate safe behaviour	LS 1.1 shows clear begin and end to activity	LS 4.3 modifies sensory learning environment
9.	IS 2.2 waits for and encourage initiations	IS 7.4 models appropriate safe behaviour	LS 2.2 use visuals to help understand language	LS 4.8 provides activities to interact
10	IS 2.2 waits for and encourage initiations	IS 7.1 models communication and expressions	LS 1.4 offers repeated learning opportunities	LS 3.1 uses visuals to help understand tasks
11	IS 2.1 offers choices	IS 7.2 models communication	LS 3.3 uses visuals for smooth transitions	LS 4.3 modifies sensory learning environment
12	IS 1.6 imitates child	IS 7.3 models appropriate symbolic play	LS 2.1 use visuals to help express wants and needs	LS 3.1 uses aid to help understand steps within a task

Appendix G – Example of an interview transcript

(Interviewer's comments are in bold italics)

What changes, if any, do you feel the intervention has had on your child?

I do feel like his speech has … has improved recently … ***(yep)*** … and I do think that LEAP has something to do with that … ***(ok)*** … the intervention does ... because he's having two sessions a week which ... I don't think you can kind of discount the … ***(yeah)*** … the importance of that … certainly at nursery he's interacting much more with the other children ***(yeah)*** … and he's talking a lot more here ... he's asking for things … he's signing quite a lot more ***(yeah)*** … so when I look at the difference in the last particularly three or four months … it's been … there's been a marked improvement ... in his communication I think is the biggest … biggest thing … ***(right … great … so in the last two months … since this is actually up and running*?)** … yeah definitely … ***(do you think you noticed some changes pretty much straight away or was it more gradual?)*** … no I think it's been gradual … ***(ok)*** … and I think some of it is in line with his normal developmental path … ***(yeah)*** … but just because he is having this regularly **(*er hmm*)** I don't think you can discount that it's … it's having an effect … ***(great thanks)***

Can you give me specific examples about his language that … have been noticeable?

… he's asking for things … he's not kind of just woken up and started talking … ***(yeah)*** … but he's asking for things rather than trying to … get them himself ***(yeah)*** … or getting upset ... I think it's sort of helped create a bit of a bridge ... his turn-taking is improving ***(yeah)*** … I wouldn't say we're quite there yet … his waiting again is improving but we're not quite there ***(yeah)*** … and I know that's something that (LEAP specialist 2) particularly works on with him at nursery ***(yeah)*** ... and the social parts at nursery I've noticed he's really engaging with the other children ... he still doesn't look comfortable ***(yeah)*** … for him … I don't think it ever will but it's certainly not uncomfortable … ***(yeah)*** and he's much more receptive ***(er hmm)*** to them and they're really interested in him … and they all want to play with him ***(yeah)*** and he's starting to let them a little bit which is really nice to see ***(yeah)*** that's one of the … that's one of the biggest sort of fears you have with it … they'll just play alone …***(yeah … yeah because when we first met you were really keen for them to interact … especially the brothers … together interacting)*** … they're still typical brothers … a love hate relationship … more like an ignore hate relationship … they ignore each other most of the time … then they fight around bedtime …

Has it given the improvements in the areas you hoped?

Yes … definitely … I think the fact that it was targeted is really obvious … ***(yeah*)** … it's not just a sort of ... let's throw everything at him and hope for the best ... ***(yes)*** it was very much targeted to those two areas any way …

(yeah) … because they were the areas of sort of weakness … ***(yeah)*** … so I think the approach is fantastic … ***(right)*** … the fact that they've narrowed it down so much … ***(ok)*** … rather than this sort of vague idea that will make him look a bit more or less autistic … ***(yeah)*** … it's more functional it's helping him with things that are going to be really useful to him … ***(ok)*** … that he struggles with already ***(er hmm)*** … yeah that's … I really liked that … that was a real plus for me ... ***(ok great thank you)***

What part of the LEAP intervention do you think has made the greatest difference? … For example, the relationship between the LEAP specialist and child … how it's structured … so at nursery and at home … the role of the parents … the fact that there are particular techniques used … the fact that it's individualised targets …

I think all of those things … ***(ok)*** … I don't think … I just think because … the way it's delivered and the kind of idea behind it … ***(yeah)*** … all of those things in combination … ***(yeah)*** … make it ... make it really effective … ***(ok)*** … I particularly like the fact that he sees somebody at school and at home … ***(yeah)*** … and that I'm involved in some of it … and nursery are involved in some of it … ***(yeah)*** … and we can meet in the middle and talk about how he's doing and I don't see what he does at nursery ... ***(ermm)*** … and they obviously don't see what he does at home ***(ermm)*** and there used to be quite a big difference between him at home and nursery … ***(yeah)*** and that's starting to be less of a difference now … ***(right)*** … because he didn't speak at nursery whatsoever until about a month ago ***(right)*** … and now he talks all the time ... it was all delivered in a really good way … the whole programme was excellent …***(ok)*** … I don't think there was anything specific …the teachers in particular I guess … and they were in the right place definitely … (LEAP specialist 1) was definitely meant to come here … ***(yeah)*** … and (LEAP specialist 2) was definitely meant to be in the school setting … ***(yeah)*** … and (LEAP specialist 2) gets an awful lot out of him ***(yeah)*** there ***(yeah)*** whereas (LEAP specialist 1) is a bit more subtle ***(yeah)*** … and I think this environment suited her better ***(ermm ok)*** although I didn't see them in the opposite environment so you know ***(yeah)*** maybe it wouldn't be that way but that's how it seemed … ***(yeah)*** I think maybe (LEAP specialist 2) pushes him a bit further ***(right)*** because I'm not there … that's always a possibility … ***(ok great… thank you)***

So, are there any ways the LEAP intervention could have been improved? … and if so, can you tell me how?

