



**Analysing Parental Involvement in the Delivery of Speech Interventions for
Children with Speech Sound Disorders**

By

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Acknowledgements

This research is the culmination of a journey that began in 1980 in a primary school in North East England whilst I was doing undergraduate research. In that school three 5-year-olds helped me discover the rewards of working with children with speech sound disorders. My interest in this client group and the way that their families respond to the challenge of carrying out home practice has developed through my professional career. I have often reflected on the challenge of empowering parents to work on their children's speech and why some parents find this task difficult.

Working with 13 children with speech sound disorders and their families on their journey to achieving intelligible speech during this research has been a privilege. I would like to acknowledge the enthusiasm of the families. I hope that they enjoyed the intervention sessions as much as I did.

My PhD journey has been long, the colleagues who have supported me over the years are too numerous to mention but I appreciate everyone who has patiently listened to my moments of enthusiasm or despair. I have been blessed to work with a strong and resilient team; without their help this research would have remained a dream.

I thank my PhD supervisors Hilary, Sarah and Ray for their guidance and the wisdom they have shared with me. They have supported and encouraged me through the times when the competing pressures of a full-time job, part-time study and more recently a global pandemic have made completion seem impossible to accomplish.

My family also deserves recognition for continued encouragement and for letting me sit at my computer from early in the morning during weekends and vacations.

Thank you all

Abstract

Background: Speech and language therapists (SLTs) frequently involve parents in intervention activities for children with speech sound disorders (SSDs) (Sugden et al., 2018a). However, little is known about: a) how parents are involved in speech intervention sessions, b) whether parents' use of supportive strategies is the same as SLTs and c) parents' experiences of being involved in the interventions. This study aims to: compare how SLTs and parents use strategies to support children with SSDs; and to analyse what parents talk about during their speech sound interventions.

Method: The study uses a mixed-methods design to examine speech intervention activities for 13 children (aged 3:0-6;11 yrs) with SSDs and their parents. Eighty-two intervention sessions were recorded, producing 51 hours of data. Analyses of the recordings using quantitative and conversation analysis (CA) approaches examined parents' and SLTs' use of supportive interactional strategies. A thematic analysis (TA) using Framework Method (Ritchie & Spencer, 1994) examined what the mothers said during the interventions.

Results: The quantitative analysis showed that SLTs and parents differed in the way intervention strategies were used to elicit, evaluate, and repair speech targets. The SLT used the more explicit strategies. There was no evidence that parent strategy use changed during the intervention. Using CA, further differences were seen in the interactions particularly in how explicitly the SLT introduced the intervention activities. In the TA parents talked about how they carried out the activities and the challenges they encountered.

Discussion and Clinical Implications: The difficulties parents encounter making judgements about speech accuracy and also using explicit speech strategies are discussed. How parents are trained to carry out homework tasks is considered, particularly that parents struggle with some aspects even after demonstration of activities.

Declaration

I, Rachel Bear, confirm that the Thesis is my own work. I am aware of the University's Guidance on the Use of Unfair Means (The University of Sheffield, n.d.). This work has not previously been presented for an award at this, or any other, university.

Two short extracts from the Study 1 data were published in: Griffiths, S., Gardner, H. & Bear, R. (2019). Conversation Analysis and its use in communication disorders research. In R. Lyons & L. McAllister (Eds.), *Qualitative research in communication disorders: An introduction for students and clinicians*. J & R Press Ltd.

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Chapter 1

The Nature and Impact of Speech Sound Disorders

Organisation of Thesis

This thesis is organised into eleven chapters. Chapters 1-4 form the literature review and Chapter 5 describes methods used in the two studies. Chapter 6 is a description of Study 1, carried out to establish the analyses used in Study 2 and to compare the SLT and parent use of supportive intervention strategies. The results of Study 2 are then described over four chapters. The quantitative analysis is described in Chapter 7, the thematic analysis (TA) in Chapter 8, and Chapters 9 and 10 describe the conversation analysis (CA) that was also made of the data. Chapter 11 discusses the findings.

The literature review is divided into four chapters. The purpose of the first two chapters is to describe the knowledge about speech sound disorders (SSDs) that forms part of the professional training of the SLT. Chapter 1 gives an overview of the nature of SSDs, I then describe current approaches to the assessment of SSDs. The chapter ends with a description of the impact SSDs can have on the child and their family which underlines the importance of giving children with SSDs effective and timely intervention.

Chapter 2 considers intervention, describing the approaches that the clinician can select from, how therapy targets are selected and service delivery options. Chapter 3 reviews the parent's role in the speech clinic, discussing how SLTs include parents in speech intervention, and attitudes and barriers to collaboration. Chapter 4 turns to adult-child interaction, particularly how CA describes interaction between adults and children who are learning language both at home and in the speech clinic. There is also a review of how

coding has been used to describe the speech repair that takes place after communication breakdown with typically developing children and those who have SSDs.

1.1 The Nature of Speech Sound Disorders

In order to understand when and how to intervene when a child has an SSD, it is necessary to have some understanding of what an SSD is (Brosseau-Lapr e & Rvachew, 2020). I begin the literature review with a brief outline of the development of speech in typical children, followed by a description of what an SSD is, how the term has arisen and its prevalence.

1.1.1 Speech Acquisition in Typical Development

By the age of four years most children produce well-formed, meaningful utterances which are understood by conversational partners (Rvachew & Brosseau-Lapr e, 2012), but speech development does not always go smoothly. Before considering how speech development can go wrong, I will first summarise how typical children learn to perceive and produce speech.

Speech Perception. During the first year of life, infants shift from having the ability to discriminate a universal, language-general set of phonetic contrasts, to a smaller number of language-specific contrasts (Kuhl et al., 2006; Best & McRoberts, 2003).

During the child's second year stored representations become increasingly detailed and there is a shift from phonetic to phonemic perception. Early lexical representations are holistic and built on the overall acoustic shape of the word (Velleman & Vihman, 2002). As the child's vocabulary increases, there is a requirement for more fine-grained representations to enable the child to discriminate contrasts quickly and accurately (Claessen et al., 2009). Thus with increasingly accurate representation, the child begins to perceive differences

between whole words and can discriminate between words such as pear/bear (Brosseau-Lapr e & Rvachew, 2020).

As the child develops there is increasing sensitivity to phonetic detail, acoustic-phonetic knowledge increases, and speech perception performance improves. Little is known about when children achieve adult-like competence in speech perception but there is evidence that even 13-16 year olds perform less well than adults in speech tasks (Jacewicz & Fox, 2014; Wightman & Kistler, 2005).

Speech Production. At birth the infant can produce a number of different vegetative sounds: cries, burps, coughs and sneezes (Buckley, 2003). Within three months adult-like speech sounds can be heard in the child's exploratory 'vocal play' (Dodd, 2005). The infant rapidly acquires the ability to produce canonical consonant-vowel (CV) babble which may occur in interactive games with adults. These early sounds typically do not have communicative intent (Buckley, 2003), but between 12-18 months, babble becomes more varied and is integrated with the onset of the first word (Rvachew & Brosseau-Lapr e, 2012). Vocalization has become meaningful.

The phones and syllable shapes used in first words suggests a continuity between babbling and emerging language (Vihman & Croft, 2007). Children appear to use a preferred set of word templates due to the constraints of their own speech production mechanism, word shapes attempted and individual experiences (Brosseau-Lapr e & Rvachew, 2020). Until the child's vocabulary increases to 50 words, a word-by-word strategy has been suggested for word learning. This approach quickly becomes inefficient (Dodd et al., 2005) and the child moves to phoneme-based lexical representations (Velleman & Vihman, 2002). The range of phones and word shapes gradually increases and phonological knowledge can now be considered on a segment-by-segment basis in relation to the adult target word (Vihman &

Croft, 2007). A study of 24-month-olds found that children typically used CV/ CVC/CVCV and CVCVC syllable shapes with around 9-10 stop/nasal/fricative/glide consonants in syllable initial position and five to six consonants, mainly stops, in syllable final position with a few consonant clusters (Stoel-Gammon, 1987). Macken and Barton (1980) used instrumental analysis of the speech development of four children between the ages of 18 to 26 months to demonstrate the gradual development of adult-like speech contrasts. The data provided evidence for three phases to the development of voicing: 1) no contrast is made between voiced and voiceless sounds; 2) the child makes a ‘covert’ contrast which is not perceived by adult speakers; and 3) the child’s contrast resembles the adult contrast.

Dodd et al. (2003) provide normative data for children’s phonological development from a representative sample of 684 British English-speaking children aged 3;0 - 6;11 yrs. This data, shown in Tables 1.1 and 1.2, provides information about 1) phonetic acquisition of speech sounds; and 2) phonemic development, that is the organisation of the child’s sound system. Since 1) the acquisition of vowels is assumed complete by 36 months (Dodd et al., 2003), below the age of the children in this study, and 2) the children in the cohort did not have vowel difficulties, vowel development is not considered here.

Table 1.1 *Phonetic Acquisition from 3;0 yrs (Dodd et al., 2003)*

Ages of children (yrs)	Speech sounds acquired by 90% of children in age group
3;0 – 3;5	p/b/t/d/k/g/f/v/s/z/h m/n/ŋ/w/l/j
3;6 – 3;11	tʃ
4;0 – 4;11	ʒ/dʒ
5;0 – 5;11	ʃ
6;0 -6;11	ɹ
7;0 +	θ/ð

Table 1.2 *Error Patterns Used by the Normal Population (Dodd et al., 2003)*

Ages of children (yrs)	Error patterns used by 10% or more of population
3;0 – 3.5	Gliding Velar fronting Deaffrication Cluster reduction Weak syllable deletion Stopping of fricatives
3;6 – 3;11	Gliding Velar fronting Deaffrication Cluster reduction Weak syllable deletion
4;0 – 4;11	Gliding Deaffrication
5;0 – 5;11	Gliding

1.1.2 The Definition of Speech Sound Disorders

For most children the development of speech is unremarkable and follows the description in the previous section, but sometimes there is cause for concern and the child is said to have a speech sound disorder (SSD). The American Psychiatric Association, DSM-5 Task Force (2013) describes SSD as a “persistent difficulty with speech sound production that interferes with speech intelligibility or prevents verbal communication of messages” (p. 44). For Martin and Miller (2003) the term SSD implies a lack of intelligibility due to the omission, substitution or distortion of sounds. They describe the difficulties children have as either ‘articulatory’ in that speech motor skills may be inadequate, or ‘phonological’ in that the child has difficulty developing the meaningful use of speech sounds, although they do not describe how to assess this contrast. Recent evidence from instrumental analysis (e.g. McAllister Byun et al., 2016) demonstrates that children may produce ‘covert contrasts’ before perceptually overt differences are signalled emphasising the gradual nature of speech

acquisition. There are some who question the existence of substitution errors, suggesting that apparent sound substitutions are really covert contrasts (Gibbon & Lee, 2017).

In some children the cause of SSDs can be identified e.g. cleft palate, genetic conditions such as Down Syndrome, hearing loss, or cerebral palsy. Other children present with associated language and learning disabilities. Some children present with a family history of SSD suggesting either genetic or environmental causes, but for most children who present with SSDs the cause is unknown (Williams et al., 2010).

1.1.3 The History of the Term ‘Speech Sound Disorder’

Over the past 60 years the speech and language profession has changed the way SSDs are described. Prior to the 1970s, the term ‘articulation’ was used to describe SSDs without known causative factors, with differences between ‘correct’ and so-called ‘defective’ articulation described in phonetic terms, as substitutions, omissions, distortions or additions (SODA) of the intended sounds (Van Riper, 1939). Intervention involved teaching one ‘defective’ sound at a time (Grunwell, 1982).

In the 1970’s work such as Ingram’s seminal (1976) ‘Phonological Disability in Children’ emphasised the rule-governed nature of children’s speech errors and caused a paradigm shift in how speech was viewed (Baker, 2006). Clinicians shifted from describing speech difficulties as phonetic with a focus on the child producing a perceptually acceptable version of particular phones in any phonetic context (Dodd, 2005), to a cognitive-linguistic or phonological approach “primarily concerned with the linguistic implications of disordered speech” (p.19, Grunwell, 1982). This shift moved the approach from intervention being on a sound-by-sound basis to addressing the disordered patterns in children’s speech (Grunwell, 1982).

Along with the change to a linguistic or ‘phonological’ approach, terminology describing speech difficulties shifted. Shriberg et al., (1999) list the following as examples of terms used at various times: functional articulation disorder, developmental phonological disorder, articulation/phonology disorder, multiple phoneme disorder, speech delay and intelligibility impairment. Other terms used include: ‘functional phonological disorder’ (Gierut et al., 2010) and ‘phonological impairment’ (Hegarty et al., 2018). Recently the term *speech sound disorder* (SSD) has been adopted in the literature (Dodd & Morgan, 2017), this is the term I will use.

1.1.4 Prevalence of SSDs

SSD is a high prevalence condition amongst preschool and school-aged children. Estimates of the prevalence vary, with figures ranging between 2.3% to 24.6% (Law et al., 2000) due to varying criteria used to define speech disorder (Dodd, 2005). Large-cohort studies provide the most consistent figures: 3.4% of an Australian sample of 1494 4-year-olds (Eadie et al., 2015), 3.8% of a US sample of 1,328 6-year-olds (Shriberg et al., 1999) and 3.6% of a UK sample of 7,390 8-year-olds (Wren et al., 2016). The numbers of these children causing clinical concern are significant, indeed one study of referrals to a UK mainstream speech and language service showed 29.1% of children referred had a primary SSD (Broomfield & Dodd, 2004).

1.1.5 Classification of SSDs

This section considers two approaches to classifying children with SSDs: 1) the Psycholinguistic model (Stackhouse & Wells, 1997), the model used in discussions with the parent participants in Study 2; and 2) a linguistic classification based on surface-level speech characteristics (Dodd, 2005), which underpins the analysis of the children in the study.

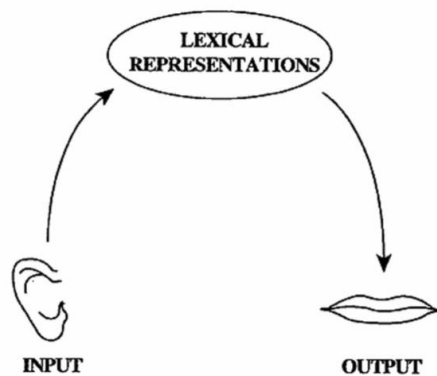
Psycholinguistic Approach to Classification. The use of a psycholinguistic approach for the assessment and planning of intervention for children with SSDs is well-

established (e.g. Bryan & Howard, 1992; Chiat, 2000; Crosbie & Dodd, 2001; Pascoe et al., 2005; Stackhouse & Wells, 2001). The premise of the psycholinguistic model is that speech development and literacy development depend on an intact speech processing system that comprises of:

- speech input processing; for example, auditory discrimination;
- lexical representations; for example, where components of words are stored: semantic, phonological, motor, grammar and orthographic;
- speech output processing; for example, programming and production of speech. (Stackhouse et al., 2006, p.231)

The psycholinguistic approach is typically described by box-and-arrow models where a box represents each level of processing and the relationship between the boxes is represented by arrows. A simple version of the Stackhouse and Wells (1997) psycholinguistic model is shown in Figure 1.

Figure 1



Simple Version of Psycholinguistic Model (Stackhouse & Wells, 1997)

Evaluation of the child's profile takes into account 'input' where the child is required to respond to auditory stimuli, 'output' which requires the child to respond to imitation or naming tasks using speech, and 'storage' of lexical representations. By using a series of tasks which manipulate the intervention materials, feedback and techniques to support speech processing performance at different processing levels are compared and clinicians can

determine the accuracy of the child's internal phonological representations or if difficulties relate to input or output channels or both (Rees, 2001).

The use of the speech processing profile does not "disentangle causal, co-morbid and consequent difficulties" (Dodd, 2005, p.44) of a speech disorder, nor does it take into account surface phonology (Broomfield & Dodd, 2004). The application of the speech processing model can be problematic with young children when many component skills have not developed (Broomfield & Dodd, 2004). Nevertheless, when working with children with SSDs, the model usefully conceptualises the nature of speech difficulties, helping establish where speech processing is breaking down and identifying areas to be targeted in intervention (Rees, 2001).

Different profiles are identified as having breakdown at different points in the speech processing chain (Vance et al., 2005) which can provide a rationale for therapy particularly for children with severe or persisting speech difficulties (Corrin, 2001; Crosbie & Dodd, 2001; Pascoe et al., 2005).

Linguistic Approach to Classification. Dodd (2005) proposed a linguistic-based classification of the heterogenous group of children with SSD into five subgroups based on speech analysis. The sub-groupings identified are:

1) Articulation disorder where the child's phonetic difficulties affect just one or two speech sounds, typically /s/ or /t/.

2) Delayed phonological disorder where the child uses error patterns typical of younger children.

3) Inconsistent phonological disorder where the child's speech is characterised by variability such that in assessment over 40% of the words show variability.

4) Consistent phonological disorder where the child uses error patterns typical of younger children and non-developmental or atypical patterns.

5) Developmental verbal dyspraxia where difficulties are due to a motor planning disorder rather than being phonological in nature.

The classification system has been shown to take into account an analysis of the child's phonology and is comprehensive in that children diagnosed with SSD fit into the five classification groups without overlap (Broomfield & Dodd, 2004; Ttofari Eecen et al., 2019). The use of different therapy approaches for children with these subgroups is also supported by clinical research (Crosbie et al., 2005; Dodd & Bradford, 2000; Dodd et al., 2006; McIntosh & Dodd, 2008), see also Chapter 2.

Thus far this review has described speech development, the nature and prevalence of a speech disorder and how terminology has evolved. The next section addresses the assessment of children with SSDs.

1.2 Assessment of Children with Speech Sound Disorders

Assessments of children with SSD have varying purposes: to diagnose a speech disorder, to establish the need for therapy, to determine therapy goals, or to monitor outcomes (Tyler et al., 2002). Whatever the reason for assessment, there is general agreement that the need for comprehensive assessment should be balanced with the time constraints of a busy clinician (Rvachew & Brosseau-Lapr e, 2012; Skahan et al., 2007). Typically, assessment consists of background information, assessment of language skills and obtaining and analysing a speech sample, as considered below.

1.2.1 Background Information

Speech assessment generally begins with a case history to explore the personal and environmental factors influencing the child's speech development (Tyler & Tolbert, 2002). Skahan et al. (2007) surveyed 1000 US clinicians working in school and clinical settings about their assessment practice. Clinicians reported obtaining information via

telephone, in writing and live interviews. Live interviews are preferred by some as this allows clinicians to hear parents formulate their own answers (Bleile, 2002) which facilitates the understanding of family attitudes and influences the success of the intervention (Miccio, 2002).

Assessment may include audiological screening (Podwall & Podwall, 2003), examination of the oral mechanism (e.g. Bleile, 2002; Miccio, 2002), and receptive and expressive language assessments to rule out broader difficulties that may be due to the co-occurrence of speech disorder and language impairment (Shriberg et al., 1999). However speech assessment, the focus of the next section, is “the heart of the matter” (Khan, 2002, p.251) in child speech disorder.

1.2.2 Speech Assessment

Speech assessment is most commonly approached by an estimation of intelligibility and the use of single word picture naming tasks to determine standard scores and percentile rankings (Skahan et al., 2007). Standardised assessments can also be used to identify whether or not the speech errors are age-appropriate (Dodd et al., 2002). Some clinicians are of the opinion that conversational samples offer more insight and should be used in addition to single word assessments (Tyler, 2005) particularly when working with children with persisting SSDs (Speake, 2014). Analysing connected speech is considered routine practice by many (Skahan et al., 2007), even when time is short (Bleile, 2002; Miccio, 2002).

Once a comprehensive sample has been obtained, whether as single words or connected speech samples, it must be analysed to identify the speech errors to target in therapy (Grunwell, 1982). Prior to the 1970's, clinicians took an articulatory approach to analysis. Grunwell (1980) described the articulation assessments available at the time as tests of pronunciation with responses typically recorded as either correct or incorrect. An

articulatory approach to analysis used a sound-by-sound basis, identifying substitutions, omissions, distortions and additions (SODA) targeted one-by-one (Grunwell, 1982). With the recognition of the linguistic basis of speech disorders, clinicians began to identify the speech patterns causing communication breakdown (Grunwell, 1982). Grunwell (1985) produced an assessment the Phonological Assessment of Child Speech (PACS) which takes a linguistic approach to SSD. The linguistic analysis includes: 1) a phonotactic analysis of the possible C (consonant) and V (vowel) structures of syllables in words; 2) a phonetic inventory with a description of the distribution of all the phonetically different segments; and 3) a contrastive assessment comparing the child's phonological system with that of an adult. The sample size of 250 words suggested by Grunwell (1985) and the length of time taken to analyse the sample have made this an unpopular approach with busy clinicians (Bleile, 2002; Miccio, 2002).

A more recent assessment approach, nonlinear constraints-based analysis, explores the hierarchical relationships between syllable, word, and phrase structure (Bernhardt & Holdgrafer, 2001; Lundeborg Hammarström, et al., 2019). Nonlinear phonology considers the entire phonological system from the high level prosodic phrase structure to the lower level segments and features and in addition the constraints on the child's system such as constraints on the use of features or a particular syllable structure (Bernhardt & Holdgrafer, 2001). A nonlinear analysis is considered time-consuming to carry out (Baker & Bernhardt, 2004) and as a result remains unpopular with clinicians despite the suggestion of increased efficiency once assessment is complete (Baker & Bernhardt, 2004; Rvachew & Brosseau-Lapré, 2012).

A linguistic approach continues to dominate the work carried out in speech clinics, with the balance between ““best practice”...typically undertaken in somewhat idealised conditions with few time limitations” (Tyler et al., 2002, p.213) and the limited time

resources of clinical settings, resulting in preference for phonological process analysis (Baker, 2006; Skahan et al., 2007) which I will now describe.

1.2.3 Phonological Process Analysis

Natural phonology, originally proposed by Stampe (1969) as cited in Grunwell (1982), refers to phonological processes as a universal set of natural processes which are gradually abandoned as the child matures (Ambridge & Lieven, 2011). Natural phonology conceptualises that the words of young children are produced with the simplest sequences of consonants and vowels. Phonological processes are the “articulatory restrictions which inhibit the child producing sound differences” (Grunwell, 1982, p.169). In order to learn the phonological system of his language, the child must learn to limit or ‘suppress’ the application of the processes that are operating. Phonological processes are said to operate on classes of sounds such as in ‘fronting’ where target velar consonants are realised as alveolar consonants or on whole sequences of sounds where the child simplifies the structure of multi-syllable words by omitting unstressed syllables. Evidence that the child can perceive contrasts that they cannot produce implies that the rules have some sort of psychological reality, however the reality of rules remains undemonstrated (Grunwell, 1982). A phonological process analysis describes error patterns present in the child’s speech and makes a comparison to what would be expected in typical development. One study that has gathered normative data on the persistence of error patterns in typically developing children was carried out by Dodd et al., (2003). In the study speech samples of 684 children aged between 3;0 and 6;11 yrs were analysed for the presence of error patterns. Error patterns were classified if they were used by at least 10% of the children in the same 6-month age band as the child. Delayed error patterns were described as those used by more than 10% of younger

children, but less than 10% of those in the same age-band. Unusual error patterns were described as those not used by more than 10% of children at any age.

Although popular with clinicians due to ease of use, phonological process analysis has critics for not fully explaining speech production errors (Lof, 2002), and that error patterns do not account for speech errors in all children (Rudolph & Wendt, 2014). Lof (2002) advocates that some labels of processes should be modified because they are not descriptive enough, e.g. the label 'cluster reduction' includes both [st] realised as [t] and [pl] realised as [p] whereas clinically they are treated as different types of errors, and in a speech programme as two different targets. Lof (2002) also proposes that the term 'process' should be changed as the similarity between the term phonological processes and phonological processing can be confusing for teachers and parents. Dodd (2005) observes that these terms are applied inconsistently in the literature which has also led her to discard the term phonological process in favour of the descriptive term 'error pattern', a term adopted in this research.

1.2.4 When to Intervene

Once an assessment has been carried out, the clinician must determine if intervention is required. One approach is to compare the child's performance to a same-aged reference group using standardised assessments (E.g. Dodd et al., 2002). Alternatively age-norms compare the child's performance to norms for the acquisition of individual phonemes as in Table 1.1.

Another approach to determining the need for intervention considers 'severity', a term encompassing the multiple domains of: intelligibility, the impact of the speech disorder, and how far the speech disorder deviates from the norm (Johnson et al., 2004). One way of obtaining a severity measure uses a subjective impression of the child's speech e.g. using a screening tool such as the 'Intelligibility in Context Scale' (ICS) (McLeod et al., 2012) which

examines parental accounts of the child’s intelligibility with a range of communication partners. Scores on the ICS have been shown to correlate with formal speech assessment and to identify which children have SSD (Lee, 2019). However, when Flipsen et al., (2005) used an informal approach asking 10 experienced clinicians to judge the severity of 17 children with SSDs from conversational speech samples, they found significant variability of their ratings and question its use.

Shriberg and Kwiatkowski (1982) established the reliability of the adjectives mild/moderate /severe as descriptions of SSDs. They obtained, from a group of 52 clinicians average ratings of the severity of speech samples of 30 children with SSDs aged between 3 and 9 years. Another clinician calculated the ‘percentage of consonants correct’ (PCC) score and found that it reliably predicted the severity score, indicating the usefulness of the PCC score. PCC is calculated by dividing the number of consonants produced correctly in a speech sample by the total number of consonants and multiplying by 100. Reference data for English speakers act as a comparison for speakers from 3 to 40+ years (Austin & Shriberg, 1997). Table 1.3 below gives a description of severity based on PCC scores from conversational speech of 4-year-olds, the age that children’s speech often raises concern.

Table 1.3

Severity Scale Based on a Sample of Conversational Speech (from Shriberg & Kwiatowski, 1982)

Severity Interval	Percentage of Consonants Correct (PCC)
Mild	> 85%
Mild-moderate	65 - 85%
Moderate-severe	50 - 65%

Severe

<50%

Although obtaining PCC scores has been found to be reliable, using a numerical score to assess SSDs has been criticised for showing no correlation with clinical profiles or underlying disorders (Rvachew et al., 2007). PCC scores give no information about vowel or phonotactic constraints and do not distinguish between errors, substitutions and omissions (Dodd, 2014). Hall et al. (1998) also consider that using numbers to measure outcomes does not account for changes in the direction of the target that are still not completely accurate. Also if the target only makes up a small part of the data of a large speech sample this will only show a small numerical change. Despite such criticisms, a numerical PCC score offers the opportunity to demonstrate changes made in a therapy programme over time (Newbold et al., 2013). In this study, PCC scores obtained using the Quick Screener (Bowen, 1996b) monitored changes made by the research participants through the intervention.

1.2.5 Prognosis for Change

Children with SSDs are a heterogenous group (Baker, 2006; Dodd, 2005; McCauley, 2004; Waring & Knight, 2013). Some of this group respond readily to intervention (Almost & Rosenbaum, 1998), some are more resistant to change and have subtle speech difficulties that persist into adulthood (Lewis et al., 2015) particularly those with distortions of the sounds /s/ and /r/ (Verissimo et al., 2012).

In a study seeking ways of identifying which children will go on to have persisting speech disorders Wren et al. (2016) assessed a cohort of over 7000 children who had previously been recruited as infants into a long-term study of their development. From this cohort there were two groups of children with speech disorders. One group was found to have 'common clinical distortions' typically of the sounds /s/ and /r/ which the authors suggest could be called 'differences' rather than 'errors'. A second group, described as

having 'persisting speech difficulty' (PSD), had a range of speech substitutions, deletions, additions and omissions. Children with PSD were more likely to be male, have a lower IQ and have a lower socio-economic status than children with the common distortions. The children with PSD were also likely to show both phonological and phonetic errors leading to suggestions that identification of these features could help clinicians prioritise which children should raise the most concern.

1.3 The Impact of Speech Sound Disorders

It is not only clinicians that have concerns about children's speech. A survey of almost 5000 parents of an Australian cohort of typically developing 4- to 5-year-olds identified that 25% had some concern with how their children talk (McLeod & Harrison, 2009). In another Australian survey, this time of parents of 109 children who were already receiving intervention for SSD, 41.3% were concerned about the children starting school. Of this group of parents 38.0% had concerns about the child's communication skills, 31.0% had socio-emotional concerns and 9.5% concerns about literacy (McAllister et al., 2011). The validity of these concerns are will now be considered.

1.3.1 The Impact of Speech Sound Disorders on Educational Outcomes

It is well-established that children with speech and language disorders are at greater risk of educational difficulties and poorer life outcomes than their typical peers (Catts et al., 2002; Clegg et al., 2005; Felsenfeld et al., 1994). The picture for children with speech difficulties without co-morbid language difficulties is less clear and might change over the course of the child's educational career (Skebo et al., 2013).

Whilst some suggest that the overall educational outcome is better for children with an isolated speech disorder (Hayiou-Thomas et al, 2017), other researchers have demonstrated that the presence of an SSD is associated with educational challenges. Nathan

et al. (2004) demonstrated greater difficulties in the children whose speech difficulties persisted beyond the age of 7 yrs. A recent large scale population-based study of 639 children with PSD from a group of almost 7000 8-year-olds. This study showed poorer performance than controls in English, mathematics and science (Wren et al., 2021).

1.3.2 The Impact of SSDs on Reading

A model that is helpful when considering how children learn to read has been referred to as the ‘simple view of reading’ (Hoover & Gough, 1990). This model describes reading comprehension as the product of two components: decoding and linguistic comprehension. Both components have been shown to be necessary for reading success (Lervag et al., 2018). The model highlights that the reading comprehension of early readers is constrained by their skills in decoding. Once decoding is mastered, reading comprehension depends on the ability to construct meaning from the text, thus how well the individual understands spoken language (Nation, 2019).

A relationship is suggested between Phonological Awareness (PA) and reading particularly early in the reading process when children are mastering decoding. Phonological awareness refers to “one’s ability to detect and manipulate the sounds of one’s oral language” (Anthony et al., 2011, p.147). PA skills in kindergarten children have been shown to predict second grade reading outcomes in a group of 604 children taking part in an epidemiological study of language impairment. Of this group of children 328 had a language impairment, 276 were typically developing. Measures of PA, word reading, letter identification and phonetic decoding were taken at kindergarten, 2nd and 4th grades. It was found that PA rather than letter identification predicted word reading at 2nd grade. This relationship no longer held at 2nd grade when the best predictor of word reading at 4th grade was word reading itself (Hogan et al., 2005).

It has been shown that, as a group, children with SSDs perform poorly in PA tasks (Masso et al., 2017; McLeod et al., 2017; Nathan et al., 2004). Even mild SSDs are associated with poorer PA as demonstrated in a study of 12 6-year-olds with mild to moderate SSDs. This group performed less well in PA tasks compared to typically developing controls (Gernand & Moran, 2007). Jain et al. (2020) found that a group of 16 Kannada speaking children aged between 6 and 11 years with SSD had difficulties in temporal processing in addition to phonological processing compared with same-aged, typically developing controls. Temporal processing was evaluated using a gap detection test and the ability to detect sound duration. The authors propose that difficulty in temporal processing may affect speech perception and phoneme recognition in children with SSD.

Although a number of factors are involved in the acquisition of literacy such as protective cognitive factors and the support received at home and school, predicting the risk of educational and literacy difficulties is not straightforward (Nathan et al., 2004). Difficulties in PA for children with SSDs are not inevitable, as demonstrated by Hesketh et al. (2000) in a study of speech intervention outcomes of 61 preschool children with SSDs. The authors found no direct correlation between speech and PA of these children, finding “good speakers with poor metaphonological skills and poor speakers with good metaphonological skills” (p. 347).

Researchers have attempted to identify which children with SSDs are at risk of long-term literacy difficulties to evaluate which of this group of children would benefit from monitoring of their progress in reading and offering reading interventions. Some researchers have looked for an association between PA and speech error types. Poorer PA for children with ‘non-developmental’ errors has been found by assessing 25 children at age 4 years and again at age 8 years (Preston et al., 2013). Brosseau-Lapr e and Roepke (2019) had similar findings when they assessed a group of 40 4 and 5 year olds using speech, language and PA

tasks. Half of the children had SSD and half were typically developing. The authors found poorer PA skills in children with atypical errors and omissions including syllable deletion and cluster reduction than those with typical errors. Preston and Edwards (2010) suggest that children with atypical errors may be characterised by a 'cognitive-linguistic' phonological deficit also affecting PA. Hayiou-Thomas et al. (2017) assessed 245 children at six time points between the ages of 3½ and 9 years on measures of language, PA, reading, spelling and reading comprehension. The children with non-developmental errors had poorer word reading than children with developmental speech errors. They found that the initial severity of the SSD was not a risk factor for literacy difficulties, rather found it was co-occurring language impairment and the family risk of dyslexia that put children at risk from long-term literacy difficulties.

Other researchers have related polysyllabic accuracy to PA. In a study looking at the relationship between the production of accurate polysyllables and the development of literacy, Masso et al. (2017) found that children with SSDs with the lowest polysyllable accuracy had poorer phonological processing and were therefore at the greatest risk of literacy difficulties.

There have been suggestions that the age at which speech difficulties resolve is a factor in whether children will go on to have literacy difficulties. This 'critical-age hypothesis' was first proposed by Bird et al. (1995) who suggested that if speech difficulties persist beyond the age children begin reading instruction, which at the time was around 5 ½ years, the outcome would be less favourable. This hypothesis was somewhat supported by a longitudinal study of 47 children followed from four to seven years where it was found that children whose speech difficulties persisted beyond the age of 6;09 yrs performed more poorly than controls on tasks of reading, spelling and PA (Nathan et al., 2004).

The risk of reading difficulties for children with SSDs has been well established (Anthony et al., 2011; Foy & Mann, 2012; McLeod et al., 2017; Peterson et al., 2009). The risk is such that Catts et al. (2001) suggest that all children with a history of speech and language disorder should be routinely screened for PA and reading in order that early intervention for reading difficulties can be given. To identify which children are most at risk the studies described in this section have considered that speech error types, polysyllabic accuracy, family risk of dyslexia, age at which speech errors resolve and co-morbid language difficulties may be factors. Whilst further research may help to identify more precisely which children will go on to have literacy difficulties, it seems that parental concerns about how their children with SSDs will cope on school entry may be valid (McAllister et al., 2011).

1.3.3 The Impact of Speech Sound Disorders on Language Acquisition

A child is described as having an SSD when their difficulty learning to use speech sounds is the primary diagnosis and not part of a wider expressive or receptive language learning disorder. However, some language-learning difficulties may be associated with the speech difficulties e.g. children with SSDs are more likely than their typically developing peers to have difficulty comprehending unfamiliar accents (Nathan & Wells, 2001). Another line of research enquiry looks at whether or not an SSD is associated with expressive language difficulties. Rvachew et al. (2005) demonstrated that children with phonological delay produced more morpheme errors than would be predicted from their syntactic ability. Mortimer and Rvachew (2009) found that finite verb morphology was affected in children with SSDs. McLeod et al. (2017) produced similar findings when they assessed a group of 5-year-olds with SSDs and found that the children had expressive language difficulties, specifically a low use of grammatical markers, that could not be accounted for by

surface articulation errors. There does appear to be at least some impact on expressive language development in some children with SSDs.

1.3.4 The Social Impact of Speech Sound Disorders

A survey carried out by Hitchcock et al. (2015) highlights the social and emotional difficulties that children with unintelligible speech may experience. Parents of 91 children aged 5;06 – 15;09 yrs with residual difficulties with the sound /r/ were surveyed about the impact of SSD on their children. Of the children, 69 were older than eight years and so their difficulties could be considered persistent. Despite their speech errors some of the children were highly intelligible. The parents responded to a series of statements based on the International Classification of Functioning, Disability and Health (World Health Organisation Staff, 2006), there was a moderate impact on academic performance, but more worryingly even mild speech errors were found to impact the children socially

A range of social difficulties in school have been described. There are reports of negative teacher perceptions of children with speech errors (Overby et al., 2007). Children may encounter embarrassment and frustration when they cannot get their message across to communication partners (McCormack et al., 2010; Yont et al., 2002). There are reports of a child being disruptive and aggressive due to his experience of communication breakdown, also reports of children with SSDs encountering teasing, name-calling and bullying (Gunther & Nieslony, 2017; McLeod et al., 2013; Sweeting & West, 2001).

Beyond school, if SSDs persist, adults may still feel insecure about their speech. In a group of 80 adult Portuguese speakers with residual /s/ and /r/ difficulties (Verissimo et al., 2012), 82% were aware that others perceived their speech was different, and 39% reported feeling insecure when speaking. Verissimo et al. (2012) suggest that society may be tolerant of speech errors, demonstrated by the fact that only 17.5% (n=14) of this group actually received negative reactions to their speech. This is a small proportion of the whole sample

but still accounts for 14 individuals and although an individual may find their speech is 'tolerated' rather than overtly criticised, for this group and the additional 31 who reported feeling insecure in speaking situations, the impact could be lifelong.

A study by Allard and Williams (2007) examined the judgements non-professionals make of individuals with speech difficulties. They played recordings of an actor portraying different types of communication disorders to over 400 students aged between 18 and 49 years. The students judged the voice-actor with the articulation disorder, as a lower than the normal speaker in terms of employability, which is worrying for individuals with SSDs who are seeking employment.

1.3.5 The Impact of Speech Sound Disorders on Family Life

A small body of research has examined the impact on family life of raising children with SSDs. In a survey 362 parents of children with a range of speech and language difficulties, including SSDs, have reported that their child experiences rejection, exclusion and stigmatisation from other children. They also reported a lack of acceptance and understanding even from their own families (Macharey & von Suchodoletz, 2008). In another study, in interviews of 20 parents of children with speech and language difficulties, parents reported perceiving a stigma attached to their child due to the child's difficulties, and reported feelings of guilt that somehow they were to blame (Glogowska & Campbell, 2004).

Interviews with parents of children with speech and language disorders in 10 countries across Europe identified that participation in everyday activities can be stressful because of the impact on the child's confidence and self-esteem when they were not understood (Jensen de Lopez et al., 2021). Home life may be less fraught for the child with an SSD than being out in public because parents find them more intelligible than those who know them less well (Van Doornik et al., 2018). Interviews with six school-aged children with SSD and their families uncovered some of the challenges the children had interacting in

public compared with home (McLeod et al., 2013). The children and their siblings reported that the child with SSD experienced marginalisation and bullying. The children with SSDs also reported frustration and embarrassment when asked to repeat words when they were not understood. The siblings of children with SSDs also report an impact. They may take on roles of ‘protector’ and ‘interpreter’ in social and education settings but in interviews also report missing out on parental attention and are jealous of their sibling with SSD (Barr et al., 2008).

1.4 Chapter Summary

The theoretical background to the work of an SLT, is part of what Gardner (1994) refers to as “the intellectual baggage the therapist brings with her to the clinic” (p. 7), informing how the programmes are carried out and what information is shared with parents as home practice is demonstrated. This chapter has begun an exploration of that intellectual baggage that will continue in Chapter 2. It has focussed on issues that may be of particular interest to parents when they are participating in their child’s speech programme. It has established what an SSD is and how the term has arisen. A summary is provided of two classification approaches to be referenced later in the study.

Assessment practices commonly used to identify children with SSDs have been described, including the PCC measure used to monitor children’s progress in the study. The chapter went on to explore how an SSD can impact on the child and their family. It has been found that impacts are wide ranging, with a risk of poorer educational and life outcomes, negative reactions from others and frustration when the child faces unintelligibility. All these concerns may be carried by parents and other family members to the speech clinic, a setting which Glogowska and Campbell (2000) suggest is approached with feelings of “both hope and fear” (p.397). One of the roles of the SLT is to help parents overcome some of those

fears by providing accurate information about the nature and impact of SSDs, to make decisions about intervention approaches and to explain the valuable role that families can play in the therapeutic process (Bowen, 2014). This will be explored in more detail in the next chapters.

Chapter 2

Intervention Approaches for Speech Sound Disorder

The previous chapter established what an SSD is, how children with SSDs are assessed and the impacts on their life. The next challenge for the SLT is selecting an appropriate intervention from the wide range available (Williams et al., 2010). The next section discusses the importance of appraising the quality of the research supporting interventions for SSDs, I will then describe a number of interventions classified according to what is being targeted and where change is expected to occur.

2.1 Evidence-Based Practice

Professional bodies for SLTs require practitioners to commit to an evidence-based approach to intervention (American Speech-Language-Hearing Association, 2005; Royal College of Speech and Language Therapists (RCSLT), 2019; Speech Pathology Australia, 2020). In a discussion of evidence-based practice, Dollaghan (2004) advocates that adhering to the principles of an evidence-based approach requires incorporating current and high quality research evidence with clinical expertise and evidence about patient values. However she asserts that all research evidence is not of equal value, clinicians must be judgmental about the quality of evidence such that rigorous scientific studies should carry more weight than expert opinion. A number of quality appraisal tools have been designed to help clinicians make their judgements. One such system, The Strengths of Recommendation Taxonomy (SORT) (Ebell et al., 2004) is designed to be a simple system that incorporates into the evidence elements of quality, quantity and consistency. This system is intended to allow clinicians to apply evidence from research to their practice. Within the SORT system, the highest level of evidence, i.e. Level 1 are RCTs and meta-analyses or systematic reviews

of RCTs. Level 2 evidence is less rigorous in design and includes observational studies, cohort and case-control studies and systematic reviews of these studies. Level 3, the lowest level of evidence includes consensus guidelines, expert opinion and description of current practice.

RCTs which, as described in the SORT taxonomy and others, as the highest level of evidence, aim to maximise the validity of the evidence provided by avoiding the influence of uncontrolled variables. RCTs also use 'blinding' to minimise the potential for participants or researchers to influence the results (Dollaghan, 2004). However because RCTs function by considering average effects across large populations rather than considering individual differences (Dobinson & Wren, 2013), there are critics of the suitability of RCTs for complex interventions such as speech and language therapy. Pring (2004) points to the heterogeneous population of children with SLCN, advising that RCTs in healthcare settings are better suited to drug trials where randomisation can truly operate. Rather than focusing on RCTs, Robey (2004) recommends that complex interventions such as speech therapy operate a phased model. After a preparation phase determining, for example, the target population and treatment protocols, efficacy research is carried out. Efficacy studies are conducted under ideal conditions using large sample sizes to ensure that it is the treatment protocol that accounts for the outcome. Robey suggests that efficacy studies are followed by effectiveness studies which look at outcomes under real world or clinical conditions. The final phase of clinical research establishes the costs and benefits of the treatment to the clinical population. Carrying out research in this order is said to satisfy the need to justify the expense of research and the ethical obligation of any clinician that services should only be carried out if potential benefit is anticipated. In the next section a number of interventions for children with SSDs will be discussed, along with research evidence supporting them.

2.2 Intervention for Children with Speech Sound Disorders

In a summary of the current state of knowledge of management of SSDs, Baker and McLeod (2010) document 23 different approaches to treatment with different levels of evidence. Despite the range of approaches, surveys of SLT practice over the past 13 years suggest that three interventions, namely auditory discrimination, minimal contrast therapy and phonological awareness, are favoured, often combined in an ‘eclectic’ approach (Hegarty et al., 2018; Joffe & Pring, 2008; Oliveira et al., 2015). The majority of the 98 respondents in Joffe and Pring’s (2008) survey of clinicians working with pre-school and primary school children, offered the opinion that there is strong evidence of the effectiveness of therapy, reporting favouring the eclectic approach. Joffe and Pring raise an issue that research in the literature is generally carried out on individual therapies rather than as an ‘eclectic’ approach reported by the clinicians. They conclude that clinicians may take this approach on the assumption that at least some part of the therapy will be beneficial, but this does highlight the divergence between research and clinical practice.

The need to make the evidence base for interventions reflect what happens in the clinic underlies Wren et al.’s (2018) systematic review of the research evidence for interventions for children with SSDs aged 2;0 - 5;11 yrs. The review is said to enable clinicians “to identify the strength of evidence for interventions that fit with the approach they determine is needed for an individual child” (p.448). Within this review, Wren et al (2018) develop a classification system which extends the Stackhouse and Wells (1997) psycholinguistic model, grouping interventions according to the information they provide and where speech change is designed to occur. Whereas the psycholinguistic model described intervention in terms of whether it targets ‘input’, ‘output’ or ‘storage’, Wren et al. (2018) list five categories of intervention: environmental, auditory-perceptual, cognitive-linguistic,

production and integrated. These headings are adopted in the next sections to describe some of the current evidence-based speech interventions available for children with SSDs. Although each intervention type is described as distinct, change may not be specific to a single domain e.g. Wolfe et al. (2003) found that children given a programme working only on speech production showed improved auditory-perceptual abilities.

2.2.1 Environmental Interventions

Environmental approaches account for incidental learning occurring from exposure to speech on a daily basis (Velleman & Vihman, 2002). Brosseau-Lapr e and Rvachew (2020) suggest environmental approaches suit young children such as those with highly inconsistent speech patterns or children unable or unwilling to talk. The participants of my research do not fall into this group, so environmental approaches will not be discussed further.

2.2.2 Auditory-Perceptual Interventions

A pioneer of speech therapy, Van Riper (1939), used extensive ‘ear training’ in speech perception prior to the production of sounds, then syllables, words and sentences. Ear training uses a hierarchy of difficulty levels beginning with identifying the target sound, isolating the sound from connected speech and providing multiple opportunities to hear the sound in active listening activities. Over eighty years later auditory input continues to be used in speech intervention as in the ‘input’ channel of the Stackhouse and Wells (1997) model which suggests activities such as discrimination of real words and non-words. One way of providing auditory input is auditory bombardment where the child is provided with multiple exemplars of the phonological target. One suggestion for carrying out auditory bombardment is where the child listens while the clinician reads lists of target words at the beginning and end of therapy sessions (Bowen & Cupples, 1998). Auditory bombardment is said to allow the child to develop more detailed acoustic-phonetic representations building up

“an internalized auditory model of the phoneme to serve as a target for the child’s productions during the production training stage of the intervention” (Rvachew & Brosseau-Lapr e, 2012, p.711). A recent online survey of 166 UK-based SLTs working with children with phonological disorders demonstrated the continued popularity of auditory input. ‘Speech discrimination’, one form of auditory input, was the most popular intervention used ‘often’ or ‘always’ in interventions for SSDs by 79.5% of respondents (Hegarty et al., 2018).

There is little high-quality research evidence to support the use of standalone auditory input activities. Rvachew et al. (1999) report on two studies that suggest speech interventions which include speech perception training are more effective if sound-identification training, a form of speech perception, was given as an addition to production training offered using a modified speech cycles approach. The results look promising, however the authors point out that because the children were treated in groups and more than one speech sound was assessed per child, statistical analysis could not be carried out. A later study (Rvachew et al., 2004) also looked at the benefit of including speech perception tasks in a speech programme. This study used a randomised approach to assigning children to control and experimental conditions, but there was no attempt to control for the number, length or frequency of treatment sessions the child received. Nonetheless, the results were promising, showing greater improvement in phonemic awareness and articulation accuracy when speech perception tasks were included in the child’s speech programme. A third small study with just 9 participants randomly assigned to therapy with and without speech perception tasks (Wolfe et al., 2003) has shown that speech perception training results in greater progress only if in pre-therapy assessment the child was shown to have poor speech perception.

In summary, some small studies suggest that there is a value in speech perception training for some children with SSDs. Such training is said to facilitate stimulability by

allowing the child to develop more detailed acoustic-phonetic representations with information about speech targets. This information may serve to develop motor plans and provide information about the difference between the child's attempts and the speech target to introduce an element of self-monitoring from the start of therapy (Rvachew & Brosseau-Lapré, 2012).

2.2.3 Production Interventions

Production interventions, described as 'output tasks' in the Stackhouse and Wells (1997) model, directly target articulatory knowledge and speech sound production through instruction about articulatory placement or production practice drills (Rvachew & Brosseau-Lapré, 2012; Tyler, 2005). Production approaches are said to benefit children with articulatory disorders where difficulties affect single sounds or sets of sounds e.g. in a chapter on therapy approaches Gunther and Nieslony (2017) describe how they used traditional articulation therapy with a girl of 6;8 yrs with an interdental /s/. Other children benefiting from interventions targeting speech production have disorders affecting the precise control of muscles as in dysarthria (Pennington et al., 2019) and children with childhood apraxia of speech (Fish, 2016). Discussion of intervention for these children is beyond the scope of this review.

Production interventions include the 'traditional articulation therapy' approach based on the work of Van Riper (1939). Despite being over 80 years old, in a survey, delivered electronically, of 489 therapists in the USA, 49% of respondents reported 'often'/'always' and 33% 'sometimes' use a traditional approach with children with SSDs (Brumbaugh & Smit, 2013). Despite evidence that traditional articulation therapy remains popular in clinics, there is little recent peer-reviewed research demonstrating outcomes that can be generalised to children with SSDs.

A small study has provided case-study level evidence for the success of a traditional articulation approach. The study used just two participants aged 5;1 and 5;11 yrs with SSDs. For both children, outcomes for targets /sh/ and /k/ were compared when activities were presented on a tablet or as printed materials, both formats were equally successful. A control error sound for both children /l/ showed no change over the course of the programme (Dural & Unal-Logacev, 2018).

Gunther and Hautvast (2009) demonstrated the efficacy of traditional articulation therapy for children with articulation disorders in a RCT of 91 children with SSDs aged between 4 and 6 years. The children were randomised into two treatment and one waitlist group. One of the treatment groups received traditional therapy, the second group received traditional therapy with the addition of a token economy. The outcome demonstrated that traditional therapy was effective, but there were better outcomes when a token economy was added.

Two randomised controlled trials have compared the effectiveness of traditional articulation therapy to phonological therapy demonstrating that the traditional approach is effective with children with SSDs. Hesketh et al. (2000) compared the progress of 61 children aged between 3;6 – 5;0 yrs assigned to either articulation or ‘metaphonologically based’ therapy. A group of 59 children whose speech was typically developing controlled for the amount of spontaneous improvement in speech and phonological development expected in the same time period. Both groups of children receiving intervention made speech gains during the programme which were greater than were seen in the typically developing children. In follow up it was found that longer term gains were better in the metaphonological group.

Lousada et al. (2013) compared progress of 14 children aged 4;0 – 6;7 yrs randomly assigned to 25 weekly sessions of individual articulation therapy or to group phonological

therapy that consisted of a combination of PA activities which included the production of the children's error sounds, auditory discrimination and listening tasks. Lousada et al. (2013) demonstrated that children made speech gains with both approaches, however the authors went on to argue that when treatment outcomes were measured using intelligibility, the outcomes for phonological therapy were better. Both of these studies show that articulation therapy is effective however better long-term outcomes may be achieved using a phonological approach.

The traditional articulation approach has been criticised as inefficient because the sound-by-sound production approach does not result in generalisation across sound classes (Gierut & Champion, 2001) or word positions (Forrest & Elbert, 2001). The next section will turn to a cognitive-linguistic 'phonological approach' which is said to be a more efficient approach to intervention. Phonological approaches build on work by Weiner and Ostrowski (1979) showing the impact of communication failure, that when the listener had indicated they had not understood, the number of sound errors in a speech sample of three- to five-year-olds decreased.

2.2.4 Cognitive-Linguistic Interventions

Phonological approaches to speech disorders arose from the recognition of the rule-governed nature of SSDs and that phonological disorders have a linguistic rather than articulatory basis (Grunwell, 1987). This approach to intervention is said to stimulate change in the child's phonological system by using carefully selected targets to promote generalisation (Weiner, 1981; Gierut, 2001). A number of different approaches will now be described which have been developed from this early work.