I'm not sure … **(yeah)** … I think it it was organised really well ... I think the control has been really important … ***(the control?)*** … the kind of control of the … of the thing you know there's … there's lots of paperwork behind it … ***(oh yeah)*** … there's … it's not just sort of anecdotal … there's plenty of … it's evidence based … ***(yeah ok) … (the fact that it's all structured?)*** … yeah … ***(So not sure? … you think … at this moment you can't think of how it could be improved in any way?)*** … No I don't think so … ***(ok …that's all right … thank you)***

How do you feel about the LEAP visits coming to an end?

Oh, I'm really sad … yeah … we've grown very close to (the LEAP specialists) … ***(yeah)*** … they'll be really missed … ***(yeah)*** … especially now as we don't have anything ongoing for (younger son with Autism) just yet … ***(ermm)*** … so we've got a bit of a gap … because we're losing our Portage teacher at the end of … summer … as well … ***(hmm)*** … well at the end of term … so I think there will be a big gap for us ... I mean … we will be busy because (son) is starting school … ***(yeah)*** … so it's not sort of … it's not like everyone's disappearing and we've got nothing … ***(yeah)*** … and hopefully (younger son with Autism) will get LEAP … sooner rather than later … ***(yeah)*** … and then we can start again ... ***(yeah)*** … yeah, we'll be really sad to ... we really enjoy (LEAP specialist 1) visits ... ***(thank you)***

Are you planning to continue using parts of the intervention with your child once it's ended?

Yeah, (son) will be having the attention autism programme at school … ***(oh yeah)*** which is down a kind of similar vein … ***(yeah)*** … to LEAP … and we use a lot of the … sort of things we do with LEAP anyway … ***(yeah)*** … day to day ***(er hmm)*** … we do … I'm always down at his level ... ***(yeah)*** … and we do a lot of carpet time and kind of (LEAP specialist 1) particularly brings a lot of sensory tactile stuff ***(yeah)*** to play with … which both of the boys really enjoy ***(yeah)*** … so we'll carry on with that ... (son) has recently started actually enjoying to play with Play-Doh ***(er hmm)*** which he wouldn't play at all with before ... so I've got lots of salt in the cupboard … ***(yeah)*** for making Play-Doh a lot … ***(yeah)*** … yeah, we're going to carry on with the fun bits ... ***(because I remember you were saying last time about the messy play and you were happy having it)*** … yeah we're not precious at all … about the mess here … you can't be with two toddlers … (the parent then spoke about her son's transition day at the school and meeting other children with communication and attention difficulties) … actually that is one of the difficulties with having LEAP at home is that there's a lot of distraction at home and at nursery … so perhaps that … is a kind of minus point … but I don't see that that's changeable ... ***(no)*** … I think that … you know … that's something you just have to work around ... ***(yeah)*** … whereas at school they have more opportunity to sort of pare down resources … ***(erm erm)*** … I know that when they start they said that their classroom will be bare … ***(erm)*** … apart from PECS pictures ***(oh right)*** so if they want something they are going to have to use the pictures to ask for it ... ***(right)*** … which is really good ... ***(yeah)*** … it's a really good start for him … because we know that he's able to identify pictures … we know that he can make that connection ... so that's a really good … a really good way for him to start …***(yeah)*** …having to use them … whereas here he doesn't have to …***(yeah)*** … he can get what he wants off the shelf … ***(great thank you)***

So now that the intervention has finished, how do you feel about the role that you played in it?

I think it's quite empowering for … for parents … particularly if you haven't done anything like this … I mean we obviously had Portage … ***(yeah)*** … first so we had a bit of idea about … how he learnt best ... ***(hmm)*** … but it's definitely empowering to find out how your child learns … ***(yeah)*** … and to learn techniques that kind of assist that rather than working against it ***(yeah)*** … trying to use the techniques that you would use with a regular child ... back before we even had Portage I went crazy over flashcards and things just trying to get him to talk without ever thinking he doesn't get this … ***(no)*** … you know this isn't in his ***(yeah)*** … his makeup to understand what we're doing here because he doesn't want to sit and look at these things ... ***(hmm)*** ... whereas Portage and LEAP have kind of taught us to work around the problem and almost … almost go in the backdoor … ***(yes)*** … without him to see … and that's how we get the best out of him to make him think it's his idea … ***(yeah)*** … and once he's got something he flies with it ***(hmm)*** ... we had this with the potty training ... he was so resistant to wearing pants even though he had bladder control … he was dry through the night …he would not wear pants … ***(hmm)*** … then when you put a nappy on he would just pee in the nappy ... ***(right)*** … and we went weeks and weeks and weeks trying to get him to wear pants ... ***(right)*** … and then one day … we managed to get them on him and he's been dry ever since ... ***(yeah)*** … it was the easiest potty training in the whole world …***(yeah)*** … since he's had the pants on … even my oldest son … ***(yeah)*** … but that just (son) through and through, if he works out it's a good thing to do, once he understands the purpose of it … ***(yeah)*** … and that's quite often the real difficulty with him, it's getting him to see a purpose of something ***(yeah)*** … but once you do ***(yeah)*** … and I think LEAP worked with that really really well ... ***(yeah)*** … ***(thank you … so you're happy with the role you played)*** … yeah … definitely … I felt really involved … ***(yeah)*** … from the very beginning I think ... but everybody likes to talk about their child … ***(yeah)*** … and you know … the first kind of meeting with (Assistant EP) came here with (LEAP specialist 2) and we went through the whole questionnaire and it does help … ***(yeah)*** … it really helps ... to kind of … sometimes it helps you to organise your own thoughts ***(er hmm)*** … because there's quite often this … if you don't have much support … there's quite often this … sort of whirlwind of ideas and thoughts and sometimes it's really hard to pick them apart … and to decide on the best path … and there's so much information and there's so much coming at you from various people telling you different things … or people not having an opinion are just as bad … but … when you sit down and go through a questionnaire or something like that it really helps to organise everything in your own head … ***(hmm)*** … and then when you see the … the kind of results that they pick up with the chart … that's …***(hmm)*** … that's really effective because you can kind of see it on paper … ***(hmm)*** … you watch your child every day and see their quirks and their differences … ***(hmm)*** … but when you see on paper the actual areas that look like they are really struggling that helps to direct it a little bit more ... ***(hmm)*** … I mean before I would have just … when people say what are his difficulties … I would say everything … ***(right)*** … because it felt that … it felt that way… ***(yeah)*** … but then when you actually see that some areas he's not struggling in at all … ***(yeah)*** … in some areas he's developmentally normal … ***(hmm)***

… that helps to make you kind of think … oh you know it's not … it's not that bad we can work with the stuff we've got ... ***(yeah … thank you)***

So, what effect, do you think, the intervention has had on the family as a whole?

I think it's nice that the boys can sit down together when (LEAP specialist 1) is here and it really is the only time they do sort of sit and play together … ***(right)*** … even though they are sometimes not playing with the same toy … ***(yeah)*** … or doing the same activity ... we did have them sitting up at the table the other day which they wouldn't normally do … ***(hmm)*** … and they were doing different things … (son) was doing Play Doh and (younger son) was playing with a game … but they were sort of sitting quietly … ***(yeah)*** …and playing in the same space without being particularly annoyed with each other ... so yeah that definitely … I think that's the … that's the area that needs the most work anyways … their relationship … ***(yeah ok)*** … and it's wonderful that (LEAP specialist 1)'s involved (younger son) with everything … it's always difficult when there are two of them … and it makes it even more difficult when both children have special needs … ***(yeah)*** …and you can't sort of explain to one that actually this is (son's) session … ***(yeah)*** … so do you want to make yourself busy …… ***(yeah)*** …so she's always been really happy to work with both of the at the same time … ***(er hmm … thank you)***

Is there anything you would like to add, that I have not asked?

I don't think so ... I think that's fairly in depth … ***(brilliant ok … thanks very much again)***

Appendix H – Example of coding process with excerpt from transcript

First changes in the child were identified in the transcript (highlighted in green below) and coded and labelled as “changes in child”.

I do feel like his speech has … has improved recently and I do think that LEAP has something to do with that the intervention does ... because he’s having two sessions a week which ... I don’t think you can kind of discount the … the importance of that … certainly at nursery he’s interacting much more with the other children … and he's talking a lot more here ... he’s asking for things … he’s signing quite a lot more … so when I look at the difference in the last particularly three or four months … it’s been … there's been a marked improvement ... in his communication I think is the biggest … biggest thing yeah definitely … no I think it’s been gradual … and I think some of it is in line with his normal developmental path … but just because he is having this regularly I don’t think you can discount that it’s … it’s having an effect

… he’s asking for things … he’s not kind of just woken up and started talking … but he’s asking for things rather than trying to … get them himself … or getting upset ... I think it’s sort of helped create a bit of a bridge ... his turn-taking is improving … I wouldn’t say we’re quite there yet … his waiting again is improving but we’re not quite there … and I know that’s something that (LEAP specialist 2) particularly works on with him at nursery ... and the social parts at nursery I’ve noticed he’s really engaging with the other children ... he still doesn’t look comfortable … for him … I don’t think it ever will but it’s certainly not uncomfortable … and he’s much more receptive to them and they’re really interested in him … and they all want to play with him and he’s starting to let them a little bit which is really nice to see

Initial codes were devised for the comments. The initial codes for changes reported in time 3 interviews by parents are presented below. References are the number of particular comments linked to the code and sources refers to the number of participants making the comments.

Comment Topic			Sources	References
Changes in Child			12	85
	No change		1	5
	Positive		12	80
		Attentive	3	5
		Communication	4	6
		Engagement in activities	8	13
		Follows adults' instructions	3	4
		Greater confidence	1	1
		Interaction	7	14
		Play	5	10
		Self-regulation	3	4
		Sharing	2	2
		Speech	2	8
		Tolerates other children	1	1
		Transitions	2	3
		Turn-taking	6	6
		Waiting	2	3

Then SAPO forms were used to help to determine whether coded changes related to social communication and/or emotional regulation.

. I do feel like his speech has … has improved recently and I do think that LEAP has something to do with that the intervention does ... because he's having two sessions a week which ... I don't think you can kind of discount the … the importance of that … *certainly at nursery he's interacting much more with the other children* … and he's talking a lot more here ... he's asking for things … **he's signing quite a lot more** … **so when I look at the difference in the last particularly three or four months … it's been … there's been a marked improvement ... in his communication** I think is the biggest … biggest thing yeah definitely … no I think it's been gradual … and I think some of it is in line with his normal developmental path … but just because he is having this regularly I don't think you can discount that it's … it's having an effect
… he's asking for things … he's not kind of just woken up and started talking … but he's asking for things rather than trying to … get them himself … or getting upset ... I think it's sort of helped create a bit of a bridge ... his turn-taking is improving … I wouldn't say we're quite there yet … his waiting again is improving but we're not quite there … and I know that's something that (LEAP specialist 2) particularly works on with him at nursery ... and the social parts at nursery *I've noticed he's really engaging with the other children* ... he still doesn't look comfortable … for him … I don't think it ever will but it's certainly not uncomfortable … and *he's much more receptive to them and they're really interested in him … and they all want to play with him and he's starting to let them a little bit which is really nice to see*

For example, the comments above in italics refer to interaction with others which seem to be part of joint attention shown below. Turn taking was also considered an aspect of joint attention.