Minimal Pairs. This conceptual approach, shown in surveys of clinical practice to be widely used (Hegarty et al., 2018; Pascoe et al., 2010; Sugden et al., 2018b), teaches the suppression of error patterns by confronting the child with evidence that their realisations of

pairs of words, differing by a single feature, are in fact the same (Weiner, 1981). The intervention goal is that the child recognises needing the target sound to signal the contrast (Tyler, 2005) e.g. to treat the fricative-stop contrast, the target “sea” [si:] is contrasted with the child’s error “tea” [ti:], two words that differ ‘minimally’ by the presence/absence of friction in the word-initial segment. Observing that in normal children speech sound development is gradual, ‘success’ is based on whether the contrast is marked, rather than that the speech attempt is completely accurate (Weiner, 1981).

Thirty years ago Saben and Ingham (1991) criticised the lack of consensus on what constitutes minimal pairs intervention due to a lack of replicable description, this criticism has yet to be addressed (Baker & McCabe, 2010). Baker (2010) identifies differences in 42 studies described as using minimal pairs. Of the studies, 65% used imitation of the speech target, 23% used spontaneous productions, 53% specified using the communication breakdown that arises from semantic confusion, 3% stipulated auditory discrimination whereas 53% did not, and only 7% specified giving articulation instructions to the child. This lack of standard procedure for the approach highlights to Baker (2010) the need for research identifying which components of the approach contribute to success, but suggests that the important components are word level production practice of three to five minimal pair words containing previously non-stimulable targets.

In a textbook of intervention approaches for SSDs, McLeod and Baker (2017) described two ways of delivering minimal pair interventions. The ‘meaningful minimal pair intervention’ approach is based on Weiner’s (1981) work, focusing on communication breakdown. In the first phase, the child becomes familiar with the word pair pictures, the second phase requires identification of the pictures as they are named by the clinician. If the child makes an incorrect response, the error is pointed out with metaphonological feedback and a verbal model. During the final phase, the child is given the opportunity to be ‘teacher’

by playing games such as instructing the adult to place pictures of milk, sugar and a teabag on a picture of 'tea' and a fish, boat and seaweed on the picture of 'sea'; if the child makes an error, being handed the wrong picture displays communication breakdown. Occasional deliberate mistakes by the adult introduces humour (Lancaster, 2008).

The second form of minimal pair intervention described by McLeod & Baker (2017) is the 'perception-production' approach. This approach minimises frustration by establishing imitation of target words before the minimal pairs are introduced. In the first phase, the child listens for the target words and sorts them e.g. into piles of 'sea' and 'tea'. In the second phase the child is taught to imitate the words with instructional feedback on accuracy and errors. The third phase requires the child to name the pictures without a model and in the final phase the child produces the minimal pairs as in step three of the meaningful minimal pair intervention.

Lancaster (2008) provides the clinician with a range of minimal pair activities. She includes helpful scripts such as the following to provide children with feedback about eliminating homonymy:

'I understood you that time! You told me you want the KEY'... Just saying something like 'Well done' or 'You said that right' is not enough. The child is not learning a new trick, but is learning about how to make themselves understood. (p.73)

The evidence-base supporting the use of minimal pairs in SSDs spans 40 years, much of the research being Level 2 quasi-experimental studies, correlational and case studies (Baker, 2010). As an example, Weiner (1981), in one of the first published studies of minimal pairs, demonstrated in a case study, that two children receiving minimal pair intervention progressed at different rates but in both cases the number of phonological processes was reduced and there was generalisation to non-treated words. Miccio and Ingrisano (2000) demonstrated in a single case study using a multiple baseline design that

choosing /v/ and /z/, two later-developing speech sounds, in a minimal pairs approach generalisation to earlier developing fricatives occurred.

There have been two studies at what is considered the highest level of evidence, using a RCT methodology. Ruscello et al. (1993) carried out a small RCT with twelve preschoolers with a SSD the aim of the which compared minimal pairs therapy randomised into two different service delivery options. One of the groups received twice weekly therapy from a clinician, the other group received therapy delivered once weekly by a clinician and once weekly by the parent. The outcome was that the children made similar progress. Dodd et al. (2008) carried out a study that had an element of randomisation to determine the impact of different criteria for selecting speech targets. In the study, 9 children received minimal pair therapy targeting homonymy and distinctive feature contrasts delivered by 8 clinicians in clinical settings. Baker (2010) regards this study as one of clinical effectiveness given that 8 clinicians delivered the interventions in community clinics. The study demonstrated that the minimal pair approach is effective for children with consistent phonological disorder in typical clinical conditions.

The efficiency of minimal pairs has also been compared to the efficiency of other approaches, Dodd and Bradford (2000) using a case study of three 3- and 4-year-olds who had a SSD characterised by non-developmental errors, and Crosbie et al. (2005) using a group of 18 children aged between 4 and 6 years. Both studies demonstrated that minimal pairs was effective with children with consistent but not inconsistent speech disorders. This demonstrates that minimal pairs is a successful approach but different aspects of the child's speech disorder may require the clinician to select from a range of different approaches. (Dodd & Bradford, 2000).

Multiple Oppositions. Whereas using minimal pairs best suits children with consistent error patterns and mild to moderate phonological delay (Brosseau-Lapr e &

Rvachew, 2020), there are other cognitive-linguistic approaches that set out to target more severe SSDs. Multiple oppositions targets multiple collapses whereby the child substitutes a single sound for a number of sounds simultaneously e.g. contrasting [t] for /s/, /tʃ/, /k/, /tr/ using the words 'tick' contrasting with sick/chick/kick/trick. Williams (2010) suggested that the multiple opposition approach fosters the reorganisation of the child's whole system rather than one contrast at a time.

The evidence-base in peer reviewed journals for multiple oppositions is small. In one of the first case studies describing the approach, Williams (2000) described how multiple oppositions was successful in establishing system-wide change to the child's sound system. Allen (2013) demonstrated efficacy of multiple opposition therapy when the approach was delivered to 54 pre-school children with SSD. The children were randomised to three groups: intervention delivered weekly for 24 weeks (P1); intervention delivered three times weekly for eight weeks (P3); or a control condition receiving a storybook intervention (C). Although overall the number of sessions received by the children was, at 24 sessions, the same, the children in the P3 condition made greater gains than P1. In fact there was little difference in the outcome when measured by changes in PCC between P1 and C. This lack of difference may be that the small change was due to maturation or it may be that the storybook intervention was successful in improving the children's phonological skills. More recently, Sugden et al. (2020) demonstrated the effectiveness of a combined parent-SLT approach with a group of five children aged 3 – 5 years whose parents were trained to deliver home practice to supplement the eight weekly sessions delivered by the SLT. Significant changes were seen in the speech of three of these children.

Maximal Oppositions. Support for non-homonymous complexity approaches such as maximal oppositions is based on the work of Gierut and colleagues in the Learnability

Project (Gierut, 2007) designed to establish optimal conditions for learning during phonological therapy. Arising from this work was the observation that greater efficiency than minimal pairs may be achieved by using maximally distinct contrasts (Gierut, 1989) due to wider generalisation (Gierut, 2001). In maximal opposition therapy the target sound is paired with a maximally contrastive sound that the child already uses correctly e.g. 'sew'/'no'. A reduction in homonymy is the long-term aim of intervention, but it is the structural difference between sounds rather than the functional impact of homonymy that is said to facilitate change (Gierut, 2001).

A comparison of minimal and maximal opposition approaches was made using a set of six-year-old twins who had similar PCC scores and phonetic inventories which gave the researchers the opportunity to compare teaching the same sounds in different contrast conditions. One of the girls was taught /s/ using minimal pairs and /k/ using maximal oppositions. The other was taught /k/ using minimal pairs and /s/ using maximal oppositions. The approaches were used concurrently, half the session being used for minimal pairs and half for maximal oppositions. At the end of the three-times weekly therapy blocks it was found that there was greater generalisation to the non-treated word positions in the sound taught using maximal oppositions (Topba & Ünal, 2010). The authors observed that the children became frustrated during the minimal pair sessions, when unable to imitate the target sound and disambiguate semantic confusion. This frustration did not occur during activities in maximal oppositions.

The approach has also been shown to be successful with an Arabic-speaking child using a single case experimental design with a child aged 4;3 yrs with SSD. After treatment taking 5 weeks for each sound, the child achieved accuracy with /r/ and /θ/ (Alsaad et al., 2019). Such evidence is promising but studies with larger cohorts are required to extend our understanding of cognitive-linguistic interventions.

Empty Set. Empty set, which (Baker & Williams, 2010) describe as having evolved from research carried out on the maximal opposition approach, is another approach aiming to promote system-wide rather than localised phonological gains (Gierut, 2001). Empty set selects two sounds excluded from the child's phonetic repertoire for treatment (McLeod & Baker, 2017). The empty set approach is said to encourage the child to fill the gaps along the feature dimensions. Unlike the other cognitive-linguistic approaches Empty Set does not make use of homonymy, rather the two selected target sounds are compared with each other.

Gierut (1991) provided some evidence of the efficacy of Empty Set on the progress of two 5-year-olds and one 4-year-old who were part of a larger study of complexity approaches. Each child was exposed to both treatment approaches in each session in an alternating treatment approach. They were seen for three 60 minute sessions per week. The outcome was that greater change was seen using Empty Set than minimal pairs. Gierut speculated that teaching two sounds in comparison to each other was more effective than utilising homonymy. Although in the study all children were exposed to both treatments with the same clinicians, the targets were different. The children were taught s/z/sh/ch/j during Empty Set and the later developing [θ] and [ð] (see Table 1.1, Chapter 1) with the minimal pair approach, so it could be argued that it was the choice of targets rather than the approach that led to the greater gains. Gierut and Neumann (1992) went on to demonstrate that a non-homonymous approach was more effective than minimal pairs even when /θ/ was the target sound.

Although complexity approaches make compelling promises to improve the efficiency of therapy (Gierut & Champion, 2001), the outcomes have not been replicated by others in studies in terms of speech progress (Dodd et al., 2008) and system wide generalisation (Rvachew & Nowak, 2001) when compared to the more popular minimal pairs. Hegarty et al. (2018) in looking at how evidence-based practice is used clinically in the

UK, carried out a survey of 166 SLTs to examine clinician understanding and use of cognitive-linguistic intervention approaches for SSDs. ‘Understanding’ was measured by whether clinicians could match an approach to its definition. Of the approaches minimal pairs was the most popular with 91.3% correctly matching the title to its definition and 77.3% always/often using it. Multiple oppositions was correctly identified by 56.3% of SLTs and always/often used by 23.9%. 56.5% of clinicians matched maximal oppositions with its definition but only 15.9% always/often used it. Only 26.6% SLTs defined empty set with 4.3% reporting use of the approach. The findings of the survey by Hegarty et al. (2018) suggest that complexity approaches are poorly understood reducing the potential complexity approaches offer for more efficient therapy.

Baker and McCabe (2010) argue that there is a need for clinicians to identify what is contributing to speech change. This may be giving the child evidence of communication breakdown, it may be the clinician producing either a correct or incorrect version of the target or it may be the explicit message that the child needs to make phonological changes. They suggest that there is a need to better document the teaching dialogue to look at teaching strategies within an intervention.

2.2.5 Integrated Interventions

Integrated interventions use a combination of interventions (Wren et al., 2018) and are said to be a popular form of service delivery (Joffe & Pring, 2008). Four such interventions, with reference to available evidence supporting their use, are now described.

In Metaphon (Howell & Dean, 1994) metalinguistic knowledge is emphasised when the programme begins with a phase of metaphonological awareness activities, followed by a phase of speech practice using minimal pairs. In an efficacy study of 50 children with SSDs aged 3;6 - 5;6 yrs, children were randomly assigned to Metaphon treatment with either only phase 1 or phases 1 and 2, to assess the relative contribution of each phase. All 50 children

made progress, but combining metaphonological with minimal pair activities produced more progress than metaphonological activities alone (Dean et al., 1995). There is evidence that Metaphon is used regularly by clinicians in the UK (Hegarty et al., 2018), but there is no recent peer-reviewed evidence supporting this.

An approach combining minimal pairs, auditory discrimination and phonological awareness activities has been described as ‘eclectic’ and is reported by clinicians to be a popular approach (Joffe & Pring, 2008). Lancaster et al. (2010) demonstrated the effectiveness of such an approach using two small studies. In a first study, 12 children with SSDs aged between 3;4 yrs and 5;10 yrs were randomly assigned to a treatment or delayed treatment group. The children in the ‘treatment’ group received eclectic therapy as usually delivered by their clinicians for 8 individual half-hour sessions. Parents attended the therapy and were given homework tasks to carry out. In the second study 15 children aged between 3;4 yrs and 4;5 yrs were randomly assigned to three different groups. Five children received 15 30-minute therapy sessions as in study one, five children were in a delayed treatment group. A further five children received auditory input and auditory bombardment from their parents. In both studies, children made greater gains in the eclectic treatment group than in a delayed treatment group or than auditory input from their parents. The gains in study two were greater than study one which Lancaster et al. (2010) suggest may be due to them receiving therapy for longer.

Another integrated intervention, Parents and Children Together (PACT) (Bowen & Cupples, 1998) combined auditory bombardment, minimal pairs, communication breakdown as the result of homophony, phonological awareness, metalinguistic talk such as talk about fixing-up errors, and parent information. Bowen (1996a) cited in Bowen & Cupples (2006) reported on a 3-year efficacy study of 14 children with SSDs aged between 2;11 yrs to 4;9 yrs at the start of therapy made more speech change after a programme of PACT delivered in

planned blocks with consolidation breaks than children receiving no therapy. The intervention was also described in a case study of one child aged 4;4 yrs at the start of a 17-month programme, delivered in planned blocks and consolidation breaks. The programme reports on the steady progress seen during reassessments at the end of each block. There is also comment about how the parents delivered the programme and what Bowen and Cupples (1998) described as “poor parental unanimity” (p. 46).

In a fourth integrated approach, Almost and Rosenbaum (1998) carried out a RCT with a group of 30 pre-school children with severe SSDs assigned to a ‘treatment’ or ‘delayed treatment’ group. The treatment consisted of 14 - 29 twice-weekly 30-minute sessions. In the sessions a programme of minimal pair intervention was followed by a traditional articulation approach once the children could successfully contrast target and error sounds. The children receiving intervention made greater speech gains than the delayed treatment group over the same time period demonstrating the efficacy of speech intervention combining minimal pairs and a traditional articulation approach.

In all of these integrated interventions, studies have not been carried out to manipulate the relative contribution of each of the components to the speech outcomes. An example is in PACT therapy it may be the participation of parents, it may be the delivery of the programme in blocks and breaks, or it may be some other aspect that is having an impact on speech progress (Bowen, 1996a). More studies are required to establish which elements of these interventions are essential, the amount required and the order in which they should be delivered.

This section has examined evidence base of the available intervention approaches for SSDs. Along with choosing the intervention approach the clinician must also select therapy targets. Where assessment identifies one or two speech sounds or error patterns to address,

the decision is straightforward. Where children have multiple errors, choosing what to target is more complex. Factors involved in target selection are now considered.

2.3 Target Selection

The selection of speech targets has been the focus of considerable research activity. In stressing the importance of target selection, Gierut (2001) has gone as far as saying “it may be more informative to focus on *what* is being taught, rather than on *how* it is taught” (p.229) (italics author’s own) because the goal of speech intervention is to induce system-wide generalisation which she argues occurs when using a non-traditional/non-developmental approach. Gierut and colleagues in the Learnability Project provide evidence that later developing, more complex targets may promote greater phonological change in the child’s system (Gierut et al., 2010). Gierut and Champion (2001) demonstrated increased efficiency when treatment of 3-element clusters resulted in generalisation to untreated 2-element clusters and that later-acquired sounds produced more generalisation than early-acquired targets (Gierut et al., 1996). In contrast, a traditional approach to target selection takes a developmental perspective, selecting earlier developing speech sounds said to be easier for the child to learn (Tyler, 2005). A recent survey of clinicians in Australia found a majority (52.4%) selected developmental targets when working with children with SSDs (Sugden et al., 2018b). Rvachew and Nowak (2001) compared outcomes of therapy programmes using ‘traditional’ earlier developing targets with later developing targets and showed that the children being taught the earlier developing targets made greater progress. The authors failed to demonstrate that teaching later sounds resulted in greater generalisation.

Opinion differs as to whether speech programmes should, or should not, begin by targeting speech sounds of which the child already has some productive knowledge. Miccio et al. (1999) advocate prioritising non-stimulable sounds since stimulable sounds, are likely

to develop through normal maturation and change without treatment. In contrast there is an opinion that therapy proceeds more quickly by targeting sounds that are 1) already stimutable and 2) already produced inconsistently as this indicates that the child has some productive knowledge for the sound anticipating early success (Secord et al., 2007). A compromise was suggested by Tyler (2005) who observes that selecting non-stimulable sounds may be frustrating for the child. Tyler proposes using a stimutable sound to introduce a new syllable shape and a non-stimulable sound in a syllable position that the child had already mastered.

When Rvachew and Nowak (2001) compared therapy programmes using traditional and later-developing targets, they asked parents who participated in homework and the children receiving therapy to rate their satisfaction. Parents rated programmes targeting the earlier developing sounds more highly than programmes targeting later sounds which suggests they may have found it easier to work with the more stimutable sounds. Interestingly children rated the programmes as equally enjoyable.

In addition to considering differences in outcomes when using developmental vs. non-developmental sounds, another decision has to be made about whether to use real or non-words as targets. There is a long history of using non-words as treatment targets in conventional articulation therapy (Van Riper, 1939). As part of the Learnability Project, Gierut et al. (2010) compared outcomes of therapy programmes using real and non-word targets. The authors found that both target types benefitted children with SSDs. Immediately following the intervention, when generalisation to untreated sounds was compared, generalisation from non-words exceeded that of real words. At follow-up 55 days after therapy, real word generalisation had reached comparative levels. One reason for the success of non-words speculated by the authors is that non-words may direct the child's attention to the phonological structure of the input leading to greater and more detailed phonological representation.

Another consideration about choice of target words is how facilitative they are. Prezas and Hodson (2010) make several recommendations about choosing facilitative target words early in therapy: that monosyllabic words are easier than polysyllabic words; that success is facilitated if words are used in which the child's target is the only error; that some phonetic contexts facilitate e.g. using a high back round vowel to elicit [ʃ] in 'shoe'; and some phonetic contexts should be avoided e.g. avoiding target words with alveolar sounds when the child is eliminating velar fronting.

2.4 Supportive Intervention Strategies

In using the term 'supportive intervention strategies', I am referring to the techniques and teaching procedures used by speech clinicians aiming to "positively change children's phonological abilities" (Baker & McCabe, 2010, p.194). SLTs model target words slowly or with perturbation emphasising the crucial phonetic features (Gardner, 1994). In a textbook about therapy, Secord et al. (2007) describe as 'strategies' the instructions given to the child about timing and breath control, the placement of tongue and lips and instructions for shaping a new sound from a sound already in the child's repertoire. Bleile (2006) lists 60 different metaphors, imagery, placement and shaping strategies to classify the place, manner and voice characteristics of sounds. Other strategies include: using pictures to illustrate sounds (Palle et al., 2014); hand gestures to act as cues to support instructions for specific sounds e.g. cued articulation (Passy, 2017); tactile cues such as touch with tongue depressors (Marshall, 2007); visual feedback obtained by looking in a mirror alongside the clinician's mouth (Palle et al., 2014); and metalinguistic talk such as 'fixing-up speech errors' (Bowen, 2011).

The evidence base for the use of communication breakdown has been described in Section 2.2.4. In a paper exploring how communication breakdown contributes to phonological interventions, Baker and McCabe (2010) discuss which aspects of

communication breakdown could be considered evidence-based kernels of the intervention.

The term ‘kernel’ is adopted from Embry and Biglan (2008) and refers to:

a behavior-influence procedure shown through experimental analysis to affect a specific behavior and that it is indivisible in the sense that removing any of its components would render it inert (p.75).

Baker and McCabe (2010) consider teaching strategies used in phonological intervention. They cite Grunwell (1983) who described strategies as either ‘articulation’ such as instructions about tongue placement which focus on the mouth or ‘conceptual’ which focus on the mind. Conceptual strategies include communication breakdown and the semantic confusion which occurs when children produce homonyms as a consequence of their SSD. Baker and McCabe (2010) also describe the imagery terms used to classify sounds e.g. in terms of place and manner as ‘conceptual strategies’.

The term ‘supportive intervention strategies’ also encompasses activities carried out in non-speech oral motor treatments such as horns to practise blowing (Marshalla, 2021) despite there being a lack of published evidence for their use with children with SSDs (Alhaidary, 2021; Lass & Pannbacker, 2008; Lof, 2003).

The use of supportive intervention strategies in speech programmes is widespread. In a survey carried out in the US, of 489 Speech-Language Pathologists working with preschool children, practitioners listed the strategies they used ‘always/often’ to elicit speech targets. Of the clinicians, 70% cited using phonetic placement strategies, 65% used iconic gestures, 65% used verbal/pictured/graphic cues, 51% developed labels for sounds, 33% modified the sound and 22% used minimal pairs for perception then production tasks (Brumbaugh & Smit, 2013).

There is a tradition of research in the use of tactile cues and verbal feedback in some areas of speech and language therapy e.g. in naming difficulties in aphasia (Meteyard & Bose, 2018). In contrast, research for children with SSDs has focused on the selection of

targets and approaches, as described in Sections 2.2 - 2.3. Whilst supportive intervention strategies are frequently described in therapy manuals (e.g. Bleile, 2006), there is a paucity of research on the relative contribution supportive strategies make to an intervention (McCartney, 1981). Using the term adopted by Baker and McCabe (2010) more carefully controlled studies need to be carried out to determine which of the many strategies used are in fact evidence-based kernels (Embry & Biglan, 2008).

There are a number of dimensions to consider in a speech intervention (Williams et al., 2010). This chapter has already described the form of the intervention, the speech goals and the strategies used with evidence supporting them. Another dimension of a speech and language interventions suggested by Warren et al. (2007) is the intensity of a treatment also referred to as ‘dosage’. This will be discussed in the next section.

2.5 Dosage

Warren et al. (2007) reflect that in comparison to research in pharmacology where dosage studies are always carried out, studying dosage and the difference made by manipulating treatment intensity in interventions for speech and language disorders is under-researched. They propose that researchers redress this imbalance and begin to create a data base looking at the effect of different treatment intensities for interventions. They suggest researchers adopt the following terminology:

- Dose: “*the number of properly administered teaching episodes during a single intervention session*” (Warren et al., 2007, p. 71) (italics authors’ own).
- Dose form: the task in which the teaching episode is administered.
- Dose frequency i.e. the number of times the dose is implemented.
- Total Intervention Duration.

Cumulative intensity is described as the product of dose, dose frequency, and total intervention duration. By using this model, the authors consider that intensity can be manipulated by clinicians on altering any of the variables. Justice (2018) cautions how important it is that dosage is correct in an intervention because it may not be that increasing dosage results in better outcomes. Too little may result in poor outcomes for a child, although too much may not just be a waste of healthcare resources; the time spent by the child in an unnecessary speech intervention could perhaps have been better spent elsewhere. Kamhi (2012) in contrast, voices the concern that the focus on quantifying and scheduling dosage may distract researchers from the task of determining what aspect of the intervention is actually leading to the improved outcomes. Knowledge about dosage and knowledge about the relative contribution of the active ingredients of an intervention are both important to clinicians.

A challenge for clinicians aiming to offer evidence-based practice at optimum dosage is that the dimension is often unreported, e.g. of research reports of 26 studies of minimal pair intervention examined by Baker (2010) only 62% were said to report the duration of therapy. When duration was reported it ranged between 4 to 45 hours and from 2 to 27 weeks. This makes comparison of interventions difficult. Heterogeneity of the caseload adds to the difficulty quantifying dosage even when other factors are constant. This was demonstrated by Baker & McLeod (2004) in case-studies of two children with similar case histories who were given the same therapy for the same therapy goals by the same clinician presumably at the same intensity although this was not reported. The outcome was that one child reached therapy goals in 7 weeks whereas the other child took 5 months to reach the same targets.

Currently there is little empirical evidence about optimal dosage for interventions for SSDs. This was shown in the systematic review carried out by Kaipa and Peterson (2016) to determine whether in speech interventions better treatment outcomes are seen with higher

treatment intensities. The review included not just interventions for SSDs but also for dysarthria, acquired apraxia of speech or childhood apraxia of speech, all outside the scope of this thesis. There was just one study reporting on manipulating intervention intensity in SSD, this was the RCT carried out by Allen (2013) described in Section 2.2.4, that demonstrated superior gains in a multiple oppositions intervention when children received eight sessions three times weekly compared to children who received the same number of sessions weekly or those who received a story book intervention. This would appear to indicate that when it comes to speech intervention, ‘more is better’, but more recent research indicates that the picture could be more complex.

In a multiple-baseline single participant study of eight children aged 4.0 - 5;6 yrs with SSDs were randomly assigned to two different conditions of speech intervention where speech targets were selected according to complexity principles (Geirut et al., 2010) which in all cases were non-stimulable in the target position. The two different conditions were that the children received intervention either twice weekly for 10 weeks or four times weekly for five weeks. No homework was administered during the intervention. Thus the children received the same dosage but over different time periods. All eight children in the study made speech gains, for one child in each condition the gains were considered significant. Both intervention schedules generated the same amount of phonological change, but in the more intensive schedule this was achieved in half the amount of time. The authors discuss that faster outcomes may be of benefit to some families who may be more motivated and adapt to the therapy routine in the short term. Alternatively a lower frequency where phonological gains were equivalent aligns more with current research studies from university clinics which typically report offering sessions 2-3 times weekly (Sugden et al., 2018b). The time and caseload constraints for SLTs in publicly-funded health settings, at least those that follow the UK/Australian model of SLT provision (Pring et al., 2012), mean that

interventions for SSDs are most commonly delivered in weekly sessions by qualified SLTs (Hegarty et al., 2018; Oliveira et al., 2015; Sugden et al., 2018b). In US school settings, the most predominant service delivery model for children with SSDs is twice weekly which equals the frequency of some research programmes, but therapy is typically delivered in groups so fails to replicate the dosage reported in the literature (Mullen & Schooling, 2010). This leaves clinicians, aiming to deliver evidence-based practice with a shortfall. One way to make up the therapy shortfall is for parents to carry out home practice (Joffe & Pring, 2008; Sugden et al., 2020). How parents are engaged in the therapy programmes of their children with SSDs will be explored in the next chapter.

2.6 Chapter Summary

This chapter has briefly reviewed interventions for children with SSDs organised under headings suggested by Wren et al. (2018) with reference to levels of research evidence available for the interventions. The review was not intended to be exhaustive but to include interventions used by clinicians working with children with mild-moderate speech disorders, including the auditory discrimination, minimal pairs and traditional articulation therapy approaches used in the intervention sessions in this research.

Discussion about target selection and the use of supportive intervention strategies and the dosage of intervention followed the review. Choosing which targets to teach, considering how to teach them and the frequency of the intervention would seem of equal importance to the clinician, however this is not represented in the literature. Target selection has been the focus of considerable debate and research, including the dilemma whether to select targets according to developmental principles, said to result in early therapy success (Rvachew & Nowak, 2001), or complexity principles which are said to be more efficient because they promote generalisation to non-treated sounds (Gierut, 2001). There followed a description of

supportive intervention strategies. Little is known about which strategies to use and when, how to use strategies and how often, although there have been calls for more research which include clinical dialogues to fully understand the contribution speech strategies play in intervention for SSDs (Baker & McCabe, 2010; Hulterstam & Nettelbladt, 2002).

This research is about the role of parents in the speech clinic, which will be examined more closely in the next chapter. I will first examine how SLTs view parent participation, and parent training. This is followed by an exploration of the literature about parents' experience of participation in the speech clinic.

Chapter 3

Involving Parents in Therapy for Children with Speech Sound Disorders

3.1 Parent Involvement in Intervention for Children with SSDs

Concerns are voiced internationally about long waiting times for access to speech and language therapy services (McGill et al., 2021; Rvachew & Rafaat, 2014; Rvachew et al., 1999). In addition, the number and length of sessions children eventually receive are described as inadequate (Glogowska et al., 2000) and below the intensity described in efficacy studies carried out in university settings (Sugden et al., 2018b). Given the reported impact of SSDs on the child and family as described in Chapter 1 (Barr et al., 2008; Jensen de Lopez et al., 2021; Macharey & von Suchodoletz, 2008; McLeod et al., 2013; Nathan et al., 2004) timely intervention is important. Ways of increasing the intensity of practice would benefit the child and their family and reduce financial pressures on families seeking private therapy (McGill et al., 2020). One suggestion for making up the shortfall in SLT time is to ask parents to provide practice (Joffe & Pring, 2008; Sugden et al., 2020).

This research explores the participation of parents in a speech intervention. What is known about how SLTs currently involve parents will now be reviewed.

3.1.1 SLT Attitudes to Parent Participation in Therapy for SSDs

Surveys of the working practices of SLTs internationally indicate that parents are frequently involved in therapy sessions (Joffe & Pring, 2008; McLeod & Baker, 2014; Oliveira et al., 2015; Ruggero et al., 2012). In a survey of 277 Australian SLTs about parental involvement in therapy (Watts Pappas et al., 2008), 98% of respondents agreed that during therapy for SSDs, parental involvement “is essential for speech intervention to be

effective” (p.339). When asked about actual levels of parental involvement, dissatisfaction was expressed by 40% of respondents; some of the constraints cited were a lack of time and that clinicians worked in education settings where parental contact is irregular. Almost 30% of the respondents felt that parents were unwilling or lacked capability to become involved in therapy. One therapist wrote: “some parents seem to think if they bring their child to therapy, they’ve done their job and it is the SLP’s job to fix the speech difficulty” (Watts Pappas et al., 2008, p.341).

Ten years later, an online survey of Australian SLTs working with children with SSDs indicated increasing parental involvement in intervention. The majority of respondents (96.4%) reported including parents in intervention (Sugden et al., 2018a). When asked why they included parents, 76.6% said to increase speech practice outside therapy sessions and 33.5% to improve outcomes. The SLTs surveyed were positive about including parents, but *in addition to*, rather than *instead of*, direct therapy by the SLT.

Studies of the opinions of SLTs in the UK show that they too were viewing parent involvement more positively. In a survey of 516 UK SLTs about their working practices (Pring et al., 2012), clinicians voiced discontent that their working hours could be better used in direct therapy estimated at just 22.46% of their time. In the survey they reported spending more time (27.53%) training others, 12.70% of this parent training. Discussing the trend for indirect therapy, which at the time was increasing in the NHS, SLTs commented that it is no substitute for direct work and that it does not work. Their frustration was directed more at using teaching assistants for direct work with children than parents. Another frustration was that without experience of delivering therapy, new entrants to the profession would never acquire the skills to train others.

Seven years later, a study of the opinions of 245 UK SLTs working with preschool children with speech and language disorders, many of these with SSDs, indicates that

attitudes in the UK may also be changing (Morgan et al., 2019). In this study, in focus groups and discussion groups, SLTs described that a key role of SLTs is giving adults the tools to provide a supportive environment for the child, thus ensuring that those working with the child understood their role. The study identified a need for more research focusing on parental understanding of supporting children in therapy.

Davies et al. (2019) examined how SLTs conceived of SLT and parent roles by carrying out semi-structured interviews with 12 SLTs who worked with preschool children. Responses indicated that SLTs had a strong sense of therapy being SLT-led rather than in partnership with parents. SLTs recognised that they had an advisory/teaching role, but the emphasis was on them demonstrating activities to be carried out, rather than coaching the parents. Even where SLTs routinely carry out parent training they did not routinely refer to their role coaching parents. The authors suggest that this is something that the pre- and post-qualification education of clinicians could address.

3.1.2 How Parents Are Included in Therapy

The principle of designing healthcare services around the needs of the child and their family is based on the right and expectation families have to be included in, and make choices about, their child's care (Department for Education and Department for Health, 2015; Department for Education and Skills, 2003). This follows a family-centred model where the whole family is the client (Watts Pappas et al., 2009) and where children and their families are active participants in their own healthcare (Coleman, 2010) with enough information to fully understand options available to them (Crais et al., 2006).

When discussing how the concept of family-centred practice applies to speech and language therapy, Watts Pappas et al. (2009) argue that much of the literature pertaining to family-centred practice is within the field of disability that may not be relevant for families of children with speech and language difficulties. The authors suggest an alternative concept of

‘family-friendly’ practice which involves families in planning and intervention but the professional retains the responsibility of providing the child with evidence-based practice, respecting how involved families want to be.

Speech Interventions Specifying Family Participation. Family participation is described in numerous interventions for SSDs. Core Vocabulary, used with children with inconsistent speech disorder (Dodd, 2005), uses families to provide lists of practice words (McIntosh & Dodd, 2008). Homework components have been specified in a number of interventions: Cycles (Rudolph & Wendt, 2014); traditional articulation therapy (Gunther & Nieslony, 2017); the Nuffield Dyspraxia Programme (NDP) (Williams & Stephens, 2010); and Parents and Children Together (PACT) (Bowen & Cupples, 1998, 2004).

Of these interventions, PACT particularly aims to empower parents by offering them a meaningful role in therapy. PACT offers parent training and education with active participation when parents join the session for a minimum of 20 minutes (Bowen, 1998). Parent education activities include PowerPoint slide shows (Bowen, 2011), a 40-page book (Bowen, 1998), handouts and scripts to illustrate how to carry out the activities (Bowen, 2011). Parent training elements involve learning and rehearsing the techniques of modelling, recasting, and self-monitoring in a treatment ‘triad’ of the parent, clinician and child (Bowen & Cupples, 2006). There is empirical evidence that the approach is successful when all five elements are delivered together (Bowen & Cupples, 2006), although there is little evaluation of parental involvement beyond a case study description of one child’s parents who disagreed with their perception of the child’s progress and the observation that the mother found it difficult to discern lateralization (Bowen & Cupples, 1998).

The evidence examined indicates that SLT attitudes are becoming more positive about involving parents in therapy sessions whilst recognising that this presents challenges. The next section will examine how this occurs.

How SLTs Involve Parents in Home Activities. Two surveys have looked at how SLTs include parents in homework activities when carrying out interventions for SSDs. An online survey of 288 SLTs working in Australia examined how parents contributed to interventions for SSDs (Sugden et al., 2018a). The majority of this group (96.4%) reported involving parents by providing home tasks: games (90.6%), everyday conversation (88.9%), worksheets, (72.3%) and drills (65.5%). A further 64.4% of SLTs provided ‘naturalistic activities’ to offer opportunities to generalise speech patterns, and 23% of SLTs reported tailoring home practice to the needs of the family. The clinicians were surveyed about how long they expected families to spend on tasks. Half reported expecting home tasks to be carried out from 2 to 60 minutes, five to seven times per week, with the majority of respondents (81.1%) suggesting that families spend between 5 - 15 minutes on tasks. This is a similar period to the 15 - 30 minutes of homework that was described as feasible by a group of 84 parents whose children received speech and language intervention (Vetter, 2003).

Tambyraja (2020) surveyed 156 speech clinicians (55% school-based and 45% from health settings) in the US, about how they communicate with parents about home activities. Only 26% reported ‘always’ giving homework, and 76% supplied homework at least half the time, but only 43.5% reported following up the activities with parents. It was the clinic-based therapists with regular contact with parents rather than school-based therapists who were more likely to follow up activities. The survey also questioned clinicians about strategies facilitating home practice. Of the 119 answering this question, 13 (11%) reported that incorporating activities into daily routines was successful, 38 (32%) used handouts with explicit instructions and 38 (32%) observed parents after training to provide feedback and encouragement. Two (2%) reported using technology to keep in contact with parents and 20 (17%) provided children with stickers to encourage completing homework, however there were 7 (6%) who reported that ‘nothing’ works to increase parental involvement. Almost 2/3

suggested that being explicit about how to carry out activities was most successful, with one respondent suggesting success required four steps: 1) demonstration of activities, 2) providing instructions, 3) expressing the importance of the activities, and 4) follow-up at the next session.

The studies reviewed thus far indicate that SLT attitudes are becoming more positive about parental involvement in interventions for SSDs and there is evidence that programmes including parents are successful. However when it comes to carrying out home tasks, Sugden et al., (2018a) found that 65% of clinicians reported homework was not always completed due to a lack of time, motivation, or skill. This suggests the need for more research into parent experience of carrying out homework activities, and what clinicians can do to support this. The following section further considers this issue by examining how clinicians train parent participation in speech interventions.

3.1.3 Training Parents to Participate in Interventions for Children with SSDs

One way of supporting parents to carry out home activities is to provide training. There are currently a number of parent-training programmes supporting a range of speech, language and communication needs. Training programmes range across age groups, from pre-term infants (Steinhardt et al., 2015), 2- to 4-year olds (Roberts & Kaiser, 2012), pre-schoolers (Hancock et al., 2002), and 8- to 10-year olds (Allen & Marshall, 2011). Programmes cover a range of client groups, from parents of children with fluency disorders (O'Brian et al., 2013), cleft palate (Ha, 2015), autism (Shields, 2001) and language delay (Baxendale & Hesketh, 2003). Training methods range from group sessions for parents of young children with autism which include home visits from tutors (Shields, 2001), coaching in language facilitation strategies (Baxendale & Hesketh, 2003) and video-training (Balkom et al., 2010). With its known high prevalence (Law et al., 2000), surprisingly there are currently no standalone training programmes specifically designed for parents of children

with SSDs. Some training is embedded in therapy sessions e.g. in the Nuffield Dyspraxia Programme it is suggested that parents observe therapy sessions and rehearse activities before carrying out 20-30 minutes of practice five or six days a week (Williams & Stephens, 2010). A recent programme, Speech@Home (Sell & Sweeney, 2021) is aimed at parents of children with cleft palate and the speech difficulties associated with cleft palate. The programme offers parent training in addition to a speech programme, but the training programme of eight 90-minute webinars is a big commitment and exceeds the amount of time most of the children on my research programme spent in intervention sessions. Speech@Home is more likely to meet the needs of children with SSDs that are more severe than the children in my research.

A small number of empirical studies have been carried out of parent participation that includes parent training. Lancaster et al. (2010) compared therapy delivered by SLTs and parents in two studies (See also Chapter 2 Section 2.2.5). The children in the first study received individual SLT-led sessions of auditory discrimination, metaphonological therapy and production practice of words. Parents observed and carried out activities at home. Improved outcomes were demonstrated when compared with a delayed treatment group.

In the second study a comparison was made of phonological gains made by: 1) children receiving SLT-delivered therapy sessions with, as in the first study, parents observing and carrying out homework tasks; 2) children receiving a parent-led home programme from their parents; and 3) a delayed treatment group. The home-programme parents were given two hours training and instructions to carry out auditory bombardment activities customised to their child's error patterns, with the rationale that this was easy for them to carry out. The content of the two-hour training session was not reported. The parent therapy group made more speech gains than a delayed treatment group, but more modest gains than traditional clinic-based therapy. The authors suggest that this demonstrates that

parent-delivered intervention is less effective than SLT-led therapy, however since the two intervention groups used different tasks, the findings are difficult to interpret.

Another speech intervention involving parents is PACT (Bowen & Cupples, 1998) (also see Chapter 2 Section 2.2.5 and Chapter 3 Section 3.1. 2). PACT aims to empower parents by offering them a meaningful role in therapy. Parent training elements in PACT involve learning and rehearsing the techniques of modelling, recasting, and self-monitoring in a treatment 'triad' of the parent, clinician and child (Bowen & Cupples, 2006). The approach has been shown to be successful when all five elements are delivered together (Bowen, 1996a; Bowen & Cupples, 1998), although there is no evaluation of the individual elements of the programme or of parental response to their involvement (Bowen & Cupples, 2006).

One training programme 'Talking about Speech' has been shown by Gardner (2006) to be effective for non-professionals working with children with SSDs. Gardner criticises current training for support staff as too often generic, concentrating on what should be taught in speech programmes rather than how to make speech changes. In earlier work Gardner (1994) had used CA techniques to analyse speech therapy sessions and identify the interactional regularities used by clinicians when working with children with SSDs. These regularities which Gardner called 'therapy talk' are discussed further in Chapter 4 (see Section 4.2.2).

The programme 'Talking about Speech' provides information about how the adult can put into practice therapy talk by being explicit about the purpose of therapy and what changes the child should make. Talking about Speech describes strategies of modelling and imitation, giving praise, and gradually reducing the amount of support as the child moves towards self-monitoring. Training in the Talking about Speech programme takes the form of participants observing the SLT deliver therapy and then practising the same strategies. Each week video recordings were made of the participants delivering the child's speech

programme. A portion of the video was observed and discussed by the clinician and participant, reflecting on the use of therapy talk strategies. In a pilot study for Talking about Speech, Gardner (2006) compared strategy use by SLT students and Learning Support Assistants (LSAs) pre- and post-training. Gardner used a coding scheme and established that the four-week programme successfully introduced participants to new patterns of responses to child speech error, particularly the addition of phonetic information in requests for self-correction and confirmation. There is no similar empirical evidence on the use of 'Talking about Speech' with parents. It may be that the programme does not meet the needs of a clinic-based therapist as the lengthy workbook may be difficult to administer within the constraints of therapy sessions.

Despite there being no available training programmes for parents of children with SSDs, survey research suggests that SLTs afford high priority to parent training. Of the 288 Australian SLTs in the online survey by Sugden et al., (2018a) 98.7% reported offering parents training at least 'sometimes'. The majority of these SLTs (87.8%) did not use a specific programme, rather the training was embedded in therapy sessions with observation of the therapist conducting therapy (98.7%) being the most popular form. Other common activities reported were opportunities to provide therapy during the session (80.6%), providing written information (77.6%), SLTs providing real-time feedback after observing parents carrying out therapy tasks (65.5%), SLTs allowing parents to reflect about their performance during home activities (43.1%) and the use of video recordings to provide parents feedback about their performance in therapy (8.6%). In this survey SLTs also described the techniques and knowledge they included in their training. The most common techniques trained by over 90% of SLTs related to the production of speech targets, i.e. modelling, using prompts and cues and providing the child with feedback about correct or incorrect attempts whereas 59.1% provide training in auditory tasks. Theoretical information

regarding normal speech development was provided by 87.9% of SLTs with 86.6% referring to the importance of integrating therapy into daily settings and giving feedback about speech within everyday conversations.

Sugden et al. (2020) provide empirical research for the inclusion of parents in a speech programme. Five children aged 3;0–5;11 yrs received multiple opposition therapy delivered by parents and the SLT. Parents attended a 60-minute training session at the start of the eight-week programme. Training elements included information about communication, speech and language development, intervention approaches and explicit training in therapy-specific tasks. Parents were trained to identify speech errors and to observe and be observed by the SLT. Follow-up showed that three of the five children in the study made significant gains on FOCUS (Thomas-Stonnell et al., 2013) a measure designed to evaluate communication change. Three of the parents, those whose children made gains on the FOCUS, reported increased confidence delivering the intervention; the other two parents reported little change in their confidence.

This review shows that speech clinicians value parental involvement. Training elements are frequently embedded in interventions with the aim of supporting parents to carry out therapy activities at home thus making up the shortfall reported in publicly funded clinics (Sugden et al., 2018b). There is however a paucity of research on parent outcomes of carrying out the same tasks as the clinician. One exception is a study by Gunther and Hautvast (2009) of 91 children with SSDs aged between four and six years. All parents in the study were told that home practice would improve outcomes, although no treatment frequency was prescribed. In the study, 32 children received traditional articulation therapy which produced better outcomes than ‘no therapy’ controls. Another group of 32 children also had a ‘contingency management’ response which rewarded productions of the target sound. This group of parents carried out more homework and the children made greater

speech gains. The authors report a small, but unspecified number of parents who had difficulty carrying out the contingency management and speech tasks. It may be that just as children with SSDs have been described as a heterogenous group (Dodd, 2014), ‘parents’ as a group are equally heterogenous, so it is unreasonable to expect they will have similar outcomes when using therapy strategies.

One difference between parents may relate to speech perception. Experience working with children with SSDs has been shown to lead to better perception of phonetic detail (Klein et al., 2012; Munson et al., 2012). Parents, lacking experience, may find it difficult to make judgements about children’s speech attempts and be less successful when carrying out homework tasks. This difficulty was observed by Bowen and Cupples (2004) in the therapy sessions with ‘Nina’. Nina’s mother was more likely to identify and correct speech errors than praise Nina’s correct attempts. Nina’s mother was also unable to discern lateralisation of /tʃ/ and /dʒ/. Achieving the same level of perception of phonetic detail as an experienced SLT may not be easy for parents.

In this section I have shown that SLTs value parental involvement in intervention for SSDs, but compared with other speech and language disorders, there is a lack of evidenced-based training. There are descriptions of activities carried out to train parents (Sugden et al., 2018a) but no evidence of how successful they are. In the family-friendly approach taken in this research, we must stop and listen to what parents themselves have to say about their child’s speech and how they experience being involved in intervention. This will now be considered.

3.2 Parent Experiences of Therapy for Children with SSDs

Chapter 2 cited the requirement of Evidence-Based Practice (EBP) that interventions are based on high-quality research (American Speech-Language-Hearing Association, 2005).

Another requirement of EBP is the use of “individual patients’ predicaments, rights and preferences in making clinical decisions about their care” (Sackett et al., 1996). Mulley et al. (2012) advocate that patients, or parents in the case of children too young to give consent, deserve the dignity of receiving treatment that meets their fully-informed preference. Some criticise the scant attention that has paid to parent preference and attitudes in speech and language therapy (Tosh et al., 2017) the next section will consider how this has been approached.

3.2.1 Obtaining Parent Opinion

One of the first qualitative studies exploring parent opinion about their child attending speech and language therapy demonstrated that it is important to consider parents’ views when evaluating an intervention (Glogowska & Campbell, 2000). Using the Framework Method (Ritchie & Spencer, 1994), Glogowska and Campbell (2000) organised interview data from 16 parents of 159 preschool participants with speech and language difficulties from a randomised controlled trial (RCT) to evaluate the effectiveness of therapy. The interviews explored how parents construed their children’s difficulties and their participation in interventions. Glogowska et al. (2001) administered a survey to 89 of the same group of parents, these being the parents of children who had received therapy in the RCT. They asked parents to rate agreement to statements about aspects of therapy, including waiting times and therapy outcomes. These statements were not the words of the parents, but were designed to be close to what parents might say about therapy. It was argued that by responding to statements in the here-and-now, parent opinion did not rely on memory. Although a survey offers a reasonably quick way to find out attitudes to therapy, an in-depth exploration of the complexity of parent attitudes is not achieved (Glogowska et al., 2001). Since then, as interest in parent opinion has grown, a range of methodologies has explored parent opinion. Researchers have examined different points in the therapy journey: Marshall

et al. (2007) carried out semi-structured interviews before a therapy programme; Baxendale et al. (2013) carried out their interviews post-therapy; focus groups have been carried out with parents of children with SLCN who have completed programmes (Carroll, 2010; Roulstone et al., 2015); and studies have tracked opinion over the course of the intervention (Davies et al., 2017; Watts Pappas et al., 2016). The flexibility of qualitative research methods means that all these opinions have value and add to our understanding of the parent role in family-friendly therapy.

3.2.2 Parent Preferences for Therapy

When patient preference is referenced in the literature about speech and language therapy this is usually about a mismatch between the expectation and reality of therapy (Glogowska & Campbell, 2000). This mismatch was shown by Ruggero et al. (2012) who carried out an online survey of 154 parents of children accessing services for a range of SLCN. Of these parents, 80% reported preference for traditional individual SLT-led therapy and only 4% indicating that they would prefer parent training or a home programme. Parent preferences were not met in 34% of cases noteworthy was of the group 13% were receiving parent-training/home programme therapy. with a preference for weekly sessions, but parent preferences were not met for 34%. Of the group, 13% were receiving parent-training or a home programme although only 4% reported this as a preference.

Respecting the family's informed decision is a principle of family-friendly practice, meaning that parents choose how much involvement they have in their children's speech programme. This could mean that parents view the SLT as the primary provider in the intervention (Carroll, 2010; Glogowska & Campbell, 2000) while parents observe (Lyons et al., 2010), or ultimately parents could decide not to participate (McAllister et al., 2011). Whatever level of involvement they prefer, parents can only make 'informed' decisions with adequate and accessible information about their child's speech, the

intervention, and what participation will entail. Equally, it is of importance that SLTs learn about parents' views and their family circumstances when developing a partnership with parents if they are to jointly deliver effective interventions for SSDs (Kummerer & Lopez-Reyna, 2006).

3.2.3 The Role Parents Play in Therapy

A small number of studies have investigated the roles of parents of children with speech and language difficulties in their children's intervention. Parents are reported to confidently assume an advocacy role, making decisions about when services are needed and following up concerns raised about their child (Davies et al., 2017; Glogowska & Campbell, 2004; McAllister et al., 2011), but how parents view their role in therapy sessions is less clear. In a number of studies, parents have voiced the opinion that attending therapy implies individual sessions in which parents do not interfere (Carroll, 2010; Davies et al., 2017; Roulstone et al., 2015; Watts Pappas et al., 2016). Where the reality of therapy does not meet this expectation there is the potential for dissatisfaction. This is a view voiced by parents of children receiving early intervention who were disappointed that the focus of the clinician was on changing adult interaction style rather than working with the child (Lyons et al., 2010). This suggests discussion clarifying roles at the outset of therapy to reduce dissatisfaction about its reality of intervention (Glogowska & Campbell, 2000; Lyons et al., 2010).

When Davies et al. (2017) interviewed 14 parents of pre-schoolers with SCLN about therapy experiences the parents reported being confident taking the role of advocate for their child in securing help to meet their needs. The parents were more uncertain about how to support their child although the majority express a willingness to learn. Interviews with eight of the group carried out 10 and 30 weeks after the initial assessment shows that parent perceptions of their role during therapy may not be fixed. At the outset there were parents

who anticipated taking the role described as ‘attender’ whose main role was to bring the child to therapy; some could envision being ‘implementers’ carrying out activities following guidance from the SLT; and others were anticipating a role of ‘intervener’ where they could adapt activities to their home context. As therapy progressed, the parents reported learning skills, although not all felt able to apply these skills or to conceive a different role. There were parents who felt their role had evolved and had started to see themselves as ‘implementers’ or even ‘interveners’ who saw how their interaction with their child could change as a result of the programme.

A similar picture of changes in parental attitude towards home practice was painted by Sugden et al. (2019). This study used semi-structured interviews to explore how a group of six Australian parents of children with SSDs experienced home practice. Within this group there were different levels of engagement in the sessions. There were parents who spoke of not wanting to “overstep the line” (p. 170) and left the session to the SLT. Despite some considering SLTs had the expert role in making decisions and carrying out the intervention, parents acknowledged that home practice was their responsibility, something not considered prior to therapy. They spoke of tasks becoming easier over time as they became more involved. Others talked about the SLT providing them with tools to use at home. Some parents talked about the challenge of repeating what the therapist had done in the clinic due to the lack of clear instructions and most parents commented being unsure how to teach the child at home, more so when the child had said a word incorrectly.

When the parents talked about the practicalities of the sessions, although several families received support from their extended family, lack of time was a challenge for all; one of the mothers recognised, with guilt, that her child would have been discharged sooner if he had practiced more regularly.