5 Shares intentions for social interaction (↔ JA7.2, JA7.3, SU4–SU5)
JA5.1 Requests comfort (≈ MR3.1)
JA5.2 Requests social game
JA5.3 Takes turns
JA5.4 Greets
JA5.5 Calls
JA5.6 Shows off

In addition, comments underlined above refer to speech and talking appear to be examples of symbol use shown below.

6 Understands a few familiar words
SU6.1 Responds to own name
SU6.2 Responds to a few words in familiar social games
SU6.3 Responds to a few familiar person, body part, or object names
SU6.4 Responds to a few frequently used phrases in familiar routines

It was thought that the comment in bold relating to signing would also be an aspect of symbol use.

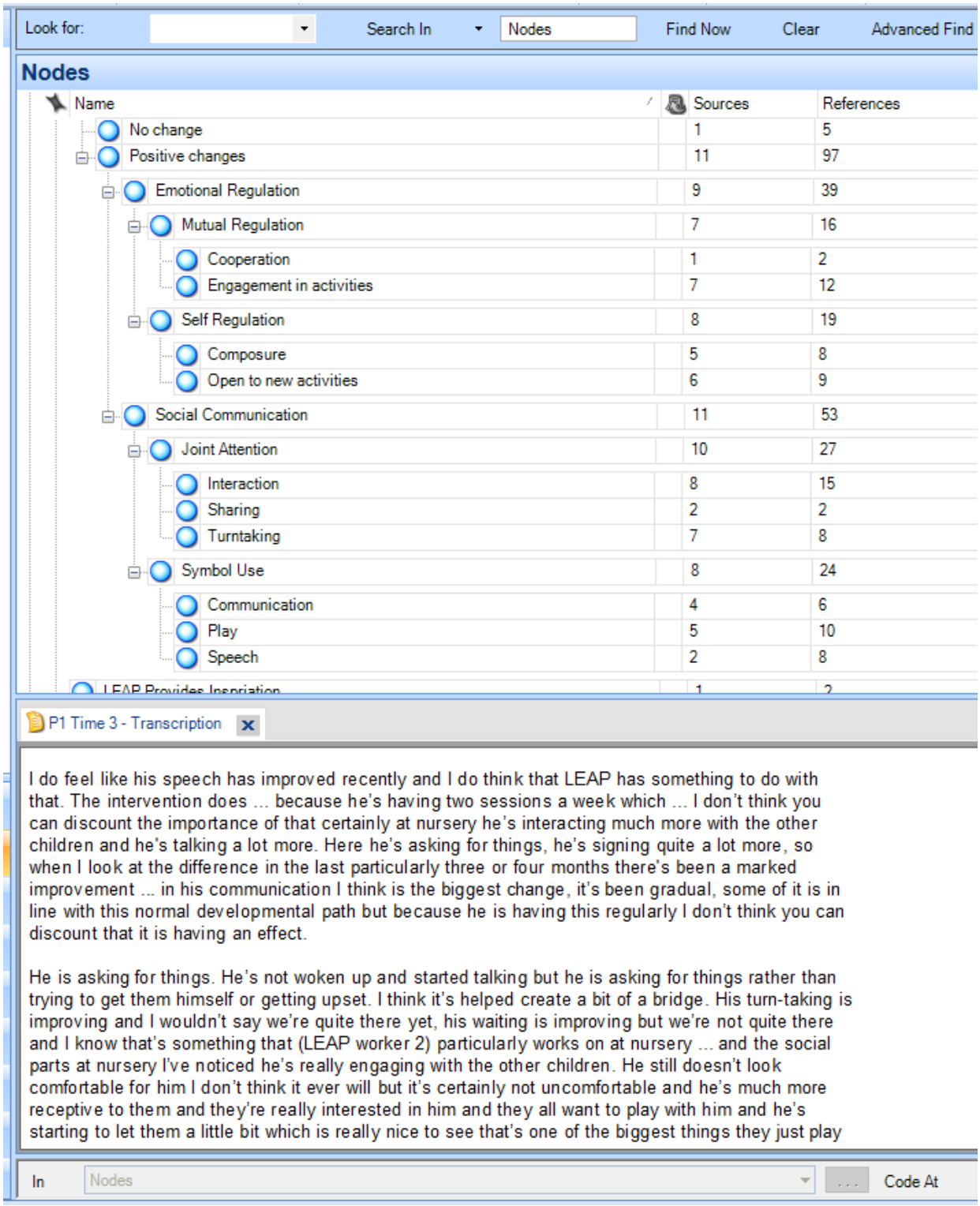
4 Uses gestures and nonverbal means to share intentions (↔ JA4–JA6, MR1, MR3.3, MR3.4)
SU4.1 Uses proximity
SU4.2 Uses facial expressions
SU4.3 Uses simple motor actions
SU4.4 Uses conventional contact gestures ☐ give ☐ push away ☐ show ☐ reach/touch ☐ point/touch
SU4.5 Uses conventional distal gestures ☐ wave ☐ distal reach ☐ distal point ☐ clap ☐ head shake ☐ head nod
SU4.6 Uses reenactment or symbolic distal gestures
SU4.7 Uses sequence of gestures or nonverbal means
SU4.8 Coordinates gestures and gaze

The comment highlighted in yellow referring to waiting was considered an aspect of emotional regulation.