The concerns raised by parents led Davies et al., (2017) to suggest changes in the role of the SLT, considering that SLTs need to adopt a more explicit teaching role to support parents. Sugden et al. (2019) agree that practitioners need to ensure parents are well-coached in the delivery of tasks to avoid them being unable to carry out the required practice

3.2.4 Parental Beliefs about Causes of SSDs

Parent perception about causes of speech and language difficulties may reveal myriad factors that impact the parent-SLT partnership. Views have been sought from a number of parent groups: parents of children who had completed a programme of speech and language therapy (Glogowska, 1998); parents of children with suspected language delay (Marshall et al., 2007); families from communities traditionally viewed as ‘under-served’ in speech and language therapy (Marshall et al., 2017); families of Mexican mothers living in USA (Kummerer & Lopez-Reyna, 2006); and parents of children with SSDs (Sugden et al., 2019). Overall the range of causative factors suggested by the parents was wide. These included medical factors such as the presence of physical problems with the mouth or learning problems (Glogowska, 1998), hearing (Marshall et al., 2007), birth events and maternal alcohol consumption (Marshall et al., 2017). There were superstitions about ‘bewitchment’ (Marshall et al., 2017) or the timing of a haircut (Kummerer & Lopez-Reyna, 2006). Parents reported personality factors such as the child being ‘lazy’ (Marshall et al., 2007) ‘spoiled’ or ‘stubborn’ (Kummerer & Lopez-Reyna, 2006). They also referred to environmental factors such as whether parents had provided sufficient stimulation or correction, whether the child used a dummy (Marshall et al., 2007; Marshall et al., 2017) and if the child was exposed to more than one language (Marshall et al., 2017). Parents reported believing language development was facilitated when they talked to children, shared meals, used exaggerated intonation with lots of eye contact, and took trips out of the house (Marshall et al., 2017). There were factors in the child’s environment reported as positive by some

parents and negative by others. These include whether the child had or had not been to pre-school, whether the child was a singleton or had siblings (Glogowska, 1998; Marshall et al., 2007) and how much television the child watched (Marshall et al., 2017). Given such a wide range of beliefs about what has caused speech and language difficulties, discussion between the SLT and parents about the causes of their own child's difficulties is important as it may assuage any guilt a parent may have and foster "a sense of equality between parental and professional contributions to the therapy process" (Glogowska, 1998, p. 543).

3.3 Chapter Summary

This chapter has considered the role parents play in interventions for children with SSDs. Surveys internationally report that SLTs are increasingly positive about involving parents in interventions (e.g. Morgan et al., 2019; Sugden et al., 2018a; Watts Pappas et al., 2008). One of the drivers for increasing parental involvement in interventions for SSDs is to increase the amount of speech practice children receive to the levels found in the evidence-base and consequently to improve outcomes (Lancaster et al. 2010; Sugden et al., 2018b). With an increase in the delivery of therapy services using video-conferencing, particularly during the recent global pandemic parental involvement is likely to increase (Grogan-Johnson et al., 2010). This chapter has reviewed the role parents play in a speech clinic, how clinicians and parents view that role, and importantly barriers to increasing engagement.

Throughout the review there is an underlying theme of changing the parent role. When considering the role of training to increase parent participation in intervention for children with SSDs there are difficulties, notably the lack of available training programmes specifically aimed at parents of children with SSDs. There are barriers to engagement such as parents being unwilling or lacking the capacity to engage (Watts Pappas et al., 2008). Whereas almost all SLTs report offering training, in the majority of cases this is embedded in

the intervention in the form of parents observing the SLT carrying out activities or parents participating in the intervention (Morgan et al., 2019; Sugden et al., 2018a). This form of training may well not be explicit enough for a parent to be able to carry out the activities as effortlessly as SLTs with their extensive professional training (RCSLT, 2021). Additionally, parents do not have the same experience as the clinician listening to phonetic detail (Klein et al., 2012; Munson et al., 2012) which may mean they find it difficult to make judgements about success or errors in their children's speech (Bowen & Cupples, 2004).

The chapter has also explored the beliefs of parents of children with SSDs and their perception of their role in the speech clinic. Parents have reported expectations that the clinician has the most important role in remediation (Davies et al., 2017; Ruggero et al., 2012), whilst also recognising the importance of their role in the sessions, especially their responsibility for carrying out homework. Parents report numerous barriers to carrying out home practice including a lack of time and that they are unsure about how to carry out the intervention (Sugden et al., 2019). There is however a realisation that parent roles evolve and responsibility becomes easier over time leading to a suggestion that SLTs consider making their parent training role more explicit to foster increased confidence for parents carrying out the practice their children need (Davies et al., 2019).

In the next chapter, I will review the literature pertaining to features of adult-child interaction during speech-teaching episodes. I will also consider what is known about how adults attempt to teach and repair speech of typically developing children. The chapter focuses on how the methodology of CA has been used to describe the special characteristics of 'therapy talk' that takes place in a speech and language clinic. In addition, the chapter explores how parents approach speech-teaching exchanges and how clarification requests contribute to speech change.

Chapter 4

Adult-Child Interaction in Speech and Language Therapy

This research takes a mixed-methods approach which is said to be of particular value where the research involves complex phenomena such as a speech intervention (House, 2018). This was demonstrated in a study by Glogowska et al. (2002) to examine the effectiveness of community based intervention for pre-school children. They carried out an RCT of children receiving ‘therapy now’ and ‘therapy later’ options. They also carried out a parent survey and in-depth interviews, adding parent insight to the RCT data. In my study, three different approaches are also used: quantitative coding, TA and CA. The TA gives the researcher the opportunity to consider SSDs from the perspective of parents, reflecting on the challenges of daily life and of participating in intervention. The quantitative analysis allows for a comparison of the SLT and parents’ use of intervention strategies. Also making the comparison between the adults in the speech clinic on a turn by turn basis and by taking into

account the child's role in the exchange, CA creates the opportunity to examine, in more depth, the complexity of practices used by adults in the speech clinic.

4.1 Analytical Approaches Used to Study Adult-Child Interaction

The three analytical approaches used in the research will be described in the next section. The descriptions are necessarily brief, but they include examples of how each approach has been used to study adult-child interactive practices.

4.1.1 Quantitative Coding Analysis

Different approaches to coding adult-child interaction is described in the literature: adopting coding schemes from previous studies, adapting schemes or establishing new schemes. Yont et al. (2002) counted the causes of repair in children with language disorders using the 'Breakdown Coding System' (Yont et al., 2000) which had previously been established to analyse repair sequences. Hulterstam and Nettelbladt (2002) made a comparison of elicitation strategies used by clinicians delivering traditional articulation therapy or delivering Metaphon (Howell & Dean, 1994). Hulterstam and Nettelbladt used an established Initiative-Response analysis, classifying the types of strategies used by the adults as either 'production' strategies including naming, imitation, closure, modelling and retelling, or 'comprehension' strategies including pointing, acting out or judgements. The authors found that in the traditional articulation therapy activities the clinician tended to make direct requests and overt criticism which was somewhat 'face threatening' for the child. In the Metaphon sessions there were examples of the child appearing confused about what the clinician required. Tamis-LeMonda et al. (2012) also adapted categories from previous studies to compare mother and father interaction with their children. They counted 15 parent behaviours including labels, closed questions and repetition, and 14 child behaviours, including location, description and action. They found similarities in the parent-child

conversations such that individual children's language environments were either relatively enriched or impoverished from both parents. Milburn et al. (2015) approached coding by devising their own system in a study of the effects of coaching educators on referencing print awareness, finding that after coaching the pre-school educators engaged the children in more talk about phonological awareness.

Weaknesses in coding have been identified. Stivers (2015) in a paper describing how formal coding can be successfully based on a thorough CA analysis suggests that some behaviours do not occur in a high enough frequency to make counting them a useful endeavour. She also asserts that reducing the complexity of human behaviours to a number risks flattening behaviours to simplistic codes, such that hard boundaries surround behaviours that may be better described as continuous than binary. Tarplee (1993) also argues that talk is "collaboratively constructed" (p.42) so the contribution an adult makes to an exchange cannot be removed from the child's contribution, described e.g. as 'input' and counted. Gardner (1994) uses an example from McCartney's (1981) data to show the weakness of coding. McCartney codes the utterance "Anthony will you please remember about the rabbit sound on half?" (Gardner, 1994, p.38) as a 'meta' comment. Gardner points out that this meta comment also contains a model, and with further information about pitch and timing yet more could be displayed about what the turn is actually doing. She argues for the use of CA to provide a more considered description of what exactly is happening in an interaction.

4.1.2 Thematic Analysis

In contrast to quantitative research's focus on numbers, qualitative research uses words as data to seek out meanings (Polkinghorne, 2005). The qualitative researcher can carry out a study in natural settings "to describe, explain, interpret, and understand the meaning of social phenomena as experienced by individuals in their context" (McAllister &

Lyons, 2019, p. 10). Thematic analysis (TA) is one method of analysing qualitative data by identifying patterns of meaning known as ‘themes’, which have been described as ‘a central organising concept’ (Braun & Clarke, 2013) that unites coded extracts. TA is an approach that takes into account “the messiness of real life, puts an organising framework around it and interprets it in some way” (Braun & Clarke, 2013, p. 13).

Although TA has a long history it has been criticised for being a “poorly demarcated, rarely acknowledged ... yet widely used qualitative analysis method” (Braun & Clarke, 2006, p.77). To counter this criticism, Clarke (2017) proposes that TA is thought of as an ‘umbrella term’ for a range of approaches that differ in procedure and philosophy. Examples of different TA approaches are Thematic Networks Analysis (Attride-Stirling, 2001), Framework Method (Ritchie & Spencer, 1994), and Reflexive TA (Braun & Clarke, 2019). Across all the approaches when carrying out TA, by coding the researcher identifies patterns of meaning across the data set and organises those patterns into themes. Complex accounts of real-life experiences are thus ‘explored’ rather than quantified, in fact Braun and Clarke (2006) assert that looking at the prevalence of themes in data has no value because quantity may not actually indicate if the theme has importance to the participant.

Clarke (2021) describes two types of codes that can be identified in the data. In ‘semantic’ coding, the researcher summarises the surface content of the data, whereas ‘latent’ coding looks at meaning underlying the overt content of the data. Another useful contrast that Clarke (2021) makes is of themes. She describes some themes as ‘bucket’ themes, which she says are straightforward summaries of the data and more likely to be used in applied contexts. In bucket themes, the data is described rather than analysed for its significance. ‘Storybook’ themes, as their name suggests are more complex. They tell a story that interprets the data, tending to locate it in a social or political context.

Braun and Clarke (2019) emphasise the role of the researcher to actively analyse the data into themes, rejecting the idea that themes ‘emerge’ from the data. To carry out the analysis Ryan and Bernard (2003) suggest exploring the data using sorting techniques such as identifying similarities and differences or actually cutting and sorting statements. The techniques should be transparent and replicable, to provide a methodically robust approach.

4.1.3 Conversation Analysis (CA)

The following section gives a brief overview of CA, the third analytical method carried out on the data in this study. CA is a prominent analytical approach used to understand and describe social interaction (Stivers, 2015). CA begins the analysis with the data and observations made about them in order “to discover phenomena in the data, rather than to test specific hypotheses” (Clift, 2016, p.311).

The origins of CA can be found in the lectures given by Harvey Sacks at the sociology department of University of California 50 years ago. CA has grown to a rigorous approach, well suited to examining how talk-in-interaction unfolds on a turn-by-turn basis in everyday and clinical settings (Griffiths et al., 2019). The prominence of CA as a research method leads Wooffitt (2005) to describe CA as “one of the key methodological approaches to the study of verbal interaction” (p.1). The value of using CA to identify practices in social interaction is in the inductive methods that include all participants in the analysis and not ignore non-linguistic phenomena (O’Reilly et al., 2016). In CA the analyst asks a fundamental question about any conversational turn, “why that now?” (Heritage & Clayman, 2010, p.14), to uncover the sets of collaborative, socially-shared conversational practices that produce social actions. When examining the organisation of interaction, rather than relying on participant accounts of what they do, CA examines what they actually do (Sidnell, 2012).

CA has identified that when a speaker performs the first turn of a conversational sequence, a particular ‘next turn’ is expected. If that turn does not appear, the first speaker

infers a reason for its absence e.g. a non-response could infer that the first turn was not heard or that a particular request is being declined (Hutchby & Wooffitt, 1998). As such, a turn displays the speaker's understanding of the previous speaker's turn. The next turn of any sequence is the place where a speaker may, if necessary, initiate repair on something they deem to be problematic from the prior turn. Through this collaborative construction of talk, there is constant repair to maintain intersubjective understanding.

4.2 Using a CA Approach to Study Therapy Talk

This section starts with a definition of 'repair' from the perspective of CA. I will then outline how CA has been used to describe the institutional talk that takes place in the speech clinic, with a particular focus on the work of Gardner (1994) who used SLT and parent data to describe what she labelled as 'therapy talk' in the speech clinic. This is followed by a discussion of the work of Tarplee (1993) who used CA to describe the language teaching that takes place in picture-naming exchanges between parents and typically-developing children. I then turn to relevant findings from other methodologies particularly coding and counting studies which address the issue of how adults respond to children's speech errors.

4.2.1 A Definition of Conversational Repair

When children are learning new speech sounds during speech interventions, the adult may judge that the child's attempt could be improved on and give feedback that produces another attempt with a better outcome. This form of conversational repair is central to output activities carried out in a speech clinic.

In CA terms 'repair' has been described as "the self-righting mechanism for the organisation of language use in social interaction" (Schegloff et al., 1977, p.381). Hutchby & Wooffitt (1998) refer to repair as a generic term covering the range of ways participants in a

conversation deal with problems such as overlaps in turn-taking to the more commonly understood sense of correction of specific mistakes or errors.

In CA what is repaired is referred to as a ‘trouble source’ or ‘repairable’ (Schegloff et al., 1977). How repair of the trouble source is organised is described in terms of who initiates and who carries out the repair. Repair can be initiated by the speaker of the trouble source in ‘self-initiated’ repair or by another speaker in ‘other-initiated’ repair. The resolution of the trouble can be provided by the speaker themselves in ‘self-repair’ or by another speaker, usually the recipient of the conversation, in ‘other-repair’ (Griffiths et al., 2019).

CA research has identified a preference order in conversation such that in mundane conversation self-initiated self-repair is favoured or ‘preferred’ over other-repair (Schegloff et al., 1977). Preferred actions are produced promptly and directly without mitigation (Seedhouse, 1997). Schegloff et al. (1977) suggested that adult-child interaction may provide an exception to this preference for self-repair due to the difference in language competency between the adult and child. This view has been questioned by McHoul (1990) after observations made in classroom talk. A similar opinion was made by Tarplee (1993) in her CA analysis of conversations between carers and young children aged 18 - 27 months. Both authors suggested that direct correction only occurred when the adults had reason to believe the child was unable to self-repair. In a CA analysis of lessons in second language learning classrooms Seedhouse (1997) also observed that negative evaluation of errors was avoided in didactic settings, and that correction was delivered with mitigation such that the use of a direct ‘no’ was only given after non-linguistic or procedural errors.

4.2.2 Applied CA: Therapy Talk in the SLT Clinic

Whereas in CA, ordinary or ‘mundane’ conversation is the fundamental domain for analysis (Lester & O’Reilly, 2019), in what has been described as ‘institutional talk’ (Hutchby & Wooffitt, 1998), CA examines ways that conversational turns are used to achieve

the institutional goals of particular settings (Lester & O'Reilly, 2019). The CA methodology has been applied to various settings including health clinics and classrooms (Heritage et al., 2007; Radford, 2010; Samuelsson, 2009; Tykkyläinen, 2009). The talk that takes place in the speech and language therapy clinic, learned as part of the professional training of an SLT (RCSLT, 2021), is one form of institutional talk (Gardner, 2006). Professional training changes the epistemic status of individuals in that it gives the different participants in the clinic access to different domains of information (Heritage, 2012) and therefore different epistemic statuses relative to each other.

The characteristics of the speech used by SLTs in clinics has been given various names. Tykkyläinen (2009) referred to 'therapese' with lengthened speech sounds, changing tempo, increases in volume, stress and pausing. The 'therapeutic register' (Sheng et al., 2003) is described as being characterised by prosodic differences which include longer pauses and a slower speaking rate. I will adopt the term 'therapy talk' (Gardner, 1994) which is described below. Features considered characteristic of therapy talk include IRE sequences, how SLTs formulate questions, the way that interaction in the clinic is organised and how SLTs repair speech attempts.

IRE Sequences. It has been observed in mundane conversation that when a speaker asks a question and a second person replies, the first person usually acknowledges the reply (Mehan, 1979). The structure of questions in the classroom differs; the teacher typically poses questions described as 'test questions' (Grosse & Tomasello, 2012). Test questions are not designed to provide the teacher unknown information, rather test questions are designed to evaluate pupil knowledge using sequences referred to as 'Initiation-Reply-Evaluation' (IRE) sequences (Macbeth, 2004; Mehan, 1979). The teacher's question is the 'initiation', the pupil's response is the 'reply' and the sequence ends with the teacher's 'evaluation' of that reply.

McHoul (1990), in an examination of questions being asked in geography lessons, observed that in IRE sequences if a reply to the question is not forthcoming, or if the reply falls below the teacher's expectations, prompts, repeats, and simplifications may be offered. When the desired outcome is reached it is accepted with an evaluation (McHoul, 1990). In McHoul's data, when the pupil's response did not match teacher expectations, other-initiated self-repair was the most frequent repair type with direct correction only made when the teacher was certain that the pupil could not self-correct.

The speech and language therapy clinic is another didactic setting that makes use of IRE sequences. Leahy (2004) describes the use of such sequences by a clinician carrying out fluency therapy. Gardner (1994), whose work will be described in more detail below, describes the use of 'test questions' in therapy sessions designed to work on the speech of children with SSDs. Marlaire and Maynard (1990) and Maynard and Marlaire (1992) used CA to examine the use of IRE questions in clinical testing. Maynard and Marlaire (1992) analysed videotapes of three clinicians assessing 10 children aged between three and eight years using a formal educational assessment. Three parts to the testing sequences were identified. The children and clinician first carried out co-orientational work showing readiness for the upcoming assessment; 'instructional sequences' that describe how the task is carried out prepare the child for the task; and only then is the test itself administered. The authors described how the test was given as a series of IRE sequences that show variable use of the third turn. The sequences were produced as 'elaborated forms' where third turns were supplied but also in 'collapsed' forms when the third turn acknowledgment is omitted until the child makes an error. Superficially it may seem that omission of the third turn is a 'neutral' response giving the child no indication as to the accuracy of their response. The absence of an answer is however relevant; McHoul (1978) observed that "non-comment is itself a form of comment marking ... that an answer is not satisfactory while not incorrect"

(p.190). Maynard and Marlaire (1992) go on to show that when an incorrect response was provided, work was carried out on that response until it was deemed acceptable.

Formulation of ‘wh’ questions. In comparison to other didactic settings, special characteristics have been found in SLTs formulation of questions. Samuelsson (2009) carried out CA analysis of the conversation of a boy aged 4;10 yrs, with a language impairment, and his Swedish SLT. The conversation analysed was selected from 25 such conversations. It was shown that the particular use of prosody in formulating ‘wh’ questions by the SLT using a rising pitch contrasted with Swedish classroom talk where questions are mainly produced with a high pitch and falling intonation. In fact, Samuelsson observed the similarity with the pitch contour of SLT questions in English and posited that this may be the structure of questions formulated in SLT clinics regardless of the language.

Tykkyläinen (2009) compared interaction between six mother-child dyads and six SLT-child dyads, all the children were 5-year-olds. Tykkyläinen compared the way the mothers and SLTs formulated questions in word games. The mothers based their clues on family experiences, whereas the SLTs used a wider range of strategies. The SLTs took an audible intake of breath prior to the question, drawing the child’s attention to the importance of the task. They also emphasised critical information, they used gestures and gave supportive hints to ensure success. This study shows how in a speech and language clinic, interaction practices, in this case the formulation of questions, are borrowed from everyday settings but used in particular ways to achieve clinical goals.

Managing the structure of therapy sessions. Speech and language interventions are by nature complex because ‘talk’ is: “both the object and medium of the instruction” (Merrills, 2009, p. 70). Merrills used CA to examine extracts from three children with a language disorder carrying out therapy activities with their SLT. She established that there were three layers in therapy talk, all performing different actions.

1) 'You and Me Layer' where the social aspects of attending therapy takes place as the participants move to the therapy room and exchange greetings.

2) 'Managing Learning Layer' where the SLT takes a teaching role and explains the therapy activities.

3) 'Talking Practice Layer' where the business of therapy takes place.

Merrills shows how misunderstandings in therapy can arise if layers are not kept distinct. In one case confusion arose when the child answered the question from the 'Managing Learning' Layer, rather than using it as an instruction to formulate his own question in 'Talking Practice'. Merrills argues that disentangling the layers may avoid such misunderstandings allowing SLTs to be more explicit about where breakdown has occurred. A similar hierarchical organisational structure to therapy activities was developed by Letts (1985) as cited in Horton and Byng (2000), where 'Organising Acts' were the activities carried out by the therapist to begin an activity and 'Ongoing Acts' were the next layer and were the substance of therapy itself.

Managing phonetic repair: The examples of therapy talk referred to thus far have been from interventions with children with language difficulties rather than SSDs like the children who have taken part in this research. How speech work is carried out by mothers and therapists with children with SSDs has been described using CA by Gardner (1994, 2006). Gardner's work will now be described in some detail because her findings have influenced this research.

Gardner (1994) made an analysis of therapy sessions of eight children with SSDs aged between 3;11 yrs and 5;9 yrs. The children were carrying out speech intervention activities with eight SLTs and in two cases at home with their mothers, one of these mothers was studied in detail. For six of the children single sessions were analysed, two children were studied over a period of six months. The analysis looked at how modelling and

phonetic repair was carried out by the adults and how the children responded. Gardner made a comparison of SLT-child and mother-child extracts taken over a 6-month period of 'Stuart' who was 4;0 yrs at the start of the intervention. In the analysis Gardner describes how in therapy talk speech targets are modelled using strategies that highlight the features the child is being asked to change. Therapy talk strategies described are: that the adult becomes still and directs their gaze to the child; the speech target is removed from its semantic domain and then worked on; the speech target is marked as 'special' with a slower rate of delivery; and a glottal stop or intake of breath produced prior to the target marks the special nature of the target. The clinician then produces the model for imitation, amplifying the crucial phonetic aspects of the target, on occasions accompanied with a hand gesture marking the articulatory features.

Gardner observes how the adult turn following the child's attempts at target is often a 'redoing' of the child's version. A redoing is a turn that has been described by Tarplee (1993) as where the adult picks out a word said by the child and carries out work on it. A redoing can either be sequence closing or an invitation to repair. The redoing is sequence closing when it matches the child's pitch or is accompanied by overt positive evaluation, a turn-type frequently used by the SLTs in Gardner's study (1994). Redoings invite the child to carry out repair when accompanied by an overt request to repeat, when offered after pause or when the pitch contrasts that of the child. Gardner observes that 'misunderstanding checks' are a form of redoing frequently used in therapy talk. These requests for specific constituent repetition are usually offered with a questioning intonation for the child to accept or reject.

Having established these critical features of therapy talk, Gardner (1994) observes that there are potential pitfalls. When the therapist's model of the speech target is produced with exaggerated perturbation of the speech flow, the crucial features can be distorted rather

than highlighted. This provides an inaccurate model for imitation. A second potential issue Gardner observed in her data is that children have expectations for lexical rather than phonetic repair. This expectation has been demonstrated in research with adults interacting with typically developing children (Laakso & Soininen, 2010; Tarplee, 1993, 2010; Gallagher, 1981) where children's experience of corrections in mundane conversation is for repair about the lexical and truth elements in their utterances rather than the phonetic repair that the SLT is seeking. Thus, the therapeutic goal within speech clinics, to make phonetic change, is not what the child expects and is in fact "something quite special" (Gardner, 1997, p. 169). The 'misunderstanding checks' that Gardner observed were used by clinicians to seek phonetic repair albeit not overtly. The adult repeated what the child had said as a question, e.g. the clinician repeated the child's version "tick?" when the target word had been "stick", but this typically resulted in a yes/no answer as if lexical repair was being sought. This finding leads Gardner (1997) to argue that SLTs may need to be more explicit in the design of requests for self-repair when seeking change at the phonetic rather than lexical level.

A third potential pitfall is when the SLT interprets the child's attempt at a target phone in terms of the phonological rule rather than accurately imitating the child's output. This, Gardner considers, is due to the clinician's professional training about phonological development and typical error patterns. The result may be a 'tidied up' redoing of what the child had produced, but it is actually an inaccurate version of what the child had said. An example given by Gardner (1994) is the therapist 'tidying up' the child's version of the target "spots" to the real word "pots". In fact the child had produced [p=ots] where the [p=] was unaspirated. For the adult, a meaningful contrast is signalled by the minimal pair [spot]/[p^hot], but for this child [p^hots]/[p=ots] is contrastive. Using CA methodology with evidence from the same data set, Gardner (1997) showed that this tidying up or

'lexicalisation' of the child's output produces a minimal pair that does not relate to the child's system of contrasts; therefore the child was more likely to produce [p^hots] than [spots]. Gardner suggests that if the child's actual error is accurately recast back to the child, phonetic repair is more likely.

4.2.3 Mothers Using Therapy Talk

Gardner's (1994) analysis of speech therapy sessions included an examination of the turns at talk used by a mother selected because her style contrasted with the style of the therapist. Gardner made a comparison of the mother and SLT in the first two sessions. Both adults used therapy talk but Gardner found that the mother's therapy sequences were longer. This was due to a "continual pursuit of perfection" (Gardner, 1994, p. 239) where the mother worked on speech errors that were not current speech targets. The SLT, in contrast, accepted some versions of the target that were better than previous attempts without being completely perfect; she glossed over errors on sounds that were not therapy targets.

Another difference identified by Gardner (1994) that contributed to the mother's long repair sequences was that the mother's redos were frequently not sequence closing, rather she produced a higher percentage of requests for repetition using a simple redoing or negative evaluation. When the mother made reference to the target phone, she did this with reference to the written form, whereas the therapist was overt in the use of phonetic comments and was thus more explicit in giving guidance to the child as to what precisely was being asked of them. On examining the outcome of the adult use of turns, Gardner found that the child responded differently to the therapist and his mother. The child made more effort to imitate the SLT's exaggerated articulation and phonetic comments than his mother's redos which showed little emphasis and tended to be accompanied with comments which give no instruction apart from to 'remember' a particular phone.

The studies discussed in this section have described the various aspects of the special and explicit nature of therapy talk. The use of questions and managing the structure of the sessions are features shared by clinicians working on speech and language skills, but the characteristics of therapy talk described by Gardner (1994) is particular to the speech clinic, the setting of my research. Since the mother Gardner studies in detail was selected because her style was different to the SLT, it is not surprising that there were differences in the way she used therapy talk. Two of the children were followed over six months. Over this time Gardner made no attempt to track changes that occurred in the mother's use of therapy talk such as whether her interaction style changed to use more therapy talk features over the course of the programme. Gardner suggests examining data from a wider selection of parents, particularly looking at data over the course of interventions to track changes in mothers' interaction styles. This information would be of use to therapists when designing speech intervention to enable parents to become more confident 'implementers' of therapy which Sugden et al. (2019) found was something parents reported to be difficult.

4.2.4 Picture-Naming with Typically Developing Children

The previous section presented findings about working with children with SSDs carrying out speech tasks in the institutional setting of the speech clinic. I now turn to another setting where lexical and phonetic work routinely takes place on children's talk. Tarplee (1993) used CA to analyse six recordings of four children aged between 18 and 27 months naming pictures in books at home with their parents. Tarplee showed how picture-naming routines follow the IRE structure found in other teaching exchanges (Mehan, 1979) although in her work she called the first turn 'elicitation'. In this section I give an overview of Tarplee's findings, which includes the structure of elicitations, the possible child outcomes and finally how the adult evaluated the child responses either by acceptance or initiating repair on the child's turn. The description is intentionally detailed because the task-

related interactions carried out share similar pedagogic aims to the adult-child interactions in a speech clinic.

Elicitations in Tarplee's sample usually took the form of a 'Wh-question', the most frequent form being "what's that?". Some wh-questions were constructed in 'collapsed sequences' similar to those observed by Maynard and Marlaire (1992) and had the dual function of receipting the child's previous turn whilst also eliciting the next. Tarplee describes the way adult turns displayed an orientation to the anticipated adequacy of the child's response showing varying levels of support offered by different turns. One form of support is where the adult prefaced wh-questions with mock "noticings" (Schegloff, 2007) such as 'oo' or 'oh' or an intake of breath which drew the child's attention to care being required for the upcoming task. 'Fill-the-blank' questions produced with a slow tempo and ending on a rising pitch presents the elicitation within a syntactic context which is more supportive than a wh-question. Finally, the most supportive form of elicitation in the data was where the adult provided the label as a model for imitation. This changed the task from a display of lexical knowledge to a display of articulatory knowledge. In addition to identifying labels that were elicited with words and gestures, Tarplee also observed sequences where the child orientated to the picture on the next page and labelled it without the adult making reference to it. Tarplee lists five outcomes from the adult's eliciting turn:

- 1) The child fails to respond.
- 2) The response is not a label.
- 3) The label is not correct.
- 4) The correct label is inadequately articulated.
- 5) The label is correct.

In IRE sequences in classroom settings the child/pupil response is almost always followed by some form of receipt (McHoul, 1978). In Tarplee's research this is not different;

the child's attempt was always given some form of receipt to indicate its adequacy. In fact receipts were so pervasive in the data, absence of a receipt marked out the response as inadequate and functioned as a rejection. In contrast, receipts delivered promptly, accompanied by a confirmation marker such as 'yes', and matching the child's utterance in pitch and rhythm, functioned as affirmation, closing the sequence. When an apparently corrective response offered to lexical matters was marked by a contrast in pitch, this did not function as correction. In such cases the understanding check keeps alive "the possibility that the error was due to some other, less discreditable, failing than the child's not knowing the answer" (Tarplee, 1993, p.173) and acts as an invitation to the child to carry out a self-repair. The adult does not specify exactly what is being rejected, leaving the child to work out what they have to do to repair. Tarplee (1993) observed a preference order to repair, stating that lexical work always comes first, and:

Lexical work hinges, for the most part, on some absolute standard of lexical appropriacy and inappropriacy, available to the adult, and regularly brought into play. Phonetic work, on the other hand, relies on no such absolute standard of acceptability/unacceptability; is optional; and may be shaped by local and immediate concerns. (p. 244)

Tarplee found little explicit correction of phonetic matters where the adult replaces the child error 'x' with a correct version 'y', in the form of "no it is not x, it is y". Rather, phonetic repair was carried out in a subtle manner, the adult repeat of the child's attempt functioning as a re-elicitation in a disguised way of inviting the child to have a further attempt at the target. The only explicitly targeted phonetic repair observed by Tarplee (1993) was when the child was learning a new word.

In summary, Tarplee found that in adult-child interaction in task-related activities, adults typically follow the child's turn with a receipt. When offered without delay this receipt accepts the child's attempt. When offered as a contrast, in the form of a temporal delay or pitch contrast, the receipt marks rejection and projects repair. Lexical repair is

typically direct and immediate. Phonetic repair, carried out once the label has been established, is more subtle and somewhat indirect.

In a CA study looking at the ways parents provide corrective feedback of children's errors, Laakso and Soininen (2010) analysed videos of five Finnish 3-year-olds interacting with their respective mothers during play. As was found by Tarplee in her 1993 data, the number of speech errors corrected by the mothers was small. Direct correction with negation was not used to deal with speech errors, rather negation was used for correcting the rules of a game or when the child's turn contained a lexical or syntactic error. As in Tarplee's data phonetic repair was dealt with in a subtle way, where the mother did not make an overt correction, rather the mother repeated the child's word correctly with stress. These redos supplied a model for the child to repeat and, in two-thirds of these cases, the child used this information and attempted phonetic repair. Laakso and Soininen do not analyse the characteristics of the redos. It may well be that as Tarplee (1993) found, there was a different outcome whether the redoing was pitch-matched or offered with a contrast in pitch or timing and these are actually two different devices.

Laakso and Soininen's data included a quantitative comparison of repair-initiation. There appeared to be dyad-specific practices e.g. candidate understandings, only used where mothers had difficulties with the lexico-semantic content of the child's prior utterances, were used by just one mother in 22 of the 36 occurrences. Although the subtle approach to phonetic repair aligns with Tarplee's CA data, more data from other cohorts is needed to demonstrate if these repair practices are language specific.

Two studies have been considered in this section. In both cases there are differences to my study. The children in Tarplee's (1993) CA analysis were younger than my participants but there are features of the interactions, most importantly that they are task-related that match my study. Laakso and Soininen's (2010) participants were closer to the

age of my participants, but they were Finnish speaking and the analysis was of play rather than task-related activities. Despite this, the analyses provide insight into how parents manage repair and how the need for lexical or phonetic repair is signalled to the child. This is relevant to the speech clinic where children may produce responses that could be lexically problematic but the repair being sought is phonetic. The issue in the speech clinic is how to display to the child that it is only the acceptability of their articulation that is in question using devices that are more typically used in lexical repair.

Beyond CA, research has considered the quality of the child's linguistic environment and the features that facilitate phonological change. One line of study, which I now turn to, has focused on how children respond to requests for clarification.

4.3 The Impact of Communication Breakdown on Children's Speech

It has long been held that a consequence of communication breakdown is that children are motivated to repair speech errors (Weiner, 1981). There are suggestions of the potential value of using communication breakdown as a strategy in the speech clinic (Gozzard et al., 2008). One approach to examining this has been to code and count turns at talk in exchanges where communication breakdown occurs. One of the first such studies on how children made speech repair after communication breakdown was carried out by Gallagher (1977). In this study it was established that when adults interacting with young children offered a neutral contingent query "What?", which at face value indicates nothing more than mishearing, the children interpreted an obligation to modify their message. Children using single word utterances modified with phonetic revisions and those using 2-3 word utterances mainly made word substitutions. In a later study, Gallagher (1981), coded and counted the number and types of contingent queries used by adults when in free conversation with children aged 1;11 - 3;0 yrs. As in the first study, when presented with a contingent query, the children appeared

to understand the requirement to respond with repair. Of the queries produced by the adults, requests for confirmation, in which the adult made a complete repetition of the child's utterance, was the most common and used in 69% of the queries. The second most frequent query (13%) was a neutral request for repetition, produced with rising intonation e.g. what? or pardon? The use of specific constituent requests in which the child's utterance was partially repeated and the constituent replaced by a wh-question, seemed to be dyad specific; they were only used by adults with the children that actually made use of them.

Findings by McCartney (1981) from a study of three boys with SSDs, aged 5;0 - 6;9 yrs, suggest that clarification requests may contribute to speech development. McCartney compared the boys' responses to different forms of clarification requests during 30-minute video-recorded conversations with their mothers and also with "strangers" i.e. people who had not previously known them. Mothers were more likely than strangers to use confirmation requests such as "did you say x?" after communication breakdown. When strangers had not understood the child they initiated repair with neutral requests which did not offer a speech model. Within this sample, phonetic repair was infrequent although two mothers used specific constituent requests which gave partial repetition of the original utterance but used a 'wh-' word to replace the child's word e.g. 'you ate a what?'. McCartney suggested these were intended to be speech teaching episodes giving the implicit message of 'say it properly' but were unsuccessful. A slightly more successful strategy in this study was a request for confirmation. McCartney proposes these offer a complete or partial repetition of the child's utterance and supply a model of the correct phonetic form thus facilitating phonetic repair. She suggests further studies of the outcome of different clarification requests to help mothers and clinicians become more effective in speech teaching exchanges.

A coding study of how children with SSDs respond to repair initiation during conversation with adults was carried out by Gardner (1989) who coded interactions between mothers and eight children with SSDs. The interaction patterns of the mothers and children were compared to mothers with age-matched and language-matched children. As in McCartney (1981) mothers used mostly the specific constituent requests that provide a model for imitation, these were usually produced with exaggerated stress. Gardner found that mothers responded to errors made by the children with SSDs in a similar way to the way they responded to the younger children. This was particularly seen in their use of neutral clarification requests possibly because they struggled to guess what the child had said. A comparison of the revision children made in response to clarification requests showed that children with SSDs were more likely than the other groups of children to revise rather than repeat what they had said. These revisions were more frequently syntactic and lexical rather than phonetic. Gardner considers this may be because the children were unable to make phonetic revisions due to speech difficulties leaving syntactic or lexical changes their only options.

Whereas McCartney's (1981) and Gardner's (1989) research points to using an accurate speech model when initiating repair, Weiner and Ostrowski (1979) who were also looking at the effectiveness of strategies used in the speech clinic, suggest requests for confirmation incorporating an inaccurate model may result in more positive change. Weiner and Ostrowski (1979) related speech change to communication breakdown in an experiment involving 15 children with SSDs aged between three and five years who had at least four error sounds. The children were required to name 45 pictures on two occasions, one week apart. On the second occasion an examiner used a request for confirmation, feigning not understanding, "did you say...?" and used one of three different pronunciations: a correct pronunciation, a model of the child's error, or a different misarticulation. Analysis of the

child's responses showed that positive speech change was more likely if the listener produced a request for confirmation with a misarticulation that was different to the child's version. It was suggested that such listener uncertainty may be an effective component of a speech programme.

Similar findings of the effect of communication breakdown on speech in typically developing children was found by Gozzard et al. (2008) who looked at responses to clarification requests in six children with typically developing speech between the ages of 4;1 and 4;9 years. During single word and conversational speech tasks, if the examiner produced a clarification request using an incorrect version of the word e.g. "Did you say (incorrect version)?" this was more likely to produce positive speech change than a correct version of the word. The authors suggested that it was communication breakdown rather than hearing a model of the word that motivated the children to revise and correct their utterances.

Masso et al. (2014) extended the study by Gozzard et al., (2008) to look at the effect of communication breakdown in children with SSDs. They looked at speech change in four children with SSDs between 3;10 and 5;4 yrs after receiving requests for confirmation that were accurate or inaccurate. When the children were given a request for clarification e.g. "Did you say (correct version)" with an accurate model, they were likely to agree with the researcher and not change their pronunciation. The children were more likely to repair a polysyllabic word after clarification requests formulated with an inaccurate model. This counterintuitively contradicts advice that an accurate spoken model strengthens acoustic-phonetic representations (Rvachew & Brosseau-Lapr e, 2012) and forms an integral part of the adult response when confronting children with communication breakdown and the need to repair (McCartney, 1981). The study by Masso et al. (2014) was only small and one of the children did not revise their errors in response to communication breakdown. This led the authors to consider this child's output matched her less-specified underlying representations

of the words. This evidence that clinicians may need to use different intervention strategies to match profiles of different children concurs with Dodd's work classifying children with speech disorders (Crosbie et al., 2005; Dodd & Bradford, 2000; Dodd et al., 2006; McIntosh & Dodd, 2008) also see Chapter 1 (Section 1.1.5).

In a paper about the role that communication breakdown plays in interventions for children with SSDs, Baker and McCabe (2010) argue that there is no unequivocal evidence of the role it plays in the success of cognitive-linguistic intervention. They particularly discussed whether communication breakdown and repair sequences could be considered "unique teaching procedures" (p.194) or evidence-based kernels (Embry & Biglan, 2008), see also Chapter 2 Section 2.4). Further research needs to look at interventions that do and do not include repair sequences, at what point in a programme are they best used, if some children would benefit from being explicitly shown how to carry out speech repair, and the impact that communication breakdown has on children's motivation to repair their speech.

This section has examined how adults indicate communication breakdown to children when seeking phonetic repair. Some studies suggest using accurate models (Gardner, 1989; McCartney, 1981) and others inaccurate models (Gozzard et al., 2008; Masso et al., 2014; Weiner & Ostrowski, 1979) with the consideration that strategies must match the child's developmental stage (Masso et al., 2014). If clinicians are to be confident in the strategies that they are recommending and demonstrating in the clinic, further work needs to be done to establish what strategies or combination of strategies result in the most positive speech change.

4.4 Summary of Literature Review and Research Questions

The focus of the current study is on family participation in intervention for SSDs. The first two chapters of the literature review gave an account of SSDs, covering

prevalence, the nature of impairments, and potential short- and long-term impacts. The description of the assessment process and intervention options available for children with SSDs identified a dilemma for clinicians that the current evidence for interventions is based on a higher intensity of therapy than is provided in public settings (Sugden et al., 2018b). This dilemma has led to the suggestion that, with training, parents could provide extra practice and make up for the shortfall in intervention intensity (Sugden et al., 2020; Sugden et al., 2019; Joffe and Pring, 2008).

The third chapter turned to how parents are currently involved in speech intervention. Survey research shows that the majority of clinicians acknowledge the importance of the parents' role (Morgan et al., 2019, Sugden et al., 2018a; Watts Pappas et al., 2008) but the picture is not clear. Parents at the start of a therapy programme have reported the expectation that they will be shown how to use therapy strategies (Davies et al., 2017; Roulstone et al., 2015; Sugden et al., 2019; Watts Pappas et al., 2016). There is evidence that parents are offered opportunities to observe therapy, some get written information and feedback after participation in therapy tasks (Davies et al., 2019; Sugden et al., 2018a). However, there are also reports that parents are unwilling or do not have the capacity to participate in therapy (Watts Pappas et al., 2008) and that parents do not complete the tasks they are given due to lack of time or skill (Sugden et al., 2018a). These concerns highlight the need for more research on the role of parents in the speech clinic (Morgan et al., 2019). This research aims to explore the parents' beliefs and experiences of therapy and the impact of the child's SSDs on their family.

This fourth chapter of the literature review has looked at parent-child interaction focusing on the insights obtained from CA and data-coding methodologies. CA work by Gardner (1994) identified features of therapy talk. She shows how the clinician provides the child with information that something special is happening and that it is their speech that they

are being asked to change. Phonetic repair is shown to be more explicit in the speech clinic than in mundane settings where explicit correction is typically only used for lexical repair (Tarplee, 1993). The chapter included discussion of some of the pitfalls described by Gardner (1994, 1997) that can occur in therapy settings particularly that the clinician may use their knowledge of error patterns to guide their redos, or if the need for phonetic repair is not made explicit. Chapter Four also summarised a number of studies that used coding to analyse the child's linguistic environment when they were not understood. McCartney (1981) and Gardner (1989) suggest that providing the child with an accurate speech model is more likely than other contingent queries to result in phonetic repair. Weiner and Ostrowski (1979) and more recently Gozzard et al., (2008) by contrast suggest that speech change is more likely if the child was confronted with communication breakdown hearing an incorrect version of their attempt. There clearly is much to be learned about how contingent queries achieve phonetic repair in children with SSDs. As yet it is unclear whether it is the type of repair sequence used, the experience of communication breakdown itself or some other interactional strategy used by the adult that contributes to speech change (Baker & McCabe, 2010).

Gardner (1994) reflects that although therapy works, it may not always work the way SLTs think and "it could work better" (p.289). She points to the need for more adult-child data particularly longitudinal data to show how the adult, including non-therapists, learn to use supportive intervention strategies over time. Given the range of studies about speech intervention e.g. the way clinicians select targets (Dodd et al., 2008; Gierut et al., 1996; Rvachew & Nowak, 2001), whether the use of a computer will enhance service delivery (Rvachew et al., 1999), the efficacy of tele-health encounters (Lee, 2018), it is perhaps surprising that there is such a paucity of research about strategy use. Hulstam and Nettelbladt (2002) observe that we need a greater awareness of what happens in the therapeutic process in order to be more effective clinicians.

This research investigates how adults support children with SSDs during speech intervention. Children with SSDs may struggle to produce phonetically accurate versions of the speech sounds targeted in therapy (Rvachew et al., 1999) and may need adult support as outlined in Chapter 2 Section 2.2. When providing this support, SLTs draw on their professional training (RCSLT, 2021) such that their delivery of interventions may appear effortless. Parents, in contrast, may be familiar with the language-teaching exchanges occurring in everyday settings (Corrin, 2010; Tarplee, 1993) but, as I will show in this research, this may not prepare them for what happens in the speech clinic.

This research aims to analyse adult interaction in speech intervention sessions with children with SSDs. The research builds on Gardner's (1994) CA description of therapy talk which used data from SLTs and parents to make an account of how eliciting, evaluating and repair strategies are used in speech sessions. Gardner described one mother in detail in her comparison to that of the SLTs, this research looks at data from therapy sessions with more mother-child and SLT-child dyads to explore the differences between the interaction patterns of the SLT and the parents over the course of the child's speech programme.

4.4.1 Research Questions

By considering the nature of therapy talk and what the parents talked about during the therapy sessions, the research aims to increase understanding of how, adopting a family-friendly approach, SLTs work with parents to deliver programmes for children with SSD. The research questions asked are:

1. Are there differences between the way that SLTs and parents interact with children with SSD when they carry out therapy activities during the child's speech intervention sessions?

2. What do parents of children with SSDs talk to the SLT about during the child's speech intervention sessions?

To answer these questions, speech intervention sessions between an SLT and 13 parent-child dyads were video recorded. The video data was examined for differences in the way parents (in this project all mothers) and an SLT (the PhD author RB) interact with children with speech difficulties during their therapy sessions. The data was examined using a mixed-methods approach using a quantitative coding analysis and CA to compare strategy use between the adults. Also a thematic analysis explored what the mothers talked about during the intervention. The aim of the research is to gain an authentic insight into how mothers participate in and experience therapy.

Chapter 5

Study Methods

This mixed-methods research explores the experiences of parents of children with SSDs as they participate in their children's speech intervention sessions. A description and comparison is made of the use of supportive speech intervention strategies in the interactions that took place between 1) child-parent dyads and 2) child-SLT dyads during speech intervention of children with mild to moderately severe SSDs delivered in a clinical setting. The research also explores what the parents talk about during the intervention. This chapter gives an overview of the research methods used including the study design, the inclusion criteria and recruitment of the participants, the analyses used and how the study was carried out.

5.1 Research Design

The two studies are an analysis of video-recorded data of speech intervention sessions. In these sessions the children carried out speech intervention activities using an eclectic approach which is standard SLT practice (Joffe & Pring, 2008). Activities included auditory perception (Rvachew et al., 2004), the minimal pairs approach (Weiner, 1981), and traditional articulation activities (Gunther & Nieslony, 2017). Evidence supporting the use of these approaches can be found in Chapter 2 (Section 2.2). The children's speech targets were determined using traditional selection criteria (Rvachew & Nowak, 2001). Supportive intervention strategies (as described in Chapter 2, Section 2.4) were used by the SLT during their sessions. The parents (all mothers) watched these sessions, discussed the activities with the SLT and repeated the activities for homework. At the start of the intervention sessions the mother-child dyads demonstrated some of the previous week's homework. The therapy sessions including the mother-child and SLT-child dyads were video-recorded. As a result,

video-recorded clinical data involving one SLT, 13 children and 13 mothers were available for analysis from 82 sessions. The data was analysed in two studies. Study 1 analysed the data from 2 dyads, establishing the coding system and thematic analysis framework. Study 2 analysed data from a further 11 dyads, using the quantitative analysis from Study 1, TA applying the framework from Study 1, and also CA.

5.1.1 Study 1

Study 1, using video data from two dyads and the SLT, was exploratory in nature. The main purposes were to 1) establish the codes for the quantitative analysis of the adult data; and 2) to generate a framework for the thematic analysis (TA) of what the mothers said during the intervention.

In Study 1, data from the 17 intervention sessions involving two mother-child and SLT-child dyads were examined by repeated viewing to identify and count all of the ways that the adults elicited, evaluated or repaired speech targets such as by modelling, giving forced alternatives, or using cued articulation. These strategies were then grouped into 10 codes. The codes were derived in two ways, firstly from an empirically-based description of therapy talk (Gardner, 1994), and also from the work of Baker and McCabe (2010) who described speech intervention strategies as either articulation-based or concept-based. Strategies were then grouped according to the type of information they offered the child e.g. whether they were giving praise, confirmed what was heard or attempted to repair errors. This coding scheme was then applied back to the video-recorded data and a subsequent count compared strategy use between the mother-child and the SLT-child dyads. A comparison was also made of the number of turns in the SLT-child and mother-child dyads in the therapy exchanges. A second analysis, a thematic analysis using the Framework Method (Ritchie & Spencer, 1994), was made of what the parents said to the SLT during the intervention sessions.

5.1.2 Study 2

In Study 2 which took place after the analysis of Study 1 data was complete, a further 11 mother-child dyads were video recorded as they completed a block of speech therapy intervention sessions (ranging from four to nine sessions over a mean of five weeks). Some of the children also attended and were filmed in a follow-up session, planned at around 20 weeks after their intervention began.

The intervention sessions were delivered by a single SLT. During the intervention sessions the mothers watched the SLT carry out therapy tasks. The mothers received information booklets summarising their child's speech targets and a description of some supportive strategies (shown in Appendix 3). The SLT and some mothers also viewed and discussed video recordings of some of the therapy activities in order to develop mothers' understanding of, and application of, the supportive strategies.

The 62 Study 2 sessions totalling 42 hrs 22 mins of video were analysed in three ways:

1. Quantitative coding analysis using the codes created in Study 1 with minor modifications.
2. TA using the framework created in Study 1.
3. CA to identify similarities and differences in the way that the SLT and the mothers elicited, evaluated and carried out repair on the children's speech targets.

5.2 Participants

5.2.1 Role of Researcher

This research was conducted within my (Rachel Bear's) speech therapy clinic, based in Gibraltar where I was employed as an SLT. Thus the research was carried out within the constraints of service delivery in a publicly funded setting. I carried out all therapy activities

related to the project. For example, I administered the pre- and post-therapy assessment protocol, wrote the parent information booklet about speech interventions (Appendix 3) and I coded and analysed the data for the quantitative, thematic and conversation analyses. I was also the Speech and Language Therapist in the video-taped clinical sessions in Studies 1 and 2. I was therefore a ‘participant’ in that I was part of the interactions that I then analysed. This is common in research which analyses clinical interaction e.g. Lancaster et al., 2010; Merrills, 2009.

5.2.2 Child Participants

Participants were recruited from approximately 400 children on the paediatric caseload of the speech and language clinic in which the research was taking place. Recruitment used a convenience sampling approach (Bryman, 2016). While quantitative methodology often uses random sampling to reduce the potential for bias (Bryman, 2016), the convenience sampling used in this study is consistent with a qualitative approach where participants are selected because of what they contribute to the investigation (Polkinghorne, 2005) and follows a constructivist perspective that all views have equal value (Gergen, 2015).

The child’s eligibility for the study was first considered when a pre-therapy assessment (T1) determined that the child had a moderate to moderately severe SSD (See Chapter 1, Section 1.2.4). If further assessment carried out at least one month later indicated that the child was not making progress, and if the child fulfilled the inclusion criteria shown in Table 5.1 below, the recruitment process began. Children were invited to take part in the research via their parent/carer.

Table 5.1

Inclusion Criteria for Child Participants

1	Child eligible to receive speech and language therapy from the SLT service.
2	Child aged between 3;00 - 6;11 yrs.
3	Child determined, by observation and absence of relevant history, to have normal oral structure and function.
4	Child diagnosed by a speech assessment, administered by a qualified SLT, as having a mild to moderately severe speech difficulty which warranted consideration for speech intervention.
5	Child passed a hearing screen either at the time of referral to the service or prior to therapy.
6	At least one parent was fluent in English, willing to attend weekly therapy sessions and willing to carry out homework activities with the child.
7	Two pre-intervention assessments administered at least one month apart indicated that spontaneous progress was not taking place.

Each potential child participant was assigned a pseudonym beginning with ‘A’ for the first potential child participant and continuing in alphabetical order until the last child, ‘P’, was recruited. No systematic attempt was made to collect biographical data to account for how representative the participants were in comparison to the wider clinical caseload.

Study 1 participants. During Study 1, four parent-child dyads fulfilled the criteria shown in Table 5.1, were invited to participate, and attended for a total of 20 sessions. The data of two participants (Charles and Darren) were not analysed because the children went on holiday after the start of the sessions. On their return, sufficient data had been collected and Study 1 had ended.

Study 2 participants. During Study 2, eleven parent-child dyads fulfilled the criteria shown in Table 5.1 and agreed to participate. For seven children, the mother-child dyad attended the speech sound intervention sessions alone. For one child both parents attended all of the sessions. In the case of three children either their father or a grandparent brought

the child to some sessions in place of the mother. When this happened, as it was the mother who had signed the consent form, the session was not included in the data set.

Table 5.2 below shows the number of sessions the dyads attended and the length of recordings made for each participant.

Table 5.2

Sessions Attended and Length of Video Recording Available

Participant	Number of sessions attended	Number of sessions with homework demonstration segments	Were targets reached before the end of the research programme?	Did dyad attend follow-up?	Total length of video recording available for analysis.
Aaron	9	8	yes	Study 1	5 hrs 21 mins
Belle	8	7	no	Study 1	3 hrs 33 mins
Charles	2	n/a	n/a	n/a	data not used
Darren	1	n/a	n/a	n/a	data not used
E	0	n/a	n/a	n/a	n/a
Frank	8	6	yes	Yes	4 hrs 59 mins
Gary	6	4	yes	Yes	3 hrs 54 mins
Henry	2	1	no	No	1 hr 12 mins
Isla	6	5	yes	Yes	3 hrs 41 mins
Josie	9	6	no	Yes	6 hrs 8 mins
Keith	6	3	yes	Yes	4 hrs 5 mins
Lance	7	5	yes	Yes	5 hrs 24 mins
Milo	6	3	no	No	3 hrs 52 mins
Noel	2	1	no	No	2 hrs
Owen	4	3	no	No	3 hrs 18 mins
Paul	6	2	yes	Yes	4 hrs 6 mins

5.3 Assessment Measures

5.3.1 Quick Screener

Although this research is about adult interaction rather than the child outcomes, speech progress was the aim of the intervention being delivered so speech was monitored using the Quick Screener (Bowen, 1996b). The Quick Screener is a picture-naming assessment based on the Metaphon Resource Pack Screening Test developed by Dean et al. (1990). The format used in this assessment consisted of 42 plates displayed on a tablet. The clinician asked the child to name the pictures, transcribed the answers and calculated the PCC scores (Austin & Shriberg, 1997) as described in Chapter 1, Section 1.2.4. The Quick Screener was administered at the initial assessment (T1) for Frank, Henry, Keith, Noel and Owen. For all children the Quick Screener was administered at the initial intervention session (T2), at the last session (T3) and in Study 2, when a follow-up session took place, at (T4).

5.3.2 Alternative Assessment Approaches Used at T1

Aaron and Milo's T1 PCC scores were obtained using a sample of conversational speech, a method often used by clinicians (Skahan et al., 2007). Belle, Gary, Lance and Paul were assessed prior to being recruited as research participants, so different assessment tools had been used.

5.3.3 Determining Speech Targets

The children's speech targets were determined from a phonological process analysis of T2 assessment data, using a traditional approach to target selection as described in Chapter 2 (Section 2.3). The speech targets for each child were not analysed as research data but are shown in Appendix 14. Two of the children (Aaron and Frank) reached word-level competence with more than one speech target during the course of the intervention. This was determined through observation of their success in therapy activities.

5.3.4 Speech Intervention

The speech intervention in Studies 1 and 2 began at T2. The sessions were planned weekly for eight sessions, but in some cases illness and family holidays or the SLT annual leave interrupted the schedule. In the first session, after establishing speech targets and trialling activities, the SLT discussed and set homework tasks with the mothers. At the start of the second and subsequent sessions the mother-child dyad was invited to demonstrate the previous week's homework. The mothers selected which homework tasks to demonstrate, resulting in videoed activities varying in content and length. The intervention sessions were all filmed.

The speech intervention used a well-established eclectic approach (Lancaster et al., 2010; Joffe & Pring, 2008) using auditory discrimination (Van Riper, 1939) and minimal pair activities (Weiner, 1981) followed by traditional production activities (Gunther & Nieslony, 2017) practicing targets in contexts of increasing complexity. A description of the approaches and the evidence supporting them can be found in Chapter 2 (Section 2.2).

5.3.5 Parent Training Activities

Surveys of SLT practice world-wide report that training for parents of children with SSDs is typically embedded in the intervention (e.g. Sugden et al., 2018a, 2018b).

This is the approach taken in this research. In both studies, mothers observed the therapist delivering the intervention activities. There was also discussion of the activities between the SLT and mother before the dyad left the clinic. This was aimed at ensuring that the mothers understood how to carry out the activities.

In Study 2 two further parent training elements took place:

1. SLT/mother discussion of an information booklet (Appendix 3).

2. Discussion between the SLT and mothers of selected video extracts of the intervention shown to the mother to illustrate strategy use either by the SLT or the mother herself.

Transcripts of the SLT carrying out these activities can be found in Appendix 11.

5.3.6 Follow-Up Sessions (T4)

In Study 2 follow-up sessions were planned to take place approximately 20 weeks after the start of the intervention. Some of the children left the intervention before the planned eight sessions in which case they did not attend the follow-up session. Some of the children met their speech targets in fewer than 8 sessions, but went on to attend the 20-week follow-up sessions.

During the follow-up appointment the research SLT repeated the Quick Screener assessment (Bowen, 1996b). Whilst the child's PCC was being calculated, the mother-child dyads were asked to choose an activity from a selection of books and games. The SLT suggested that during the activity, if the child made speech errors, mothers could repair using the speech intervention strategies they had used during the therapy programme.

During the follow-up session the conversation was unstructured but, as would be typical in a review of a child's speech progress, included discussion of the post-therapy assessment, the parent perception of speech change and the intervention approach.

5.4 Analyses

5.4.1 Quantitative Coding (QC)

Quantitative methods have been used to examine adult use of language in speech and language therapy (Gardner, 2006; Hulterstam & Nettelbladt, 2002; Yont et al., 2000). I was unable to locate a ready-made version that fully captured all of the different types of information being explicitly provided to the child in the supportive strategies used by the

adults in the intervention. Thus the quantitative coding used in the research was a bespoke coding system. This was devised by repeatedly viewing all of the videos and reading the transcripts to ensure that all adult behaviours that took place before, during and after the child's speech target attempts were captured and the information they gave the child were described.

An initial list of 43 different types of response was compiled (see Appendix 9). Sorting the behaviours into three function-types and ten strategy-types as will be described in section 5.5.9, reduced the number of categories, allowing for easier comparison of strategy use between the dyads.

5.4.2 Thematic Analysis (TA)

The form of TA selected for the analysis of this research data is Framework Method, an approach originally developed by the National Centre for Social Research (Ritchie & Spencer, 1994). The choice of Framework Method for this research was made for two reasons. Firstly the framework or 'matrix' output in the forms of columns of codes and rows of 'cases' or participants allows comparison between those participants (Green & Thorogood, 2009). By keeping the data organised in this way, Framework Method provides "a sense of the continuity and contradictions within individual accounts" (Braun & Clarke, 2013, p.180). Secondly the framework, once created, can be used across the two studies by adding more cases.

Although the Framework Method is commonly used to analyse semi-structured interviews, Gale et al. (2013) suggest that it can be used for other data as long as the data is homogenous which is the case in the two sets of data in this research. The Framework created in Study 1 derived using an inductive "bottom up" approach was applied with some modifications to the data in Study 2.

5.4.3 Conversation Analysis (CA)

A feature of CA is that it takes into account the specificity of interactions to the situation and the participants, so is a well-suited method to the investigation of what happens in interaction between people with communication disorders and their conversation partners. CA has been used by other researchers to reveal how different interaction styles facilitate communication e.g. by the partners of people with aphasia (Barnes & Armstrong, 2010; Wilkinson et al., 2010), by the parents of individuals with autism (Maynard et al., 2016), by adults interacting with children with speech and language difficulties, (Tykkylanien, 2009) and when children with SSDs interact with peers (Newbold et al., 2011).

CA has been used in the analysis of the outcome of a therapeutic intervention (Pilnick & James, 2013) and in developing the delivery of interaction-focused therapy programmes training the use of more facilitative interaction styles for communication partners of people with aphasia (Wilkinson et al., 2011) and, as in this research, adults carrying out interventions with children with SSDs (Gardner, 1994).

The analyses in Study 1 (QC and TA) and Study 2 (QC, TA and CA) were carried out to answer two questions:

1. Are there differences between the way that SLTs and parents interact with children with SSD when they carry out therapy activities during the child's speech intervention sessions?
2. What do parents of children with SSDs talk to the SLT about during the child's speech intervention sessions?

5.5 Procedure

5.5.1 Ethics Approval

Ethics approval was gained from the University of Sheffield following the Ethics Policy in place at the time (University of Sheffield, 2013). Since the researcher's employer had no ethics policy in place at the time of the research, to ensure openness, consent for the research was obtained from the employing authority's Chief Executive Officer.

5.5.2 Recruitment and Consent

An SLT working in the same clinic as the researcher, but with a different caseload, organised recruitment of potential participating children and their parents/carer obtaining parental consent before data collection began. Thus the recruiting SLT had neither met the children nor their families prior to the research ensuring that obtaining consent was not based on a previous relationship with the participants (World Medical Association, 2013). Parents of children meeting eligibility criteria were sent an introductory letter about the programme (Appendix 4). The recruiting SLT then telephoned parents to ascertain their interest in participation. The recruiting SLT had a script (Appendix 8) for the phone call which included answers to potential questions.

All of the parents approached in recruitment agreed to participate. They received an appointment to meet the research SLT at a venue of their choice. In this meeting parents were reminded that their child's access to therapy was not contingent on their participation. Parents' questions were answered and consent forms signed. Some parents selected to meet with the research SLT and sign forms immediately prior to the first therapy session.

Although children were not being studied directly in this research, they were participants. International law has established that when children are participants in research they have a right to express their views about participating and their informed consent should be obtained; if they are too young to give informed consent, assent to participate should be

obtained (UNICEF, 2021). Grieg et al. (2013) reiterate that parental consent alone should not be considered adequate.

In this research there was a difference between attending therapy, which the parents had already consented to, and joining the research programme. For the child, the difference was that they were being videotaped and the data was to be stored for up to ten years beyond the completion of the PhD. It was these aspects of the intervention that required the child's assent. It was unlikely that children, as in this research, aged between three and seven years could conceptualise long-term video storage, however carrying out an activity in front of a camera would likely be within their experience and they may well have an opinion. At the first session the video camera was shown to the child and verbal assent for filming was discussed. All but one of the children agreed to filming. In the case of the child who refused to be filmed, the initial session continued without filming. In subsequent sessions the child agreed to be filmed and research data was collected.

5.5.3 Recording and Storing the Data

Video-recording has been used to record interactions in a variety of clinical contexts with children with SLCN (Gardner, 1994; Merrills, 2009; Ronkainen et al., 2014).

Participants may change their behaviour in response to being recorded, but they have been shown to adjust to the presence of the camera over time (Leung & Hawkins, 2011).

In this study video data was recorded on a single static JVC hard disk camcorder mounted on a tripod operated by the research SLT. The camera was switched on at the start of the session and recording continued until the child left the clinic. The researcher was present throughout the filming in her role as the clinic SLT. As only one camera was used, information about gaze shift was not available, so not described in detail. The participants rarely commented on the camera and once filming began, no participants asked for recording to be stopped or paused. In one of the Study 1 sessions, a mother arrived at the clinic upset

due to an incident earlier in the day unrelated to the therapy programme. The mother agreed to the SLT's suggestion that no video-recording was made of that session.

After each session the recordings were uploaded to a password-protected server and encrypted hard drive for storage and subsequent analysis. Each child's recording was stored in a separate data file for ease of retrieval. The recordings were deleted from the camcorder after uploading had taken place. The recordings were labelled with the pseudonym of the child and the date of the recording. A record of the child's date of birth could potentially identify them so was not included in transcripts, assessments or the file label.

5.5.4 Data Preparation

The corpus of data consisted of the video recordings of all the speech intervention sessions of the child participants. The camera was turned on at the start of the session, sometimes before the child entered the clinic and turned off when the child left the clinic. The video recordings were therefore of therapy tasks carried out by the mother-child and SLT-child dyads, introduction to the activities, conversations that took place between the SLT and the mothers relating to therapy and the child's speech and language difficulties. Recordings of conversation about scheduling appointments, and conversation between the adults specific to what was happening in the child's school were not transcribed or analysed.

5.5.5 Selection of Data for Quantitative Analysis.

The corpus of data for this analysis were the transcriptions of recordings of the adults and children carrying out therapy tasks fulfilling the following criteria:

1. Activities were not assessment tasks.
2. Activities were speech production tasks aimed at the production of the child's speech target in words.
3. Only one adult was interacting with the child.

5.5.6 Selection of Data for TA.

The corpus of data for TA included the conversation that took place between the therapist and mother during therapy or post-therapy follow-up sessions. The data was used if the participant statement added something new to the conversation. Thus conversational turns that only agreed with or repeated what the previous participant had said were not included for analysis.

5.5.7 Selection of Data for CA.

The corpus of data for this analysis was transcription of all Study 2 speech production activities carried out by the SLT or the mothers including their introduction to the activities.

5.5.8 Preparation of Transcripts

Transcripts of data identified for analysis were prepared using Pages (Apple Inc., 2015). Names of family members, pets, holiday locations may have identified the child so were not transcribed. Transcription is a slow and lengthy process. It has been suggested that one second of a recording takes one minute to transcribe (Parry, 2010). In addition, when making a CA transcript, watching and re-watching the video-recordings is necessary to take note of gestures, timing and nuances of behaviour that might carry significance. Detailed analysis and comparison of each of the episodes allowed the researcher to begin with ‘noticing’ something interesting (Clayman & Gill, 2011).

The transcripts were labelled by session number with lines numbered to facilitate the identification of material. Transcripts were divided into sections, with a new section marked each time the activity or the participants changed. As each analysis required different features marked, a separate transcript was made for each. In Study 1 there were two sets and in Study 2 there were three sets of transcripts for each participant.

Preparation of Transcripts for Quantitative Analysis. The transcripts for quantitative analysis recorded features such as hesitations, overlap, timing, breath-flow,

stress, and non-verbal data such as smiles, crying, laughter or hand movements with conventions typically used in CA (Davidson, 2010) (see Appendix 12). The transcripts recorded participant use of contractions such as “wanna” for ‘want to’. The children had speech difficulties so IPA transcription (International Phonetic Association, 1999) was used to show the phonetic information available to the adult in the child’s turn and whether the child’s response had changed phonetically during the repair episode if this aided the interpretation of the participant's response.

Preparation of Transcripts for Thematic Analysis. The TA transcripts were primarily focused on the content of the conversations. Some of the details such as laughter or hesitations were included if this aided interpretation of the material.

Preparation of Transcripts for Conversation Analysis. CA is said to start with the transcription of the data which allows the researcher to examine the data in detail (Griffiths et al., 2019). Repeated viewing of the original data was necessary while the transcript was being prepared. Early in the analysis verbatim transcripts were made of all of the exchanges working on speech production. As segments were identified as being of particular interest, more detail was added using the transcription notation system found in Appendix 12. The transcripts were sorted into folders, one for each child participant, and stored on an encrypted portable hard drive.

5.5.9 Study 1 Establishing the Coding System for the Quantitative Analysis

On viewing the Study 1 video recordings alongside the transcripts, an initial list of 43 different types of adult responses was compiled (see Appendix 9). Sorting the behaviours into three function-types and ten strategy-types as will be described below, reduced the number of categories, allowing for easier comparison of strategy use between the dyads.

Adult Turn Function-Type. Repeated viewing of the video and transcripts of the speech segments showed that when the adults were interacting with the child during speech

activities they used one of three turn types: ‘elicitation’, ‘evaluation’ and ‘repair’. The turn types were contrastive according to their function in the interaction.

1. Elicitation: a term often used in language teaching which refers to the teacher getting the learner to produce some information (Bruce et al., 2007).
2. Evaluation: adult feedback of the acceptability of the child’s attempt (Gardner, 1994).
3. Repair: a term used in CA (e.g. Schegloff et al., 1977) to describe how participants in a conversation respond to problems they have in the same or in a previous conversational turn.

The functions of the turns are described in Table 5.3 with examples.

Table 5.3

The Functions Performed by Adult Turns

Type of turn	Function of turn type	Examples of turn type
Elicitation	Seeks an attempt at a speech target	“What is it?” “Can you remember it?” “What do we have here?”
Evaluation	Verbal or non-verbal feedback about the outcome of the child’s turn	“Well done” “I heard a k there” Reward with a playing piece
Repair	Carries out repair work on the child’s speech target	“Try again” “Use your new way” “oo”

Adult Turn Strategy-Types. In addition to classifying the adult turns according to their function in the exchange, the examination of the data showed that the adults used a number of different ‘strategy-types’. The classification was made according to the explicit information the behaviour provided to the child about the speech target, thus the term ‘neutral’ referred to strategies that gave no explicit information about the articulation or meaning of a word. As an example, saying ‘pardon?’ could indicate that a word either has

not been heard or not understood or needs some work. Exactly what work is needed is not explicit and so in this study such a turn would be coded as 'neutral'.

Two strategy types were based on the proposition of Baker and McCabe (2010) that strategies could be divided into either those that are articulation-based i.e. 'articulation' and those that are concept-based i.e. 'concept'. In addition, 'model', 'praise', 'vocabulary', 'correction', 'confirmation', 'negative', 'praise' and 'neutral' strategies were identified. A response coded as 'negative' included the word 'no' and a non-verbal response where the adult shook her head. Although it can be argued that the shake of the head gives the child no explicit phonetic information to be used to change their speech attempt suggesting a 'neutral' response, that it is negative rejects the child's attempt so it has a distinct function and is coded as such. A small number of exchanges were coded as 'abandoned' when the adult made explicit that they were doing no further work on the target.

Establishing the category of 'confirmation' illustrates the difficulty highlighted by Tarplee (1993) of using coding to investigate communication disorder. Two different adult repetitions of the child's utterance can superficially look like the same turn but in fact carry out different functions due to use of pitch. In the Study 1 data there were examples of adult repetitions of the child's utterance which matched the child's pitch. These repetitions confirmed what the adult had understood and was sequence-closing. These were coded as 'confirmation' and 'evaluation'. Where the repeat was delivered with a contrast of pitch, stress or timing this acted as an invitation to self-repair so would be coded as 'model' and 'repair'. In a third case, where the request for confirmation is delivered as part of a minimal pairs activity, it would be coded as 'concept' and 'evaluation' or 'concept' and 'repair' depending on whether or not it was sequence-closing.

A code book was developed to ensure that decisions about coding were consistent. Examples of turns that met the criteria and exceptions is shown in Table 5.4 opposite.

Table 5.4*Descriptions of and Examples of Strategy Types*

Adult Turn type	Description of turn type	Examples of turn type	Exceptions
Abandoned	This code is applied when the adult has started to work on a lexical or speech error but explicitly ends the exchange	“Let’s leave that for another time” “I’m gonna leave that one out”	If it appears that the adult has not heard the child no code is applied.
Articulation	Supportive and facilitative cues indicating speech sound production	Cued articulation. “Shoosh it out” “That’s it, you say it at the back - a k”	
Concept	Include: metalinguistic concepts describing speech or how we learn to talk; minimal pair activities which refer to the functional impact of homonyms.	“Use your new way” “That is the one I heard” (in a minimal pair activity) “ <u>Think</u> about that tricky word”	If reference is made to speech production, code as articulation. If the reference is about remembering ‘the word’ rather than remembering ‘ <u>how</u> to say’ the word code as neutral.
Confirmation	A ‘candidate understanding’ or interpretation of child’s utterance, mimicking the child’s intonation so does not indicate the need for repair	“A big fat tummy” “Pea”	Also code requests for confirmation in a minimal pair activity as conceptual.
Correction	Negative forms which are frequently offered in the form of “it’s not an X it’s a Y”.	“I didn’t make a tea, I made a ...” No Aaron, that is sellotape	

Model	The adult says the word or part of the word for the child to imitate.	Forced alternative: The adult provides correct and incorrect versions for the child to select from. The adult says the first part of the word for the child to imitate.	If offered as a request for confirmation, code as such.
Negative	A verbal or non-verbal negative form.	No no it is not a pillowcase. Shakes head.	If an alternative is offered, code as correction.
Neutral	Does not offer any information about how to say the target.	“It is your turn” “Can you remember what that was?” “Oops have you forgotten?” “Say it louder so we can hear it” An expression of confusion. Pointing at a picture for child to name.	Do not code as neutral if another code can be applied. If child is asked to think/remember how to say the word, code as conceptual.
Praise	Verbal or non-verbal encouragement given to the child in response to an attempt at a target.	Smiles “Well done” “That was great”	If the praise includes information about <u>how</u> the word is said, also code as articulation or concept.
Vocabulary	Adult offers a prompt for word meaning.	“It belongs to the dog” “He has been eating too many sweets” “Nee nor nee nor” (prompt for the fire engine) Sentence completion: “It was a birthday...?”	“It is not a X it’s a Y” is coded as a correction.

Each adult response was recorded on the transcript with a label describing the strategy type and the function of the response e.g. ‘praise evaluation’ or ‘neutral elicitation’.

5.5.10 Numbering Turns in an Exchange

Each turn in an exchange was numbered on the transcript. In this data, exchanges were defined as having ended when the child's response was either phonetically correct or the adult carried out no further work on it. Table 5.5 below shows a worked example of coding from Aaron's second session.

Table 5.5

Worked Example of the Coding System: Aaron Session Two.

Line Number	Participant	Turn	Turn number	Code applied
1	T:	right so ((looking at child)) we've got [f:ɔ] ((displays card showing numeral 4))	1	Model Elicit
2	A:	four	2	
3	T:	it's the same ((places the picture beside matching pair on the table))	3	Neutral Evaluation
4		we've got paw((shows next card))	1	Model Elicit
5	A:	four ((Puts hand on table to gesture a paw))	2	
6	T:	can you say it with your lips like this? ((points to lips))	3	Articulation Repair
		['pɔ]	4	Model Repair

7	A:	[bɔ]	5	
8	T:	that's it that's it	6	Praise Evaluation
9	A:	ha ha		
10	T:	you say that one with your lips like that		Articulation Evaluation

Note: 'A' refers to Aaron, 'T' refers to the therapist.

In this example Aaron produced the speech target “four” and then the minimal pair contrast “paw”. Aaron realized the word as [bɔ], but this voicing error was glossed over by the clinician.

5.5.11 Study 1 Quantitative Analysis

Once the coding system had been established, the transcripts were examined for occurrences of each of the coded behaviours. The code applied was recorded on the transcript to facilitate subsequent counting. The participant responses were then counted to make a comparison of adults strategy use during Study 1 interventions to answer the first research question:

Are there differences between the way that SLTs and parents interact with children with SSD when they carry out therapy activities during the child’s speech intervention sessions?

Count of Strategy Use. This count makes a comparison of the range and type of strategies the adults used to elicit speech targets, respond to correct attempts and make repairs. A count was made, for each dyad, of how many of each strategy type was produced for each of the functions, namely elicitation, evaluation, repair.

Count of Length of Exchanges. During the therapy tasks the child produced some targets accurately, other targets needed repair. The skill of the adult is to give the child enough information to quickly repair a speech error and produce the speech target in a way

that is felt to be the ‘best version’ they can. Gardner’s (1994) research found that mothers took more turns to close an exchange than the therapist. To see if this data was consistent with Gardner’s work, a comparison was made of how many turns it took each of the dyads to draw a repair exchange to a close. This was done by numbering the turns in all of the exchanges and counting the number of turns.

5.5.12 Inter-Rater Reliability

The term reliability refers to how likely the results of research would be replicated if the study was repeated (Arrowsmith, 2005). In the qualitative analysis, the consistency of coding was considered the most vulnerable measure. To address this, two qualified SLTs who had experience working with children with SSDs were given a short demonstration of coding and access to the codebook (See Appendix 10 for Study 2 version of Codebook). The therapist/child and mother/child exchanges were put into one document which numbered 74 pages. A random number generator (Haahr, 2016) was used to generate eight numbers. The SLTs were given the pages of the transcripts corresponding to the random numbers with the original video of the exchanges thus they were reviewing around 10% of the original data. The SLTs were asked to assign codes to this data. Coding was compared to the researcher’s coding and 81.2% percentage agreement was calculated. On discussion after the exercise, the SLTs suggested that with more training, agreement would have been higher.

5.5.13 Study 1 Framework Analysis

After the quantitative analysis had been carried out, the data was analysed using Framework Method (Ritchie & Spencer, 1994) to answer the second research question:

What do parents of children with SSDs talk to the SLT about during the child’s speech intervention sessions?

Creating the Coding Framework. Initial familiarisation with the corpus of data had taken place during the preparation of the transcripts. The transcripts were then read as a

single corpus of data for further familiarisation prior to coding (Rapley & Flick, 2007). The transcripts were then read line by line. Codes, defined by Braun and Clark (2013) as a word or paraphrase capturing some essence of what the mothers had said, were applied to the data. At this initial stage the process of ‘complete coding’ was applied where “anything and everything of interest or relevance to answering your research question” (Braun & Clarke, 2013, p.206) was coded. Gale et al. (2013) suggest that a minimum of two researchers independently code at least the first few transcripts to ensure consistency. This research was carried out by a single researcher so this was not possible.

Coding was an iterative process, constant comparison was made between the coding of each segment to other data in the set (Green & Thorogood, 2009). This comparison established consistency in coding and identified similarities and differences between codes. All parent statements coded were highlighted and transferred onto separate documents for each participant.

At the start of the coding process substantive statements produced by the SLT were also considered. This data allowed for a greater range of comparisons when organising the codes into themes, but did not contribute to answering the research question therefore will not be discussed further.

Developing a Working Analytical Framework. The codes were grouped into categories by cutting the parent data into individual coded statements. The statements were grouped and regrouped into categories as part of potential themes until it was clear that all of the data was represented. This was a laborious task due to the volume of data, but the physical act of sorting helped to focus on a key question ‘what is the statement an example of?’ (Ryan & Bernard, 2003). The initial list of themes as yet not grouped into a framework, established in August 2015, is shown in Table 5.6 below. Gale et al. (2013) anticipate that

there will be several iterations of an analytical framework, which was the case in this research.

Table 5.6

List of Themes Identified in the Data (August 2015)

Knowledge	Home Practice	Theory
Strategies	Needs	Literacy
Speech Programme	People	Change
Speech targets	Difficulties	Progress

Refining the Coding Framework. The codes were regrouped into broader categories with overarching themes and sub-themes. This resulted in yet more changes with a reduction of the number of sub-themes. Two sub-themes were combined to form ‘Theory about the intervention and carrying out the activities’. The data in the sub-theme “About the child’s speech difficulty” was moved from ‘Knowledge’ to the superordinate theme of “Challenges”. The title of Theme 1 was shortened to ‘Knowledge’ which was simpler but retained what the theme represented. Finally, ‘About the mother’ was removed as a theme because data about the mother’s experience were coded in Themes 1 - 3. The final framework is shown in Table 5.7 below.

Table 5.7

The Framework

1. Knowledge		
1.1.Theory about the intervention and carrying out the activities	1.2 Speech targets and carrying out home tasks	1.3 Relationship between speech programme and literacy

2. Change

2.1 Change made by child

2.2 Change made by parent

3. Challenges

3.1 Challenges to the child

3.2 Challenges to the parent

4. The Child in Context

4.1 About the child

4.2 About the family

4.3 About the school

Each parent statement was then labelled on the transcript to facilitate referencing.

The label was the sub-theme number and the approximate time that the comment was made.

This analytical framework was now available to be used for further transcripts in Study 2.

Charting the Data onto the Framework Matrix. The Study 1 data was then charted onto the Framework matrix to summarise and reduce it in quantity. Gale et al. (2013) suggest that there is a need for a balance between a reduction of the data and keeping a feel for what the participants had actually said. Thus the chart included both direct quotations and summaries of participant statements. Each superordinate theme required a separate spreadsheet to allow the researcher to move between themes. The subordinate themes were ordered into columns with participants ordered into rows. Within the subordinate themes the summaries and quotations of the different participants were grouped into categories and each category was given a title. Where possible the labelling of the categories was kept consistent between the participants to allow comparison of information.

Interpreting the Data. Gale et al., (2013) describe the interpretation stage as the last stage of the Framework Method. This stage is where the characteristic patterns of the data with the relationships and connections between the subordinate and superordinate themes are described. This can be found in Chapter 6.

5.5.14 Study 2 Quantitative Analysis of Strategy Use

The Quantitative Coding Analysis carried out on the Study 1 data had identified differences in the use of strategies between the SLT-child and mother-child dyads but not in the length of their exchanges. The count of lengths of exchanges was not repeated in Study 2, rather the focus was on how the mothers used the supportive strategies and whether there was a change in use over the course of the intervention. Transcripts of the demonstration segments were prepared as described in Study 1. The codes applied were as in Study 1 but with some modifications which are described in Chapter 6, Section 6.2.5. A count was then made of strategy use by each mother during the demonstration segments.

5.5.15 Study 2 Framework Analysis

The framework devised in Study 1 which captured the unique perspectives of the mothers about their child's speech difficulties and the therapy programme was used to analyse Study 2 data. As in the preparation for Study 1, the data familiarisation process entailed reviewing the videos and transcripts. The existing codes from Study 1 were applied to the transcripts. Each statement was labelled on the transcript with a label consisting of the subordinate theme number and the time in the session that the statement was made. This facilitated cross referencing, particularly reference back to the video data if meanings were not clear which was usually when shorter statements were removed from their original context.

The data was then charted onto the framework as in Study 1, some of the data were direct quotations and some were summaries of participant statements. The data was arranged onto the framework under the relevant subordinate themes with the participants ordered into rows. Within the themes the summaries and quotations of the different participants were organised under relevant headings, grouped together in categories. Given that the SLT/mother conversations were based on what was happening in the therapy sessions, with

the addition of 11 mothers, new codes were generated. The themes were adapted and merged and the framework was modified. The interpretation of the data is described in Chapter 8.

5.5.16 Conversation Analysis

The transcripts of the conversations in the dataset were compared for similarities and differences. When a phenomenon of interest, such as the elicitation of a speech target, was identified the data was examined for further examples. CA uses a methodology which selects the best, rather than the largest number of exemplars (Hutchby & Wooffitt, 1998), thus in the analysis, shown in Chapters 9 and 10, no attempt was made to account for how many times a particular phenomenon occurred.

5.6 Summary of Methods Used in the Studies

Research about speech intervention has traditionally focused on ‘what’ is being taught in the programme rather than ‘how’ the clinician has taught the targets (Gierut, 2005). In this research, although children are receiving speech intervention, they do not take centre stage. The research interest is not on the children's speech outcomes, rather the analysis is of the language produced by the adults and how they interact with the child.

Study 1 establishes the methods used 1) to describe and code therapy interaction and 2) to generate a framework that can be used to carry out a thematic analysis of parent conversation during the therapy sessions. Study 2 applies the quantitative coding and Framework Method on a larger corpus of data. A conversation analysis was also carried out. The intervention sessions were all video recorded.

The results of these analyses will be presented in the next five chapters. The results of the thematic analysis and data coding, will be considered in Chapters 6 – 8 and the results of the CA are presented in Chapters 9 and 10.

Chapter 6

Study 1

Study 1 of this exploratory research had three aims. The first aim was to find a coding system for the supportive intervention strategies used by the adults during the therapy sessions. How the coding system was derived and then applied to the data was described in Chapter 5 (see Section 5.5). The second aim was to compare 1) the SLT and mothers' use of supportive intervention strategies and 2) lengths of exchanges that took place during the interventions by applying this coding system to the clinical data. The results will be described in Section 6.1. The third aim of the study was to explore what the mothers talked about during the intervention. This was achieved by carrying out the thematic analysis to be described in Section 6.2.

6.1 Quantitative Analysis

This part of the study followed the research tradition that codes and counts input to children. Such studies have looked at how children respond to contingent queries (Gallagher, 1977); how children with SSDs respond to requests for repair (McCartney, 1981); and the way children repaired production of polysyllables after requests for confirmation (Gozzard et al., 2008). This research does not look at the outcome of strategy use, that is whether or not the child made use of the information provided by the adult, rather the interest is in a comparison of the number and types of supportive intervention strategies used by the mothers and the clinician. In Study 1 intervention sessions the therapist demonstrated activities to the parents as is standard SLT clinical practice (Sugden et al., 2018a, 2018b), but no parent coaching was attempted.

This section describes the results of applying the coding system to the data from speech intervention sessions of two children. A count was made of the number of times the adult in each adult-child dyad used speech intervention strategies across the segments. These segments were from real-life therapy sessions so they were of different lengths with different numbers of targets. Comparison of the SLT and mothers was possible because the activities demonstrated by the SLT were repeated by the mothers at the start of the following session so they carried out activities that were broadly similar. The point must however be made that the mothers chose their own demonstration segments with no attempt made by the clinician to control for the length of the activity or difficulty level of the tasks. It may have been that the mothers selected part of the activity to demonstrate what the child was finding difficult; in contrast they may have wanted to demonstrate success. The mothers usually only demonstrated one activity in a session whereas the therapist carried out a number of activities, as a consequence the therapist produced more data than the mothers. To allow a comparison between dyads the raw frequencies of strategy use were converted to percentages. Due to the small sample size, statistical analysis was not carried out but trends are seen in the data. The data is described and discussed below.

6.1.1 A Comparison of Mother and Therapist Use of Strategies

The tables below show how many times each of the adults used eliciting (Table 6.1), evaluating (Table 6.2) and repair (Table 6.3) strategies. In some turns adults used a single strategy, in some turns more than one strategy was used and in some turns no strategies were used as would be the case in evaluation after a 'collapsed sequence' (Maynard and Marlaire, 1992) where praise was only given at the end of a sequence of targets. As a consequence, the number of conversational turns and the number of strategies did not correlate.

Tables 6.4 and 6.5 summarise the data. Table 6.4 summarises the total percentage use of strategies and then Table 6.5 compares the frequency in which the adults used each of the strategies.

Use of Eliciting Strategies. Table 6.1 shows that there was a trend for the adults to use neutral strategies when eliciting target words. Aaron’s mother used 83.33% neutral strategies with marginal use of other strategies. Belle’s mother used mainly neutral (66.67%) and conceptual (29.63%) strategies. The therapist also used more of neutral strategies than other strategies but the trend was less marked. The SLT combined the neutral eliciting strategies with articulation, concept and modelling strategies. There was rare use of vocabulary strategies by any of the adults when carrying out phonetic repair.

Table 6.1

A Comparison of the Number and Percentage Use of Eliciting Strategies by the Four Adult-Child Dyads During Therapy Sessions

Strategy type	Aaron and Mother	Aaron and Therapist	Belle and Mother	Belle and Therapist
Articulation	3 (1.79%)	14 (6.39%)	0 (0.00%)	18 (14.63%)
Concept	13 (7.74%)	56 (25.57%)	16 (29.63%)	19 (15.45%)
Model	8 (4.76%)	54 (24.66%)	2 (3.70%)	33 (26.83%)
Neutral	140 (83.33%)	91 (41.55%)	36 (66.67%)	50 (40.65%)
Vocabulary	4 (2.38%)	4 (1.83%)	0 (0.00%)	3 (2.44%)
Total strategy use	168	219	54	123

Use of evaluating strategies. Table 6.2 below compares adult use of evaluation strategies during the therapy activities. It is in 'evaluation' that there was the most difference between dyads, with differences seen between the SLT-Aaron and SLT-Belle dyads. Aaron's mother used a combination of praise (59.12%) and confirmation (22.63%). In contrast to praise she also used a small amount of negative evaluation (2.92%), the only adult to do so. To evaluate Belle's speech attempts Belle's mother used mainly conceptual (40.50%) and neutral (22.78%) strategies with less overt praise (26.58%).

The therapist used a wider range of evaluating strategies than the mothers. With Aaron she used a mix of neutral (30.00%), concept (23.33%), confirmation (20.00%), praise (17.92%) and articulation (7.08%). With Belle, the therapist used concept (35.71%), praise (30.00%), confirmation (15.71%), neutral (10.00%) and articulation (8.57%).

Table 6.2

A Comparison of the Number and Percentage Use of Evaluating Strategies by the Four Adult-Child Dyads During Therapy Sessions

Strategy type	Aaron and Mother	Aaron and Therapist	Belle and Mother	Belle and Therapist
Abandoned	4 (2.92%)	4 (1.67%)	0 (0.00%)	0 (0.00%)
Articulation	1 (0.73%)	17 (7.08%)	2 (2.53%)	12 (8.57%)
Concept	0 (0.00%)	56 (23.33%)	32 (40.50%)	50 (35.71%)
Confirmation	31 (22.63%)	48 (20.00%)	6 (7.59%)	22 (15.71%)
Negative	4 (2.92%)	0 (0.00%)	0 (0.00%)	0 (0.00%)
Neutral	16 (11.68%)	72 (30.00%)	18 (22.78%)	14 (10.00%)
Praise	81 (59.21%)	43 (17.92%)	21 (26.58%)	42 (30.00%)
Total strategy use	137	240	79	140

Use of Repair Strategies. Table 6.3 displays adult use of repair strategies. Both mothers favoured neutral strategies during repair sequences, Aaron (35.09%) and Belle (40.00%). In addition to neutral strategies Aaron's mother used correction (19.30%), modelling (17.54%) and vocabulary (13.16%). In addition to neutral strategies Belle's mother used correction (20.00%) and concept (24.44%). Both mothers used a small number of articulatory strategies (Aaron's mother 7.02% and Belle's mother 8.89%).

The therapist used neutral strategies in repair less frequently than the mothers. With Aaron she used 10.48% and with Belle 7.14%. The repair strategies used more often by the

therapist were modelling (Aaron 30.48% and Belle 39.95%) and articulation (Aaron 26.67% and Belle 25.00%).

Table 6.3

A Comparison of the Number and Percentage Use of Repair Strategies by the Four Adult-Child Dyads During Therapy Sessions

Strategy Type	Aaron and Mother	Aaron and Therapist	Belle and Mother	Belle and Therapist
Articulation	8 (7.02%)	28 (26.67%)	4 (8.89%)	21 (25.00%)
Concept	9 (7.89%)	24 (22.86%)	11 (24.44%)	16 (19.05%)
Confirmation	0 (0.00%)	1 (0.95%)	0 (0.00%)	1 (1.19%)
Correction	22 (19.30%)	5 (4.76%)	9 (20.00%)	8 (9.52%)
Model	20 (17.54%)	32 (30.48%)	3 (6.67%)	26 (30.95%)
Neutral	40 (35.09%)	11 (10.48%)	18 (40.00%)	6 (7.14%)
Praise	0 (0.00%)	0 (0.00%)	0 (0.00%)	1 (1.19%)
Vocabulary	15 (13.16%)	4 (3.81%)	0 (0.00%)	5 (5.95%)
Total Strategy Use	114	105	45	84

Comparison of total strategy use between mother and therapist dyads. The final comparison made was of the type of strategy used by the mother-child dyads and SLT-child dyads regardless of whether the function was to elicit, repair or evaluate a response. The comparison is shown in Table 6.4 below. It can be seen that all adults used neutral strategies most frequently. The mothers used more correction, praise and negative strategies, whilst the

therapist used higher numbers of articulation, concept and modelling strategies. Although there was little use of correction overall in this data, it is of interest that the proportion used by the mothers was over three times that of the SLT. In this Study 1 data there was little difference between dyads in the use of confirmation strategies. Abandoned, negative and vocabulary were little used strategies.

Table 6.4

A Comparison of Number and Percentage Use of All Strategy Types by the Therapist and Mother-Child Dyads during Therapy

	Therapist-child dyads	Mother-child dyads
Abandoned	4 (0.44%)	4 (0.67%)
Articulation	110 (12.09%)	18 (3.03%)
Concept	221 (24.29%)	81 (13.61%)
Confirm	72 (7.91%)	37 (6.22%)
Correction	13 (1.43%)	31 (5.21%)
Model	145 (15.93%)	33 (5.55%)
Negative	0 (0.00%)	4 (0.67%)
Neutral	244 (26.81%)	266 (44.70%)
Praise	85 (9.34%)	102 (17.14%)
Vocabulary	16 (1.76%)	19 (3.19%)
Total Strategy Use	910	595

A Summary of Strategy Use. The findings are summarised in Table 6.5 below. The strategies used by the adults are displayed according to frequency of use in the speech interventions in Study 1. There was a small number of participants thus conclusions are only tentative, however there were clear trends in use of the different strategy types and there were differences between the mothers and the SLT in total strategy use.

In elicitation, the trend was for use of neutral and conceptual strategies with the SLT also using articulation and modelling. When evaluating the children's attempts, there were differences between the dyads. One of the mothers used praise in combination with confirmation, the other used concept and neutral strategies. The SLT used a wider range of strategies, using confirmation, praise, concept and neutral strategies in varying proportions. The SLT was the only adult to evaluate with articulatory strategies. To repair, the mothers used mainly neutral and correction strategies. There was some use of conceptual strategies, with Aaron's mother also using vocabulary strategies. Both mothers used some modelling and articulatory strategies but less frequently than the SLT who used them on over half of the occasions of repair.

Table 6.5*Table Showing the Strategies Used in Decreasing Frequency by Adults in Study 1*

	Elicitation	Evaluation	Repair
Aaron's Mother	Neutral (83.33%) Concept (7.74%)	Praise (59.21%) Confirmation (22.63%) Neutral (11.68%)	Neutral (35.09%) Correction (19.30%) Model (17.54%) Vocabulary (13.16%) Concept (7.89%) Articulation (7.02%)
Belle's Mother	Neutral (66.67%) Concept (29.63%)	Concept (40.50%) Praise (26.58%) Neutral (22.78%) Confirmation (7.59%)	Neutral (40.00%) Concept (24.44%) Correction (20.00%) Articulation (8.89%) Model (6.67%)
SLT	Neutral (41.22%) Model (25.43%) Concept (21.92%) Articulation (9.36%)	Concept (29.52%) Praise (23.96%) Neutral (20.00%) Confirmation (17.85%) Articulation (7.91%)	Model (30.72%) Articulation (25.84%) Concept (20.96%) Neutral (8.81%) Correction (7.14%)

Note: Use below 5% is not shown

6.1.2 The Length of Exchanges

A count was made of how many turns it took for an adult-initiated therapy exchange to come to conclusion. The exchange was deemed to have concluded when no further work was done on the target, regardless of whether a successful production of the target was achieved. Table 6.6 below shows the frequency of occurrence and the percentage of total occurrence of exchanges of different lengths. This shows that for all four dyads, between 83% and 92% of the exchange were completed within five turns. All but two exchanges were completed within 15 turns. The longest of all exchanges was produced by the therapist with Belle.

Table 6.6*Frequency of Exchanges of Increasing Length*

Number of turns per exchange	Aaron and Mother	Aaron and Therapist	Belle and Mother	Belle and Therapist
1 – 5	140 (83.33%)	183 (89.27%)	81 (92.05%)	132 (90.41%)
6 – 10	21 (12.50%)	20 (9.76%)	4 (4.55%)	11 (7.53%)
11 – 15	6 (3.57%)	2 (0.98%)	3 (3.41%)	2 (1.37%)
16 – 20	1 (0.60%)	0 (0.00%)	0 (0.00%)	0 (0.00%)
21 – 25	0 (0.00%)	0 (0.00%)	0 (0.00%)	1 (0.68%)
	168	205	88	146

6.1.3 Validity

Validity refers to whether research represents what it claims to represent (Bryman, 2016). Discussion with the SLTs who had taken part in the reliability exercise confirmed that the samples of video that they had viewed were consistent with interventions they carried out with children with SSDs.

6.2 Discussion of Quantitative Analysis Results**6.2.1 Trend for Neutral Strategy Use**

Study 1 only examined four dyads so results must be interpreted cautiously. The mother-child and SLT-child dyads carried out activities designed to teach children new speech skills after assessment had shown the children had an SSD. It was of interest to see that all of the adults showed a preference for the use of neutral strategies which give the child no information about the speech targets they are learning. The children were also early in

their therapy programme so although a long-term aim of a therapy programme is that the child learns to self-monitor and self-repair speech errors (Rvachew and Nowak, 2001), it is unlikely that the adult was giving the children the opportunity to develop this self-monitoring and as such gave the child the opportunity to practice.

6.2.2 The Mothers' Trend for Praise and Correction Strategies

The comparison of strategy use showed that the mothers were more likely than the SLT to use strategies that give overt correction or praise. This is consistent with the findings of Gardner (1994) who did not make a separate count of positive and negative evaluation, but counted use of 'POS/NEG EVALUATION + REDOING' and found that the mother used 25.2% compared to the SLT at just 8.4%. In my data, although the total use of correction was not high, Table 6.3 shows that it amounted to one fifth of the mothers' repair strategies in comparison to the SLT who used just 4.76% with Aaron and 9.52% with Belle. It seems that the mothers were telling the children which words were inaccurate, but were less likely to give explicit information about how to make positive change.

Whilst the mothers often took an overt approach to the children's speech errors and offered explicit correction, there was also frequent overt use of praise. For Aaron's mother, praise amounted to 60% of the evaluation of his speech targets, whereas by comparison the SLT used just 17.92% praise with Aaron. It may be recalled that the comparison of adult strategy use with the same child means that both adults were carrying out similar activities at the same stage of therapy. Aaron's mother may have made high use of praise because she felt it necessary to keep Aaron motivated. Her liberal use of praise was not accompanied by articulatory, modelling and concept strategies which would have informed Aaron precisely why he was being praised.

6.2.3 Belle's Mother's Use of Conceptual Strategies

The study does not examine the outcome of strategy use, that is whether or not the child's next attempt was more accurate after the adult uses a particular strategy. Thus it does not provide evidence for whether or not communication breakdown can be considered an evidence-based 'kernel' (Baker & McCabe, 2010). Belle's mother showed a trend for using concept strategies. Examination of the activities carried out identified that Belle and her mother used mainly minimal pairs activities (see Chapter 2) which had been set by the SLT. Descriptions of the minimal pair approach, but the approach frequently include semantic confusion to create communication breakdown (Baker, 2010; Tyler, 2005; Weiner, 1981) and would be coded as 'concept' using the coding system. By carrying out the activities provided by the SLT, by default, Belle's mother was using concept strategies, as such concept strategy use could not be attributed to her individual interactional style.

6.2.4 Therapist Use of Articulatory and Modelling Strategies

The therapy talk approach to speech repair implies being explicit about phonetic repair (Gardner, 1994), so findings of a low use of articulatory strategies across all of the sessions and findings of an overall trend towards neutral strategies may seem surprising. However, a comparison of the participants, shows that the SLT used articulatory strategies 12.09% overall compared to just 3.03% by the mother.

The use of modelling strategies showed a similar pattern in that the overall use was low, but the SLT used 15.93% compared to the mothers who used just 5.55%. The use of articulatory and modelling strategies was particularly seen during repair where over half of the strategies used were either modelling or articulatory (see Table 6.5).

6.2.5 Changes to the Coding System

The research question asked of this data was if SLTs and parents differed in supportive intervention strategy use when carrying out therapy tasks. The results show that during Study 1 the quantitative coding system identified similarities and differences between the SLT and parent use of strategies. In applying the coding system to the larger data set in Study 2 modifications were made based on the suggestions of the SLTs who took part in the inter-rater reliability exercise.

The reliability raters found it difficult to apply the ‘concept’ code. The definition of ‘concept’ was based on the work of Baker and McCabe (2010) and gave three different ways of applying this code:

- 1) Communication and semantic confusion
- 2) The use of imagery to classify place, voice and manner characteristics
- 3) Meta-linguistic concepts about ‘how’ a word is said.

These three ways of using the ‘concept’ code are different; being confronted by semantic confusion is very different to the use of imagery. Classifying sounds according to imagery characteristics e.g. that /s/ is ‘a long sound’ actually seems to sit better with learning about articulatory characteristics than with semantic confusion. Whereas asking the child “do you remember how to say this word?” gives no information about ‘how’ the word is pronounced but if it accompanies an elicitation it perhaps signposts the need to self-monitor. If it accompanies an evaluation and is delivered without praise it rejects the child’s attempt (Tarplee, 1993). This warrants a count of turns that offer this sort of information to the child under the heading of ‘metalinguistic’.

One of the raters was also unsure about applying ‘confirmation’ and ‘concept’ at the same time. This is justified in a minimal pairs activity which offers the child two types of information. If the adult selects a picture card named by the child the child receives ‘concept’ information which shows them what the adult has understood from their attempt i.e. “is that what you meant?”. Including a ‘confirmation’ by contrast includes a version of the word “Shoe?”. This is not presented as a model but could be used as such by the child (McCartney, 1981), by applying both ‘confirmation’ and ‘concept’ codes ensures that the coding system records all of the information being made available to the child within the exchange.

There was little use of ‘abandoned’ and ‘negative’ as codes to evaluate child responses. Since they both give a negative message to the child they were combined for the count in Study 2. These changes were made to the coding system for Study 2. Revisions are shown in Table 6.7 below.

Table 6.7*Changes Made to Coding After Study 1*

Study 1 Code	Study 2 Code
Abandoned	Abandoned/negative
Articulation	Articulation (now includes imagery references to speech sounds)
Concept	Concept (semantic confusion only)
	Meta-linguistic: Awareness about the need to monitor speech e.g. 'think about how we say that word'
Confirmation	Confirmation
Correction	Correction
Model	Model
Negative	Abandoned/negative
Neutral	Neutral
Praise	Praise
Vocabulary	Vocabulary

6.2.6 Length of Exchanges

Gardner's (1994) speech intervention data found that SLTs produced shorter exchanges of less than 15 turns and the mothers produced longer exchanges with one going on to 30 turns. Gardner suggested this was in part because the mothers were seeking overall correctness in that they were correcting targets that were not being worked on in the speech sessions.

In this data there was no evidence that there was any difference between the mothers and the SLT in lengths of exchange. In Study 1 all of the dyads completed at least 95% of exchanges within 10 turns. The longest exchange was between Belle and the SLT at 21-25 turns. As a consequence, the count was not repeated in Study 2.

6.3 Thematic Analysis: Results

During the Study 1 therapy sessions the mothers and SLT engaged in natural conversation about the child's speech difficulties, their progress and how they carried out therapy activities. These discussions were analysed using the Framework Method (Ritchie & Spencer, 1994) from which four themes were identified and used to answer the research question:

What do parents of children with SSDs talk to the SLT about during the child's speech intervention sessions?

The themes will now be discussed and illustrated with exemplar quotes from the conversations.

6.3.1 Theme 1: Knowledge

This theme is about what the adults know about the child's speech and the speech programme. It encompasses discussion about the theory underpinning therapy, the selection of speech targets and how this relates to the acquisition of literacy.

Theory About the Intervention. Aaron's mother made reference to two theoretical concepts underlying the speech programme:

Speech Processing Model. During the sessions the therapist had talked about how the child processed and stored sounds according to the Stackhouse and Wells (1997) Speech

Processing Model. In two short statements, Aaron's mother demonstrated her understanding. In Session 6 she stated that Aaron had to learn to "relate" the speech sound to the visual cue. In Session 7 a gesture towards her brain suggested that although she did not have the terminology, she recognised learning was taking place when she replied to the SLT's statement that Aaron needed to create new motor patterns "the thingy, yes (pointing to her brain)".

Ladder of Difficulty. Aaron's mother observed Aaron make an error on a well-practiced word during a story-telling activity. The difficulty level of retelling a story which requires self-monitoring in comparison to earlier naming activities was not immediately apparent and she clearly was surprised by this. She found it difficult to relate her everyday experience of Aaron talking with his performance in the story retell activity:

No it is because you are thinking "I know he can say that" but then when you talk about the book in the story he wasn't, he was just like totally (gesturing hand going over head).

Speech Targets and Carrying Out Home Tasks. Statements were coded here if they specifically referred to the child's speech programme and the work carried out at home.

Speech 'Tools'. Aaron's mother referenced therapy strategies 17 times referring to "the tools, I think the tools". She talked about how she used visuals and she anticipated going home and teaching Aaron the meaning of the minimal pair word "tar". She made references to using the generalisation strategy which the clinician called the 'Word of the Week' task by giving specific examples e.g. that Aaron would use the word 'finished' after a meal. She talked about using the Nuffield Dyspraxia Programme cue card, she had not used it as demonstrated i.e. [k] as a single sound. Instead she described practicing the word 'camera', something that would have been too difficult for Aaron at the time. Nevertheless she demonstrates engagement with speech imitation:

We were practising a lot with words with this in. I haven't actually used the word camera but I have used the /k/ in all sorts of words and he is doing really well with the /k/.

Homework and Speech Targets. Belle's mother wanted to be clear about what to do at home, so on five occasions she asked for confirmation and clarification of homework tasks. Aaron's mother also referred to homework but only once asked for a reminder of what to practice. Her engagement with the programme was demonstrated when she referred to Aaron having done "loads" of homework.