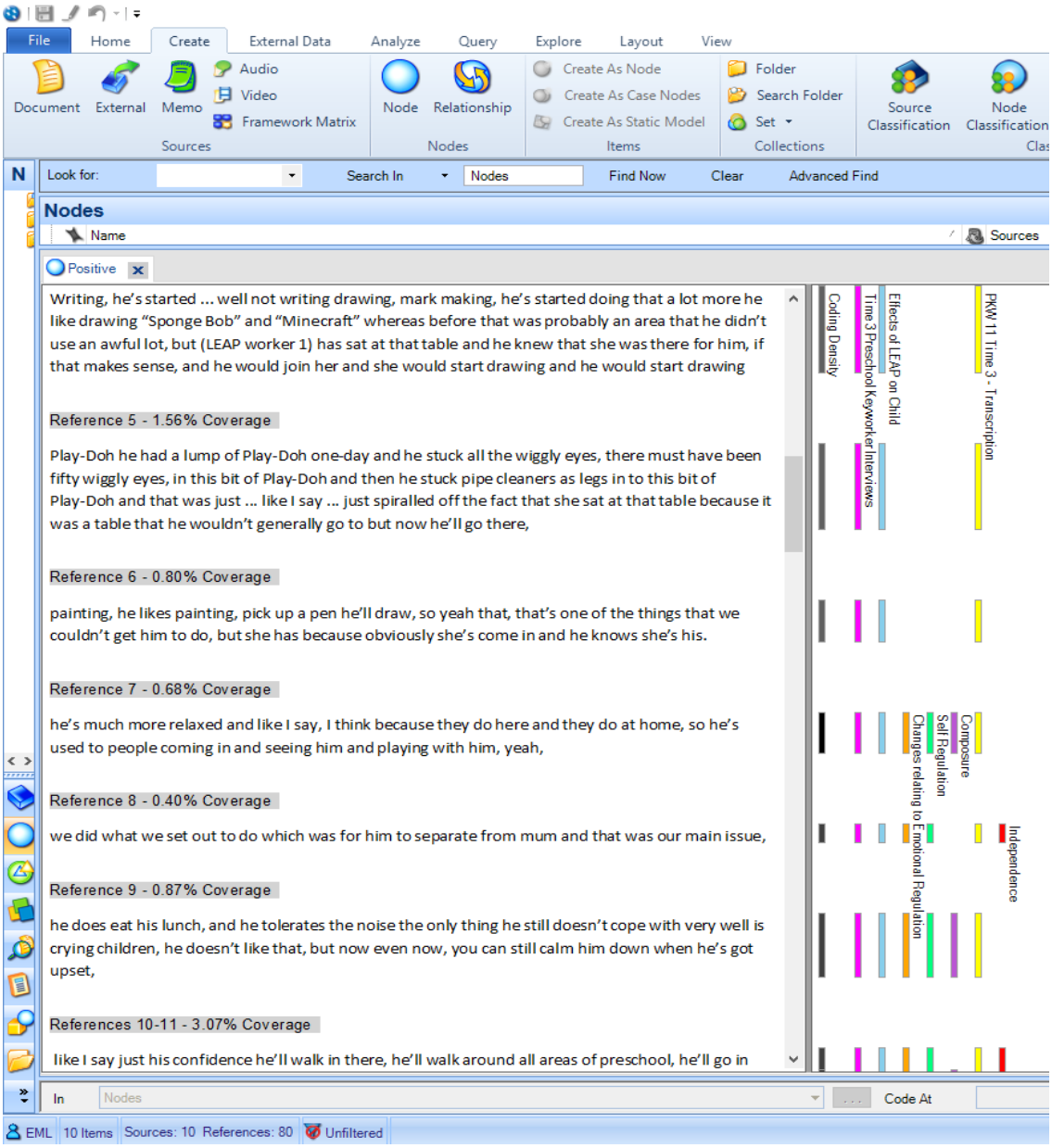
1 Demonstrates availability for learning and interacting
SR1.1 Initiates bids for interaction (= JA1.1)
SR1.2 Engages in brief reciprocal interaction (= JA1.2)
SR1.3 Engages in extended reciprocal interaction (= JA1.3)
SR1.4 Responds to sensory and social experiences with differentiated emotions
SR1.5 Demonstrates ability to inhibit actions and behaviors
SR1.6 Responds to a variety of familiar words and phrases (= SU6.2)
SR1.7 Persists during tasks with reasonable demands
SR1.8 Demonstrates emotional expression appropriate to context

Separate themes were created in NVivo to group coded comments. Comments were revisited and labels revised as necessary when the label was too broad. Some codes were extended when it appeared that the comments were linked with other similar comments. For example, the label “self-regulation” was considered too broad and these comments were relabelled “composure”. “Tolerating other children” and “waiting” were considered too specific and these comments were also considered aspects linked to “composure”. Modified codes for the changes referred to in the time

three interviews with parents are illustrated in the image from NVivo 10 below as the nodes.



Sections of the transcripts that had been coded could be recognised easily in NVivo using “stripes”. Below is an example of a transcript with the stripes on the left side of the image.



Comments relating to the reasons for the noticed changes, improvements to LEAP and role played in LEAP were also identified in the transcripts. These comments from participants were also analysed. Initial codes were modified when linked with similar codes. For example, the initial codes for suggested improvements mentioned in the time three interviews are shown below.

Initial codes relating to improvements suggested by parents, preschool practitioners and LEAP specialists in time 3 interviews.