Relationship Between Speech Programme and Literacy. Belle's mother made multiple references to literacy. Although she stated prioritising speech work over school work, the number of references she made to reading belies this statement. She described Belle's reading difficulties in detail, commenting on Belle's strategy of "memorising reading", how she was confusing letters and that Belle may have been reading 'r' and 't' in reverse. She also described how she could not understand Belle's difficulty sounding out words during reading, "you are sounding it out and it is basically saying it for you. What don't you seem to get?"

Aaron was in his pre-school year so literacy was not yet a concern for his mother. She referred to letters being "more academic", she considered that learning the picture/speech sound association would be difficult for Aaron because it was a picture he was having to learn rather than a letter. For Aaron's mother the focus was on learning new speech patterns.

There was a contrast in how the mothers talked about their child's therapy activities. Aaron's mother engaged with some of the theoretical concepts and was able to talk about the strategies used. For Belle's mother the main concern was that she knew exactly what homework to carry out, although she was also concerned about Belle's progress in reading,

relating reading and speech. In both cases the mothers accepted responsibility for carrying out speech practice at home.

6.3.2 Theme 2: Change

The aim of the speech programme was that the children attending therapy would change their speech patterns and use age-appropriate speech. At the same time, the mothers were learning new ways of interacting during speech activities, especially during phonetic repair. It was of interest to find out how parents described this process.

Change Made by Child. Aaron's mother made numerous references to the changes in Aaron's speech. Her references were specific about which words had changed e.g. "finish", "after" and "I cannot" which were speech targets for her son, she also pointed to improved word endings which were not speech targets.

In addition, Aaron's mother gave numerous descriptions of speech change. She referred to how Aaron was "getting" the targets, "getting there" and "getting" along. She also described how he was "doing well", "doing really nice" but "he's not sharp yet". These references were all indications of progress, if somewhat vague. There were two more specific references, that he had "mastered" the production of [f] and in reference to his progress with the sound-maker cards "he flies through them". The speech processing explanation and metaphors of speech difficulties referenced by the therapist appears to have resonated with her when she described Aaron as having 'rechipped'.

Between the first and second pre-therapy assessments Aaron learned to say the word "fish". When his mother described this change she said that "all of a sudden he could just do it", with no explanation of how this had happened.

Belle's mother made two, albeit vague, references about changes taking place and that Belle's speech was coming along "a lot better" in "some words". She gave "shy" as a specific example of a word Belle could now say.

Change Made by Parent. The parents described different changes that had occurred as a result of attending therapy. When discussing how Aaron learned how to say 'fish', in the first session Aaron's mother reported that "we helped him a bit but we didn't change too much". At the second session she showed recognition of her husband's role in this change reporting that he had taught Aaron "fee, fie, foh, fum, that is how the f come" (sic). She did not explain how this teaching had differed from previous unsuccessful attempts to teach words with /f/. She twice commented that by attending therapy she was more aware of Aaron's speech difficulties. Aaron's mother reflected on the role of the programme, reporting that the programme had been 'helpful', the therapist had been clear about the order of the programme and that getting the information a little at a time was helpful to her.

Belle's mother reported that since Belle had started therapy two years earlier she was better at perceiving accurate and inaccurate versions of words. She also identified a change in her own confidence level, that she was more willing to ask for help although she attributed this to becoming a mother.

6.3.3 Theme 3: Challenges

This theme encompassed two distinct challenges: 1) challenges experienced by the child during the activities and 2) challenges mothers had carrying out the programme.

Challenges to the Child. The child had come to therapy to learn new speech patterns; it was to be expected that this would present challenges. The mothers referred to aspects of therapy activities that their child found challenging and the aspects of speech tasks

that were challenging to the child. They also referred to the causes of their child's speech difficulties.

Therapy Tasks. Aaron's mother described numerous challenges Aaron faced when carrying out the activities. She described Aaron's difficulty 'relating' the speech activity to the Nuffield sound cards. She observed that some of the speech targets would be particularly challenging, citing when she did not feel he was ready to use his speech sounds in new words, that words with 't' would be "too much" in the context of a velar target. She also noticed Aaron struggled to produce /f/ in a phrase.

Belle's mother noted that it was hard for Belle to complete homework after school when she was tired. Like Aaron's mother she was vague when describing the challenges "you are like "say it" and she cannot" which recalled her frustration but did not specify how Belle said the words. She only twice referenced difficult therapy tasks but in contrast made seven references to how Belle was finding reading difficult.

Speech Difficulties. When it came to describing the children's speech difficulties, Aaron's mother identified the sound errors Aaron made e.g. "dar" for car and that he muddled k/g/d. She also described his slow rate when performing some speech tasks.

Belle's mother was less specific about the words that Belle mispronounced saying that "it's just some words", with examples taken from everyday experiences such as the word 'toy box' which did not relate to the speech targets of [s] and [ʃ].

Causes of Speech Difficulties. The reasons the mothers gave for their child's difficulties was placed under the heading of 'Challenges'. Belle's mother initiated a discussion about the causes of speech difficulties, coming up with numerous reasons. Her suggestions were: "it's just like she loses concentration"; that not moving on from her "baby

things” meant that Belle’s old speech habits persisted; she referenced a family history of dyslexia; and she suggested the speech difficulties were “our fault” in that she and her husband had failed to correct Belle. She also hinted that Belle’s speech difficulties were part of a more pervasive condition when she queried following the advice of a family member to pursue an autism assessment for Belle due to her slow speech progress.

Challenges to Parents. Family life is usually busy, so carrying out a speech programme requires finding extra time in an already busy schedule. Time constraints were referenced by both mothers e.g. after Aaron made speech errors his mother observed that “you can tell we haven’t practised as often”. Later, in Session 9, she reflected on his success that “I dedicate more time. It benefits”. For Belle’s mother the difficulty fitting in practice was because of the quantity of schoolwork that Belle had in addition to speech homework. As a consequence, she had no time left to help Belle’s elder sister with her homework.

Beyond the practical aspect of finding enough time to carry out the programme, both mothers referenced aspects of their own competence as an area of difficulty. Aaron’s mother reported not being able to identify potential targets in Aaron’s speech. She also acknowledged being accustomed to Aaron’s speech patterns so his errors went unnoticed.

Belle’s mother recognised numerous challenges in carrying out the programme. Like Aaron’s mother she felt less competent than the therapist and suggested that she was not carrying out the programme the way the therapist did. She also observed that Belle responded differently to her than other people when she carried out the homework.

The theme of parent challenges included the impact of the child’s speech difficulty on the mother. Belle’s mother reported numerous negative feelings. She reported being annoyed that Belle was “smart” but had not made the progress she expected. She felt

embarrassed when others laughed at Belle's speech errors. She worried about school making her feel stupid, and she reported frustration that her own academic difficulties impacted on her ability to help Belle with speech and reading.

All of these challenges reveal how carrying out a speech programme goes beyond simply finding enough time in the day to carry out a speech programme. The feelings that the mothers had about their own competence and for Belle's mother, the emotional responses to Belle's difficulties, all demonstrate the struggles parents face on a daily basis.

6.3.4 Theme 4: The Child in Context

The child was central to this theme which encompassed what others said about the child and the influences other significant people had on what the child did in the therapy programme. There were three sub-themes 1) the child, 2) people involved in the child's life, and 3) references relating the speech programme to school.

The Child. Both adults could describe their child. They referred to how the child was feeling during the therapy sessions, knew what the child liked e.g. Aaron liked "arts and crafts" and that Belle liked the speech homework provided by the therapist. In contrast in Session 7, Aaron's mother recognised when he was grumpy due to difficulty sleeping during the hot weather.

Belle's mother referenced Belle's negative emotional responses: when she was upset at not receiving a sticker for reading, that she was "frustrated", and when she "couldn't be bothered" to carry out the speech activities.

The Family. Aaron's mother referred several times to Aaron's father and the activities he was carrying out at home. She referred to how he was "on top" of Aaron's

speech difficulties and in contrast to her, he was “the nagging one”. It was Aaron’s father who succeeded in eliciting [f] in “fish”, a word Aaron had previously found difficult.

Belle had a longer history of speech difficulties. Belle’s mother had clearly had numerous conversations about Belle’s speech with family members. She reported the impact of Belle’s speech difficulties around other members of the family including one who laughed at something Belle said. Making another reference to reading, Belle’s mother compared Belle and her elder sister in the way they learned to read, that the elder sister did not require special strategies. She gave a positive report that the whole family including Belle’s sister was involved with Belle’s reading, helped with homework, although Belle’s “I can’t be bothered attitude” made this difficult.

School. Comments from both mothers showed that they made links between speech and language development and education. However, Aaron was attending nursery so literacy and education were of limited relevance to his mother. The only reference to school occurred when the therapist discussed ending the current block of therapy. At this point his mother suggested a re-referral to the SLT “if school have an issue” which suggests she viewed education staff as more able than her to advocate for Aaron’s speech and language needs.

Belle’s mother made frequent references to what was happening in school. She worried that Belle was frequently asked to repeat homework but also that school were ‘pushing’ Belle with a lot of homework. She felt that the teacher had different expectations to the family which confused Belle. It also confused her that Belle seemed more successful reading with the teacher than at home. She reasoned “I think that Belle has got that teacher here” gesturing her palm.

6.4 Summary of Study 1

A coding system was created using the data in Study 1, this coding system demonstrated similarities and differences in adult strategy use. Firstly, all adults showed a trend for using neutral strategies. Secondly Belle's mother shared the trend shown by the SLT to using concept strategies. Differences were seen in the way the SLT and the mothers used articulatory, modelling, praise and correction strategies. Articulatory strategies were little used by the mothers. For the SLT, use was not high but it was used across elicitation, evaluation and repair. Modelling, which was used often by the SLT to elicit and repair, was also used less frequently by the mothers. The mothers repaired using explicit correction of the children's speech attempts more frequently than the SLT. When evaluating there were also differences in the way the mothers showed a higher trend to the use of praise than the SLT.

After several changes to the coding, the system was applied to the data in Study 2 to look at strategy use in a larger number of mothers. This will be described in Chapter 7 with an examination made of whether strategy use changes over the course of the intervention.

The data in Study 1 was also examined using a thematic analysis. The analysis showed that mothers referred to the theoretical concepts underpinning therapy, they talked about the speech changes the children were making albeit using vague references. Reference was made to the causes of speech difficulties and they talked about their struggles carrying out therapy at home. This analysis has developed a Framework that can be used to examine what the mothers say during the therapy sessions and can be applied to data from a larger cohort in Study 2. Results will be discussed in Chapter 8.

Chapter 7

Study 2: Mothers' Use of Supportive Intervention Strategies

After several changes as described in Chapter 6 (Section 6.2.5), the coding system from Study 1 was applied to the data in Study 2, this chapter describes the outcome which is used to answer Research Question 1:

Are there differences between the way that SLTs and parents interact with children with SSD when they carry out therapy activities during the child's speech intervention sessions?

7.1 Therapy Sessions Attended and Data Collection Process

The research took place at a speech clinic where the participants were carrying out their regular speech sessions. The speech sessions were around 40 - 50 minutes in length and were typically held weekly. The procedure for recruiting the participants and plans for their intervention is described in Chapter 5. As in Study 1, at the start of each session the parents were invited to demonstrate their previous week's homework in front of the SLT (the author RB) producing the 'homework demonstration segments'. In the case of the feedback session the parent and child chose a speech activity to demonstrate from a selection of books and toys. The sessions were video-taped in entirety and the homework demonstration sessions were transcribed. The quantitative coding analysis was applied and parent strategy use during the homework demonstration segments was counted.

For various reasons, some children were unable to complete the full programme, other children achieved speech targets without needing the planned eight sessions. A homework demonstration segment did not take place if the dyad did not return any work. If targets had been met, a demonstration segment was not carried out during the feedback session. Thus the dyads attended for different numbers of therapy sessions and they had differing numbers of

homework demonstration segments. The number of intervention sessions attended by the mother-child dyads are shown in Table 7.1 below. The feedback sessions which took place 20 weeks after the therapy programme started are referred to as ‘F’.

Table 7.1

Sessions Attended With Homework Demonstration Segments by the Mother-Child Dyads

Mother and:	Sessions attended with homework demonstration segments
Frank	3, 4, 5, 6, 7, 8, F
Gary	2, 3, 4, 5
Henry	2
Isla	2, 3, 4, 5, F
Josie	3, 4, 5, 6, 7, F
Keith	2, 3, 4
Lance	2, 3, 4, 6, F
Milo	2, 3, 4
Noel	3
Owen	2, 3, 4
Paul	3, F

Note: F refers to the feedback session

7.2 Quantitative Analysis of Strategy Use

7.2.1 Count of Strategy Use

A count was made of strategy use by the whole group of mothers during the homework demonstration segments according to whether strategies were used to elicit, evaluate or repair speech targets. The data is described and shown in tables 7.2 - 7.8 and in bar charts in figures 7.1 - 7.4 below.

Table 7.2: *Eliciting Strategy Use by Mothers in Homework Demonstration Segments*

Child	Frank							Gary					H	Isla					Josie					Keith			Lance					Milo			N	Owen				Paul	
Session	3	4	5	6	7	8	F	2	3	4	5	2	2	3	4	5	F	3	4	5	6	7	F	2	3	4	2	3	4	6	F	2	3	4	3	2	3	4	3	F	
Articulation	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	
Concept	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	5	0	0
Model	1	1	2	3	0	1	0	2	1	2	3	1	0	1	5	2	0	1	1	1	0	6	0	0	0	1	8	1	5	0	0	6	12	0	4	0	0	0	4	0	
Neutral	2	1	6	8	7	2	2	2	8	3	13	3	7	7	3	47	1	11	4	0	6	1	9	15	52	25	1	4	4	2	11	2	0	10	5	1	4	4	2	3	
Vocabulary	0	0	1	4	0	8	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	4	0	0	2	0	1	0	0	0	0	0	0	0	0	0	
Total elicitation	2	1	4	1	7	3	2	4	9	3	16	4	7	9	19	49	1	16	6	1	6	1	9	15	52	30	10	5	11	2	13	8	12	10	9	1	4	9	3	3	

Note: F refers to a follow-up session H refers to Henry N refers to Noel

Table 7.3: *Eliciting Strategy Use by Whole Group of Mothers During Homework Demonstration*

Segment

Strategy Type	Total Eliciting Strategy Use by Mothers Across All Homework Demonstration Segments
Articulation	29 (4.56%)
Concept	18 (2.83%)
Model	100 (15.72%)
Neutral	468 (73.58%)
Vocabulary	21 (3.30%)
Total Elicitation	636

Eliciting Strategies. The data in Table 7.2 and 7.3 shows that neutral strategies were the most frequently used strategy type by this group of mothers to elicit speech targets, making up a total of 73.58% of the strategies. Modelling at 15.72% was the second most frequent eliciting strategy. The other three strategy types were rarely used, however there were a small number of sessions in which mothers made use of these infrequently used strategies. It can be seen in Table 7.2 that Frank’s mother used 14 of the 29 occurrences of articulation strategies in session 5. Isla’s mother used 11 of the 18 occurrences of concept strategies in session 4 and Frank’s mother used 8 of the 21 occurrences of vocabulary strategies in session 8.

The eliciting data is displayed in the form of a bar chart in Figure 7.1 which shows the total use by the mothers of each eliciting strategy type in the homework demonstration segments across the intervention.

Figure 7.1

Total Use of Eliciting Strategies by Mothers in Homework Demonstration Segments

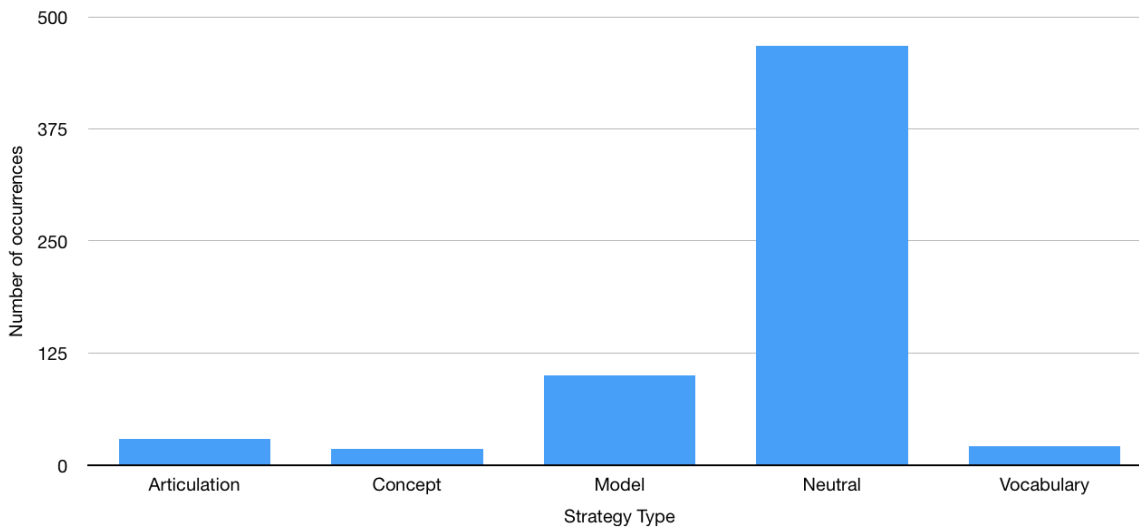


Figure 7.1 displays how, in contrast to the neutral and modelling strategies the other three types of eliciting strategies were rarely used.

Evaluating Strategies. Tables 7.4 and 7.5 display the 414 occurrences of evaluating strategies used by the mothers in the homework demonstration segments across the intervention. The data is also displayed in the form of a bar chart in Figure 7.2.

Table 7.4: *Evaluating Strategy Use by Mothers in Homework Demonstration Segments*

Child	Frank							Gary				H	Isla					Josie					Keith			Lance					Milo			N	Owen				Paul				
Session	3	4	5	6	7	8	F	2	3	4	5	2	2	3	4	5	F	3	4	5	6	7	F	2	3	4	2	3	4	6	F	2	3	4	3	2	3	4	3	F			
Abandoned	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Articulation	0	0	1	0	0	0	0	0	0	0	0	0	3	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	6	1	
Concept	0	3	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0
Confirm	2	9	9	7	4	2	2	1	4	5	1	3	0	1	1	4	1	0	1	0	0	0	3	0	0	1	1	1	3	0	3	2	0	0	4	1	4	3	13	1			
Neutral	0	1	1	3	0	2	0	0	2	2	11	0	2	0	2	4	0	0	0	0	0	2	0	0	0	0	0	1	1	0	3	0	5	0	0	0	0	5	2	0			
Praise	5	0	5	3	3	0	0	0	2	1	2	1	6	8	7	3	4	7	1	0	5	9	3	0	1	4	8	0	2	0	4	2	6	1	0	0	40	4	11	5			
Total	3	1	1	1	7	2	2	1	8	2	14	4	1	9	2	1	5	1	2	1	5	1	6	0	1	7	10	2	6	0	10	4	11	1	4	1	45	1	32	7			

Note: F refers to a follow-up session H refers to Henry N refers to Noel

Table 7.5

Evaluating Strategy Use by Whole Group of Mothers During Homework Demonstration Segments

Strategy Type	Total Evaluation Strategy Use by Mothers Across All Homework Demonstration Segments
Abandoned	5 (1.21%)
Articulation	15 (3.62%)
Concept	23 (5.55%)
Confirm	145 (35.02%)
Neutral	49 (11.84%)
Praise	177 (42.75%)
Total Evaluation	414

Table 7.5 shows that the mothers used mainly praise (42.75%) and confirmation (35.02%) to evaluate. Table 7.4 shows other strategies were used occasionally, although it was interesting to see four mothers using a high number of two of the strategies in one or two sessions. Confirmation was used to evaluate in many of the sessions but two of the mothers showed a particular trend and in sessions 3 and 8, Frank's mother produced 27 and 25 instances respectively and Paul's mother produced 13 instances in session 3. Of the 23 occurrences of concept strategies, 23 occurrences of concept strategies 12 occurrences were in Isla's session 4 and 7 occurrences in Owen's session 4. Only three mothers completely abandoned their attempt to elicit a speech target, Josie's and Keith's twice and Lance's mother on one occasion.

Figure 7.2

Mothers' Use of Evaluating Strategies in Homework Demonstration Segments

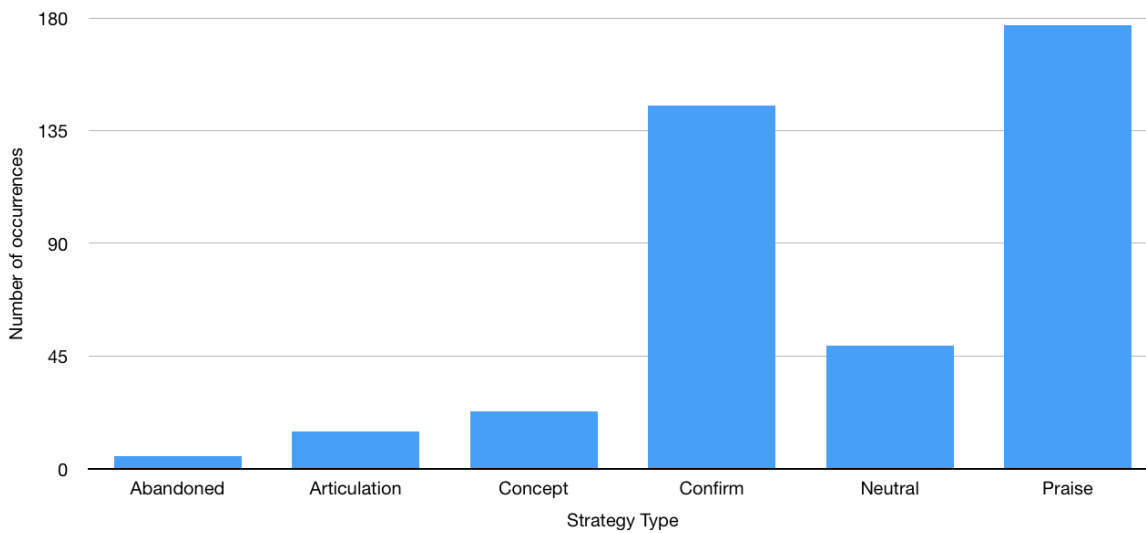


Figure 7.2 shows the total use by the mothers of evaluating strategies during all of the homework demonstration segments across the intervention. This figure shows the high use of confirmation and praise strategies by the group of mothers. Some neutral strategies were used but much less frequently than had been used to elicit targets. The three other strategy types were little used.

Table 7.6 *Repair Strategy Use by the Mothers in Homework Demonstration Segments*

Child	F						G					H					I					J					K				L						M			N			O				P		
Session	3	4	5	6	7	8	F	2	3	4	5	2	2	3	4	5	F	3	4	5	6	7	F	2	3	4	2	3	4	6	F	2	3	4	3	2	3	4	3	2	3	4	3	F					
Articulation	0	1	5	4	0	0	0	0	0	0	0	0	0	2	1	2	2	13	0	1	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	3	0	9	4		
Concept	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	7	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1		
Model	0	0	6	6	0	11	0	3	4	2	6	0	0	2	2	3	2	9	1	4	0	3	9	2	0	4	2	0	4	1	4	3	5	0	0	1	2	0	10	9									
Neutral	0	1	0	2	9	0	0	1	0	3	2	0	1	0	3	1	0	2	1	0	0	1	1	0	1	9	3	0	0	2	3	1	0	0	0	1	7	3	2	1									
Neg/corr*	0	0	0	0	0	1	0	0	0	0	1	1	0	1	1	0	0	4	0	0	0	0	5	0	0	5	0	0	0	0	2	1	1	0	0	0	4	1	6	1									
Vocabulary	0	0	0	3	2	10	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	5	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
Total Repair	0	2	1	1	1	22	0	4	4	6	9	1	1	5	8	6	5	35	2	5	0	6	1	2	1	2	5	2	5	3	1	5	7	0	0	2	1	4	27	1	6								

Note: F refers to Follow-up session, Neg/corr* refers to the negative/correction strategies H refers to Henry N refers to Noel

Repair Strategies. Table 7.6 shows the mothers' use of 304 repair strategies. Repair strategy types were used by all of the mothers and were, with two exceptions, evenly distributed across sessions. The exceptions were: Frank's mother who used 10 vocabulary repairs in session 8 which was 40% of the total use and Josie's mother used 13 articulatory repairs in session 3 which was 26% of total use. The total strategy use is shown in table 7.7 and is also displayed as a bar chart in Figure 7.3.

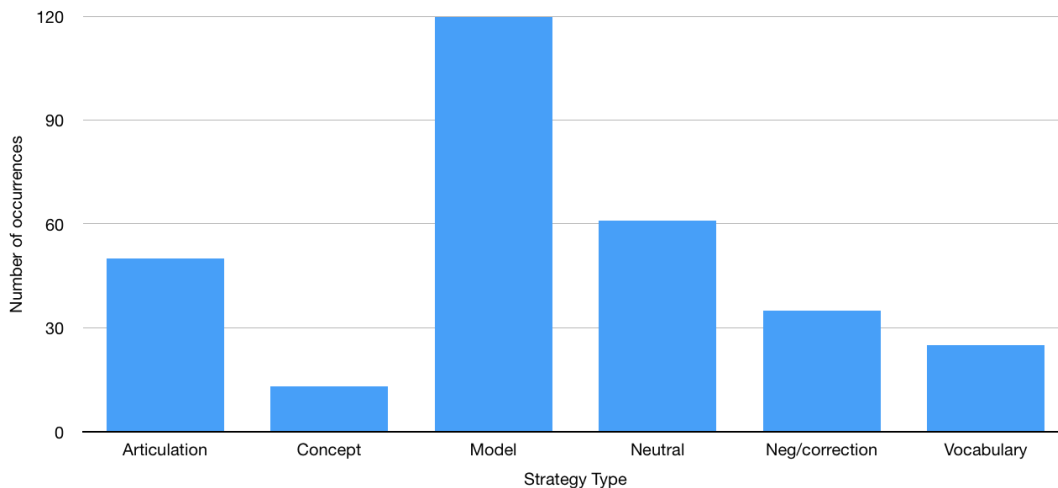
Table 7.7

Repair Strategy Use by Whole Group of Mothers During Homework Demonstration Segments

Strategy Type	Use of Repair Strategies by Mothers Across the Homework Demonstration Segments
Articulation	50 (16.45%)
Concept	13 (4.28%)
Model	120 (39.47%)
Neutral	61 (20.07%)
Negative/correction	35 (11.51%)
Vocabulary	25 (8.22%)
Total Repair	304

Figure 7.3

Mothers' Use of Repair Strategies in Homework Demonstration Segments



This figure shows the total use by the mothers of each repair strategy type in the homework demonstration segments across all of the intervention sessions. Repair was the strategy type that showed the widest variation in use. The mothers most frequently used modelling at 39.47% of the total use of repair, but neutral (20.06%), articulation (16.45%) and correction (11.51%) strategies were also used regularly. Vocabulary and concept were little used.

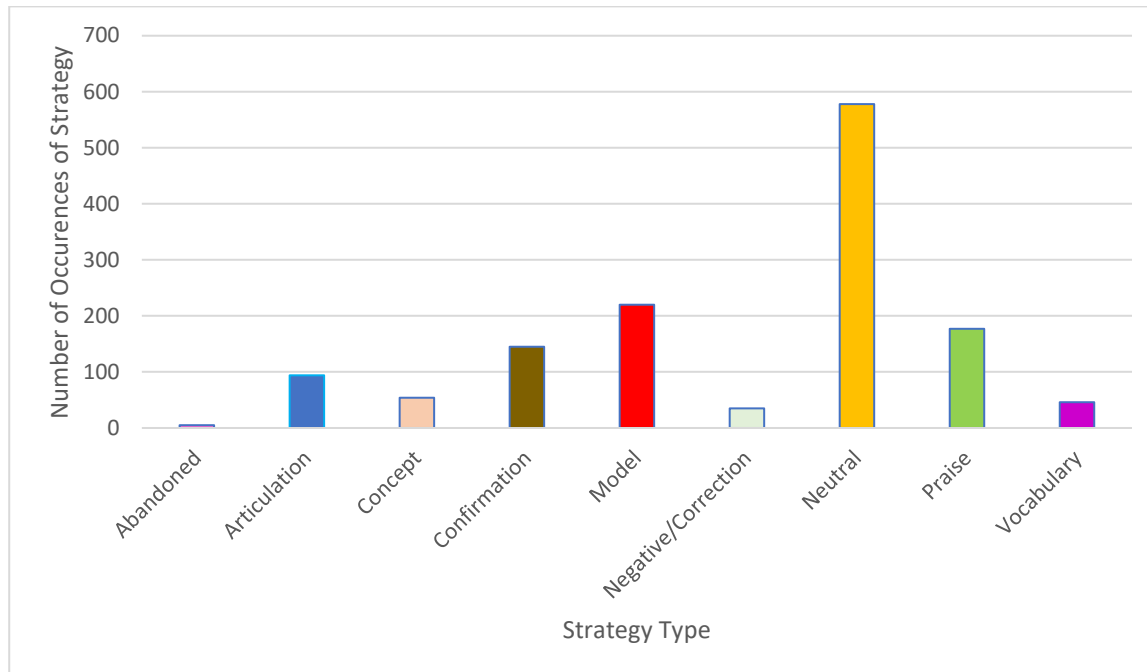
Total Strategy Use. Table 7.8 below shows the total strategy type use by the mothers across all of the Homework Demonstration Segments regardless of the function of the strategy. This shows that the mothers in Study 2 showed a trend to using neutral strategies. There was some use of praise, modelling, confirmation and articulation. Vocabulary, Concept, Negative/Correction and Abandoned were little used strategies. The data is displayed in a bar chart in Figure 7.4

Table 7.8*Total Strategy Use by Mothers Across All Homework Demonstration Segments*

Strategy Type	Use of Strategies by Mothers Across the Homework Demonstration Segments
Abandoned	5 (0.37%)
Articulation	94 (6.94%)
Concept	54 (3.99%)
Confirmation	145 (10.71%)
Model	220 (16.25%)
Negative/correction	35 (2.58%)
Neutral	578 (42.69%)
Praise	177 (13.07%)
Vocabulary	46 (3.40%)
Total	1354

Figure 7.4

Mothers' Total Use of Strategies Across Homework Demonstration Segments



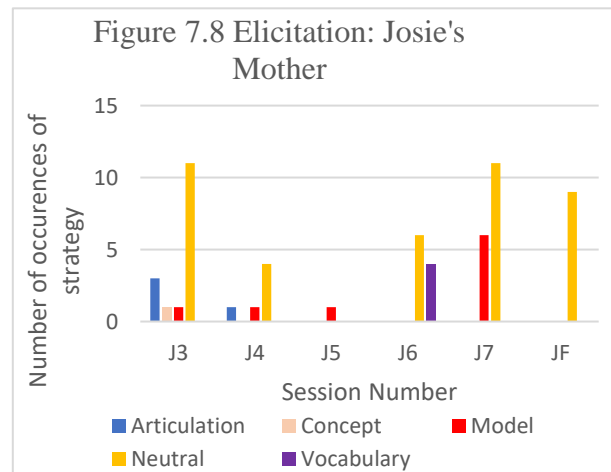
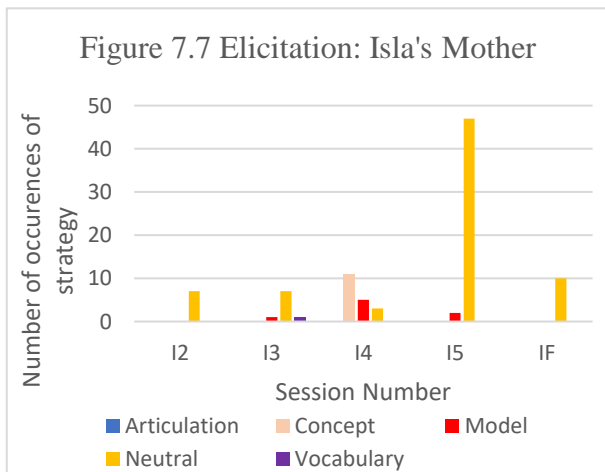
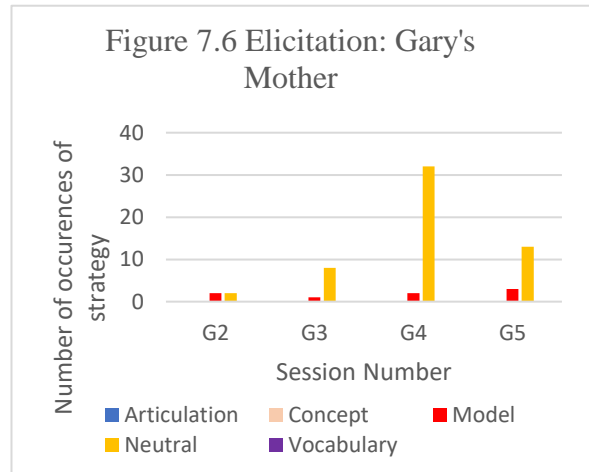
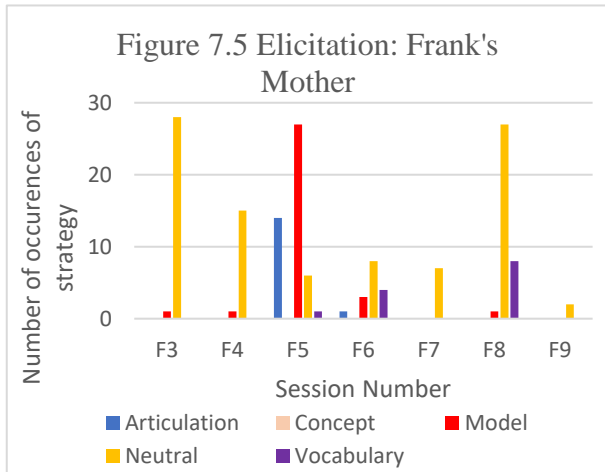
7.2.2 Change in Strategy Use Over Time

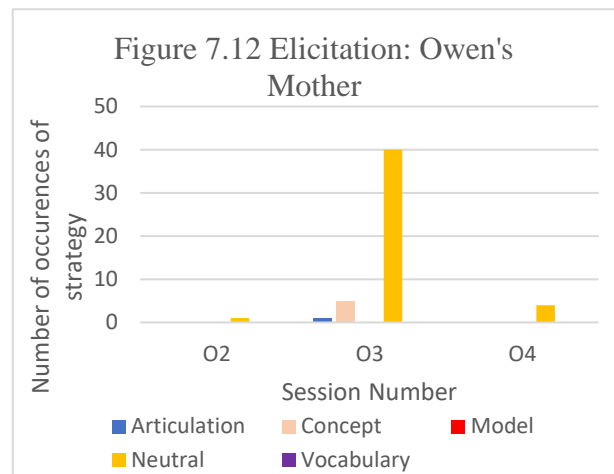
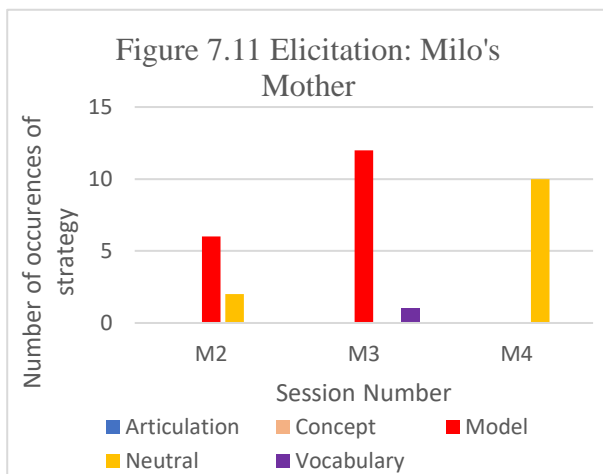
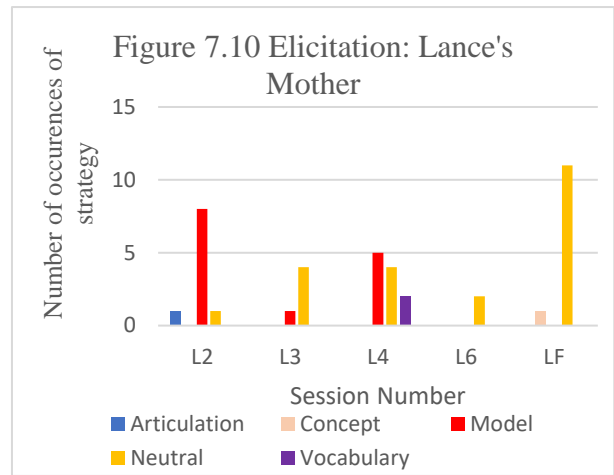
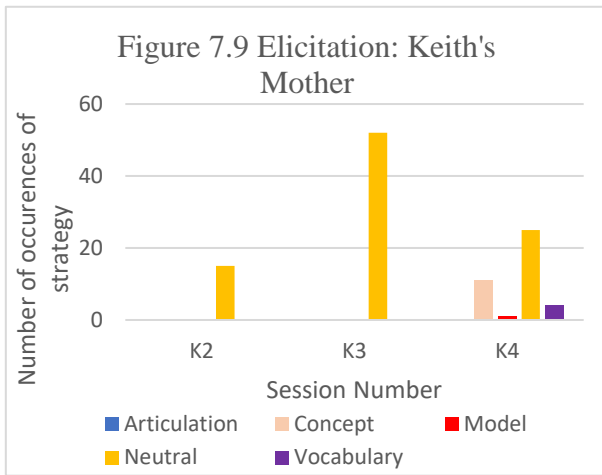
Thus far, examination of Study 2 data has looked at the total numbers of each strategy type used by the mothers. Another way of looking for differences in how mothers used the strategies is to examine the data for change of strategy use over time. None of the dyads carried out homework demonstration segments in all sessions which limits the way that change can be tracked, however eight participants attended for three or more sessions allowing for a limited comparison of strategy use over time. The use of each strategy type by these eight participants over the course of the intervention is displayed in the form of bar charts and described below. The number of sessions attended ranged from three (Keith, Milo and Owen) to seven (Frank). The charts show the actual number of the strategies used. The different strategy types are represented by different colours as shown in the legend on the chart.

One striking feature of the data is the differences in the number of strategies used by the different participants. This may be due to between-parent interactional differences or that some

participants selected a small part of the homework, others displayed everything they had done resulting in different numbers of targets. A simple count of strategy use does not make this distinction.

Eliciting Strategies. The mothers' use of eliciting strategies over the course of the intervention is shown in the bar charts in Figures 7.5 to 7.12 below.



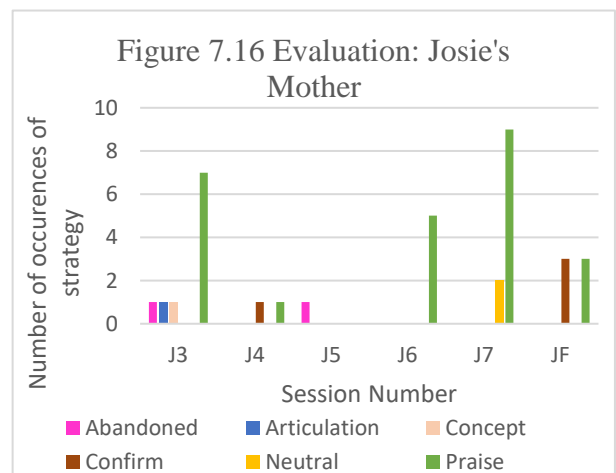
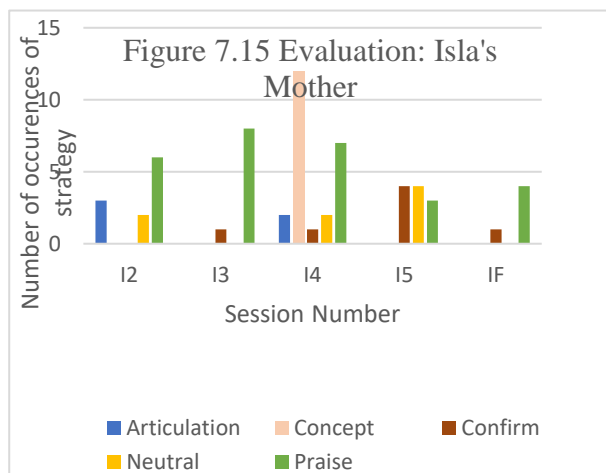
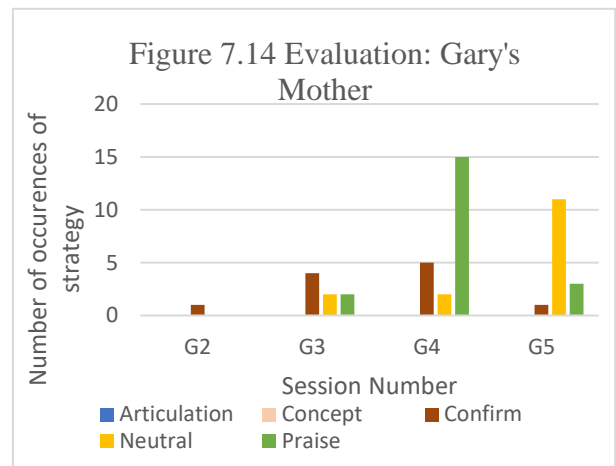
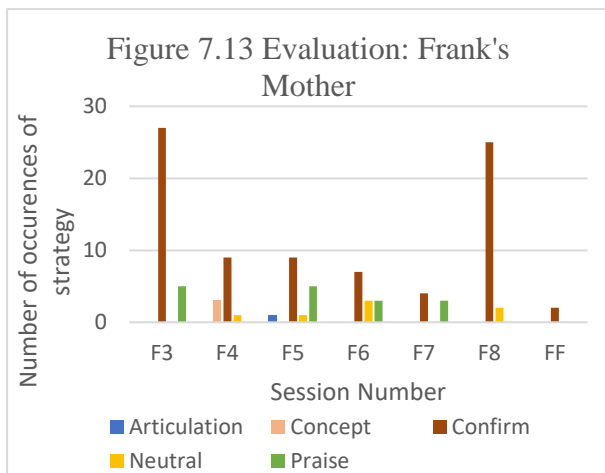


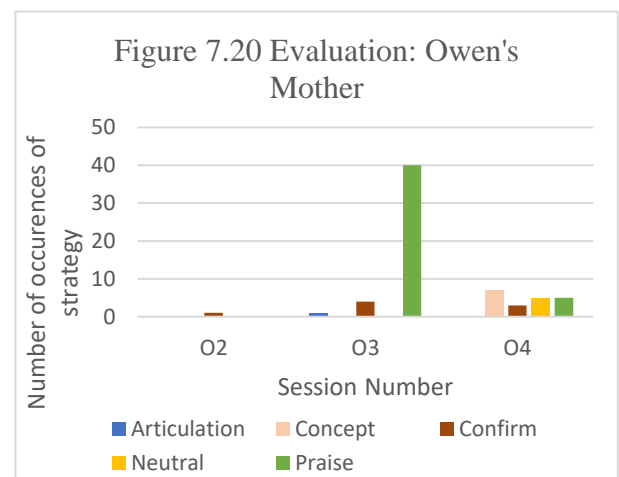
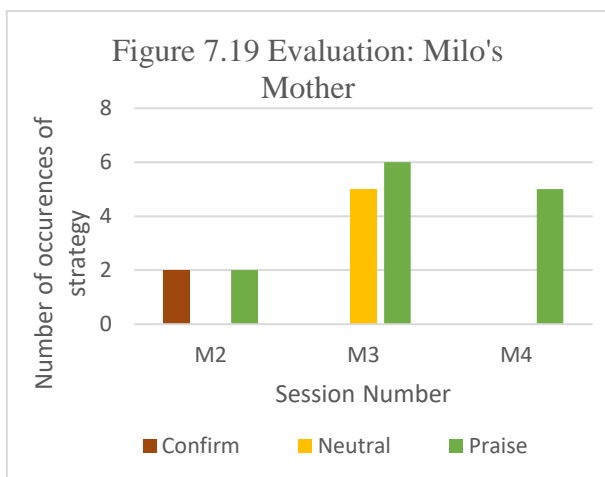
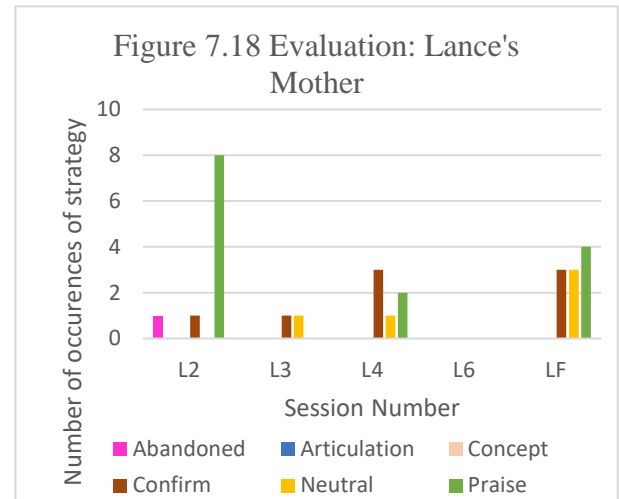
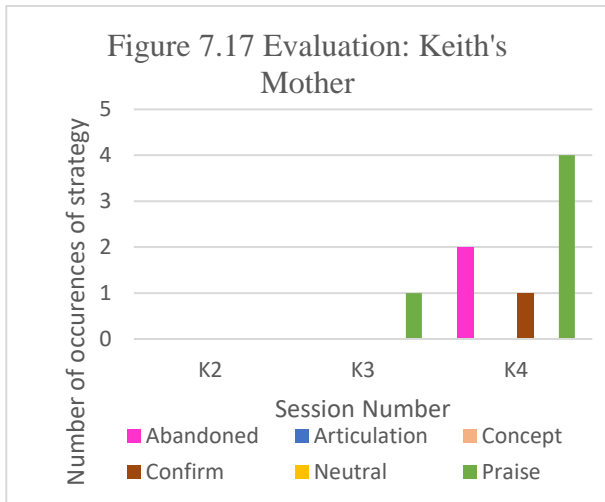
The count of strategy use as described in Section 7.2.1 established that neutral strategies were the most frequently used eliciting strategy by this group of mothers. There were sessions in which the count of eliciting strategies demonstrated exceptions to this general trend: Figure 7.5 shows that in Session 5 Frank's mother used 27 models and 14 articulatory strategies; Figure 7.10 shows Lance's mother using modelling in Session 2; and Figure 7.11 shows Milo's mother used more modelling than other strategies in Sessions 2 and 3. These mothers did not show the same level of use of these strategies in other sessions.

The examination of the SLT use of strategies in Study 1 showed that she used articulatory, modelling and concept strategies. As in Study 1 the SLT was demonstrating the use of these strategies during the Study 2 intervention sessions. There was however no evidence that any of the

mothers used this information and moved towards using these strategies over the course of the intervention. In Figure 7.11 Milo's mother can be seen to increase her use of models between Sessions 2 and 3, but this was not sustained. This mother did not show an accompanying decrease in neutral strategies which may have been expected if Milo's mother was learning to use the more explicit strategies. To summarise, there was no evidence of any of the mothers showing, over the course of the intervention, an increase in the use of the more explicit eliciting strategies but there were individual sessions in which they were used.

Evaluating Strategies. Figures 7.13 to 7.20 below show the mothers' use of evaluating strategies over the course of the intervention.





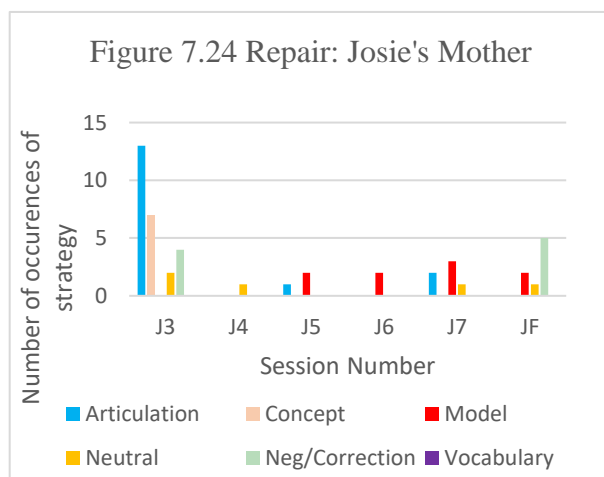
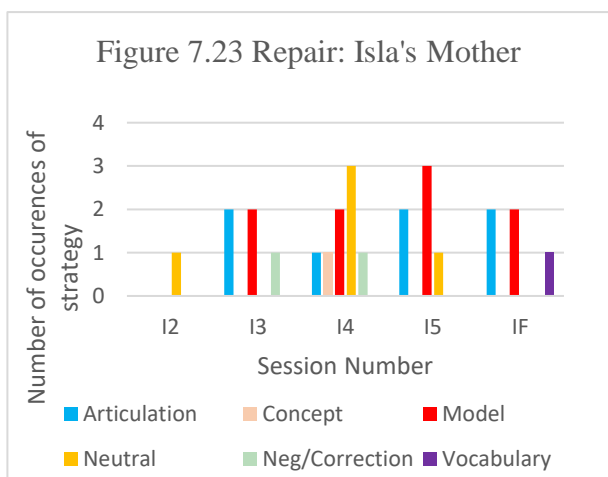
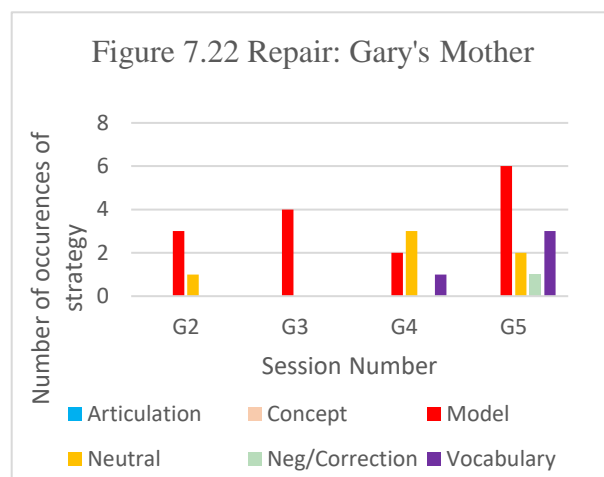
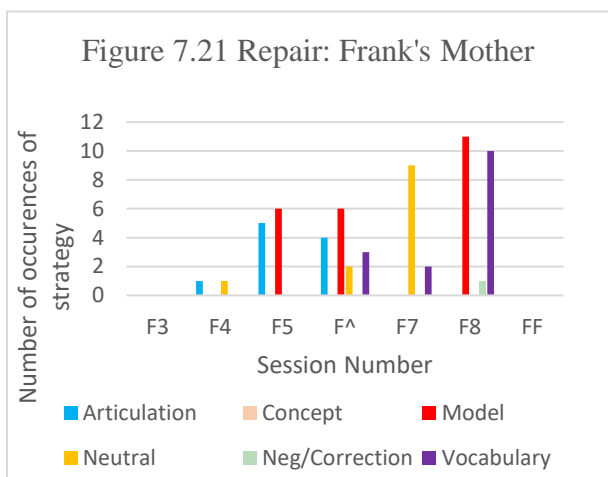
Two types of differences can be seen in this data. Firstly, there were differences between the frequency of evaluation, some mothers evaluated frequently and some evaluated very little. In particular, the mothers of Frank and Isla evaluated in every session whereas the mothers of Keith and Lance carried out one session each where they evaluated no targets at all.

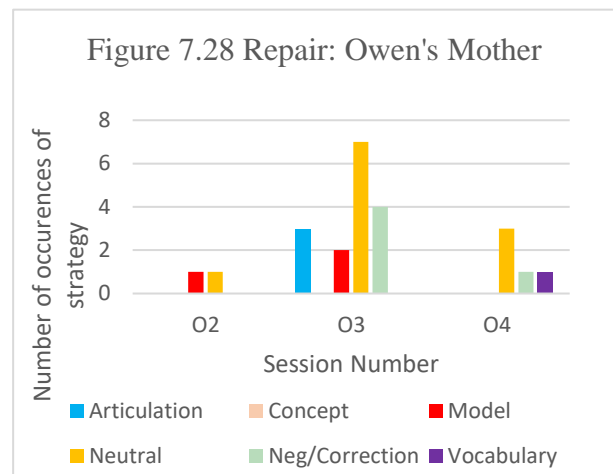
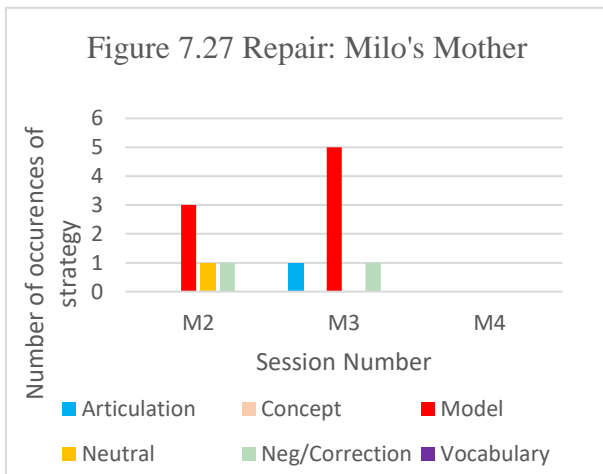
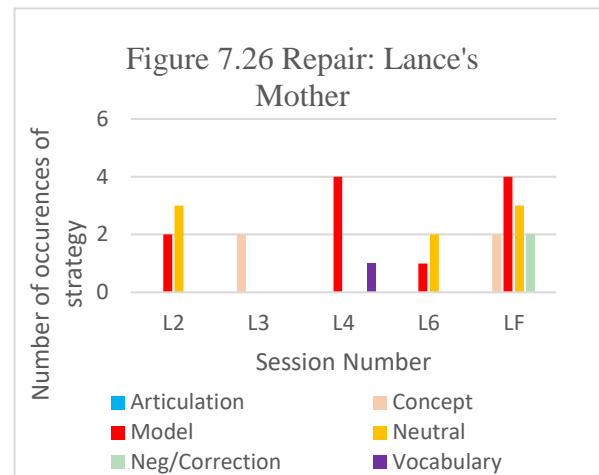
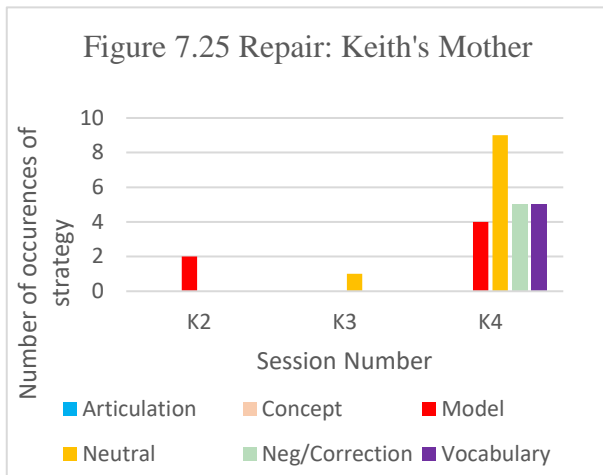
The second difference was in the type of evaluation given by the mothers. The category of 'praise' gave the children general approval without explicit information about their performance in speech tasks. All mothers praised their children at some point. Whereas Isla's and Milo's mothers used praise in every session, the other mothers carried out sessions where they used no overt praise at all. Confirmation gave children the message that they had been understood but no explicit

information about the child's speech. Frank's mother and to a lesser extent Lance's mother used confirmation to evaluate across the sessions.

The use of the articulation or concept strategies would give the children more explicit feedback about their attempts but there was little use of either strategy by the mothers. Concept evaluation was used by Isla's mother in Session 4 and Owen's mother, also in the 4th session. There was very little use of explicit articulatory evaluation, the rare exceptions were Isla's mother in Sessions 2 and 4 and Josie's mother in Session 3. None of these exceptions formed a pattern of change, i.e. an increasing or decreasing use of these strategies.

Repair Strategies. Figures 7.21 to 7.28 below show that the mothers used a range of repair strategies over the course of the intervention.





All of the mothers used modelling during speech repair at some point during the demonstration segments; for Gary and Milo's mothers modelling was their preferred method of repair. There were individual sessions where mothers used articulatory strategies alongside modelling resulting in a use of strategies similar to that shown by the therapist in Study 1, notably Frank's mother in Sessions 5 and 6 and Josie's in Session 3. However, the data shows no clear pattern for any of the mothers in the change of use of strategies specifically towards the use of modelling and articulatory strategies. Five of the mothers used vocabulary strategies, most significantly Frank's mother in Session 8 and Isla's mother in Session 5.

Although the number of instances was not high, all of the mothers used correction at some

point during the programme, this is a strategy that had not been used by the SLT. Overall there was little use of conceptual strategies to repair speech errors but it was seen by Lance's mother in two sessions and Josie's mother in one session.

7.3 Chapter Summary

7.3.1 Summary of the Supportive Intervention Strategy Data

Study 1 had shown how two mothers and the SLT showed different patterns of usage of supportive intervention strategies. This difference was seen even though, as is standard practice in a speech clinic, the SLT had demonstrated to the mothers how she carried out the tasks before the parents carried them out at home.

The demonstration of strategy use continued in Study 2. In addition, the mothers were given information booklets summarizing their child's speech targets and a description of some supportive strategies. In Study 2 the SLT and some mothers also viewed and discussed video recordings of some of the therapy activities. Some of Study 2 data was consistent with the Study 1 parent data. In both studies mothers used mainly neutral strategies to elicit speech targets. To evaluate mothers used praise and confirmation strategies. The range of strategies used to repair was wider and included direct correction which had been a strategy little used by the SLT. One strategy that was used more consistently by mothers in Study 2 was the use of modelling in repair.

I will now summarise the other findings from this data.

7.3.2 Knowledge of Strategies

The data show that all of the strategy types except 'praise-repair', which was only used minimally in Study 1, were used by at least some of the mothers. Even though some strategies were little used, as a group the mothers used all of them.

7.3.3 Frequency of Strategy Use

Tables 7.2 , 7.4 and 7.6 show that the number of strategies used by the individual mothers varied. The examination of strategy use over the course of the intervention shows a striking difference in between-session strategy use by the mothers. There were some sessions where particular participants used little of a strategy-type and then others where they used more.

Examples are:

- Vocabulary: Frank's mother used this strategy infrequently during early sessions but then used it 10 times in Session 8 as a repair strategy.
- Praise: Owen's mother did not offer praise to evaluate Owen's speech in Session 2, the first of that dyad's demonstration sessions. She offered praise 40 times in Session 3 and then used just 4 instances of praise in Session 4.
- Concept: As a group the mothers rarely used concept strategies to evaluate, but Isla's mother used 12 instances in her 4th session.
- Confirmation: Whilst Frank's mother used a maximum of 9 instances of confirmation during 6 of the sessions, she used 27 and 25 in Sessions 3 and 8 respectively.

These results showing high levels of strategy use in individual sessions is difficult to interpret. What is missing from this data is information about what the child was doing at the time. The activity and the response of the child may have been associated with strategy use, for example meaningful minimal pair activities that focus on establishing a semantic referent and then the breakdown of communication (see Chapter 2, Section 2.2.4) would require the use of 'concept' or 'vocabulary' strategies. In a similar way an articulatory drill (Van Riper,1939) may be associated with the use of articulatory strategies.

7.3.4 Change in Strategy Use

Study 1 showed how the SLT tends to use the strategies that are explicit in what they are asking the child to do in the speech programme. After some training it may be anticipated that

parents would use strategies in a similar way, however the quantitative analysis carried out as part of this study suggests that although the parents used some of the strategies, the picture may be more complex. It may not be that a ‘more-is-better’ approach is needed when learning to use supportive strategies. It may be that learning the strategies per se is not what parents need help with, it may be that they need to learn when and in which contexts to use them.

Strategy use has to take into account what is being targeted in the activity and the difficulty level of the activity. It may be that where repair was absent the child was finding the speech targets easy, or alternatively that very few targets had been attempted. A child who is finding the tasks difficult may need very much more modelling or articulatory information than a child who can imitate targets in the first session. A long-term aim of a speech programme is for the child to produce the speech targets independently rather than relying on explicit information from the adult (Gardner, 1994). Thus if the adult is matching their strategy to the child’s level of difficulty we might expect an initial use of modelling and articulatory strategies with a gradual increase in neutral strategies. The data did not show this.

Stivers (2015) discussed the inherent difficulties of reducing human behaviours to simplistic codes and counting the occurrences. Tarplee (1993) suggested that the adult contribution to an exchange cannot be removed from what the child has said and simply counted. CA is a methodology that takes into account not only all participants in the exchange but also of the context. In Chapters 9 and 10, I will use CA to look at the intervention data. CA analyses what happened in the exchange on a turn-by-turn basis to shed light, in this case on how SLTs and parents work with the child during the speech tasks. The analysis investigates how explicitly the adult identifies to the child that the aim of the task is not to name the pictures shown to the child but to accomplish speech change. Before moving to this analysis, in Chapter 8 I will use TA to look at what the mothers said to the SLT during the intervention. Listening to what they say gives insight into their collaboration in therapy activities and challenges they face when carrying out the tasks.

Chapter 8

Study 2: What the Parents Talked About During the Speech Intervention

In the intervention sessions, alongside the therapeutic adult-child interactions, the mothers naturally engaged in conversations with the SLT. The conversations were unstructured and were about the concerns of the mothers at the time. In this chapter these conversations are analysed using the Framework Method matrix from Study 1. The constructivist approach adopted in this research does not search for a single objective reality that explains how a parent “ought” to view therapy and their role in it. Rather it makes an exploration of the unique perspectives of all participants (Green & Thorogood, 2009) about how they understood what was happening in therapy sessions. Within the constructivist approach the view of each participant has equal value.

In Study 1, the Framework Method analysis of parent conversation established four superordinate themes. ‘Knowledge’ explored what the mothers knew about speech difficulties and the speech intervention. ‘Change’ explored the ways the mothers described changes that were taking place in their child’s speech and any changes in their own ability to facilitate this. ‘Challenges’ included how mothers described the struggles they and their children encountered either as a result of the child’s speech difficulties or when carrying out home practice. Also a theme of ‘The child in context’ referred to how the mothers described the child and the impacts of school and family on the child’s speech development. This analytical framework was then applied to the data from Study 2 to explore the experiences of a larger cohort. As a result of the new data of the Study 1 themes were adapted and merged producing a modified Framework. The results will now be described and illustrated using exemplar quotes from the mothers’ conversations.

There were between-parent differences in the number of statements produced, because a) some parents were more talkative during the sessions and b) there were differences between participants in the number of sessions attended. As an example, Henry and his mother had 72 minutes of data whereas Lance and his mother had 368 minutes which naturally provided Lance's mother more opportunity to share her thoughts. In qualitative analysis the prevalence of a theme is not necessarily an indication of its importance (Braun & Clarke, 2006), so no systematic attempt was made to compare the quantity of parent statements around a theme. The four themes will now be described.

8.1 Theme 1: Becoming Skilled in Supporting Speech Development

This theme covers how the mothers learned about the nature of SSDs, their understanding of the theory underpinning the speech programme, their description of the children's speech errors and how they chose target words. The theme also explored how mothers learned to use the supportive intervention strategies of therapy talk and their difficulties using them.

8.1.1 Understanding the Rationale Behind Speech Intervention

Several mothers referred to the importance of having an explanation of therapy. Milo's mother commented that without an explanation "you are not too sure why you are doing it". When a new strategy was demonstrated to Josie's mother she wanted to know "how or why?" it works.

8.1.2 Understanding Speech Difficulties

Knowing how to remediate speech disorders entails understanding what children are finding difficult. Henry's mother shared her surprise that Henry could not imitate speech targets, which she said "is mind-boggling for me". The comments of other mothers suggested that they had realised that being able to imitate words was not enough to change

children's speech patterns. This was seen in the way that four mothers talked about what they knew the child needed to learn before changes would occur in everyday speech. Gary's mother suggested that if Gary did not know the word he was attempting, he would not say it correctly. Milo's mother made a reference to Milo having to learn more than just what the words were and that "he has just to remember to say it". Isla's and Josie's mothers gave particularly clear descriptions of how they interpreted the theory as explained by the therapist. Isla's mother observed "first it works clinically, yeah, and then you have to put it in practice on a day-to-day basis". Josie's mother anticipated that the child first learns a number of exemplars and then establishes the speech pattern:

I guess if she knows four words, for example four words that are spider, spoon and whatever, then the fifth word is sp, so then it might just come out of her mouth.

Frank's mother referred to /r/ and /θ/ as "late sounds", seeming to have understood that there is a developmental sequence in which speech sounds are learned.

8.1.3 Recognising the Child's Speech Errors

Several mothers said that they became more aware of their child's speech errors during the programme. As Gary's mother began to notice Gary's errors, she expressed surprise that she had not noticed previously and suggested it was "my mistake" to assume he would outgrow them. Isla's mother also reported noticing errors which she had, prior to the intervention, been unaware of. Frank's mother said that the whole family had become more alert to Frank's speech errors so they could then correct them.

A number of the parents were also able to describe the nature of the child's speech errors.

- Isla's mother specified Isla "finds it hard to get the tongue out".
- Three of the mothers reported children's difficulties with /r/ although this was not a target in their child's programme.

- Two mothers were able to give details about the error sound in terms of non-target sounds they heard. Milo's mother said about Milo "he is putting like a puh" after the target sound and later in the programme she said "he's putting in the 'g' everywhere". Josie's mother observed that when Josie tried to say the word shoe "she has got a t in it".
- Lance's mother talked about how Lance was finding it difficult to produce a vowel after his new /l/ sound "he wasn't opening his mouth wider with the next letter so when he said the "luh" he would put the tongue behind the teeth, but keep the teeth very close together".

Whilst there were these detailed descriptions, other mothers were less precise:

- Several mothers recalled specific words that the child found difficult but without giving any more detail: Owen's mother recalled arguing with Owen about the pronunciation of the word "spoon" but could not recall how Owen said it. Paul's mother was vague in the general description of his speech difficulty that he "tended to swallow" sentences.
- Later Keith's mother gave a vague summary description of Keith's speech difficulties as "struggles". Keith's mother knew he could not say his name which started with the sound being targeted in the programme, she said that "sometimes he doesn't say it very well" without actually saying how he said it.

An essential part of therapy talk is being able to give the child feedback about the accuracy, or otherwise, of their speech in order to do repair work on any errors. For some of the mothers, recognising when the child produced a speech error was not easy, Noel's mother suggested this was "because I am used to hearing him saying it all the time". When she had to make judgements about whether or not Noel was successful she said that she had to ask

herself “Is he saying it right now?”. She appeared to consider that the SLT was better able to make judgements saying “I need to take you home”, in order to help with homework.

There are times when mothers had recognised that the child had made speech errors but could not interpret their message. This could result in frustration for the child and for the adult. Within this group of mothers, three described incidents when they had not understood their child.

- In Session 4, Josie’s mother described Josie’s frustration when she had to say the word ‘fast’ “ten or twenty times” before her mother understood her.
- Paul’s mother cited that when she had not understood a word, later established as ‘map’, Paul began to cry and get angry.
- Frank’s mother said that Frank got annoyed when he was not understood when he said the word ‘puzzle’.

The mothers’ description was of the child’s distress at experiencing not being understood.

8.1.4 Selecting Words to Practice

In Family-Friendly Practice (Watts Pappas et al., 2009), it is the SLT who selects speech targets based on their professional knowledge. About half of the parents engaged in discussion with the SLT about targets, referencing tailoring them to their daily lives. Some of their suggested targets were used in speech practice but some mothers suggested targets that could not be incorporated into the programme and in some cases the SLT suggested targets that the mothers rejected.

Lance’s mother identified a family pet’s name that started with the target sound. Isla’s mother referred to picking simple day-to-day words. She did not explain how she selected these but stressed limiting the number to avoid annoying Isla. Gary’s mother made suggestions for target words based on words that she had noticed he produced inaccurately in

daily activities. Two of her suggestions: “toilet” and “relax” included Gary’s target /l/. She made other suggestions that did not meet the requirements of the speech programme e.g. “annoying” did not include his error pattern. Keith’s mother suggested ‘caterpillar’ as a target /l/ word from Keith’s reading book. At the time Keith’s target words all began with /l/ making ‘caterpillar’ with a medial /l/ unsuitable, although it may well have been the only example of /l/ that she had seen in his reading. Paul’s mother talked about targeting the word “airport” which was functional because they travelled abroad frequently but was unrelated to Paul’s speech target /s/. Henry’s mother was unsure of whether to add her own words to the homework so she kept to the therapist’s suggestions “we haven’t practiced anything else like ‘fire’”.

Several mothers made comments on the unsuitability of speech targets suggested by the therapist. In one case, a child’s food aversions meant that the mother thought food vocabulary was not appropriate. Milo’s mother vetoed the SLT’s proposal for ‘shoe’ as Word of the Week because the sessions took place in the summer and she said that Milo did not wear shoes in the summer.

8.1.5 Using Supportive Intervention Strategies

The SLT discussed supportive intervention strategies with the mothers and demonstrated them during the therapy sessions. They were described on the information sheets given to families. The following are the strategies the mothers talked about.

Cued Articulation. Isla’s mother talked about how she used cued articulation to emphasize speech targets, “Every time she talks I (demonstrates cue) so she knows the ‘s’ sound”. She referred to remembering to use the strategy when visiting family “so even with my mum and there was an ‘s’ somewhere I used to make [s:] (demonstrates cue) the movement of my finger”. Frank’s mother demonstrated how she used a /sh/ gesture, whereas

Paul's mother asked the therapist for a demonstration of the articulatory cue for /s/, indicating that she was trying to use it.

There were two mothers who observed and commented on the SLT's use of cues without actually describing using them themselves. When watching the video in Session 4, Gary's mother observed the therapist using an articulatory cue saying "that was a perfect example of you showing him how to say it". A further comment made by Gary's mother when she was discussing using articulatory cues with the therapist indicates that she may not have been comfortable using these cues. She told the therapist that she was "Past that embarrassing stage" and did not care about doing things in public if it helped her children, however this comment suggests she thought that gestures were embarrassing so she might be reluctant to use this strategy in front of others.

When Milo imitated the therapist using an articulatory cue his mother commented that "I love the way he goes like that", although she did not suggest or demonstrate using the cue herself. In a later session she went on to say that she did not use the strategies being demonstrated, blaming herself "yes, it is mostly my fault".

Articulatory Instructions. Although the SLT's demonstrations of activities used therapy talk which was explicit about articulatory change and demonstrated the use of supportive strategies, the mothers made little reference to giving explicit instructions about articulation. Gary's mother said that she emphasized speech sounds with her tongue without referring to telling Gary what to do. Isla's mother was the only mother who reported explicitly telling Isla about the error she was making, in the third session she described:

While this week we were on holiday, is every time there was an 's', not often, I would pick up "oh Isla where does the tongue go?" And she goes back. I did that all the time. (sic)

Generalisation. The use of targets selected according to complexity principles is said to facilitate the generalisation of the reduction of the use of error patterns (Gierut, 2001, 2005, 2007). Another form of generalisation is where the child generalises the accurate use of targets outside the clinic. One of the strategies designed to target this generalisation was ‘Word of the Week’ which entailed selecting one functional word to practise in everyday settings. Owen’s mother was the only mother who described how she used the SLT’s suggestion to target generalisation of s clusters. She described how Owen said the word spoon on a daily basis, when every breakfast he was given the opportunity to ask for a “spoon” to eat his yoghurt.

Changing the Pace of Speech. During her demonstrations of therapy activities, the SLT usually presented activities at a slow pace. Several mothers commented on this. Josie’s mother, referred to using the strategy of providing a slow speech model for Josie to imitate “just sounding the words, or saying it slower or again just sounds”. Lance’s mother also described how she slowed her own speech model. Frank’s mother saw value in encouraging Frank to speak more slowly, saying that “I think it is all about the speed”. She remarked that when speed increased e.g. when he was singing, Frank produced speech that was less accurate, saying:

He’s you know, he is correcting himself more and more on other things. But then when he talks you know like fast, just on a whenever you know going on then sometimes it gets a bit muddled, so I am still trying to encourage him to slow down.

Paul’s mother also described the impact of speed on Paul’s speech “you know what’s his problem as well. He speaks very quickly so he tends to chop a bit ...he wants to talk so so quickly” (sic).

In contrast to the mothers who described the benefit of reducing speed, there were two other mothers who seemed to want to speed things up. Henry’s mother reported frustration

that Henry could not sequence /f/ with a vowel any faster, “we tried a few times to just say it and he can’t” and “he still can’t seem to join it” and that he was breaking up the word “he is not just saying fish”. In Session 6, Josie’s mother was happy with the way Josie imitated /s/ followed by a pause and then a vowel. She referred to the two speech segments as “words” but her explanation was positive: “it’s two words like you said, and it’s fine, she has got it, but not fastened”. A later comment indicated that she wanted Josie to speed up her speech production “So I now and again slipped in saying it, the whole word, just quickly, and she just tells t” (sic).

Correction. Some of the mothers talked about explicitly correcting their child’s speech. Two mothers described correcting by repeating the child’s error back to the child. Frank’s mother asked Frank “have you got bingers?” and Lance’s mother said to Lance “I say “do you say that” and I put in the ‘w’ obviously”. Lance’s mother gave Lance an explicit developmental rationale for speech correction in that “little boys pronounce luhs sometimes as wuhs, but big boys try to pronounce luhs as luhs”.

Other descriptions of correction gave less detail:

- Milo’s mother said “I just correct him” without giving any explanation of how she did this.
- Keith’s mother said that she asked Keith to repeat the word, but that she would not pursue correction if he did not get the word right the first or second attempt.
- Gary’s mother also said that she asked Gary to repeat words. In the feedback session she said “I would be more like ‘say that again for me””,
- Frank’s mother described asking for a repetition “what did you say ?” or “sorry?” and that Frank would successfully self-correct.

Noel’s mother seemed to have a different view about correction. To her it had been important to avoid correcting Noel altogether. Her description of the improvement in the

production of interdental fricatives seemed to suggest maturation rather than any explicit intervention “he was unable to say it, we left it. We didn’t want to correct him, and that is where the major improvement is”.

8.1.6 How Parents Learned about Supportive Intervention Strategies

The mothers who attended the feedback session discussed the aspects of the programme they had found helped them to learn about supporting their children. They referred to learning about the speech programme by having an explanation from the therapist, watching the videos, the therapist modelling the activities and the leaflet. Gary’s mother was particularly enthusiastic about having watched the video recordings, in her case all of the videos were edited clips of the therapist carrying out strategies which she had already seen in real time. In Session 2 after watching one of the clips she told the SLT:

You see now I understand why you record, because now watching back here it’s perfectly clear but before with him, not that I didn’t notice before, but obviously you notice a lot better when you are watching it back yourself.

This comment suggests that real time observation of the SLT carrying out activities may not meet the training needs of all parents. However Gary’s mother also referred to the SLT demonstrations saying that “I watched you teach him and once we got home, I would try to copy you”. Paul’s mother suggested that all the explanations were interconnected. Lance’s mother explained that she found the explanatory leaflet useful at the beginning but then felt that Lance needed a different approach. She suggested that being able to adapt the activities was important to her.

8.1.7 The Difficulties Parents Had Using Therapy Talk

Some of the parents reported success when learning to use intervention strategies, however this was not always the case and some of the parents reported feeling that they did not have the skills to carry out the tasks.

Noel's mother reported difficulty using the tongue depressor to elicit a velar sound "last time I nearly choked him". She also speculated that her model was inadequate, wondering if she should say a singular or plural, "cars or car? Maybe I am not saying it properly" when both of these forms of the word contained the target /k/ so would have been equally acceptable. Gary's mother also worried about the speech model that she provided because of her accent that "I can miss t's, l's everything".

Noel's mother seemed to suggest that she was less able than the SLT to judge whether or not Noel's attempt was correct when she jokingly suggested that she should take the SLT home to carry out this task for her.

The extracts in this theme illustrate that some of the parents feel that they lack the competence to carry out homework. There was reference to difficulties with practical aspects of the programme, but also two of the mothers worried that their own speech model was making them less able to carry out the speech activities at home.

In summary, the mothers varied in their understanding of SSDs and the detail in which they recognised the children's speech errors. Some could offer suggestions for target words although not all suggestions met the SLT's criteria. Some of the mothers did not feel that the SLT's suggestions were suitable. When considering strategy use, changing the pace of children's speech was of particular interest. Some of the mothers wanted their children to produce the speech targets more quickly, others saw a benefit in slowing down. The mothers varied in the reports they gave of their ability to use the supportive intervention strategies demonstrated by the SLT, and they talked about varying levels of confidence about their ability to use them.

8.2 Theme 2: Identifying Speech Difficulties and Speech Change

Theme 2 turns to what the mothers said about what the children found difficult and what they felt was the cause of these difficulties. It also looks at the changes that were taking place in the children's speech over the course of the intervention, in some cases their understanding of what was motivating the children to change, and the impact that change had on the child.

8.2.1 Noticing What Children Found Difficult

Four of the mothers talked about what aspects of the activities their children found difficult.

- Josie's mother commented that Josie engaged in tasks where she imitated nonsense syllables, "but then putting these into real life, it stopped".
- Frank's mother noticed that Frank could produce one target sound correctly per utterance. When a target sentence had more than one /s/ he would only produce the first one accurately.
- Keith's mother felt that complexity was frustrating for Keith "If he tries a lot and the movement of the mouth and he gets it all confused and all wrong".
- Isla's mother reported that Isla was successful when she only had to deal with one speech sound, but when the tasks included a combination of /s/, /f/ and /θ/ she became confused.

8.2.2 The Cause of Speech Difficulties

The information pack given to the parents did not address the cause of speech difficulties, nevertheless during the conversations, half of the parents suggested theories about the underlying reason for their child's difficulty. In a single session Henry's mother considered and enquired about a number of different causes of Henry's difficulties:

- Laziness on Henry's part and a lack of correction, "Do you think ... he has become lazy and because we had not really corrected him because we could just understand him so we just left him it's made it worse?".
- When relating Henry's reading difficulty to speech difficulties his mother suggested a neurological cause "is it like a section of the brain or something?".
- On observing the benefits of the visual strategies she considered hearing as the source of Henry's difficulties.
- She considered that since Henry was from a large family he would have learned speech from his elder siblings and parents, suggesting that she attributed speech development to having good speech models.
- She also proposed the parent's role in speech development when she asked "If I had known at the age of two to simplify it and "f ...or, would it have been different?".

Like Henry's mother, who had considered the role parents play in making children aware of their speech errors, other mothers considered whether the role parents play in speech correction had an impact on speech development. Some blamed themselves for having not previously corrected speech errors e.g. Owen's mother said "I blame us ... cos he was saying oh I want a poon, so that is basically our fault for that". Gary's mother reported regretting not correcting him earlier as she had assumed that he would outgrow his errors.

There were other suggestions for causes of speech difficulties:

- Gary's mother considered poor attention and concentration a causative factor.
- Isla's mother related Isla's speech difficulties to early hearing difficulties. "To be honest I think also the fact that she also had a hearing problem to hear words, process them wrongly and then store them. That needs to be changed".
- Keith's mother identified that Keith's persistent use of a dummy might not be helpful and described how he was trying to go to sleep without using it.

- Josie’s mother referred to her own history of dyslexia and Josie’s father having had speech therapy as a child, suggesting a genetic component to speech difficulties.
- One child’s speech difficulties were attributed to a lack of socialisation with peers after prolonged illness.
- One mother requested oral-motor exercises because she considered the child’s diet meant that his mouth got very little natural exercise, suggesting that she considered movement and muscle strength may underpin speech difficulties.
- Milo’s mother observed that Milo acquired non-speech skills easily indicating that she had considered general slowness as a potential cause of his speech difficulties.

The cause of SSDs is complex. These parents seemed to have spent some time thinking about why their child had SSDs and they had a range of suggestions e.g. the genetic component suggested by Josie’s mother or the lack of muscle strength caused by one of the children’s limited diet.

8.2.3 Changes Made by the Child

All of the mothers referred to changes they noticed in their child’s speech, although there were differences in how detailed a description the mothers provided:

- Frank’s mother pointed out that at the start of the programme Frank needed a pause between segments to sequence /f/ and vowels. In Session 4 he was now saying /f/ words “no gap, no nothing”. She referenced specific words, citing the old and new versions “and you know, this morning he said ‘oven’ and before that it was ‘oben’”.
- Gary’s mother was also able to specify what change she had observed. She cited Gary’s target word and noticed how change generalised to other words:

I’ve noticed since he has been saying the word ‘actually’, he is pronouncing a lot more of his /l/s correctly in other words obviously, like now he is saying family “he will say “family” instead of fam fan famwi (sic)

- Lance's mother noticed Lance's pronunciation of "look" was improving when he read. She described him opening his mouth wider resulting in a more carefully articulated /l/ sound.
- Not all of the change was reported as positive. Two of the mothers noticed that their children had learned to use the target speech pattern but then were "overgeneralising" and using the pattern in words where it was not typically found. Frank's mother reported, "cause we are concentrating so much on 'f' he is thinking OK it has got to be [f::] fake for snake or something you know". Paul's mother noticed that Paul was not only using /s/ in target clusters but in front of all of the words in the activity.

Rather than describing phonetic change, some of the mothers simply cited specific words that had changed.

- Isla's mother listed /s/ words that Isla was now saying: see, saw, sun.
- Milo's mother noticed an improvement in the word 'flower'.
- Paul's mother talked about changes she had observed in the words "airport" and "ginormous" which did not relate to his speech programme. She also noticed that Paul was now using:

More of the alphabet words. Before it was a lot of erm baby language. He used to talk and cut ... but now he is actually pronouncing the whole word which is excellent.

Josie's mother suggested that no speech change had taken place which was confirmed by the PCC score at the end of the programme. However she described other changes: "I can see things ticking in her head, and there is something happening" which she felt were positive.

A long-term aim of speech intervention is that the child becomes better at self-monitoring i.e. noticing their own speech errors and correcting them. Several mothers noticed that this was something that their child was getting better at:

- Frank’s mother referred to the way Frank was now monitoring his own speech for errors, including this description from Session 7, “now he is actually saying “seven” and then if he says “sev” he says “sebun” sometimes, but then he will go “oo seven”.
- Gary’s mother observed that “you can see him actually thinking about the way to put his tongue”.
- Isla’s mother recognised that Isla was learning to monitor her speech for errors. Whilst watching the SLT reassess Isla she commented that “every time she gets it wrong she looks at me because she knows, she knows and she goes “oops””.

8.2.4 The Motivators for Change

Two mothers described what they thought was motivating their child to make speech changes. Gary’s mother said that Gary was motivated to attend therapy after friends had laughed at him when he could not say a word properly. This contributed to the success of his programme as it was Gary who reminded his mother about his speech homework. Frank’s mother felt that he was aware of his speech errors and then made deliberate errors to “be funny”. She observed that Frank’s relationship with the clinician made him want to produce accurate speech, that when he produced a word correctly he told her that the clinician “is going to be so happy that I have got it”.

8.2.5 Impact of Speech Change

There were four mothers who described outcomes from the programme that went beyond segmental changes in the child’s speech. Frank’s mother related his improved communication skills to him being more mature in daily tasks. Gary’s mother reported that Gary’s reading had improved as the result of speech changes. Isla’s mother seemed surprised by the positive change in Isla’s conversation “she is talking better now, I don’t know why... and her conversation is more mature now”.

Another outcome of speech change is that the child is understood by more people. Paul's mother described numerous people understanding Paul better including neighbours, acquaintances, and his teacher. Frank's mother said that his teacher had commented on a word that she had understood.

To summarise, some of the mothers had noticed what their child had found difficult in the speech tasks and described these difficulties in varying levels of detail. Half of the mothers speculated what had caused their child's speech difficulties giving a range of suggestions. Two of the mothers talked about what was motivating their child to change their speech, one because of the child having experienced comments from his peers and the other due to the relationship he had with the clinician. When the child had made progress, the impact was reported to be not just in the child's speech and how well other people understood them, but also in some cases, in behaviour, language and reading.

8.3 Theme 3: Supporting Speech Development at Home

During their discussions with the SLT, the parents described their struggles carrying out the programme at home. The theme includes what they said about how homework was managed in the context of busy family lives, difficulties they had engaging the child and how they motivated the child to practice.

8.3.1 Managing Speech Homework

All of the mothers referred to homework activities at some point during the programme, usually at the start of the session whilst carrying out the homework demonstration segments. Some mothers asked for more information to clarify how activities were carried out, some talked about what they did and how they adapted the activities.

Clarifying Homework: Some mothers asked for clarification as to how to carry out activities:

- Henry's mother said "I didn't know if we were to do all the 'f's' or if we were only doing what was on the card".
- Josie's mother talked about being embarrassed to ask the SLT to clarify the homework tasks. "Can I be quite embarrassing? What are the noises here what you are telling her?" (sic). Also in Session 7 she asked whether there should be a gap between the consonant and vowel "sorry, to have it a word or to have it two different: sh oo or shoo?".

Following the Instructions or Adapting the Activities: Once the tasks were clarified, some mothers kept strictly to the SLT's instructions e.g. Gary's mother said that she would only practice what they had been given because she "did not want to do too much and push him too far". In contrast there were mothers who said that they adapted the tasks:

- Frank's mother reported using the target sound with her own exemplars, whilst playing I spy "we tried to get lots of 's's'". She also talked about covering the cards differently when they were at home.
- Lance was working at a single word level when his mother described adapting the activities by doing singing and alliterative sentences. She did not demonstrate so the outcome was unclear.
- Milo's mother talked about when they 'went through' the pictures before Milo went to sleep, describing a confrontation naming task rather than incorporating the pictures into games as demonstrated by the clinician.
- Paul was working on /s/ clusters when his mother described the speech practice carried out during a trip to the zoo. She talked about having practised /f/ and /s/ words giving examples "fish" and "zebra". These examples were not s cluster targets so did not link into the speech practice Paul was carrying out in the clinic although they may well have been successful.

Whether the activities were clarified and the mothers adhered precisely to what the SLT had said or that the mothers adapted what was suggested, not all of the activities worked for every child. Isla's mother made observations about activities that had not worked so well. She identified tasks that were complex and thus too difficult. She also recognised when Isla was too engaged in an activity and concentrated on the activity and not her speech.

Completing homework was something that mothers engaged with and whereas some stuck very closely to the instructions, some personalised the activities in different ways. What the mothers said about the homework illustrates how important it is for the SLT to schedule time to discuss the content of the activities to make sure it is functional for the family. This would allow for adjustments before the family leave the clinic and avoid a week of unsuccessful homework.

Engaging the Child in the Intervention. Family-friendly therapy sessions are designed to meet the needs of all of the family and are intended to be enjoyable. This was not the case for every child in this research. Milo's mother in particular described her struggle to even get Milo to the clinic in the first place. She gave multiple suggestions for his reluctance to come to therapy, including it being a Friday so he was tired, his "independent" and "stubborn" nature and the lack of routine during summer. She asserted that "despite the hassle that he gives me before we come ... then he enjoys it... it is more the thought of it than the actual doing it".

No other mothers reported difficulties getting the child to clinic, although engaging their child in therapy tasks at home was a common struggle. Some mothers reported avoiding what they thought may cause difficulties. Noel's and Isla's mother both avoided overtly correcting speech errors which might make the child conscious of their speech and reluctant to carry out activities. Owen's mother relied on a tangible reward for the activities to encourage her son "if it takes a bag of sweets every time, I will do it". Paul's mother said

that she had found several solutions, she focused on shorter utterances and avoided a formal approach: “We started a bit drilling, but it was not working and then we have done a lot a lot of play” (sic).

Whereas these mothers anticipated refusal and planned for this, four mothers talked about the real difficulties they had engaging their child, for example:

- Josie’s mother reported that Josie got angry when she could not say the word “four” which was attempted a couple of times each day. She described with a groan Josie’s difficulties attempting to imitate /s/ words by adding /h/ using the ‘aspiration trick’ (Bowen, 2006), “yeah the ... hatches she’s she’s literally, she’s had a stress every time we’ve done it, she has had a stress at me and aarrghh”.
- Milo’s mother reported that “he does like playing games and that, but I think if he realises that we are doing like the speech ones, he is like, no I am not doing that no!”.

Fitting Speech Work into Family Life. Another struggle for parents was fitting speech practice into the day. Disruptions to the practice schedule was caused by illness, packing for a move, coping with the school run, work meetings and trying to fit speech practice into the chaotic summer holidays. Noel’s mother’s description of Noel doing speech practice “whilst he was eating his cereal”, sounds like typical family life, but is not an ideal way to elicit accurate speech. These extracts illustrate how parents struggle to carry out the home activities suggested by the SLT. Family life is often fast-paced with little time to spare. Some of the children already had reading homework that they had to carry out and speech practice was one more burden.

Mothers also discussed how speech practice became part of family life, outside of ‘practice sessions’ with feedback and involvement of the wider family. In their conversations some of the mothers reported the many ways that their families were involved in therapy.

- For Isla’s mother it was supportive that Isla’s sisters “are all the time correcting her, especially the eldest”.
- Isla was observed to ‘show off’ by emphasizing the /s/ sound when visiting her grandmother.
- Frank’s mother referred to his sisters giving him high-five rewards for learning new skills which included speech.
- Lance’s mother anticipated that the presence of his brother would be unhelpful and in the first session she suggested doing homework when Lance’s brother was not around. In a later session it seems that the younger brother was involved as Lance had reportedly tried to teach him to say his name which contained his speech target.

We- ome parents described incorporating homework into daily routines e.g. Milo’s mother went through the speech activities before bedtime and reported Milo had produced a correct /f/ “last night when he was lying down we just went through all of them and he had said it”.

8.3.2 Impact on the Parent of Having a Child with an SSD

In their conversations with the SLT the mothers also talked about how the child’s speech difficulties affected them.

- Josie’s mother described how it was difficult for her to accept Josie’s SSD because she was used to her excelling at everything. This was the first time she had seen Josie struggle to acquire a skill.
- Frank’s mother recalled how devastated she had felt at the beginning of the programme when she could see how difficult Frank was finding the speech tasks. She cited when Frank was finding it difficult to sequence /f/ and a short vowel and then say the word ‘far’, “and ... I was thinking ‘Oh God he’s never gonna get it’ ... and I felt really bad cos...he can’t get ‘far’ just ‘far’”.

These extracts demonstrate how hard some of the mothers find it to witness their child struggle during therapy. They may therefore be attempting challenging activities whilst also worrying that their child is not able to make the targeted changes in their speech.

To summarise this theme, mothers described how they carried out the home activities. Some mothers described carrying out homework exactly as suggested by the clinician others described how they had adapted the activities. Their success varied, and some of the mothers reported having to find creative ways of engaging their child in the activities, with one of the mothers even having difficulties getting the child to the clinic in the first place. Fitting the homework into family life was frequently reported to be difficult however family support was acknowledged. Some of the mothers also gave compelling descriptions about the personal impact of having a child with an SSD.

8.4 Theme 4: Speech Therapy and Education

Over half of the mothers related their children's therapy activities to what was happening in their education setting. Much of what the mothers said about education related to their concerns about children acquiring literacy skills although in contrast Lance's mother expressed surprise when Lance's teacher said that she had not noticed his speech issues.

8.4.1 Relationship Between Speech Therapy and Literacy

In the interventions in this research programme there were no therapist-led activities that specifically worked on literacy or phonological awareness, yet some parents made links between what was practised in therapy and literacy as the following examples demonstrate.

Relating Speech Tasks to Reading. There is a similarity between the word-building activities typically carried out in a reception class and the syllable level activities in the traditional articulation therapy (Van Riper, 1939) carried out in the speech programme. Five of the parents appeared to be making this relationship.

- Frank’s pre-school had not yet started explicitly teaching literacy but in the first session there was evidence that Frank’s mother was already preparing for reading. This mother told the therapist “we have been doing phonics a lot more, and they have also started in school as well”. She referred to Frank’s class having learned f syllables when reading Jack and the Beanstalk. She went on to make several references to having adapted the speech activities to play phonemic awareness activities. In Session 5 she shared news that Frank had sounded out his first word from flash cards she had bought for speech practice.
- Lance’s mother said that once Lance had been given speech sounds to practice, it was Lance himself who related them to reading. Apparently “he was like what can we spell with those letters?”, and trying to “phonetic it” (sic). In subsequent sessions this mother went on to make multiple references to reading and Lance’s attempts to “sound out” his speech targets. She seemed keen to demonstrate his literacy skills to the therapist when she suggested “Lance will you sing the letters of the alphabet, your song”.
- At the end of the programme Gary’s mother referred to the positive relationship between the speech programme and literacy, pointing out that now Gary had learned how to pronounce the words, he was better able to read them.
- Henry’s mother referenced her concern that Henry may have dyslexia. She told the SLT about his reading “that does not seem to be clicking either”.
- Josie’s mother observed how her daughter found speech tasks and literacy tasks difficult. After a parents’ evening she reported that the only task Josie had not completed perfectly at school were those that related to rhyming which for her “just highlighted what our homework is actually doing”.

Reading as a Context for Speech Practice The therapist suggested that several of the children used daily reading tasks set by school as a context for speech practice, with the rationale of reducing the total amount of homework for the child. The mothers varied in how willing they were to combine the two activities.

- Noel and Lance’s mothers agreed having the words in front of the child was useful as they were already sounding out the letters.
- In contrast Isla’s mother did not want to use reading as a context because although she knew Isla could scan pages for words with /s/, she wanted Isla to read independently without adult prompts, saying “I can’t tell her the word before, otherwise she doesn’t read it herself”. Although by the following session she seemed to be considering the benefits, reporting that Isla remembered the /s/ in some of the words she read.
- Keith was not enjoying his early reading homework and so his mother felt that reading was too hard a task on its own without the addition of speech targets.

Knowing that the therapist and school shared information was important to some of the parents. Henry’s mother observed that “he spends more hours in school than at home” so asked the SLT if she was liaising with his teachers. Two mothers took the role of facilitating school-therapy liaison themselves. Gary’s mother mentioned his speech errors to his teacher who requested more information about what he was practising. Noel’s mother recalled passing on advice to Noel’s teacher to refrain from explicit correction as advised by Noel’s previous therapist.

8.4.2 Consistency Between Therapy and School

Two of the parents recognised there were potential difficulties if school and therapy approaches were not consistent. This was particularly around the way that children learn literacy. Gary’s mother was concerned that the therapist and teacher modelled vowels differently “I mean for him not to get confused”. There was evidence that Lance noticed the

adults using different strategies; his mother described how when she asked him to open his mouth wider, Lance informed her that this was not the way that the teacher said /l/.

To summarise this theme, over half of the mothers made a natural association between the speech activities that the child was carrying out and their child's education. This was either to link the development of speech and the development of reading or to link speech practice and literacy activities.

For some of the mothers, being able to relate speech tasks to learning to read was seen as positive and that reading was a good context in which to carry out speech practice. Other mothers anticipated that speech practice would negatively impact on their child's reading progress and so preferred not to carry out the two activities at the same time.

8.5 Chapter Summary

It was found that much of what the parents said in Study 2 could be coded using the framework developed in Study 1, although with the larger cohort producing more data the main themes were modified. Applying the Framework to the parent data gives insight into how parents experienced the therapy process.

Previous research looking at parent experiences of speech and language therapy has used interview data that had been collected away from the therapy setting (Davies et al., 2017; Glogowska & Campbell, 2000; Roulstone et al., 2015; Watts Pappas et al., 2016). The conversations generated in Study 2 were not dependent on the researcher's agenda. The data for this research is contemporaneous being what the parents actually said during the therapy sessions and so are not dependent on parent recall. Braun and Clarke (2013) reflect that it can be difficult to analyse the data of short answer survey questions because short answers do not provide the 'rich' descriptions that can be obtained in other data. This conversational

data was also in the form of short conversational turns, but despite this, the way that parents described their understanding and experience of the intervention seemed authentic.

The theme of ‘Becoming Skilled in Supporting Speech Development’ gave insight into how mothers understood the nature of their child’s speech difficulties and how they learned about speech intervention. What the mothers said indicated that some had an understanding of how therapy worked “clinically” and what needed to happen for changes to take place in every day speech. Some of the mothers explained how they were becoming more aware of their child’s speech patterns and some but not all could describe accurately what the child was doing. One important issue for two of the mothers was that they felt that their speech model was not adequate.

Half of the mothers engaged in discussion about speech targets, considering the acceptability of the SLT’s suggestions and giving their own adaptations. The mothers also talked about using supportive intervention strategies they learned during the intervention. There were a few references to the use of cued articulation and explicit articulatory strategies. There was a mixed opinion about changing the pace of the child’s speech. Mothers also referred to direct correction of the child’s speech, a strategy that is not used in typical therapy talk. An opinion was also shared about them being less able than the therapist at carrying out strategies. One mother described being less able than the SLT in recognising whether or not the child had made a correct speech attempt.

In the theme “Identifying Speech Difficulties and Speech Change”, mothers provided different levels of detail to describe how their children’s speech changed. Some of the changes including how the children were changing in their ability to self-monitor were attributed to what was being practised in the speech programme. Some mothers identified how speech difficulties were distressing to the child, but several described motivators to the child to change their speech. Mothers listed numerous causes for the child’s speech

difficulties, having considered genetic reasons, that the child was being lazy and that they, as parents, had a role to play in their child's difficulties with some of the mothers blaming themselves.

The theme of 'Supporting Speech Development at Home' explored the struggles mothers had carrying out speech practice at home and fitting this into a busy life. This raised the importance of discussing speech practice before leaving the clinic. Engaging the child in therapy tasks was a concern of the mothers, some anticipating that this would be a challenge. There were reports of the difficulties fitting in practice but some mothers received support from others in the family to carry out speech practice. There were several mothers who talked about the distress of witnessing their child struggle with speech tasks.

In the theme 'Speech Therapy and Education' the mothers talked about the links they made between their children's speech programme and school. Some mothers talked about the importance of consistency between the approach of the school and therapy so the child was not confused with different approaches.

This analysis shows the value of listening to what parents say during an intervention to establish what their concerns were, to clarify home practice and to discuss such topics as the causes of SSDs. I now turn to the third analysis carried out on the Study 2 data. In this analysis I use CA to make a comparison of how the SLT and the mothers introduced the tasks, how they elicited, accepted and rejected speech attempts, and how they prompted speech change.

Chapter 9

Introducing the Task and Eliciting Target Words: A Comparison of the Techniques used by the Speech and Language Therapist and by Parents in Study 2

In Chapters 6 and 7 the clinical data was analysed using a coding approach. Study 1, described in Chapter 6 showed quantitative differences in the way the mothers and the SLT used supportive speech intervention strategies. In Study 2 the coding was applied to the mothers' data in the homework demonstration segments as described in Chapter 7. The outcome was consistent with the findings of Chapter 6, but changes in the mothers' use of strategies over the course of the intervention were not found. In this chapter I will use the methodology of conversation analysis (CA) to examine the data and look for differences in the ways that the SLTs and mothers elicit, accept and reject speech attempts.

The aim of speech intervention is to move the child from a continuum of relying on adult use of supportive intervention strategies to carrying out self-repair (Gardner, 1994). The supportive intervention strategies used by the adults form part of the special interactive style used in the speech clinic that Gardner called 'therapy talk'. Gardner's work demonstrated some differences in how the SLT and the mothers used therapy talk. Gardner suggested that a wider range of mothers should be systematically compared. Such a comparison is one of the aims of this analysis.

The CA will occupy two chapters in this thesis. Chapter 9 describes how the therapist and the mothers 1) introduce the speech and language therapy tasks, and 2) successfully elicit speech targets. Chapter 10 will then analyse how the mothers and therapist evaluate speech attempts by the child and then when they reject attempts, how they carry out repair.

The first section of Chapter 9 considers the "scene-setting" preamble that adults carry out when introducing speech tasks. I will show how the SLT uses this part of the activity to

describe explicitly to the child that the point of this task is speech practice. The mothers, by contrast, will be shown to orientate the child to details of carrying out the task rather than being explicit that the aim of the task is to work on speech.

I will then consider exchanges where the adults elicit target words. When the SLT elicits attempts at targets, more explicit strategies are used. The mothers sometimes but inconsistently use supportive strategies albeit less overtly, and there are examples of success.

9.1 Setting the Scene and Introducing the Tasks

In the first section I show how the therapist is explicit in the way she introduces the therapy activity as a task in which speech teaching will take place. The mothers give a ‘scene setting’ preamble less often, and when they do I will show that they orientate the child to how the activity is carried out rather than to the activity as a speech practice task.

9.1.1 The Therapist Introduces the Task

Extract 1 Josie (4;02 yrs) Session 2: “I have to teach you some sounds”

The following extract is taken from a discussion between the therapist and Josie at the start of Josie’s second session. Josie’s speech targets have not yet been established. The speech sound imitation activity is being introduced. The extract begins as the therapist sets up her camera and is talking to Josie about mislaid pictures. Josie is sitting alone at the clinic table holding a toy rabbit with a passive expression on her face. Josie’s mother is observing off-camera.

1 J: There are the Ra[Rachel's pictures

2 T: h:::they always get to

3 the bottom don't they? the really bottom

4 O↑K

5 So

6 don't you worry about that

7 OK So

8 → >I looked at everything last week< (0.5)

9 → £ alright and I have got to do £

10 → I have decided £Guess what£

11 ((Kneels in front of Josie))

12 → I have to teach you some sounds don't I ?

13 J: mm hmm

14 → T: Did you think that might happen?

15 (1.0)

16 J: °yes°

17 T: ((glances at Josie's mother))

18 → Did you think we needed to do some sounds?
19 → Well I've got a little game ((gets up))
20 let's see if you like playing this little game
21 On my on my comp=on my iPad

At the start of this extract the SLT empathises with Josie about her lost pictures. She then signals the transition to the business of the session with “OK” in line 4 produced with a rise in pitch to herald the transition. The therapist halts the transition in line 6, offering more reassurance about the lost pictures. In a louder voice in line 7 she returns to work-talk with a repeat of ‘OK’ and ‘so’, both words stressed. The transition has now been made from informal chat of lines 1-6 to a more purposeful discussion about the previous week’s assessment data.

After a half second pause, the therapist changes to a more smiley voice, she moves to kneel directly opposite Josie, crouching at eye level, and in lines 8 - 12 announces her plan to teach sounds. The therapist delivers this information in the first person, indicating that she took the decision and that she will teach sounds. She is explicit that the purpose of the activity is to teach sounds. There is an element of mitigation in that the statement is made without reference to any difficulty Josie has producing speech sounds. In lines 14 and 18 she makes a deliberate attempt to involve Josie in this decision to work on her speech although responsibility for speech teaching remains the therapist’s.

In lines 13 and 16 Josie acknowledges the therapist’s statement that teaching speech-sounds is the task at hand. The use of ‘we’ in line 18 frames the activity as a joint endeavour. At line 19 the use of the word ‘well’ links the SLT suggestion of a game to what went before

i.e. that some sounds need to be ‘done’. This is followed up in lines 20 and 21 when again this becomes a joint activity with “Let’s see” if Josie likes the game.

Prior to introducing the speech activity, the therapist has been explicit in establishing the rationale for carrying it out. She has presented five facts: 1) that she has done the assessment; 2) speech sounds are on the agenda; 3) she has overall responsibility for the teaching; 4) this is a joint activity; and 5) Josie might like the game. This sets the stage for the activities to follow that although the SLT has the overall responsibility for the task, the child may need to focus on getting the sounds right; if they do not, the SLT may intervene.

Extract 2 Isla (6;01 yrs) Session 2 “inside not out”

This is another extract where the SLT makes her expectations explicit prior to the activity. The extract takes place part way through Isla’s second session. Isla and the therapist are sitting at the table. Isla’s mother is watching off-camera. Isla has just completed a listening task where she identified the initial sound in a list of words beginning [s] and [th]. The therapist is now telling Isla about the next task which was to say /s/ words using an alveolar rather than interdental sound.