Parent Interviews			Sources	References
	Suggested Improvements to LEAP		11	48
		Additional small group sessions	1	1
		Information sessions	1	2
		LEAP visits at different times	1	2
		Longer sessions	2	2
		Missed Sessions	2	5
		More Sessions	9	16
		One LEAP person	1	2
		Reviews too often	1	1
		Sessions in holidays	5	5
		Start sessions earlier in year	4	4
		Targets too high	1	1
		Unsuitable activities	2	4
Preschool Practitioner Interviews			Sources	References
	Suggested Improvements to LEAP		9	9
		Different timings of sessions	2	3
		High targets	1	1
		Longer session	1	1
		More sessions	1	1
		None	2	2
		Review targets	1	1
		Same LEAP person involved at home and setting	2	2
LEAP Specialist Interviews			Sources	References
	Suggested Improvements to LEAP		3	22
		Communication	1	2
		Control	2	4
		Expectations for family	1	3
		High targets	2	5
		Liaising with school	3	3
		longer sessions	1	1
		More supervision	2	4
		Same LEAP person involved at home and setting	1	4
		Resources	2	2
		Review targets	1	1
		Starting earlier	1	1
		Working with professionals	2	3

In this case separate comments were linked as long as particular features that needed to be imporoved were not lost in coding process.

Appendix I – Examples of coding checked for validity

Transcripts of responses relating to changes noted in child

Interviewee		Theme	Subtheme
Parent 5 Time 1	(How do you think leap will benefit your child?) again it's a one on one … it's … it's getting him … see a year ago for example … he would not sit and do anything … at all … I mean he's got the most amount of energy … I know everyone says that about their children … but he has the most amount of energy … he doesn't stop … he's very chaotic … and like with Portage … LEAP will … they will sit … they'll interact … they'll play … they'll work on his PECS … they'll work on … not Makaton … but we were doing building today … and they were still the same … and he was doing it … and he was … I mean he engaged for 45 minutes this morning … which I think is good for any three year old … three and a half year old … he was brilliant this morning … and he's playing a lot better … he's engaging … he's listening … all those skills that he needs … and on the speech and language pyramid … we need to get the concentration … and the engaging … and the understanding … his understanding has come on massively … so I think it's going to work on his pyramid basically … to help him come along with speech … and to prepare him for school … because he starts school in September … and that's a big thing … for a child that can't even say his own name … so I think it's going to prepare him for school … and it's going to work on all of the areas that I want to work on … his communication … his interaction … his play skills … his … just responding to adults … and listening … and behaving … and cooperating … so yeah those things …	Emotional regulation	Engagement in activities
Parent 9 Time 2	(Are there any ways LEAP is different to what you expected?) It's lived up to my expectations. I'm a hundred percent LEAP at the moment, a hundred percent LEAP actually even a hundred and ten percent LEAP, it's very good, you know, it's interaction, some of the stuff they bring though, (LEAP specialist 1) brought a monkey, which goes around on the floor, and you take the banana out of its mouth and it's bum wiggles, it's so loud, I said to (child) "no I'm not buying you that one", but yeah I mean, he again he never used to be interested in other toys, and they'd bring ...it was part of the ... one of the things they were supposed to do, getting him to play something different every week and he's every single week, he's not ... yeah he's	Emotional regulation	Open to new activities

	shown interest in everything they give him, which is really good as well, because before he wasn't ... I knew he was improving but not as much as I have to say that he has done, so it was quite a shock, there were certain things that they brought, I thought no he's not going to like that, and he did, you know, so again I think it's the banter between him and (LEAP specialist 1) as well, the way they are together, I mean even with (LEAP specialist 3) at nursery she comes out after the session and always has a chat with me, tells me what he's done, how was he, so for instance this week he was a bit of a naughty boy for nursery but when she came in he was good as gold, and he did what he was told, he did get a bit ... at the end but, so they're always informing you as well, which is good, they kind of keep you in the loop, which is what you want really, especially when you're not there to see it yourself, but yes, so a hundred percent LEAP. (Have you been taught particular techniques?) I've been told not to do PECS now, there are a few Makaton, but the Makaton that they've given me was what he speaks anyway, so that's why Makaton has kind of stopped, they've not ... that's mostly through speech and language have told me to, and not worry about PECS as well, I mean I went out and bought a load of PECS stuff which now they're saying don't worry about it, so it's a bit of a waste of money, but, because this has been ongoing for a long time, I've been going on about PECS, because they do it at nursery, but now they're mostly doing like the 'now and next' with him not so much PECS as to get him to communicate, it's more like the 'now and next' and 'I want board' and things like that, but because his speech is coming on, I don't think they tend to use it as much, I had knowledge of (now and next) before. (How do you think LEAP is affecting your child?) Oh I mean, as I've been saying all along, yeah, a lot of improvement it is, very much ... improvement, language, social skills, just a general really just the way he is, especially as I say when I observe him with (LEAP specialist 1) you know as soon as he sees (LEAP specialist 1)'s car , he gives her a hug goodbye and says "thank you" so yeah there's a lot of the interaction is very good, I mean that was improving before LEAP, don't get me wrong, that was improving but ... I do ... again I can't say whether it's definitely down to LEAP, whether it's nursery, you know I not going to keep blowing their trumpet, but you can see a difference in him, since LEAP started, but you know, I'm not saying	Social communication Social communication Social communication	Speech Speech Interaction with others

	that's just LEAP, that's nursery obviously you can't leave nursery out, because they're doing a very good job as well. (Does it fit in with daily activities?) I mean it's a routine every Tuesday, every Wednesday so he knows, I'll say to him, you know (LEAP specialist 1)'s coming later, he knows exactly who (LEAP specialist 1) is, you know, he's ready, he comes in, has his lunch from nursery and he has (LEAP specialist 1) because she just after 1 o'clock, and then like when they're not here, obviously I continue doing one-to-one, we might play these, play doh, before it was mummy do it, but now he's trying to make a load of mess, no sorry, trying to make shapes and things like that, so yeah, don't get me wrong it is nice, because as I said before, I used to think maybe he had a sensory issue, because he wouldn't touch ... didn't like his hands being dirty, and things like that, now it's you know ... I don't think he does messy play as such at nursery, but he'll quite happy go and help his dad in the garden, play with mud, using play doh not a problem now, because as I said before it would be, he'd open it, touch it quickly and then give it to me or stop but yeah, he's coming on nicely.	Emotional regulation	Open to new activities
Parent 8 Time 3	(What changes, if any, do you feel the intervention has had on your child?) She is better at sharing things like this (a toy) now she won't just snatch it off you ... she'll say "that's mine" or "I try" if she wants something that you've got ... so that's helped whereas before you couldn't touch it ... still now you quite often can't touch it ... but she is better now she doesn't come and snatch it straight away ... probably about halfway through we started really noticing it ... some days are better than others, but her target was 1 to 2 minutes for like sitting to eat her dinner, and some days she does that so easily, whereas other days you've got no hope ... so I would say overall yes it's better, especially they found most times at nursery ... she's better as well ... we still have quite a lot of running around here at dinner time ... but it's better ... I would say more sitting than not sitting ... even if it is just for those two minutes, that's the target so ... (How do you feel about the role you played in the intervention?) I've been able to join in games ... that's not something I get to do often ... that's good ... we've done a lot more variety of games because there is one thing where if she's playing with her ... what she calls creatures, all her animals we put them into what they belong ... whether it's dinosaurland, zoo or farm or insects and sea creatures ... she won't play that with	Social communication Emotional regulation Emotional regulation	Sharing Composure Composure

	anyone else ... she makes me get on the floor with her ... and that's the only one we actually play together ... so now all of a sudden there are a few more games ... that we've been able to play together ... also she lets you read sometimes ... it depends on the book ... but sometimes she will let you read to her now.	Emotional regulation	Open to new activities
Preschool Practitioner 7 Time 1	(What if any impact do you think LEAP will have on the child you are working with?) … well I think it's been helpful to him … I think it's also been … where it's been particularly helpful is that his parents received his diagnosis fairly recently … and they were struggling to really come to terms with what his needs were and how to support them … and quite naturally I think they thought that actually he would grow out of it … and having a few non autistic role models around him would support him with that … which of course to some extent they do help to … to model behaviours … but I think where it's really helped is for them to now have a specific understanding of what his autistic difficulties are and how they can support them … and helping them to come to terms with his diagnosis … they have decided that he will be going on to a specialist placement … he's been offered a specialist placement … in view of the the level of his needs … and I think that being involved in the program's helped them to to have a level of knowledge to reach that decision … in terms of the child himself … he's starting to become more vocal … in certain contexts … interestingly where he is most vocal … is where he's leaving the nursery in the afternoon he's coming out with his key worker … and he's going up to the library … and we have a little reading recovery room that's free in the afternoons … now when AEP and the other ladies met … when they've been coming in to deliver the intervention they've been taking him up there to work with him on a one-to-one basis … and (other practitioner) has been taking him up there every afternoon … to do some targeted work with him … when he's in there he's very very vocal … it's still very scripted … and it's it's not necessarily language for communication as such … but it's language that's emerging … but it is in that context … and not when he's back in … the nursery so that's our next step really … here's what they have said … they've said that the emotion cards have been really helpful … they recommended to use emotion cards and he's now starting to recognise happy, sad, clean, dirty … and he can match the emotion puzzles … he's calm and he listens and follows instructions … stop listen look and	Social communication Social communication Emotional regulation Emotional regulation	Speech Speech Label emotions Composure Turn taking

	wait … with visual clues and gesture … he's starting to take turns with an adult … still needing lots of modelling with the children … starting to follow an adult led activity … again if it's with a familiar adult … and when he's in the little room … so he obviously realises that when he's in that little room … he's doing something that's a bit different … but it's now getting that translated back into the main classroom … they were starting to use now next boards and that's been something that he has found really really difficult over time … we talked about using objects of of reference instead with him … he's very very focused on number and also print … so he will want to do those activities over and over again on a very repetitive basis … so now what we're try to do is insert other activities into his schedule … that he wouldn't normally choose to do … he was very very resistant to that to begin with … but they're starting now to see a little bit of progress … he's recognising animal names and starting to use the word as well …	Social communication Emotional regulation	Cooperation
Preschool Practitioner 6 Time 3	(What effect, if any do you think LEAP had on the child?) I think its primary effect is in the amount of time the child is able to engage in activities, prior to LEAP arriving he would occasionally engage in activities for perhaps a minute or two, but now he can sit for more extended periods with good focus up to five minutes, so it's still not lots but it's a good improvement. He loves playing with Play-Doh and yesterday he went and sat down at the Play-Doh table of his own accord, and rolling the Play-Doh and things like that for about three or four minutes which is pretty much a record, I don't think I've really seen him sit at something for that long which is really good. (Did LEAP address all the needs you hoped?) Absolutely, yeah. It addressed lots of different needs, the primary one being his length of focus which was addressed in a big way, but also lots of different things, like his independence, being able to sit at tables and drink from cups. When the LEAP team first arrived, at lunch time we had (child) sat on a separate table because historically he had not been able to deal with the other children and would get up and leave, and (LEAP specialist 3) said why don't you just try him on the normal table again, so we sat him down and he was fine and so things like that where we were kind of almost set in our ways, where we had someone from the outside coming in and saying well have you tried this and it yielded good results. So it was nice to have	Emotional regulation Emotional regulation Emotional regulation Emotional regulation Emotional regulation	Engagement in activities Engagement in activities Engagement in activities Engagement in activities Independence