1 T: Ok so we’ve listened to those
2 → and you know that these are all words
3 → ((moves finger along row of pictures))
4 → that we say(.) ((moves gaze to Isla)) with
5 → our tongue
6 (0.9)

7 → inside((two movements of palm toward mouth))
8 right
9 I: ((nods))
10 → T: right inside not out ((coughs))
11 and you will get to be playing Pop-up-
12 Pirate with these in a second OK
13 I: Yay
14 T: ((smiles)) I know that is what you want
15 but first of all let's just do a little
16 → memory game just so that we can say them
17 ((turn over pictures together))

The therapist begins the introduction to the activity in line 1 by referring to one of the learning points from the previous activity, that the /s/ onset targets in front of them were produced as alveolar rather than interdental sounds. The description uses simple language and a gesture that reminds Isla to keep her tongue inside her mouth. In line 2 the SLT points to the targets. The term ‘pictures’ would have emphasised the semantic referent, instead the SLT describes them as ‘words’. This keeps speech as the target of the activity. There are pauses in the explanation and in line 4 the therapist gazes at Isla marking that what she is

saying is important. In lines 4 – 8 she describes how /s/ is articulated repeating the gesture to keep the tongue back.

In lines 11 and 12 the therapist interrupts her preamble to encourage Isla's cooperation with the knowledge that she would soon have the opportunity to play a favourite game. In line 16 the SLT again is explicit that speech is the justification for the activity; they were carrying out the memory activity specifically so that they could 'say' the words. In these 17 lines, Isla has been given a rationale for the task, with multiple reminders that it is a speech rather than a naming task. She has also received several very explicit instructions about tongue position.

These two extracts are examples of how the therapist provides children with the explicit message that they have come to therapy to work on their speech. The children in the extracts are at different points on a continuum of tacit to explicit metalinguistic awareness (Rees, 2001). Despite these differences the therapist was consistently explicit that the focus is on speech rather than the semantic referent. For Josie the message was vague about learning sounds without further elaboration. Isla has already commenced her speech programme but the therapist uses the introduction to the activity to give her multiple and explicit instructions about the speech changes she is required to make.

I now turn to parents who, in the family-friendly model of therapy, play a key role in speech intervention. Either parent could have carried out the activities, but in this research consent was obtained from the mothers so my analysis is about the mothers in therapy. I will examine how the mothers introduced the tasks showing that when they give explicit instructions these are about how to carry out the activity rather than about speech changes.

9.1.2 The Mothers Introduce the Task

In this corpus of data almost all of the mother-child homework demonstration segments began without an introduction. Of the few occasions in which the mothers started

the activity with an introduction, the two extracts displayed in this section are the longest. They display how the mother makes the transition from mundane conversation to therapy activities. There are within the introduction, multiple opportunities for the mothers to explicitly reference the speech activity and what is special about the target words. This is of course the reason for attending the speech clinic. What will be shown is that the mothers focus instead is on how to play the game.

Extract 3 Owen (5;01 yrs) Session 4 “Daddy get two coins out”

This extract takes place in Owen’s fourth session. Both parents are present while the therapist observes. Owen is seated on his father’s lap holding playing cards to be used in the activity. Owen’s mother has just asked her husband to find some coins for the activity.

In the first part of the extract, two columns of five cards are set out on the table. Owen’s mother appears to be familiar with this activity, but setting it up required some organisation. In the second part of the extract it is established that Owen’s father will take the role of ‘listener’ and will move the coins up the rows of cards.

- 1 F: OK ((reaching into pocket for coins))
- 2 [you go there] ((moves Owen to the table))
- 3 → M: [are you gonna] ((points at table))
- 4 → [put them out for us in fives ?]
- 5 F: [Daddy get two coins out] ((reaches into
- 6 pocket))

7 O: ((Owen stands studying the cards))

8 (2)

9 → M: ((leans forward)) Mummy do one while you do

10 → another OK

11 ((Owen and mother place cards in rows))

12 (10)

13 ((Father puts two coins on the table))

14 O: ((looks at mother))five

15 M: alright that's them

16 O: eh (moves to stand between father's legs)

17 D: °well you put the coins first°

18 M: ((places coins at the bottom of rows))

19 D: shall I move my chair ((points to end of

20 table))over there a bit

21 → M: right you've got to tell(.)

22 → your daddy do it with you

23 → so you've got to

24 → [tell Daddy which one he moves]
 25 D: [you do it]

26 M: ((turns to Dad)) no you just move the coins

27 D: ah right

28 M: ((looking at Owen))

29 → you tell us which what

30 → which one you want us to move

This extract differs from the others in that two adults are involved. It is examined because it is one of few occasions where a mother gives a detailed explanation of a therapy task. Owen's mother leads the activity and much of her explanation is directed at Owen's father who seems unfamiliar with the rules. There are however a number of instructions given to Owen about the game they are about to play.

The extract begins as Owen's father moves Owen from his knee to search for the coins that are needed for the activity. In lines 3 and 4 Owen's mother instructs Owen to place the cards in two columns using a rhetorical question. Owen does not immediately respond to the request and in line 7 studies the cards. Owen's mother prompts his participation in lines 9 and 10 with the suggestion that she starts the task. In lines 11 and 12 they silently complete this task taking 10 seconds to do so.

Once the cards are in place, the second part of the preparation, assigning the role of the listener, begins. In line 17 Owen's father speaks quietly to Owen to ask him to place the coins and then in line 19 and 20 suggests that he move his own chair away. In lines 21 - 24

Owen's mother insists on his participation. In line 25 Owen's father makes another bid to have his wife carry out the task, but in line 26 he is told that he is to move the coins. In line 28 Owen's mother looks back at Owen's father giving him one more clarifying instruction.

In lines 21, 24 and 29 Owen's mother instructs Owen to 'tell' Daddy which coin to move but gives no hint about there being anything special about how he will say the words. The instructions for the activity were explicit but there was no reference to this being an activity designed to practice speech.

Extract 4 Paul (4;02 yrs) Session 3 "Shakey shakey"

In this extract the therapist observes Paul and his mother demonstrate a homework activity which involves practicing production of s cluster words. There are a number of picture pairs depicting words which begin with /sp/ which Paul's mother is setting out on the table to play pelmanism. The picture cards are placed face up and a pack of playing cards depicting Minion characters are used to conceal them. In the lengthy introduction Paul's mother has multiple opportunities to talk about the /sp/ pictures, in fact the only picture that she does label and therefore model to Paul is the picture of the joker which has captured Paul's interest. Paul's mother engages in a verbal routine prior to the pelmanism activity that is being carried out to practise his speech target, but it is unlikely that the word 'shakey' used to accompany shuffling was specifically selected. The word 'shakey' and the target cluster /sp/ share an initial grapheme 's', but in articulatory terms they are different; 'shakey' begins with [ʃ] and 'sp' begins [s].

1 M: O ↑ka:::y

2 (1.5)

3 → now d'you wanna give them a shake?

4 (1)

5 → ((looks at Paul) like we do? (.) at home

6 → do you wanna give them a shake?

7 ((leans forward and starts to move cards))

8 sh: sh sh [akey sha::key]

9 P: [akey sha::she]

10 y: [a::::key::]

11 → M: [wanna shake] those two as well (1.0)

12 → ok ((rearranges pictures into neater lines))

13 P: Xxxxx

14 M: m mm hmmm

15 P: xxxxxx them hand

16 → M: ok so here ((gives Paul some cards))

17 → you have some let's put them on and we play

18 → the game ((both participants set out cards))

19 (5)

20 P: ((displays card))I have ([pulut zuraidis])

21 ((looks at card shrugs and places it on table))

22 M: Ok

23 >come on darling<

24 there excellent ((nods))good boy

25 P: ((holds up Minion card))where ([dikalaŭ])?

26 M: ((looks at card))ah the joker

27 come on put it on that give me one more

28 ((takes joker from Paul's right hand))

29 there you've got two ((uses card to cover game

30 card)) °Ok° ((rearranges cards))

31 (5)

32 P: ((leans forward to place the last card))

33 M: Excellent (.) OK so who's going to start ?

34 P: ME ((raises hand))

35 M You

In line 1 Paul's mother begins the introduction to the homework with an extended 'OK' marking the transition into the activity. In line 3 she invites Paul to join her shuffling

the cards. He does not immediately respond so perhaps to give her suggestion context, in line 5 she reminds him that they do this at home. She repeats the invitation in line 6 and in line 7 she proceeds to shuffle the cards herself. In lines 8 – 10 Paul and his mother chant ‘shakey’ together as they move the cards around the table. In line 12 Paul’s mother appears satisfied with the shuffling and transitions to the next part of the task with ‘OK’. Paul makes an unintelligible comment in line 13 to which his mother responds with “mm hmm”. In line 16 Paul’s mother responds to another unintelligible comment with “OK” and then moves her focus back to the cards. Paul does not pursue his mother’s non-response to line 15. In lines 17 – 18 Paul’s mother suggests they conceal the pictures with the Minion cards. They do this in silence. In line 20 Paul makes another comment about a card, the neutral response of “OK” in line 22 indicates that again he was not understood. Her encouraging “come on darling” in line 23 seems like an attempt to move on, Paul responds in line 24 by placing another card, an action which earns him praise. Paul comments about the whereabouts of another Minion card in line 25, he holds it up to his mother who tells him it is the joker. In lines 27 to 30 Paul’s mother continues to encourage him to place the cards she covers the game cards. They continue in silence and then Paul places the last card in line 32 which earns more praise.

The cards are now laid out, and in line 33 Paul’s mother marks the transition to the pairs activity with a further ‘OK’ and then asks who will start. Paul responds enthusiastically to this question by raising his hand and shouting “me”.

The speech task introductions shown in this section demonstrate that even prior to the presentation of the first target the mothers approach to ‘therapy talk’ is different to the therapist. The mothers explained the activities in detail, referencing the rules of the activity and where equipment was to be placed. In extract 3 the instructions were particularly detailed but this may be for the benefit of Owen’s father who seemed unfamiliar with the

activity and reluctant to join in. In extract 4 the activity moves at a particularly gentle pace. Even before the speech task had started Paul received three turns of enthusiastic praise, but at this point what was being praised was placement of the cards. As the target pictures were slowly placed on the table, there were multiple references to how well Paul was doing but this was not praise for Paul's speech. Paul's mother made no reference to what was depicted which would have provided Paul with models of the speech targets. In contrast to what was seen in the SLT preamble, the focus of these parent extracts is on how to carry out the activity rather than how the words should be said which after all is the point of the activity.

9.2 How Adults Elicit Speech Targets from the Child

The elicitation of a speech target typically incorporates a model of the target word which has been suggested to increase the likelihood of accurate speech (McCartney, 1989). The aim of the therapist is "to present the targets 'in the clear', uncontaminated by the effects of surrounding speech" (Gardner, 1994, p.59). The features of therapy talk as described by Gardner (1994) are that the therapist establishes mutual gaze along with a pause and intake of breath prior to the presentation of the target. The crucial phonetic aspects of the model are amplified by stress, added loudness and duration. Additionally, the therapist may offer the child support in the form of articulatory information about their speech targets. The extracts that will now be discussed will show how adults in this study elicited speech targets.

9.2.1 Therapist Supportive Elicitation of Target Words

By explicitly introducing the task as a speech task, as described in the previous section, the SLT has already framed the task as one where the child is required to produce words in a special way. In the data there were multiple examples of the SLT skilfully and successfully eliciting target words, the ones presented here were selected to demonstrate the variety of strategies used by the SLT.

Extract 5 Owen (5;00 yrs) Session 2 “Can you copy me?”

In this extract the therapist is sitting at a small table opposite Owen. Owen is sitting on his father’s lap with his mother beside them. The therapist has completed her evaluation of Owen’s speech and identified the error pattern of s cluster reduction. She asks Owen’s mother for Owen’s reading book and identifies a potential target “scales” in the book.

- 1 → T: ((gazing at Owen)) s:cales
- 2 → can you copy me doing that word?
- 3 → look like this ((makes s cue)) s:cales
- 4 M: ((gazes at Owen)) you

do it
[°s:kɛɪlɪs°]

 ((nods))
- 5 O:
- 6 T: ((gestures thumbs up))

In this short exchange at the start of Owen’s programme, the therapist was explicit that the task was about speech. In line 1 she gazes at Owen indicating that something important is to take place, the speech target [s] segment is lengthened for emphasis. In line 2 she explicitly asks Owen to copy her ‘doing’ the word. ‘Doing’ would be an unusual way to ask a child to carry out a reading task, thus in this extract the instruction focuses on the imitation of speech rather than the task of decoding the written word. In line 3 the therapist repeats the word and exaggerates the speech target with length and the addition of a supportive articulatory cue, making a s shape at mouth level with the finger. In line 4 when Owen makes no response, his mother encourages him to “do it”. His response in line 5 is low in volume but his response is an imitation of the SLT’s target. Like the SLT, he extends the

sound and his s is interdental, but he includes both segments of the cluster so the version is evaluated as successful with a thumbs up from the SLT.

Extract 6 Keith (5;03 yrs) Session 1 “leg”.

The therapist is sitting at a low table opposite Keith, setting speech goals after the completion of his assessment. His mother watches off-camera.

- 1 → T: so I say it
- 2 → this one ((points to picture))like this
- 3 → ((gazing at Keith, head still, giving Keith
- 4 → a view of her mouth)) 1::

eg
<u>l</u> :eg
- 5 K: ((Keith gazes at therapist))
- 6 T: ((raises eyebrows)) you changed it! ((Points at
- 7 Keith, smiles))
- 8 K: ((smiles))
- 9 T: you said it with your tongue ((points to
- 10 tongue)) right ((nods))
- 11 K: ((nods))
- 12 T: and do you think it would be a good
- 13 idea if we practised that?
- 14 (1)

15	T: ((gazes at Keith)) l:	eg
16	K:	leg

Keith has an error pattern where /l/ is glided and realised as [w]. This is the first time the therapist has attempted to address this pattern. In lines 1-4, under the guise of telling Keith how she says the target word, the therapist’s gaze and steady raised head followed by a slow and exaggerated “leg” invites a response from Keith. In line 5 Keith joins her with a response that was also exaggerated. In line 6 the therapist feigns surprise at his response, and accepts it with raised eyebrows and an excited point towards Keith. In line 8 Keith returns the SLT’s smile as they share pleasure at his achievement. In lines 9-10 the therapist makes an overt closing evaluation of the change that has taken place. She refers to Keith using his tongue, marking the task as about speech rather than the lexical referent. The therapist refers to the change without making a judgement about previous versions being inadequate. Keith nods in agreement in line 11, his attempt has now been accepted without inviting further work. In lines 12 and 13 Keith is asked if it would be a good idea to practice the sound. This is a short version of the preamble at the start of the whole session. Without waiting for an answer, but after a one second pause the therapist leans towards Keith and gazing at him slowly articulates the word again. This has the effect of eliciting a second successful attempt at the target.

In these two extracts the SLT adopts a style that is overt and explicit about the need for speech change. The way that the therapist formulates the elicitation marks the task out as something special. Owen is asked to copy the therapist ‘doing’ the word which is an unusual way to begin what looked like a reading task. In a reading task we would possibly have expected her to ask “what is this word?” In extract 6 the therapist talks about the way she says the word and suggests further practice. In both extracts, when offering a speech model,

the SLT gazes at the child giving a clear view of her mouth. Owen was given a model and an articulatory cue, Keith was offered an exaggerated and lengthened model. Keith surprised the therapist by producing the first approximation of /l/ of the programme, a sound that was produced interdental. We will see in Chapter 10 examples of rejection and subsequent repair. However, in these examples the adult accepts versions that are not completely accurate. What the child has produced is an attempt that is better than before along the continuum of ‘child’s usual error’ to the ‘target accurate speech’. Both cases are accepted promptly, Owen gets a thumbs up and Keith receives an explicit evaluation that tells him exactly what the therapist was pleased about.

I will now turn to ways that the mothers elicited speech attempts from the child. I will show that the mothers do sometimes successfully use some of the therapy talk strategies, although there are also occasions where targets are elicited in a way that does not make explicit to the child that work is being done on their speech.

9.2.2 Mothers’ Elicitation of Target Words

In Section 9.1.2 it was demonstrated that when introducing the speech tasks, the mothers focused on carrying out the activity rather than the speech tasks. In the next section I move on to how these speech tasks are carried out. I will show some of the frequent examples where mothers, despite being less explicit than the clinician, went on to successfully elicit child speech attempts. The most frequent parent first turns were formulated as part of a ‘naming’ game, picture description or a matching activity. In the previous section it was shown that when the activities were carried out by the therapist, her demonstration had included modelling, reference to articulation and visual cues. The following extracts display examples of mothers using some of the same supportive strategies, although at times targets are elicited with no overt support.

Extract 7 Frank (3;11 yrs) Session 5 “Spiders on a bed” (a)

This extract is taken from Frank’s fifth session. Frank’s mother is sitting beside Frank, showing the therapist his homework worksheets which depict words beginning /sp/.

- 1 M: but then he drew some
- 2 s: [piders on the chair and on the bed]
- 3 → ((gazes at Frank and points at the words))
- 4 F: ((looks to where mother is pointing))
- 5 → M: can you say s::piders: on the chair?
- 6 ((moves finger away from picture))
- 7 F: s:piders on the [dæ]
- 8 M: ((points to words)) 's:piders 'on 'a 'bed

This short extract shows Frank’s mother successfully modelling a /sp/ word in a phrase. Lines 1 and 2 were directed to the therapist but after lengthening the [s:] segment at the beginning of “spiders” she turned to gaze at Frank. She points to the words written under the picture possibly to alert Frank to the activity being about recalling the words describing the picture. In line 4 Frank looks to where his mother is pointing. Line 5 is formulated as a request for Frank to describe the picture but additionally provides Frank a model for imitation. The mother’s model uses prolongation to emphasise the /s/. Asking Frank to ‘say’ the utterance explicitly frames the task as a speech task and not as a request for information. Frank’s mother has not asked Frank ‘what’ is in the picture, rather she has asked him *if* he can say the words. Frank repeats the words in line 7, and glossing over his articulation of “chair” Frank’s mother signals her acceptance by confirming her interpretation.

Extract 8 Lance (5;01 yrs) Session 2 “Remember where to put your tongue”

The following extract is a rare example of a mother being explicit about how words or speech sounds were articulated. Lance’s mother makes explicit reference to articulation albeit after she had made five bids for Lance’s attention. The extract is taken from the start of Lance’s first homework demonstration segment. Lance and his mother were at the clinic table with the SLT observing. The activity was for Lance to imitate his mother producing syllables beginning /l/. A successful attempt would earn Lance a brick to stack onto a tower.

- 1 L: ((putting toy on tower))
- 2 M: ((gazing at Lance)) Lance concen=
3 look at Mummy ((points at tower))look
- 4 L: ((looking at toy)) aaahs
- 5 M: look (xxx)Lance
- 6 L: ((briefly looks at mother then at toy))
- 7 → M: remember where to put your tongue
- 8 → l:: o ((leans forward gazing at Lance))
- 9 L: ((putting toy on top of the tower))
10 let's put it on
- 11 M: [a?] ((points finger towards tower))your turn
- 12 L: let's put it the guy
- 13 M: Lance ((pointing finger in front of Lance))

14 L: ((turns to look at mother))

15 → M: you didn't do it l:: [::: o]

16 L: [l:: ao]

17 M: good boy

At the start of the extract Lance is caught up with the toy he had brought into the session rather than focusing on the speech task at hand. His mother tries to focus his attention in line 2 by instructing him to concentrate, interrupting this request to ask Lance to look at her. In line 4 Lance's visual attention is on the toy he had brought to play with. Another request for Lance to 'look' in line 5 resulted in a fleeting glance but Lance's attention returns to his toy. Although she has not succeeded in engaging his visual attention, in lines 7-8 Lance's mother models the syllable along with a verbal instruction about tongue placement. She leans forward and gazes at Lance, signalling that something important is expected. In lines 9 and 10 Lance makes a bid to put the toy onto the tower which would bring the activity to a close, but he is stopped in line 11 with a reminder that he has to take his turn. In line 12 Lance again asks for the man to be placed on the tower, but in line 13 his mother stops him by calling his name. In line 14 Lance turns to look at his mother and she reformulates the model from line 8, this time producing a more extended /l/ which Lance imitates successfully.

The extracts discussed so far in this section showed that there were occasions that the mothers successfully used strategies characteristic of what Gardner (1994) refers to as therapy talk. The mothers gazed at the child expectantly, signalling something of importance. They then use the supportive strategy of distorting the phonetic signal by lengthening the

target phone. There was also a rare example by Lance's mother of an overt reference to the articulation of the speech sound.

Within the data not all of the mother's elicitation were accompanied by supportive intervention strategies. I now show two extracts that show the mothers eliciting and accepting target words without any reference to the special nature of the activity. Successful outcome in a speech task is not always determined by how much support the adult offers. In fact the long-term aim of the speech programme is that no strategies are used and that the child self-monitors their own speech (Gardner, 1994). The children in this corpus however are all at an early stage in therapy when it is unlikely that the adults are anticipating self-monitoring, so the use of supportive strategies would be expected.

Extract 9 Frank (3;10 yrs) Session 4 "What are they?"

In Session 4, Frank was playing a pelmanism game with near minimal pairs of fin/bin and Fee/pea, where "Fee" had a referent known to Frank and his mother. Frank has just shown his mother the pair of pictures that he has found.

- 1 M: So
- 2 → what are they? ((gazes at Frank))
- 3 F: ((shows pair of pictures)) bin
- 4 M: bin ((Frank hands her the pictures))
- 5 right go on

This extract is one of the simplest examples of an IRE sequence (Mehan, 1979) eliciting a target. In line 2 Frank's mother offers the elicitation "what are they?" using a plural to refer to the pair of pictures Frank was holding. Frank had named these pictures with

his mother earlier in the activity. Frank's mother gave no context as to why she was seeking the name of the picture. There was nothing in the question apart from her gaze that overtly indicated to Frank that his response would require special attention, despite this, Frank's response in line 3 was an accurate label, using the singular "bin". In line 4 his mother evaluates his response by mimicking it, a 'redoing' described by Tarplee (1993) as marking acceptance. Further positive evaluation in line 5 closes the sequence by indicating a move to the next target.

Extract 10 Henry (4;10 yrs) Session 4 "Good job"

This first extract is taken from Henry's fourth session which, due to family circumstances, is his mother's second session. Henry and his mother are demonstrating to the therapist the pair of words they had practised. After eliciting a successful attempt at the picture "dish", Henry's mother points to the next picture.

- 1 → M: ((points at a picture)) and this is a?
2 → ((leaning forward, gazing at Henry with mouth
3 → in /f/ position))
4 H: ((makes f cue))[f: (.)'Is]
5 M: a fish ((smiles and sits up))good job

In line 1 Henry's mother formulates her elicitation as a sentence completion task. She then leans forward in line 2 and fixes her gaze on Henry, marking this as an important task. She does not offer an explicit description of what Henry needs to do, but the position of her teeth in line 3 is a visual cue for a labiodental sound. In line 4 Henry produces an extended

[f] accompanied by an articulatory cue and then, after a slight pause, produces the rest of the word albeit with an alveolar rather than palatoalveolar as the final fricative. Henry's mother confirms her acceptance of the attempt by repeating it in line 5 and offers Henry a smile and verbal praise.

Extract 11 Josie (4;02 yrs) Session 6 "Say that one"

In this extract Josie is practicing the production of /sV/ syllables. The syllables were represented by a snake and pictures of vowels from the 'Bigmouth' programme (Hughes & Ramsay, 1994) pasted into greeting cards. The extract begins as Josie is examining the equipment, humming quietly, while her mother and the therapist chat about her upcoming transition to reception class. Josie's mother reprimands Josie for handling the picture cards and then begins the activity.

- 1 → M: ((Places target card on table))
2 → ((gazes at Josie)) say that one
3 J: ((looking at card)) s: (.) ↓ʔa:
4 M: ((looking at card)) good girl

In line 1 Josie's mother begins the activity by placing the target on the table with no preamble at all. In line 2 she asks her to 'say' the syllable whilst gazing at her. Josie looks at the card in line 3, she produces the syllable, albeit with a slight pause between the two segments. To signal acceptance in the next line her mother offers praise.

The extracts discussed in this section show that the mothers do at times offer supportive models to the child. Gardner (1994) describes how in 'therapy talk' the adult gaze towards the child signals that something important is expected. In these extracts the mothers

are seen to gaze at the child, but they are not explicit about what that *something* is. The mothers are less likely than the clinician to overtly draw attention to the articulatory properties of the speech sounds and the need to change speech.

In only one of the extracts, extract 8, Lance's mother referred to Lance using his tongue. Two of the mothers, Henry's and Frank's, exaggerated the speech target in their model but did not support this with explicit instructions about how the child could respond to the model. There may be multiple reasons for the lack of overt support from the mothers. CA only describes what happened and not the motivations of the participants. Frank had very quickly learned how to produce acceptable versions of the target sounds, so his mother may well have already decided to move on to independent production. In Josie's case, she had just been reprimanded so it could be that her mother wanted to quickly move on to filming something more positive. CA does not seek to offer such explanations.

9.3 Chapter Summary

Using a CA methodology, I have demonstrated that the SLT is explicit in how speech practice and phonetic repair is cited in the preamble to activities and that this forms an integral part of therapy talk. Presented alongside are examples of the mothers carrying out similar tasks. When parent data was examined, there was a noticeable absence of any sort of explicit speech-focused introduction to the activities. In the small number of examples of the mothers introducing the activities to the child, they focused on the procedural aspects of the tasks, describing how the activities were carried out rather than identifying to the children that they had to do anything special with their speech.

The analysis builds on the work of Gardner (1994) who used CA to establish some of the characteristics of the special talk that the SLT uses while working with children with SSDs. Gardner's work identified the use of gaze, pausing, speech perturbation and cued

articulation to elicit speech targets. The extracts presented show that over 25 years later similar explicit and supportive intervention strategies are used to elicit attempts at speech targets. The analysis goes on to show that despite there being examples of the mothers successfully eliciting speech targets from the child, as a group they used fewer explicit supportive intervention strategies to elicit targets than the SLT.

In Chapter 10 I will make a comparison of the way adults evaluate children's speech attempts in the speech clinic. Since not all exchanges result in success, I will compare how the SLT and mothers reject the child's attempts at speech targets and how further work is projected. I will show how SLT evaluations are overt and explicit in what they ask the child to do. The way that the mothers are less explicit in how they offer evaluation and, where necessary seek repair, will be compared.

Chapter 10

Accepting, Rejecting and Prompting Speech Attempts: A Comparison of Techniques Used by the SLT and by Parents in Study 2

This chapter concludes the CA of Study 2 data. In the first section, I compare extracts where the therapist and the mothers evaluate successful attempts at target. The adults respond in different ways, with the therapist acceptances more likely than the mothers to give explicit feedback about the child's speech. I then describe exchanges in which the adults seek improvement from the child by rejecting their speech attempt. I will demonstrate that the mothers and the SLT, after rejecting the child's speech attempt, vary in how explicitly they go on to offer support for another attempt. The chapter concludes with examples of rejections where the outcome does not appear to be what the adult had intended and does not move the child along the continuum of accuracy.

10.1 Techniques Used by the SLT and Parents to Accept the Child's Speech Attempts

Adult receipts of the child's attempts, whether verbal or non-verbal, have been said to be pervasive in task-related activities (McHoul, 1978). These receipts serve to indicate the adequacy, or otherwise, of the child's speech attempts (Tarpsee, 1993). In this section I will make a comparison of receipts that offer acceptance by the SLT and the mothers and will show some similarities. I will also show that the SLT frequently gives the child more information about what is being accepted than the mothers.

10.1.1 Acceptance by the SLT

In the data, there were numerous acceptances from the SLT of the children's speech attempts. Some acceptances were simple and delivered promptly with no accompanying evaluation of what the child had done. This was not however always the case, some SLT

acceptances were delivered with explicit feedback to the child about what they had done.

The following extracts are examples of how the SLT acceptance evaluates the child's speech attempt with information about their articulation of the targets.

Extract 1 Frank (3;09 yrs) Session 1 “Yes! Like that!”

This extract is from the first session in Frank's programme which, at this point, is targeting the production of /f/. Once Frank established how to sequence from [f] to a vowel in nonsense syllables, the SLT introduced monosyllabic words based on these syllables. Frank is building a train track from the track pieces earned for making accurate attempts at imitation. The clinician observes that Frank has four train carriages and targets the word “four”. Frank is kneeling on the floor gazing up at the SLT, his mother is watching off camera.

- 1 T: can you remember how to say that word (.) four
- 2 F: [f:] ((closes lips as if to produce [b] but
 then returns to labiodental position)) (.) four
- 3 → T: ye::s like that

In line 1 the SLT elicits the target, not by asking Frank what the word is, instead she puts the focus on speech and asks Frank if he can remember how to *say* the word. This highlights speech and the articulation of the word. In line 2 Frank begins his attempt with [f] but does not make a smooth transition to the vowel. He puts his lip into the position to produce a homorganic stop, but then halts his attempt. He restarts, successfully sequencing from [f] to the vowel. In line 3 the SLT accepts this attempt with an enthusiastic and extended “yes” which is followed by “like that”. This acceptance does not only give Frank

praise for his speech attempt, it refers back to him remembering *how to say* the word. Frank is told that the task he was set has been achieved. This acceptance keeps the focus on the task as a speech task rather than the target as a lexical item.

Extract 2 Keith (5;03 yrs) Session 1 “You said it with your tongue!”

In this extract, also examined in Chapter 9 as extract 6, the SLT and Keith are looking at some pictures beginning with Keith’s target sound /l/. Keith’s mother is watching off-camera. The SLT begins the exchange by pointing at one of the pictures.

- 1 T: so I say it
- 2 this one ((points to picture))like this
- 3 ((gazing at Keith, head still, giving Keith
- 4 a view of her mouth)) l:: $\left[\begin{array}{c} \text{eg} \\ \text{ɭ:eg} \end{array} \right]$
- 5 K: ((Keith gazes at therapist))
- 6 → T: ((raises eyebrows)) you changed it! ((Points at
- 7 → Keith smiling))
- 8 K: ((smiles))
- 9 → T: you said it with your tongue!
- 10 → ((points to tongue))right((nods))

Following on from the supportive elicitation in lines 1 – 4, Keith imitates the SLT’s model in line 5. The sound is interdental rather than alveolar, but is the first time Keith has

used an approximation of /l/ in the clinic, and in lines 6/7 the SLT responds by pointing at Keith in excitement. Her smiles indicate unequivocal acceptance. In addition, the clinician tells Keith that he has changed the word, following up this assertion in line 9 with a very specific evaluation of his articulation, using words and, perhaps to make the message clearer, in line 10 adds a visual by pointing to her own tongue.

Extract 3 Isla (6;01 yrs) Session 1 “Did you hear how good it was?”

In this extract the SLT introduces Isla to the target /s/ in words which were to be produced with her tongue in alveolar rather than interdental position. She is suggesting words ending in /s/ that Isla could imitate. Isla and the SLT are sitting at the clinic table. Isla’s mother is watching.

- 1 T: even (.) can we do a word like this ((gazing at
2 Isla))(.) [haʊs:] ((makes s cue))
3 I: [haʊs:] ((makes s cue))
4 → T: ((sits back in chair, smiles at Isla and claps
5 → hands)) that was good did you hear how good it
6 → Was

In line 1 the therapist gazes at Isla which signals something important. The therapist models the target with the support of an articulatory cue. Isla imitates the therapist in line 3, also producing an articulatory cue. This attempt is immediately accepted by the clinician, with clapped hands and a smile. The SLT follows up the praise in lines 5 and 6 with a rhetorical question, drawing attention to not simply what was *said* but more explicitly that what they *heard* was being praised.

In this section I have shown three examples of the way the SLT accepted the child's speech attempts. The evaluation is given promptly and it was made explicit to the child why the clinician was pleased with their attempt. Thus acceptance is given overtly, that it was their speech that had changed, that the clinician had seen and heard the change.

10.1.2 Acceptance by the Mothers

I have shown in the previous section acceptances given to the child by the SLT that demonstrates how the therapist promptly and explicitly identifies to the child why their attempt is being accepted. This gives the child feedback about the acceptance which they could use when making a subsequent attempt. I will now examine how the mothers evaluated and accepted the children's attempts at speech targets. These acceptances share some qualities of the prompt and simple SLT acceptances. The praise given by the mothers is overt but in contrast to the SLT there were no examples of the mothers indicating to the child precisely why they were receiving praise.

Extract 4 Frank (3;10 yrs) Session 4 "Oh you are funny!"

In this extract, from the start of Session 4, Frank and his mother demonstrate the pelmanism game they had played at home. Frank's mother sets out the pairs of pictures face downwards on the table whilst Frank and the therapist observe.

1 M: ((looks at Frank))so are you gonna pick up two
2 cards ((holds up two fingers))(0.7) go on
3 then((points at pictures))you're gonna pick up two
4 cards and see if they are the same and then you can
5 say what they are

6 F: ((leans over pictures studying them as the pictures
7 can be seen through the thin paper))
8 (2.0)
9 M: ((chuckles))
10 F: ((Frank picks two cards and holds them up))
11 M: oh you are funny OK what is it? ((leans towards
12 Frank))
13 F: [bi]
14→ M: Pea

In the first 5 lines, Frank's mother talks Frank through the start of the activity instructing him to select a pair of pictures, although she gives no indication of the 'special' speech nature of the task. The first part of the instruction in line 1 is formulated as a question; Frank is asked *if* he is going to pick up the cards. In lines 3-5 Frank's mother uses a verbal and non-verbal prompt following up by reformulating the question into a command, she stressed the words 'see' and 'same' but gave no indication that there is anything special about what he has to say. Frank responds by leaning over the pictures and scrutinising through the reverse of the thin paper to see which pictures match. His mother waits for a response laughing in line 9 and after he holds up a pair in line 10 comments that he is funny. As no target word has been forthcoming, Frank's mother makes another attempt at elicitation in line 11 by asking him 'what' the pair is, eliciting one word for both pictures. Frank offers the correct label 'pea', using a voiced rather than voiceless bilabial stop which Frank's mother glosses over by a simple acceptance, confirming in line 14 that she understood 'pea'.

Extract 5 Milo (3;11 yrs) Session 4 “Yay!”

The next extract is another example of a mother using simple acceptance, this time in a collapsed form. Milo is naming the pictures that begin with his target /f/ that he has already practised for his homework, demonstrating to the SLT what was practised. The series begins as he correctly names the picture of a fairy.

- 1 Mi: fairy
- 2 → Mo: and that one
- 3 Mi: Four
- 4 → Mo: and that one
- 5 Mi: Fire
- 6 → Mo: and that one
- 7 Mi: fire engine
- 8 → Mo: Yay

In this extract Milo’s four attempts at words are all accepted by his mother. The acceptances are in a collapsed form (Maynard and Marlaire, 1992) such that the acceptance is delivered in the form of moving on to the next turn in lines 2, 4 and 6. Overt praise is not given until line 8, when Milo’s mother gives Milo praise for having completed the series. She does not however give a rationale as to why she is giving the praise. Milo knows that his mother is pleased with him, but he has no information as to why.

Extract 6 Paul (4;02 yrs) Session 3 “Good boy”

In this extract, which shows two supportive elicitations and how they are accepted, Paul and his mother are sitting at a small clinic table. The therapist is observing off-camera. The extract takes place a few minutes after Extract 4 in Chapter 9 in which the dyad set out the card pairs for the pelmanism game. The pairs of cards portray words beginning /sp/ which is Paul’s target cluster. Paul’s mother has just uncovered a picture of a spoon. She is about to uncover the second card of her turn.

- 1 M: and this one ((uncovers card, takes a breath, looks at
2 Paul))
3 P: yea::::: ((raises hands in air))
4 M: so what is it? ((makes s cue))
5 P: s: ((makes s cue)) pot
6 → M: and what do we say? ((makes s cue))
7 s: [n:: ap]
8 P: [s: ((makes s cue)) nap]
9 → M: good boy

In line 1, Paul’s mother uncovers a picture. It matches the one on the table so she has ‘won’ a pair. With a small intake of breath, she looks at Paul and he gives a cheer. Although she has found a pair which is the object of the game, the speaking part of the task has yet to be completed. In line 4 Paul’s Mother makes an attempt at eliciting the target by asking him what it is. She supports her question with an articulatory cue without a verbal model. In line 5 Paul successfully provides an extended /s:/ and a gap before the rest of the word.

Acceptance is not overt, but by moving on, Paul's mother signals that his attempt was good enough. In line 6 she asks Paul what they say when they find a pair. This is another opportunity to practice a word initial s cluster. Without giving Paul chance to answer, she models "snap". Paul joins in with his mother, imitating both the word and the articulatory cue. His attempt is accepted with praise.

In this section I have shown three examples of the way the mothers typically accept their children's speech attempts. The mothers offered evaluation promptly, with praise featuring strongly. The parents made it clear to the children that they are pleased with the children. Within this corpus of data, when compared to the SLT's acceptances, we see that the mothers are explicit in accepting with praise but they do not give the child explicit information about why their attempt is being accepted. As a consequence, children get no feedback from the mothers that they can use when making other speech attempts.

What has also been shown in this section is that what counts as 'success' in a speech programme may not necessarily be the equivalent of an adult-like sound. This was, for example, the case in extract 2 from Keith's programme where his attempts at /l/ were exaggerated and produced interdently, but the version has enough of the qualities that the clinician was seeking to make it acceptable. In extract 6 Paul's two attempts include both elements of the cluster although the s: is extended. What is important is that the child's attempt is closer to the adult version than the previous attempt. This is not always the case and so there are times when a target is rejected in search of a better version.

10.2 Techniques Used by the SLT and Parents to Reject Speech Attempts and Prompt Subsequent Attempts

When the adult judges that the child's speech attempt could be improved upon, one option available is to reject it and invite another try. I now compare how the mothers and

therapist make such rejections which in both cases may be offered hesitantly and with the mitigation that is common in didactic settings (Seedhouse, 1997). I also show how the adults go on and elicit another attempt sometimes using the supportive intervention strategies that were described in Chapter 2 (Section 2.4). Depending on how much support is offered and the difficulty level of the target, subsequent attempts by the child may or may not be accepted and more than one try may be elicited before the exchange comes to a close.

10.2.1 Techniques Used by the SLT

The therapist's training and clinical experience dealing with phonetic repair result in her having available a number of different ways to make explicit rejections of the child's speech attempt. Some of these devices are displayed in this section. In the first two extracts the SLT brings the exchange to a halt with a 'mock noticing' "oo", a common form of rejection also used by the mothers in this corpus of data. This rejection offers mitigation by leaving open the possibility that the answer was a 'lapse' by the child rather than a lack of skill. The use of softened rejections is intended to keep the mood positive and to keep the child motivated while being asked to do something difficult.

There is another possible and interactional reason for how the therapist constructs her rejections. In young children repair could be sought due to a number of reasons including problems relating to propositional content, lexical choice, grammar and pragmatic issues in addition to the phonetic changes being sought in the speech clinic. Tarplee (1993) demonstrated that adults normally deal first with lexical matters, and then phonetic repair is dealt with usually in a more subtle way. If the adult rejects the attempt outright, the child may well interpret this as rejecting the content or their lexical choice. This would result in them attempting lexical repair. Thus in these exchanges the therapist is explicit in the way she formulates the repair to make sure that the child understands that they are being asked to make change at the phonetic/phonological rather than lexical level.

Extract 7 Isla (6:01 yrs) Session 1 “oo”

This extract is taken from Isla’s first speech session. The therapist, sitting at a table, is discussing with Isla how she should carry out home practice. Isla’s mother is watching off-camera. Isla has been practicing the single word “yes” using an exaggerated clenched teeth posture. The closed teeth act to prevent forward movement of the tongue to an interdental sound. Isla has already produced the target word “yes” with reasonable accuracy eleven times during a word drill activity. The therapist has suggested that yes/no questions could be a good context for home practice and has already given several examples.

- 1 T: ((gazing at Isla))are you a girl?
- 2 I: hehe [jεθ]
- 3 → T: oo((gazes at Isla with expression of surprise))
- 4 (1.5)
- 5 → practice saying it with your
- 6 → in your new way ((makes s cue))
- 7 I: yes((leans forward with clenched teeth))
- 8 T: aah ((turns head away, smiles, touches Isla))
- 9 ↓that’s it

In line 1 the therapist asks Isla a ‘test question’ (Macbeth, 2004). The sudden change from the previous word drill to answering questions was not signposted to Isla. The ensuing laughter from Isla in line 2, suggests that she interpreted this as an absurd real question rather

than a context for speech practice. At this stage in therapy she was only producing alveolar /s/ in drilled speech so her response in line 2 uses an interdental [θ].

In her reaction to Isla's attempt the SLT cannot make an out and out rejection; both know that she is a girl so it would not make sense to reject this assertion. The SLT accompanies the rejection with an explanation of why the turn is being rejected. In lines 3 and 4 the SLT responds to Isla's turn with "oo" she maintains her gaze at Isla and pauses for 1.5 seconds. This pause gives Isla an opportunity to self-repair which she fails to take up. With no self-repair forthcoming, the therapist gives explicit instructions supported by cued articulation about what Isla needs to do. The instruction is softened in lines 5 and 6 by referring to speech in terms of new/old rather than correct/incorrect. The outcome in line 7 is a rather forced attempt, but Isla's response is close enough to the target to secure acceptance. In lines 8 and 9 Isla's attempt is evaluated with a smile and praise and by telling her "that's it" the SLT is informing Isla that she has achieved what she was asked to do.

Extract 8 Frank (3;09 yrs) Session 3 "a little bit slower"

In this extract Frank, his mother and the therapist are all seated at the clinic table. The adults are off-camera but their voices have been captured. Earlier in the session the near-minimal pairs fan/pan and fin/bin had been presented in an auditory discrimination task. The therapist is now using these pairs in a production task. Frank and the therapist are completing a jigsaw puzzle. The therapist has placed puzzle pieces beside minimal pair pictures; Frank has to name the picture beside puzzle piece that he wants using the target /f/. Frank has just pointed to a piece and is gazing up at the therapist.

- 1 T: well what is it (.) you tell me (.) I've got to
2 F: f: (0.3) ((stands up making f cue))

3 ((sits down)) dan

4 → T: oo

5 → let's see if you can make it a little bit

6 → slower f: (0.5) an

7 F: ((makes f cue)) f:(0.5)an

8 T: ((gives puzzle piece to Frank))

9 there you go

In line 1 the therapist asks Frank which picture he wants. Without waiting for a response she reformulates the task as a speaking task by asking Frank to ‘tell’ her the name of the picture. Her elicitation is interrupted by Frank as he begins his attempt in line 2. Frank extends the initial fricative [f:] with an articulatory cue that is so exaggerated that he stands up as he executes it. He then sits and completes the word. Rather than producing an accurate attempt, what has happened is that Frank has put an extended fricative in front of [dan] which is his stored version of the word. This is rejected in the next line by the SLT with the mock noticing “oo”. In line 5, immediately following her rejection, the therapist is explicit to Frank about what he needs to do to repair his attempt. She accompanies the explanation with a model for imitation. Her model has a particularly slow rate of delivery, and an extended [f:] which draws attention to the friction and has the desired outcome. Frank’s imitation of the transition from fricative to vowel in line 9 is not an accurate adult version, but it is closer to the target than his first attempt and as such is accepted. The acceptance, delivered non-verbally where the therapist gives Frank the requested piece, is prompt and they are ready to move on to the next target.

Extract 9 Gary (6;08 yrs) Session 1 “I can’t like them all”

This exchange from Gary’s first session is another example of how the SLT responds to the child’s attempt. The SLT prompts the next attempt with very specific feedback to the child about what they have done and what could change. Gary and the SLT were sitting at the clinic table balancing plastic monkeys on a toy tree. The task was for the pair to take turns thinking of something they like to complete the phrase “actually I like ...”. Monkeys were earned when the ‘ly’ segment of “actually” was correctly articulated. Gary’s mother was watching off-camera.

- 1 G: right now I am trying to think of [sʌmfɪŋk]
- 2 T: it can be((moving head from side to side))=
- 3 G: =[ætʃʌwi]
- 4 → T: ((touches Gary’s arm with finger)) now
- 5 G: I like my [fæmʌwi]except for the one’s
- 6 who’re arguing
- 7 T: ah now you know when you=
- 8 → =I’m going to take that one back because
- 9 → (0.5)((points to Gary with index finger))

10 G: I can't like them [all they're arguing]

11 → T: [no no no no no]

12 → no no nothing to do with your family(1.0)

13 → but when you said the word I think you forgot

14 → where to put your tongue so try that one again

15 G: actually

16 T: right now you can do it

17 G: actually I love my [fæmɪwi]

18 T: family (.) that is it cos when you said it the

19 first time you talked so quickly it was a bit

20 hard for me to stop you right

The extract begins with Gary trying to think of something he likes to complete the sentence. In line 2 the SLT begins to offer some help, but is cut off by Gary who provides his answer. In line 3, Gary begins his response but the target sound is not accurate. In line 4 the SLT attempts to stop him with “now” and begin an explanation but Gary continues to justify his answer in lines 5 and 6.

In line 7 the therapist again attempts to move the conversation back to her explanation of the speech activity. In line 8 and 9 she starts to tell Gary that he had not earned the

monkey. In line 10 Gary asserts that he cannot like all of his family because some argue, appearing to have understood the rejection to be of the propositional content of what he has said. He seems to have interpreted her response as disagreeing with the proposition that ‘family members who argue are not likeable’ rather than treating the activity as a speech routine. In the next 4 lines the therapist gives an explicit explanation that she stopped him not because of the content of his statement, but because of how he had pronounced the word “actually”. She was specific that the task was about what Gary did with his tongue. The therapist mitigates her rejection in line 13 with the word ‘forgot’, suggesting that this was a lapse rather than that Gary was unable to produce the accurate /l/. She seeks another attempt in line 16 which is successful. In line 17 the therapist praises Gary and asks him to have another go. In line 18 Gary produces an accurate attempt at the target. The word he completes his utterance with also ends in ‘ly’ which he produces with his error form. The therapist repeats the word in the form of a confirmation which does not seek another try. She then provides a rationale for why she had sought repair.

Extract 10 Lance (5;00 yrs) Session 1: “I can do a magic trick”

This extract takes place at the start of Lance's programme. Lance and the therapist are sitting at a small table. The camera is angled such that the therapist's face and tongue movements are not captured clearly. Lance's mother observes off-camera. Lance's speech target was the alveolar approximant /l/, which he was gliding to [w]. He could imitate [l:] in isolation but was struggling to produce a smooth transition between syllable onset [l:] and the vowel. The SLT has completed the speech assessment. She knew that Lance liked letters, and so was demonstrating the sequence by using the grapheme L with vowels. While the SLT was showing him the letters, Lance was reminded by his mother about a wizard character in one of their phonics videos. The therapist refocuses the task as a speech activity, reminding him that they were doing speech work, inviting him to look at the letters she had

written on the paper in front of her. Lance has already made two attempts where the letter L was decoded as [wə]. The therapist has rejected both attempts by telling him to use his tongue. The SLT now begins to elicit another attempt by re-referring to the letters on the paper in front of them.

- 1 T: it goes like this ((turns paper towards Lance))
- 2 ((keeps gaze on Lance)) [l:] ((moving pencil along
- 3 the line whilst vocalising)) (.)
- 4 L: a((gazes back at therapist))
- 5 T: a ((looks down at paper)) can you do that
- 6 ((pointing to letter L))
- 7 L: ((looks to where pencil is pointing)) [wə] ((looks
- 8 up))
- 9 → T: ((shakes head)) no no no no no no remember how you
- 10 did it (.) with your uh (.) tongue ((gazes at Lance))
- 11 L: ((looks across room subvocalising)) [l]
- 12 T: l:: [::::] ((moves pencil between letters))
- 13 L: [l::] ::::::::::
- 14 T: ((opens mouth gazing at Lance))
- 15 L: ((leans forward)) ah I can do a magic trick

16 ((turns to look at therapist))

17 T: I want you to do a magic trick with your tongue

18 (1)

19 → T: [I want you to make the sound]

20 L: [l::::::::::::::::::::::::::::::::::]

21 → T: l::: [::::::::::: (.) a]

22 L: l:::::::::::: a

23 T: again ((looks down at paper))

In line 1 the SLT demonstrates the reading task showing Lance, by moving her pencil and with a model, how she wants to sequence the extended /l/. In line 4 Lance provides the vowel that will complete the sequence and the SLT imitates his attempt. In line 5, the therapist identifies the letter on the paper and asks “can you do that?”. What she was expecting Lance to ‘do’ is not explicit but Lance appears to interpret this as a reading task, he looks down and ‘reads’ the letter using his stored version [wə].

In line 9 the therapist rejects this attempt repeating ‘no’ six times and shaking her head. After this very clear rejection the SLT prompts another attempt with an instruction to Lance about what he should do instead. She instructs him that he needs to ‘remember’ about his tongue. He complies with this and subvocalises /l/, not looking at anyone in particular. In line 12 the therapist models another extended /l/ and Lance joins in. In line 14, rather than giving a verbal model, the SLT shows Lance how to move to a vowel by showing the mouth shape of ‘a’. In the next line Lance does not respond to the SLT’s mouth posture. He

appears to suddenly recall the wizard in his video and tells the therapist that he can do a magic trick. In line 17 the therapist responds to this sudden change in topic and reframes Lance's suggestion of a magic trick as a speech task by referring to Lance's tongue. She pauses, giving Lance the opportunity to repeat the syllable, but he does not take this up. In line 19 she makes another attempt to elicit the syllable by asking Lance to say the sound. Lance begins to produce an extended [l:]. The therapist provides another model which Lance joins in line 22. The therapist makes a micropause before transitioning to the vowel. As she pauses, Lance transitions to /a] and the syllable has been completed. In line 23 the SLT accepts this syllable by asking Lance to repeat without instructions to make changes.

In this section I have shown four extracts in which the SLT rejects the child's speech attempt. In extracts 7 and 8, the rejection is mitigated with the mock noticing "oo" which brings the exchange to a halt in a neutral way. Extracts 9 and 10 are two of the rare examples in which the therapist uses the word 'no' in a speech activity. In both cases it is not the child's speech that is being rejected with a negative form. In Gary's case she was saying 'no' to the idea that Gary should like all his family members. When she does reject it is in the form of an instruction, softened by suggesting that this may be a lapse and that Gary 'forgot' where to put his tongue. The use of 'no' in Lance's case seems to be rejecting his decoding of the letter rather than his speech. In all of the extracts, the rejection by the SLT is followed immediately by an instruction to the child of what they should be doing with their tongue, or in Isla's case she should use her 'new' way.

10.2.2 Techniques Used by the Mothers

The previous section has demonstrated how the therapist rejects the child's attempts promptly and with mitigation, following this up by giving the child explicit instructions about what to do to make the subsequent attempt more accurate. In the next section I turn to how the mothers make their rejections. In many cases how the mothers reject does not seem

particularly helpful in a speech intervention as they make rejections that do not offer the child any support. It must be pointed out though there are exceptions as in the first example where Frank's mother shows skill in her use of cued articulation to prompt another attempt by the child.

Extract 11 Frank (3;11 yrs) Session 5 “spiders on a bed” (b)

This extract takes place immediately after Extract 8 in Chapter 9. Frank and his mother are showing Frank's homework sheets to the therapist. Frank's mother is reading out the words from the sheet. Frank has successfully imitated the target phrase with the /sp/ cluster, “spiders on a chair”.