	that. He sits at a table with other children every day now.	Emotional regulation	Composure
LEAP Specialist 1 Time 1	(What if any impact on children you are working with?) … I think it will be very interesting for the children … I think it's it's a twofold thing really … because now these children we obviously only have one term … with them before they go on to school … so I think that … it will impact them … their transition … going into school and that's something I'm really interested in because as a teacher … when you've got children with ASD coming into your class … with nothing … you know they come in … and you may have a couple of reports … but you don't have necessarily any support of strategies … and we're going to be able to work with the children and families to assist that transition … and with the schools … so I think that will be a major positive of this short-term period … I think it's going to enable them … to cope and manage their life better … their daily activities their daily challenges and also with the family … you know I think a key part of this is the family … so I think when we're running it again from September … we'll obviously have a whole academic year … and I think there we'll really be able to … get stuck in … and maybe we'll be able to take children that are three and have … even two years with some of them … I mean I'm not sure about that … but I think we'll see more impact then … but I see this as a … let's get in there do everything that we can to support them … in … and and some things we've planned you know maybe … their needs are going to change quickly … so we can respond to all of those things … but just getting basic things in place … whether it's teaching them Makaton so they can communicate better … installing the PECS system with them … so they can communicate better … I think and … helping them to manage some of their deregulation I think would be really positive as well … because you see that a lot and particularly maybe in preschools … supporting in preschools I think … some of the environments need more support than others … I would say so … I think just generally … I I envisage that it will help ... a key part is that the families and the preschools continuing our work … so getting them on board is key to see the full … impact of what we're doing …		
LEAP Specialist 3 Time 2	(What if any impact do you think LEAP is having on the children you are working with?) Children, I mean this job is the best job in the world and it's the worst job in the world, it's the two, it's up, down, up, down, and the up is what is so incredible to see in this short		

	period of time, for some children, huge steps, you know, a children that I'm working with he is going to mainstream with support that, now this was a child that ... he's never been to nursery he can't talk, he used to absolutely fly off in a rage, scream, shout, bite, scratch, jump on you and whatever, who now will engage sitting at a table, for 45 minutes plus, in activities, like we would do in school, who can start to say words now, who can see something that he would have absolutely freaked out at, and say to me and try to push it away, and I'd say "no, we need to have a go", and we'd take it out and do a bit and will engage, so that is what LEAP has done for that child, it's allowed him to get to a point where he can go to mainstream, you know, and you would never have thought that, and he's I suppose, he is the perfect model, for the empowerment model, so he and his mum and dad, there's no nursery intervention at all, so everything about them is them, and they have taken on board what (LEAP specialist 2) and I have been able to model, and show them and they just taken it and gone with it, and that's what they do, and he is a different child as a result, so that is just way up there, and that is LEAP at its best, you know it really is, so yes, you know, I think for other children the steps and the progress they've made is much smaller but that for them is still progress, and you see from the families and talking to them that actually that's good, you know, that they can see it, sometimes they need to be reminded, and you say, "do you remember when I used to come in and they couldn't and they wouldn't ...", "oh yeah" you know, for one child it's about ... his success story is about showing his emotions, and for his family that's huge, because he was completely deadpan face, you didn't know if he was happy or sad, he didn't ever have a meltdown, there was just nothing, but the first time I met him I could see something in his eyes, just that little sparkle, and we have just worked and worked and worked, parents you know this is the whole ... we, everybody and now he laughs and he giggles and (before) I never saw that change in the face, I mean dad has said, that he was mourning the child he hadn't got, so now he says he's got his (child 10) and he is not on that pile with all the other children, but he's there, you know, there is just ... well dad is a different person, he is enjoying his son, and that is just brilliant.	Emotional regulation Emotional regulation Social communication Emotional regulation Social comm and emotional regulation Social comm and emotional regulation	Composure Engagement in activities Speech Open to new activities Sharing emotions Sharing emotions
LEAP Specialist 2	(What effect, if any, do you think LEAP had on the children you worked with?) I think, because we were		

Time 3	working on many areas, so many of them felt better in social situations with other children, so I found it very interesting that they would try, some of them like (child 1) for example, started giving cuddles, kisses, he's got his best friends at the moment so in this area, many of them were calmer, generally calmer so we were working on their aggression for example, so we provided strategies for parents and teachers in nurseries and they knew how to cope with their emotional difficulties, we had children who were sleeping better because we told them for example not to watch iPod before they go to sleep, all those kind of things, with eating and generally with communication because we were providing visual support, lots of visual supports, so I think that was also very important and many families stated that their children at the moment are using pictures to communicate, it's not like proper PECS I would say because it was just a few ones, but they were using choice boards, "now and next" and things, and it was working especially during meal times, I think because if you're hungry you really want to get something quickly, and after a few weeks of working with them, they knew they have to point and then they will quickly get something, so yeah, meal times very often were easier for children, parents, carers, yeah. (when you notice any changes) I would say after Easter, so we've started in February/March but after Easter, so we haven't seen them for two weeks and that was the time when parents had to use strategies to cope better during that time without LEAP so I would say proper changes I have seen after Easter. Parents are quite worried about breaks without any specialist provision so they had to just use it, try to use these methods, and I think that break worked well for some of our children. One boy, so we were working on his communication and he started to use the same first sounds of the words, so before Easter we were trying to encourage mum to do as much as possible to work around that area and she got these two weeks to work on it and when we came back in the week after Easter, and he said "ball", I was crying, she was crying.	Social communication Social comm and emotional regulation Emotional regulation Emotional regulation Social communication Social communication Social communication	Interaction with others Sharing emotions Composure Composure Non-verbal communication Non-verbal communication Speech