- 1 M: ((points at each word))s:: spiders: on a bed
- 2 F: ((looks where mother has pointed and opens
- 3 mouth)) (2.0)bai
- 4 → M: [((points to picture))]
- 5 F: [ders ((turns to his mother)) 'on 'a]
- 6 → M: s: ((makes s cue)) piders [on a bed]
- 7 F: [s:] piders
- 8 on 'a 'b
- 9 M: s:piders ((makes s cue))on the window
- 10 F: s:piders on the window
- 11 M: ((points at picture))s::piders: on his back

12 F: s:piders on his back

In line 1 Frank's mother reads the words under the picture, providing a model for imitation. In line 2 Frank opens his mouth as if about to speak but hesitates. He may have anticipated difficulty and waited to see if support was forthcoming, but his mother offers no further help. Frank's attempt in line 3 is lexically correct but does not contain the /s/ element of the initial cluster in "spiders". His mother has alerted to the absence of /s/ and begins the repair sequence in line 4 before Frank completes the word. Repair is signalled by non-acceptance of Frank's attempt as she points back at the picture. Despite the non-acceptance, Frank continues the description he started in line 3. During line 5 he turns to his mother and continues his attempt. In line 6 his mother again rejects his version but this time with a model supported by an articulatory cue. In line 7 Frank restarts the phrase by imitating his mother's lengthened fricative. She signals acceptance of this second try in line 9 by moving on to the next in the sequence of pictures, this time she supports her model with an articulatory cue. Frank is successful in line 10 and perhaps as a response to his success, the next target offered for imitation in line 11 does not include an articulatory cue, nevertheless Frank is successful. The way Frank's mother varies the level of support offered during the activity eliciting the target "spiders" is noteworthy. In extract 11 Frank's mother elicits three targets, all after models. In the first two repair sequences Frank's mother modelled the target with the additional support of the articulatory cue. After these were successful the level of support was reduced for the third target which was modelled with exaggeration of the fricative element. This produced the attempt she was seeking.

Extract 11 is an example of the few explicit and supportive rejections by a mother. In contrast there were numerous examples in the data of parents rejecting the child's attempts without further information. In the following examples Owen's mother uses the open-class

repair initiator “pardon” (Drew, 1997) which rejects Owen’s attempt. In extract 13 Milo’s mother rejects Milo’s attempt and tells him what not to do. These extracts give the child clear rejections but give no indication of what they should do instead.

Extract 12 Owen (5:02 yrs) Session 3 “pardon”

In this extract, taken from Owen’s third session, Owen was standing in front of his father with his mother sitting beside him. Owen has chosen the pair of words he is going to practice in the minimal pairs activity. His mother shows him one of the pictures from the pair to name, she then builds a tower beside the word he said. Owen has already ‘earned’ nine bricks.

- 1 M: this one again ((points to snail))
- 2 O: nail
- 3 D: [pardon]
- 4 → M: [pardon] ((leans towards Owen))
- 5 O: [θnɛjɪl]
- 6 M: good boy ((hands him brick))

Line 1 is a request for Owen to label the picture, offered with no support about the pronunciation of the word. The result in line 2 does not contain the fricative element of the cluster. Both of Owen’s parents simultaneously reject this attempt with “pardon”. ‘Pardon’ is an open-class repair initiator (Drew, 1997) and is typically used to indicate listener difficulty hearing or understanding. ‘Pardon’ does not locate the source of trouble, rather it treats the whole of the prior turn as problematic. This rejection brings the exchange to a halt

and leaves Owen with the task of deciding what to correct for his second attempt in line 5.

There is no indication that Owen thought that hearing was the issue, as he does not attempt to raise the volume of his voice. His response indicates that although this was not signposted to him, he was aware that speech was at issue and he includes the fricative on his second try, albeit as an interdental sound. This is accepted by his mother who gives him a brick.

Extract 13 Milo (4;08 yrs) Session 3 “Don’t put a p.”

This extract is taken from an activity in which the therapist is watching whilst Milo is sitting on his mother’s lap at a large table earning magnetic playing pieces to put in a cardboard pond. He has just successfully imitated the words: flower, four, fall, fire and fairy and he has ‘earned’ pieces for these. The next target word is ‘fish’.

- 1 Mo: ((gazing at Milo, holding up piece)) fish
- 2 ((releases piece))
- 3 Mi: (.) [fb ɪ s] ((puts piece in pond))
- 4 → Mo: ((holds up a piece, gazing at Milo))
- 5 → °say it° fish ((releases piece))
- 6 Mi: [fb ɪ s] ((puts piece in pond))
- 7 → Mo: look at mummy listen
- 8 Mi: ((turns to mother))
- 9 → Mo: f:ish (Mum gives him piece)

10 Mi: bis

11 → Mo: °OK°

12 Mi: ((drops piece in pond))

13 Mo: ((holds up piece)) flower

14 Mi: ((takes piece)) flower ((drops piece in pond))

15 Mo: ((holds up piece))four

16 Mi: ((takes piece)) four ((drops piece in pond))

17 Mo ((holds up piece))fall

18 Mi: ((takes piece))fall ((drops piece in pond))

19 → Mo: Huhu fish (holds up piece) (.)

20 Mi: [fb I S] (goes to take piece)

21 → Mo: ((gazing at Milo)) °don't put a puh°

22 → ((does not release piece)) fish

23 Mi: [fb I S]

24 → Mo: fi

25 Mi: ((moved in mother's lap))fi:

26 → Mo: OK fish ((releases piece))

27 Mi: (puts piece in pool)

28 Mo: and fairy

29 Mi: Fairy

30 → Mo: £ my goodness they are all inside now £

Although Milo has already successfully imitated words beginning /f/, the word “fish” with its syllable final fricative is a more difficult context for him. In line 1 Milo’s mother offers a verbal model but hands him the reward piece before he attempts imitation thus earning the piece was contingent on it being his turn. When the clinician demonstrated the task the reward was given only after successful imitation. In line 3 Milo starts his attempt with a fricative but before he sequences onto the vowel he produces an almost homorganic stop and produces [fbɪS]. In lines 4-5 his mother rejects this version and seeks another attempt. She gazes at Milo, gets another reward piece and this time instructs Milo to “say it” before modelling the word and releasing the playing piece. Her second model is not produced with any supportive length or stress and the outcome in line 6 is the same as Milo’s previous version. In line 6 Milo’s mother asks Milo to look at and listen to her. Milo responds to her instruction and turns to look in line 8. In line 9 Milo’s mother produces another target for imitation, this time she stresses and extends the initial fricative [f:]. The outcome is different, this time in line 10 Milo’s attempt has no fricative element. This might be considered further from the target and was not the change that his mother was seeking. In line 11 Milo’s mother abandons her quest with a quiet “OK”. Milo does not treat this as a rejection and drops his reward in the pond.

Milo goes on to successfully imitate three more words in lines 14, 16 and 18. The magnetic piece is still being given prior to Milo’s speech attempt, but the attempts are all

successful and the pace of the exchange speeds up. In line 19 Milo's mother gives a little laugh, she has possibly noticed the next target picture is fish and so she is anticipating difficulty. She models the word "fish" again but this time does not release the piece. Milo's attempt in line 20 was identical to lines 3 and 6. Gazing at Milo, his mother holds on to the playing piece and attempts repair by telling him "don't put a p" in a quiet voice. Milo's mother has told him what not to do, but this turn gives no instruction about what he should do instead. Unsurprisingly his attempt does not change. In line 24 Milo's mother abandons any further attempt at achieving the full word 'fish' and models without the final /sh/ as 'fi'. Milo who has now become restless on his mother's lap makes a successful imitation in line 25. His mother accepts this as a version of fish and offering the final target, glosses over any of the earlier failures by cheerfully pointing out that all of the pieces are in the pond. This gives Milo feedback about the outcome of the activity but with no feedback about the contribution his speech made to the outcome.

This section has shown episodes where the therapist and the mothers reject the child's speech attempts to seek an improved version. The therapist's examples are shown to overtly seek phonetic repair, give explicit instructions about what the child should do and use supportive intervention strategies. The mothers sometimes successfully make rejections and secure speech change, but they were less explicit about the speech changes. The mothers often seemed to leave it to the child to decide in what way their attempt needs to change. It could be argued that this is because the parent had felt that the child was at the self-monitoring phase of their speech programme such that further information was not necessary, although this was not being demonstrated by the SLT in her exchanges.

10.3 Rejections by mothers which might have been expected to be acceptances

Thus far in this chapter I have identified ways in which the SLT and the mothers differ in the way they reject the child's attempts and how they prompt a further try. There were a small number of times that the mothers used supportive strategies, but in the majority of the extracts it is shown that they do not carry out this task as explicitly as the therapist. There were also times when the response of the mother was not helpful at all. In this last section of the data I will show extracts where the mothers' evaluation does not match the child's attempt and so the child has little information to use when making the next attempt. In the first extract, similar to the mother in Gardner's 1994 data who was found to make corrections on speech sounds that were not currently being practised, Keith's mother rejects an error segment that was not one of Keith's speech targets. In the subsequent three extracts the mothers' turns reject speech attempts where the target had been produced accurately. Noel's mother responds to a speech attempt that contained an inaccurate attempt at the target sound, but what her action does is to reject the accurate segment. The last two extracts show Gary's mother rejecting accurate attempts, ending up with versions that were further from the target.

Extract 14 Keith (5;03 yrs) Session 2 "lorry"

Keith and his mother are labelling pictures beginning with his target sound /l/. The therapist is observing. Keith's mother has been accepting Keith's interdental production of /l/. They now come to the picture of a lorry.

1 M: ((reveals picture and looks to Keith))

2 K: (1.5) ↑↓ [l̥p̥j̥i:]

- 3 → M: ↓↑lorry ((turns to Keith turns picture))
- 4 K: ↓↑[l̥ɔ 'ji]
- 5 M: ((reveals next picture and looks at Keith))
- 6 K: lion

In line 1 Keith's mother reveals the picture to be named. In the pause before his response Keith may well have been considering from amongst his vocabulary of vehicles, e.g. car/truck/van/pickup, which to use to name the picture. His attempt in line 2 [l̥ɔji:] used an interdental /l/ but this was no different to many of his earlier attempts that had been accepted. His attempt contains an inaccurate version of /r/ which was not a speech target so had not been the subject of evaluation by the clinician or indeed his mother when this target had been worked on previously. Keith's mother displays rejection of Keith's attempt by repeating line 2 with contrasting pitch which marks the word out for more work (Tarplee, 1993).

Keith's mother neither gazes at Keith nor makes an indication which part of his attempt needs repair. Keith had already worked on the initial consonant and his version had been accepted in previous turns in the exchange; the only change left was the /ɪ/ element in the second syllable. His attempt in line 4 was perhaps a more fronted sound but was still not the accurate /ɪ/ that his mother was seeking. Keith's mother does not comment on the outcome and accepts this second version by moving swiftly on to the next target.

In the next extract Noel's mother signals her rejection using a contrastive redoing, but in doing so signals the final consonant [p^h] which was not a target. She does not follow up the redoing with any information so gives Noel no information about the change she was expecting from him.

Extract 15 Noel (5;00 yrs) Session 3 “Wa ha ha.”

Noel and his mother were sitting together at a very small table. The therapist was sitting off-camera. Noel had an atypical speech pattern where /t/ and /k/ were both produced as a palatal [c]. Noel’s mother was organising some pictures showing pairs of words that contrasted t/k, the two speech sounds that Noel was practising. Noel’s mother was looking down at the pictures and not at Noel as she places a card on the table.

- 1 M: ((Places card in front of Noel))
- 2 N: [c ↓↑ a p^h]
- 3 → M: [k^h ↓ a p^h] ((continues sorting cards))
- 4 N: ((looks up))
- 5 (2.5)
- 6 N: ((glances down reaching out for the postbox))
- 7 wa ha ha:

The action by Noel’s mother in line 1 elicits a version of the target from Noel but in this case he used his error palatal stop [c] rather than the target velar [k]. In line 3 Noel’s mother continues the task of sorting the cards and does not look up, but she repeats his utterance with contrasting pitch. This, as was demonstrated by Tarplee (1994), marks her turn as a rejection. She reproduces the target velar which could act as a model for the next turn, but her emphasis is on the final [p^h] which Noel had in fact produced accurately. In line 4, Noel looks up as his mother continues sorting the cards. In line 5 there is 2.5 seconds of silence as Noel perhaps waits for more information about what to do. Nothing is

forthcoming. In line 6 he notices the postbox on the table and reaches for it. In line 7 he begins to vocalise with excitement. Noel's mother does not follow up the lack of response to her rejection.

In the next two extracts, Gary's mother rejects attempts by Gary and seeks phonetic repair, but in these exchanges the rejections she makes gives Gary feedback that does not match his speech errors. The pair end up with versions that are further from, rather than closer to, the previous version. In both cases Gary receives praise, but it is difficult to discern if the praise is being given for the changes he has made in his speech or how he responded in the task they were carrying out.

Extract 16 Gary (6;08 yrs) Session 3 “quickly”

In this extract, observed by the therapist, Gary and his mother were playing a memory game involving recall of cards depicting words ending in his target “ly”. The task was set as a sentence completion task in which players had to say “I think I remember where is”.

- 1 M: which one do you remember?
- 2 G: I think I remember where klick
- 3 ((turns to mother holding up his thumb))
- 4 °klick ly°
- 5 M: quick ly
- 6 G: ((looking down)) [kwIkli]. ((reduced lip rounding))
- 7 → M: 'quick ly

8 G: [klIk] ((gazing at mother))

9 M: no (leans closer) qu[ick]

10 G: [kwIk]

11 M: ((nods) li

12 G: li

13 M: OK ((nods and looks down at cards))

14 G: °klick°

15 M: [where dyou]

16 G: [°ly°]

17 M: think quickly is?

18 G: ((uncovers card))

19 M: well done

In line 1 Gary's mother elicits the first target sentence by asking Gary which picture he recalls. In line 2 Gary produces the first part of the utterance and holds up his thumb. His gesture may have displayed confidence in the task. His attempt at 'quickly' was produced with [kl] as the word initial cluster and without the 'ly' to mark the adverb form. A second, quieter attempt in line 4 repeats the full word, retaining [kl] as the word initial cluster. This attempt is rejected by his mother in line 5 with a redoing in which she carefully pronounces each syllable, an overt indication that phonetic repair is being sought. Gary makes another attempt in line 6, changing his previous version by producing [kw] as the word initial cluster. This time he was looking down rather than gazing at his mother. His attempt had some lip

rounding, but perhaps not enough for his mother to interpret a word initial [kw], so again his attempt is rejected. The rejection is delivered in line 7 with stress on the first syllable which was the syllable causing Gary difficulty. Possibly since his updated version has been rejected, Gary tries his first [kl] version again, starting with the first syllable. Again this is rejected by his mother with an unmitigated “no”. She gives no rationale as to why she has rejected both versions, but leans towards Gary in line 9 and offers the word in two syllables which act as a model for the next turn. Gary imitates these individual syllables accurately in lines 10 and 12 and he is rewarded with a nod and praise in line 13. In line 14 he goes on to make an unsolicited attempt at the target and quietly uses his second version with [kl] as the word initial cluster. As his mother looks down at the cards she repeats the original elicitation question, Gary begins the second syllable of his final attempt concurrently. This attempt remains unevaluated and both participants direct their attention to finding the card. Gary finds the card, an act that is rewarded in line 19 with “well done”.

Extract 17 Gary (6;09 yrs) Session 4 “kwown”

The activity in this extract targets words beginning kl/kr, as assessment has shown that Gary was using /r/ and /l/ inconsistently in clusters. Gary is sitting at the clinic table with his mother sorting pictures according to the cluster they begin with before naming the picture. The therapist is watching the exchange.

- 1 M: ((hands card displaying a crown to Gary))
- 2 G: ((looking down at card)) crown
- 3 → M: (0.5) say that one again for me
- 4 G: Kwown

In line 1, Gary's mother elicits the target non-verbally by giving Gary the target picture for him to name. In line 2 Gary's response is an accurate "crown" however after a brief pause, which could have been to either allow Gary's mother to process what she had heard or to allow a self-repair, in line 3 Gary's mother asks him to repeat. With the absence of any form of positive evaluation, this functions as a non-acceptance and seems to give Gary the message that something should change. In line 4, Gary changes the only part of the word he can in the context of this activity i.e. the second element of the cluster. Since /r/ had been rejected he gives another version, this time using /w/. The version he produces is now no longer accurate but his attempt is accepted with praise but no explanation as to why.

In these four examples the mothers have been seen to sometimes have difficulties determining when to accept and when to reject attempts made by the children, as a result the child gets inaccurate feedback about their attempt. There were examples of rejection given with a model, but the model was not accompanied by explicit instructions about what to do instead. The outcome is either that the child remains confused or that they use the feedback and end up with a version that is further from the target. This was not seen in any of the SLT data.

10.4 Chapter Summary

It has long been established that communication breakdown can play a factor in facilitating speech change in young children (Gozzard et al., 2008; McCartney, 1981; Weiner & Ostrowski, 1979) also see Chapter 4 Section 4.3. However awareness of communication breakdown because a current version of a word is not adequate may not be sufficient to bring

about phonetic change. It might need to be made explicit to the child, particularly if it is early in the therapy programme, precisely how the word is inadequate.

Gardner (1994) described some of the strategies clinicians use to give the child the explicit message that speech needs to change e.g. gaze, pausing and speech perturbation. The analyses in Chapters 9 and 10 has built on Gardner's work demonstrating how in the speech clinic the SLT works hard to make clear that the aim of the intervention is that the child makes speech changes.

The analyses in Chapters 9 and 10 have shown how, in the family-friendly model of therapy, when mothers participate in the child's therapy programme they can use some of the strategies demonstrated by the SLT. The mothers have less experience carrying out phonetic repair, and in some cases are less successful. In the extracts in this chapter the SLT was shown to make her acceptances explicitly, giving the child a rationale for her response. The mothers evaluated by confirming what they had heard, but when offering praise, which they did frequently, there were no examples of them being explicit as to why. These results suggest that there is more to consider when carrying out a speech intervention than simply having seen a strategy demonstrated.

It was also shown in this chapter that what is counted as 'success' for the SLT may not necessarily be the equivalent of an adult-like sound. Some of the mothers were also seen to accept 'less than perfect' attempts. What is important is that the children are moving along the continuum from 'error' to the 'acceptable target sound' that is being modelled to them.

When an attempt is rejected, the therapist softens the message in such a way that it is not delivered with an out and out negative. The child's speech is marked out by the therapist as 'different' rather than wrong and the speech patterns being practised are described as a contrast of 'new' vs 'old'. There were also occasions that the therapist softened the message by reminding the child that the reason they have come to therapy is to learn about speech

change. This mitigation of negative evaluation was not seen to the same extent in the parent data.

One interesting finding in the data were a small number of occasions where the evaluation by the mother was unexpected. It has been suggested that clinical experience helps in the judgement as to how far along the continuum of acceptable to error the child's response lies (Munson et al., 2012). I have shown that the mothers, without that experience seem to find the judgement harder. In extract 15 Noel's mother failed to notice that the initial not the final segment was at issue and so seeks repair on a non-target sound. This response seemed to have confused Noel and when he made no attempt to change it was not followed up. Gary's mother appears to have struggled to made a judgement as to which were accurate attempts and which were errors resulting in rejection that left attempts further from the target than the child's first attempt.

The final chapter of this thesis will summarise all results, comparing the outcomes from the three different methodologies and use the data to answer the research questions. I will describe strengths and limitations of the data, the clinical implications of my findings and consider future directions for research on adult-child interaction in the speech clinic.

Chapter 11

Discussion and Conclusion

In this final chapter, I will draw together and discuss the findings from the three analyses carried out on the data. I will summarise how the research was carried out. I will discuss findings and how they answer the two research questions. The chapter will begin with a review of the aim of the research.

11.1 Aim of Research

Over the past 40 years there have been moves towards designing healthcare services around the needs of the whole family (Department for Education and Department for Health, 2015; Department for Education and Skills, 2003) with the understanding that parents have a right to actively participate in healthcare (Crais et al., 2006). One context where parents are increasingly involved is the speech clinic (Bowen & Cupples, 1998; Joffe & Pring, 2008; Sugden et al., 2018a; Sugden et al., 2018b; Watts Pappas et al., 2008). The overall aim of this research is to gain an authentic understanding of parent experiences of participating in a speech clinic during interventions for children with SSDs.

Research involving parents of children with speech and language disorders has thus far focused on participants from large countries. Examples are Australia (McLeod et al., 2013), Germany (Macharey & Von Suchodoletz, 2008), Kuwait (Alsaad et al., 2019), the Netherlands (Van Doornik et al., 2018), Sweden, (Hulterstam & Nettelbladt, 2002), UK (Dodd et al., 2003), and parents in 10 countries across Europe (Jensen de Lopez et al., 2021). This is the first research to be carried out with parents and children with SSDs in Gibraltar, a small country situated in Southern Europe with a population of around 34,000 (HM Government of Gibraltar Statistics Office, 2021).

There is a considerable body of research about intervention for children with SSDs. Studies have looked at the characteristics of children with speech disorders (Wren et al., 2012), intervention approaches (Almost & Rosenbaum, 1998; Crosbie et al., 2005; Gunther & Nieslony, 2017; Lousada et al., 2013; Oliveira et al., 2015) aspects of service delivery (Rvachew et al., 1999; Grogan-Johnson et al., 2010), and intervention intensity (Allen, 2013). Research has also addressed the debate about whether to select speech targets according to developmental or complexity principles (Gierut et al., 1996; Rvachew & Nowak, 2001). Gierut (2005) considers targets selected according to complexity are more effective than developmental targets, that ‘what’ is taught is more important than ‘how’ it is taught in a speech intervention. Others such as Rvachew and Nowak (2001) argue for using the earlier developing sounds. Baker and McCabe (2010) propose that although target selection is important, there is also a need for clinicians to know more about how speech targets are taught. Learning about teaching speech targets requires an examination of the adult-child interaction that takes place in a speech clinic and how parents and the SLT use therapy talk during speech intervention.

In a speech clinic, parents typically observe the clinician deliver the intervention using ‘therapy talk’ as described by Gardner (1994) with any of a number of supportive intervention strategies (Joffe & Pring, 2008; McLeod & Baker, 2014; Oliveira et al., 2015). The use of supportive strategies is reported to be widespread (Brumbaugh & Smit, 2013). The supportive strategies provide information to the child about speech targets in the form of articulatory strategies (Marshalla, 2007; Secord et al., 2007), pictures (Palle et al., 2014) and cued articulation (Passy, 2017). Some clinicians use metalinguistic talk about the properties of sounds (Bleile, 2006; Dean et al., 1995) or for ‘fixing up’ speech errors (Bowen, 2011). Clinicians also provide the child with a model of the target word (Gardner, 1994). There is

however little empirical evidence about which of these strategies are actually evidence-based ‘kernels’ (Embry & Biglan, 2008) that influence speech development.

The way communication breakdown and repair contributes to speech programmes has been the focus of research interest. Early studies considered the use of communication breakdown and repair sequences in therapy for children with SSDs. Some studies suggested that if requests for clarification were formulated with an accurate speech model they were more likely to result in phonetic repair (Gardner, 1989; McCartney, 1981). Other studies point to speech change being more likely if the child hears a request for clarification using an inaccurate version of the target word (Gozzard et al., 2008; Weiner & Ostrowski, 1979). Baker and McCabe (2010) suggest that more research on the relative success of strategies is needed, particularly the study of clinical dialogues to examine when and where the strategies should be used. This exploratory research does not attempt to address the success of the use of strategies, but codes and counts them and makes a comparison of use by a clinician and parents so aims to add to the knowledge base about strategy use.

In the research a total of 13 children with moderate to moderately severe SSDs between the ages of 3;0 - 7;0 yrs with their parents participated in Study 1 (two participants) and Study 2 (eleven participants). The interventions all took place in one speech clinic in Gibraltar, led by the PhD author.

Study 1 took place over a period of three months. One dyad attended for nine intervention sessions and one attended for eight. The interventions were delivered using an eclectic approach popular in speech clinics based on a traditional minimal pairs approach with auditory discrimination (Joffe & Pring, 2008; Lancaster et al., 2010) and subsequently traditional articulation activities (Hesketh et al., 2000).

The 11 dyads in Study 2 attended a total of 62 sessions over a period of seven months, including seven follow-up sessions planned to take place around twenty weeks after

intervention began. The intervention sessions were video recorded producing 8 hrs 54 mins of intervention data in Study 1 and 42 hrs 39 mins of data in Study 2. Data selected for analysis were the speech production tasks working on the child's current speech target and all of the conversation between the mothers and the clinician.

Gardner (1994) reflects that although intervention for children with SSDs works, it could work better. She suggests, along with others (e.g. Tykkylainen, 2009), the need for more adult-child data to show how adults use the special 'therapy talk' found in the speech clinic. This study aims to do just that. The quantitative analysis and CA in this study showed how the SLT and mothers interacted with the children with SSDs during their speech practice sessions. The analyses do not just take into account what the adults were doing during the intervention, the subsequent thematic analysis was also an opportunity to listen to what the mothers said during the intervention sessions.

11.2 Results from Studies 1 and 2

The next sections will briefly describe how the two studies were carried out and summarise the results.

11.2.1 Study 1

In Study 1, a coding system was developed by the researcher repeatedly viewing the 8 hrs 54 mins of video-recordings of the four dyads to become familiarised with the data. Then all of the ways in which the adults elicited, evaluated and repaired the child's speech attempts were listed (see Appendix 9). This included, but was not restricted to, using articulatory strategies, responding non-verbally to activities and modelling. The strategies were classified into 10 different category types: abandoned, articulation, concept, confirmation, correction, model, negative, neutral, praise, vocabulary. The video-recorded data was then coded using this bespoke coding system and strategy use was counted for elicitation, evaluation and

repair. Across the sessions it was found that there was a trend for all of the adults to use neutral strategies such as ‘pardon?’. In elicitation the mothers were more likely to use neutral or conceptual strategies. Conceptual strategies were particularly used in minimal pairs activities such as eliciting by getting the child to tell her on which of two towers labelled with ‘tea’ and ‘sea’ to place a brick. In elicitation the SLT, like the mothers, used neutral and concept strategies. In addition, the SLT used modelling and articulation strategies to elicit words. Articulation strategies were explicit such as the clinician pointing to her own lips whilst instructing the child “you have got to push it out with your lips”. Use of articulation strategies by the SLT was small at only 9.63% of her total elicitation, but in contrast the mothers’ use was rare.

In evaluation, all adults used mainly praise and neutral strategies with either conceptual strategies or confirmation in varying frequencies. One of the mothers showed a particular trend to using praise, one, like the SLT, used more conceptual strategies. The SLT also used a small amount of articulatory evaluation, something not seen in the mothers’ data.

In repair, all adults used a wider range of strategies, the mothers continued to use neutral strategies most often. The SLT used mostly modelling and articulation strategies in repair. It was interesting to see the mothers’ use of correction, for Aaron’s mother at 19.30% it was her second most frequently used repair strategy. The SLT also used some correction, but less frequently than the mothers.

The number of conversational turns was counted from the adult elicitation to the close of the exchange, i.e. when no further work was done on the target. It was found that the number of turns in the parent and the SLT exchanges did not differ, so this count was not carried out in Study 2.

What the mothers said to the SLT during the sessions was analysed using the Framework Method of thematic analysis (Ritchie & Spencer, 1994). The mothers talked

about some of the theoretical underpinnings of the programme. They could identify some words that their child was starting to say more accurately. Not all of these words were speech targets and some descriptions did not include phonetic detail e.g. “he’s doing really well”. The children were different ages; Aaron was in pre-school where structured teaching of phonics had not started so perhaps for this reason his mother did not refer to literacy. Belle was already in a reception class, her mother saw links between speech practice and what she was learning in school, making frequent references to aspects of literacy Belle was finding difficult.

When the mothers talked about the challenges of therapy practice, one asked on five occasions about how to carry out the activities, the other mother observed her son being assessed and found it difficult to reconcile his performance with what she saw at home. The mothers also referred to the challenges of fitting practice into everyday life. They talked about the competing demands of school homework and caring for siblings, whilst acknowledging the benefit of more practice. Both mothers referred to their own lack of competency in comparison to the SLT in identifying speech errors and that the child did not work as well for them as for the clinician.

One of the mothers suggested various theories for the causes of speech disorders, at one point asking if she should pursue an autism assessment. She recognised that genetic factors may be relevant but also talked about guilt for not providing adequate correction for the child which she suggested may have caused the difficulties. This preliminary analysis determined that Framework Method was an appropriate tool for a TA of what parents talk about during speech intervention.

11.2.2 Study 2

In Study 2, 11 dyads attended 62 sessions including seven follow-up sessions around 12 weeks after the programme had ended. Study 2 data collection took place over a period of

nine months in one speech clinic in Gibraltar, led by the PhD author. As in Study 1, sessions were video-recorded, resulting in 42 hrs 39 mins of data for analysis. Three analyses were conducted on the data:

- 1) Quantitative coding of the homework demonstration segments.
- 2) TA of what mothers said during the intervention sessions applying Framework Method, further developing the themes identified in Study 1.
- 3) Analysis of the way the SLT and the mothers elicited, accepted and rejected children's speech attempts and how further attempts were prompted using the methodology of CA which takes into account all of the participants in an interaction (Hutchby & Wooffitt, 1998).

Quantitative Analysis. Findings from Study 1 that the two mothers used higher frequencies of neutral, correction and praise strategies in contrast to the SLT's use of the explicit articulatory and modelling strategies were somewhat supported by the data of a larger cohort in Study 2. One of the findings of the Study 2 quantitative analysis was that all strategy types (e.g. articulation, confirmation, correction) were used by at least some of the mothers. This is evidence that supportive strategy use when participating in interventions for children with SSDs is not reserved to SLTs with their professional training (Brumbaugh & Smit, 2013). The mothers as a group had some knowledge of strategies even if they did not always use them.

The count of strategy use was made to examine whether or not the mothers used the strategies in the same explicit way that was being demonstrated by the SLT. The count showed a striking trend by the mothers to using neutral strategies to elicit targets, e.g. showing a picture and asking 'what's that?' without providing any context that speech was being practised. Praise and confirmation were used frequently to evaluate speech targets.

Thus the children had feedback informing them that parents were pleased, but little information about why.

Analysis of the Study 2 mothers' use of repair strategies showed a wider range of strategy use than had been seen in elicitation and evaluation. Unlike the Study 1 mothers who had mainly used neutral strategies in repair, Study 2 participants most frequently used modelling as a repair strategy, along with neutral and conceptual strategies, and explicit correction. The use of articulatory strategies by the mothers as a group was double that of the Study 1 mothers, although only four of the eleven mothers actually used them. In summary, Study 2 mothers gave explicit correction telling children what *not* to do, they modelled the words, but gave little explicit instruction to the child about the changes they need to make to their speech.

Thematic Analysis (TA). What the mothers said during the speech intervention sessions was analysed resulting in four main themes: becoming more skilled in supporting speech development; identifying speech difficulties and speech change; supporting speech development at home; and speech therapy and education.

The mothers talked about learning about their children's speech difficulties. Several referred to the importance of learning about SSD, that they needed to know how and why therapy works. Some felt they and their families were becoming more aware of their child's difficulties and could identify some of the speech changes their children were making. Several mothers gave reports of their child's progress in terms of phonetic change, e.g. that a child had changed from saying [sɛbʌn] to [sɛvʌn]. Others cited specific words that had changed, and some cited improved self-monitoring. In contrast, a number of the mothers found it difficult to identify to the SLT which words the child had changed and precisely how they had made changes. The descriptions of the children's speech made by some mothers simply as 'struggles' suggests that they were not perceiving the detail of how the word was

produced. It has been shown that clinical experience of children with SSDs leads to better perception of phonetic detail (Bowen & Cupples, 2004; Munson et al., 2012), which suggests that recognising their child's errors may well be difficult for the mothers, something that was also seen in the CA (see Section 10.3).

Other studies have demonstrated that over time parents report becoming more skilled in delivering home practice (Sugden et al., 2019). Parents also describe becoming able to adapt and personalise activities (Davies et al., 2017), although not all adaptations made by parents have been shown to improve outcomes (Gunther & Hautvast, 2009). Reference to change was not seen in this group of mothers. The longitudinal study carried out by Davies et al. (2017) was over 30 weeks, and the children in the Sugden et al. (2019) study had received therapy in the previous 12 months. It may well be that the group of parents in this research had not received enough training in a maximum of eight sessions for them to be able to articulate the way their skills had changed. .

Using a family-friendly approach (Watts Pappas et al., 2009) the SLT selected the speech targets. Therapists usually select speech targets according to their theoretical approach (Gierut et al., 2010; Miccio et al., 1999; Rvachew & Nowak, 2001; Secord et al., 2007). In this study a developmental approach was taken (Rvachew & Nowak, 2001). The mothers engaged in discussion about speech targets. As in previous research (Sugden et al., 2019) some mothers did not agree that the SLT's targets would work for their child, although their own suggestions of targets did not always contain the child's speech target or they were too complex.

Mothers talked about how they supported the child's speech at home. When talking about speech strategies, one of the mothers referred to watching what the therapist did and then carrying out the activities at home, whereas there were mothers who asked for clarification of how exactly they should carry out activities. Some mothers talked about the

adaptations they made to activities. One of the mothers' comments indicated a perception that using gestures was 'embarrassing', which might impact how often she would use cued articulation. Some recognised the need to slow their own rate whereas some wanted to increase the child's rate.

A strategy not used by the SLT but referred to by a number of mothers was direct correction of children's errors. When asked what happens when their child made speech errors at home one said "I just correct him" without appearing to relate the errors heard at home to how the SLT was modelling speech repair in the intervention sessions. One of the mothers described how at home she gave her child a developmental rationale to correcting his difficulties explaining that "little boys pronounce luhs sometimes as wuhs, but big boys try to pronounce luhs as luhs". Four of the mothers talked about asking the child to repeat the word, one talked about using the child's error in a clarification request "Have you got bingers?". There was recognition that speech practice would benefit the child, but some mothers gave compelling accounts of the struggles they had engaging the child and in fitting speech practice around the school run, activities of school holidays and caring for siblings. In addition to the practical difficulties there was an emotional impact on them as they watched their child struggle.

The mothers reported feeling negative about their abilities in that they did not have the skills of the SLT. Two of the mothers expressed the view that their own speech model might negatively impact on the child's progress, one suggesting that her accent meant she omitted consonants. It is known that children with SSDs may have difficulties processing an unfamiliar accent (Nathan & Wells, 2001) but the mothers' accent was familiar so unlikely to impact the outcome of the intervention. One of the mothers expressed particular difficulty making a judgement about whether or not her child's attempt should be accepted, suggesting that the clinician should come home with her to do practice. This child's speech disorder

required giving him feedback about alveolar/palatal/velar sounds. His mother had a more challenging task than the mothers who had to give feedback about l/w errors or the presence/absence of /s/.

The parents in this study, like those reported elsewhere (Sugden, 2019), seemed to have understood the well-documented relationship between speech and language difficulties and educational outcomes (Peterson et al., 2009; Skebo et al., 2013). They voiced links between what happened in therapy and what happened in school with concerns raised that there was some consistency between the settings. Some voiced concerns about their child acquiring literacy skills, one mother felt her child's progress in reading could be attributed to speech progress. Some made links between speech practice and reading with both positive and negative comments about using reading as a context for speech practice. One seemed to think that pointing out target sounds would take away the child's opportunity to decode, another felt reading was too difficult. This finding suggests that parent views should be canvassed before recommending that reading and speech be combined.

During their conversations with the SLT, parents raised a number of potential causes of speech difficulties. These causes ranged from parents providing an inadequate model, the child being lazy, lack of opportunities to socialise, a history of hearing loss, neurological cause, a genetic cause or lack of muscle strength. Several of the mothers talked about feeling guilty that the child's speech difficulty was in some way caused by them, either because of their inadequate speech model or because the parent had not corrected them. This finding of the myriad of causes suggested by parents is consistent with earlier work (Glogowska, 1998; Kummerer & Lopez-Reyna, 2006; Marshall et al. 2017). The finding adds support to recommendations (Glogowska, 1998; Morgan et al., 2019) that discussion about potential causes is a key role of the SLT. Such discussion might: 1) prevent unnecessary guilt parents may be feeling about having caused the speech difficulty; 2) give parents support when they

experience judgmental remarks from others (Macharey & von Suchdolottz, 2008; Roulstone et al., 2015); and 3) give parents confidence when faced with the challenges of coping with their children's interaction in public (McLeod et al., 2013).

Conversation Analysis. The findings from the quantitative analysis highlighted differences in strategy use between the SLT and mothers. The CA in Study 2 continued the examination of the data on a turn-by-turn basis, offering further insight into the nature of therapy talk and how it was used by the adults when they elicited, accepted and rejected speech attempts, and how subsequent attempts were prompted. CA identified a key difference between the SLT and the mothers in the introduction to the speech intervention tasks, even before the first speech target was elicited. When introducing the activities, the SLT made explicit that the purpose of therapy was working on the child's speech. Introductions by the mothers were rare, but when they occurred they gave the child information about procedural aspects of the task, for example about how to place the cards on the table. Mothers did not refer to the activity being a context for speech practice.

When speech practice began, the SLT elicited attempts with some of the features described as therapy talk by Gardner (1994) where the clinician gazes at the child, uses a slow rate of speech, uses articulatory cues and is explicit in the way that requests to produce the target are worded. The acceptances by the SLT explicitly identified why the child's attempt was being accepted, giving feedback the child could use to make a subsequent attempt. The SLT used a number of techniques to reject those attempts she considered the child could improve. Accompanying rejection with explicit instruction about how to make a subsequent attempt more accurate, she mitigated the rejection by framing the child's speech error as being different to hers, or as 'new' vs 'old', this reduced the frustration that Hulterstam & Nettlebladt (2002) suggest can occur when the 'face-threatening' direct strategies give overt criticism.

When the mothers carried out speech practice, they used some of the same supportive strategies as the SLT, so there were examples of modelling with emphasis using articulatory cues and a small number of explicit references to articulation. Thus the difference between the SLT and the mothers is not that the mothers never used the strategies that the SLT used, rather they were less overt and less explicit. The mothers accepted the child's attempts, usually promptly and with praise, but there were no examples of mothers informing the child why praise was given. When the mothers rejected the child's speech attempts they used neutral turns such as 'pardon' or 'remember!', which function to identify a need for repair without identifying the source of breakdown. Turns such as these tell the child what not to do, but give no explicit instruction about what they should be doing or 'remembering' instead.

The CA demonstrated that some mothers had difficulties perceiving what to accept and what to reject with some mothers rejecting attempts that had actually been reasonably accurate. This is similar to what Gardner (1994) found in her analysis where she observed mother rejections which resulted in a child attempt that was less accurate than their initial version.

11.3 Key Findings from the Two Studies

The next sections will examine the key research findings in the two studies that answer the research questions posed.

1. Are there differences between the way that SLTs and parents interact with children with SSD when they carry out therapy activities during the child's speech intervention sessions?
2. What do parents of children with SSDs talk to the SLT about during their child's speech intervention sessions?

11.3.1 Differences in Interaction Between SLT and Mothers During Speech Intervention

A key finding in this research is that there were differences in the way the SLT and mothers interacted with the children during the speech intervention. The SLT was, overall, more explicit than the mothers in what she was asking the children to do. Firstly, there were differences in the way that the task was introduced to the child. The examination of the CA data showed that introductions by the SLT made explicit to the child that the activity that they were engaged in was a speech task. Gardner (1994) has pointed out that the use of therapy talk sets out for the child the special 'speech' nature of the therapy task, this is something that the SLT did right from the start of the session. In contrast, on the small number of occasions that the mother introduced a task, it was the procedural elements that were explained rather than how it was special as a 'speech' activity.

A second difference, shown in the quantitative analysis, was between the SLT's and mothers' use of strategies when eliciting, evaluating and repairing speech attempts. I will consider these functions separately beginning with elicitation. All adults in both studies shared a trend for use of neutral strategies when eliciting, for the mothers, particularly in Study 2, that trend was marked. The SLT shared the mothers' trend for the use of neutral strategies overall, although she also used models to elicit speech targets. Although there is no empirical evidence to support this proposition, McCartney (1981) suggested that if a speech target is elicited using a model the child is more likely to make a successful attempt.

In evaluation the SLT used a mix of neutral, concept, confirmation and praise with some articulatory feedback. This contrasted with the mothers' use of mainly praise and confirmation with little evidence of use of articulatory strategies.

I now turn to a consideration of repair. In a speech intervention, the aim is for the child to make increasingly accurate attempts at speech targets, in this process some errors are to be expected. It has long been established that communication breakdown can play a factor

in speech change in young children (Gozzard et al., 2008; McCartney, 1981; Weiner & Ostrowski, 1979). However, being aware that communication has broken down and a current version of a word is not adequate may not be enough to inform the child how to carry out the repair (Hewlett, 1990). Using CA, Tarplee (1993) found that during picture-naming exchanges between parents and typically developing children, overt correction typically only occurred in lexical repair, when phonetic repair was sought it was done indirectly. Similarly in this study, when the mothers attempted phonetic repair they tended to be subtle and used neutral strategies. Overall in the quantitative analysis, the mothers showed little use of the explicit articulatory strategies that were being used and demonstrated by the SLT. Interestingly although across both studies mother requests for phonetic self-repair was less overt than the SLT, mothers made a number of explicit and direct corrections of the children's errors. These corrections informed the child that they had to change their speech but gave little information about what to do instead. Correction, in contrast, was a strategy little used by the SLT.

Examination of the data on a turn-by-turn basis using CA also showed that the SLT was more supportive than the mothers when she attempted to elicit words. She gave explicit instructions with mitigation such as contrasting 'old' to 'new' rather than 'correct' or 'incorrect' speech attempts when reminding the child where to put their tongue or to reduce the rate of their speech. A similar difference was seen in evaluation. The SLT's evaluations were typically given along with information to the child as to what they had done. The mothers in contrast gave frequent praise but did not follow up by telling the child exactly why they were receiving the praise.

Just as in the quantitative analysis which identified the parent trend to use correction, the CA showed some parents rejecting the child's attempts with instructions about what not to do such as "don't put a puh". Consistent with these findings is that in the TA, direct

correction is something that some parents described doing at home, although two parents reported actively avoiding correction because they did not want their child to become conscious about their speech. Indeed in Hulterstam and Nettelbladt's (2002) study comparing the direct traditional articulation approach with Metaphon, explicit correction resulted in children exhibiting frustration and unease. Although the indirect nature of Metaphon approach was shown to be more responsive to the child and suggested as a more 'face-saving' way of presenting tasks, Hulterstam and Nettelbladt (2002) advises that the SLT ensures the child understands what is required of them when carrying out indirect tasks. The findings of the different use of neutral and correction strategies by parents and the SLT suggests that it may be useful for the clinician to engage in discussion with parents about which strategies to use, matching the strategies to the child's speech profile.

It has been suggested that we need to better understand communication breakdown and repair sequences and the role they play in therapy (Baker and McCabe, 2010). This study provides a detailed description of, in one speech clinic, how one SLT and group of mothers elicited and evaluated therapy targets and how repair was carried out. This clear description of therapy is one way of reaching a better understanding of how communication breakdown and repair is used in speech teaching.

The study builds on the work carried out by Gardner (1994) by making the parent comparison using a larger cohort of parents. The children were a similar age to those in Gardner's research but they had different demographic characteristics. The children lived in a different country, and they experienced a different education system with its recent emphasis on the structured teaching of phonics (Department for Education and Standards and Testing Agency, 2014). Differences between my data and Gardner's were that I was the SLT and researcher whereas Gardner's parents and SLT were research participants. Also Gardner studied a number of SLTs but only one mother in detail. I gathered data in a speech clinic

whereas Gardner filmed children at home. Gardner's study included a number of mother-participants but she selected for comparison a mother whose interactional style she felt was particularly different to the SLT. One of the key differences between the mothers in my research and Gardner's findings was that my group of mothers as a whole did not seek overall correctness. In my research only one of the mothers attempted overall correctness by rejecting a speech inaccuracy which was not the child's current target (shown in Extract 14 in Chapter 10), she did this only once. A larger group of parent participants would shed more light onto the interactional strategies parents used.

Another interesting difference between the data in this study and Gardner's is that there were no examples of the SLT 'tidying up' the child's minimal pairs using inaccurate 'clarifications'. Gardner suggested that the SLTs in her study were influenced by their understanding of phonological rules when they made their selection of minimal pairs (Gardner, 1997). These clarifications did not have the intended outcome, with the child responding as if the repair was being made at the lexical rather than phonetic level (Tarpjee, 1993). The data for Gardner (1997) was collected over 25 years ago. Without more data from a larger number of SLTs and parents it is difficult to know if these differences are due to individual style or represents change in interaction style across the SLT profession.

11.3.2 Mothers Struggle to Carry Out Home Practice

There is evidence that the presence of an SSD in a child is associated with an impact on the acquisition of literacy and progress in school (Masso et al., 2017; Rvachew et al., 2003; Wren et al., 2021) and difficulties making and sustaining friendships (Jensen de Lopez et al., 2021; McAllister et al., 2011). Children with SSDs can encounter a range of social difficulties including bullying and marginalisation (Barr et al., 2008), insecurity when speaking (Verissimo et al., 2012) and being perceived as less able and less employable (Allard & Williams, 2007; Overby et al., 2007).

One of the rationales for involving parents in speech intervention is that more speech practice will be carried out, thus reducing the impact of the disorder and improving outcomes (Allen, 2013; Gunther & Hautvast, 2009; Sugden et al., 2020). Survey research suggests that SLTs often give parents homework tasks to carry out (Sugden et al., 2018a; Sugden et al., 2018b), with survey evidence from parents suggesting that 15 – 30 minutes of homework is feasible (Vetter, 2003). There are varied perceptions about parent compliance. In a survey of 277 therapists, 29% suggested that parents lacked capability when carrying out activities (Watts Pappas et al., 2008). In a more recent study when 156 clinicians were surveyed about how to facilitate home practice, 119 gave suggestions to incorporate activities into daily routines, use handouts and explicit instructions, and to observe parents after training, much as was done in this study. Of the group of clinicians, seven reported that nothing works to increase parental involvement (Tambyraja, 2020).

Taking into account family preferences when negotiating how the speech intervention will be delivered is an important part of family-friendly practice (McAllister et al., 2011; Watts Pappas et al., 2009). To improve parent capability with creative solutions, we must first understand what parents are struggling with, particularly accounting for the emotions parents are having to battle whilst carrying out home practice. These emotions have been reported by others to interfere with completing home practice (Sugden et al., 2019). This study builds on previous work identifying the struggles of parents carrying out speech sound activities (Sugden et al., 2019). The parents in this research referred to a range of emotions including guilt about not helping the child enough, embarrassment of the child's difficulties, frustration about the lack of progress, devastation when the child could not imitate what they felt was a simple word, and reference to how difficult it is to witness their child struggle. When reporting what they struggled with, there was reference from mothers to difficulties

engaging and motivating the child, scheduling homework into their routine and that some of the targets suggested by the SLT did not fit into their daily lives.

A key finding about the struggle was that parents have difficulties determining correct and incorrect speech attempts. The decision as to whether a speech attempt should be accepted is not binary in the way a lexical error usually is (Tarplee, 1993). Sometimes the adult needs to decide whether or not the child is moving along a continuum from error to correct, requiring careful listening to how the child has produced the target. Although parents have been shown to be better than strangers at understanding their child with speech difficulties (McCartney, 1981), this does not seem to enable them to discriminate precisely what speech errors the child is making. Previous research has demonstrated that clinical experience working with children with SSDs leads to better perception of phonetic detail (Klein et al., 2012; Munson et al., 2012), but there is a paucity of empirical research showing the difficulties parents have making judgements about speech accuracy in speech clinics. In the CA it was shown that some mothers made unexpected rejections of what were correct speech attempts from the child. Consistent with these CA findings was that in the TA some mothers talked about their difficulty evaluating their children's speech attempts. Noel's mother jokingly suggested that she needed to take the SLT home to help her with the activity. Another mother reported feeling that she was getting better at identifying her child's errors but she did not suggest that she was learning to identify differences between what to accept and what to reject.

It is particularly important that a clinician understands parents' difficulty perceiving speech errors before they give parents activities to carry out at home. If mothers cannot identify errors and changes in the child's speech they will struggle to evaluate the children's speech attempts. If the child does not receive accurate evaluation then they will not have feedback on which to build another, hopefully more accurate, attempt. Such difficulty may

well be one of the reasons that so many parents report the preference for traditional SLT-led therapy (Carroll, 2010; Ruggero et al., 2012). These findings are important for clinicians in helping them determine how much parents can realistically carry out at home. The findings also suggest the need to include discussion about potential difficulties with speech perception at the start of an intervention. There may also be times that the approach by Lancaster et al. (2010) could be used and parents are given auditory rather than speech production tasks for home practice.

This research examines the difficulties that parents face from the perspective of parents themselves alongside data on how they actually carried out the activities. This is important because it highlights the importance of clinicians listening to what parents are saying about their involvement whilst the intervention is taking place. It is important that on listening, clinicians respond to concerns and find bespoke resolutions rather than giving a one-size-fits-all approach. This information is also useful for those planning services when determining service delivery models for children with SSDs including the consideration that some children's needs may be best met with SLT-led intervention.

11.3.3 Parent Training Needs to be More Explicit

In this research, parent training was offered in various forms. This included: SLT demonstration of supportive strategies in the speech intervention; videos of the child and SLT or parent working on speech targets; and discussion of strategies supported by an information leaflet. This approach to parent training is widely used in speech clinics (Sugden et al., 2018a; Sugden et al., 2018b). The quantitative analysis in Study 1 was evidence that the therapist used a range of explicit and supportive strategies which the mothers were observing. The analyses in Studies 1 and 2 then showed that when the mothers carried out the homework demonstration tasks, their use of supportive strategies did not always match that of the SLT. In these activities, mothers were more likely to use neutral strategies to elicit targets. They

praised without indicating why the praise was being given. They also gave explicit correction to the child about inaccurate speech attempts without being explicit about what the child should do instead. In addition, the mothers showed no increase in the use of explicit strategies over the course of the intervention. The CA also showed how the mothers used some of the techniques used by the SLT but less explicitly. These findings are important because research such as Sugden et al. (2018b) suggest that SLTs believe parents will pick up the strategies they are demonstrating by real-time observation of activities being carried out and this may not be the case. Whereas several studies report parents describing becoming increasingly skilled at carrying out activities (Davies et al., 2017; Sugden et al., 2019), these studies were longer than the current study and there was no evaluation of how parents interacted with the children to establish in what way parents were actually becoming more skilled.

Gardner (2006) has raised the issue that too often generic training about speech disorders delivers information about the speech sounds and error patterns being targeted rather than how to elicit speech attempts and how the adult should respond. The findings in this research suggest that such generic training would not meet the requirement of this set of parents who were concerned about how to carry out the activities on a day-to-day basis, rather the concept of ‘family-friendly’ practice (Watts Pappas et al., 2009), where families are involved in intervention but the professional retains the responsibility of providing the child with an evidence-based programme, would meet their needs. Training would need to focus on the ‘how’ rather than the ‘what’ of speech intervention (Gierut, 2005). This may be that parents are given a rationale for slowing down the speech model, or for why there are differences in the way that way speech and reading tasks are carried out.

I have now summarised the results of this research and highlighted the key findings. I turn to a description of how issues of scientific rigour were addressed in the study, followed

by strengths and limitations of the study. I then describe the clinical implications for children with SSDs, their families and clinicians who work with them.

11.4 Maintaining Scientific Rigour in the Research

Any scientific study, whether adopting a quantitative or qualitative paradigm, should aim to achieve scientific rigour (Bryman, 2016). When carrying out quantitative research, the criteria of reliability, replicability and validity are commonly applied (Bryman, 2016), these criteria are concerned with whether or not a study could be repeated, if measures used reflect the concept that they purport to measure, and if the conclusions of the study appear genuine. Tobin and Begley (2004) describe the difficulty of applying the criteria from quantitative research that they refer to as the ‘trinity’ of reliability, validity and generalisation to establish methodological rigour in qualitative research. Baillie (2015) in an exploration of scientific rigour in qualitative research argues that in qualitative research the criteria should be different to those of quantitative research. Morse (2015) suggests that differences in approach between the two paradigms are required due to the less structured data collection methods used in qualitative inquiry, the use of different analytical methods, and the subjectivity of qualitative data. Tracy (2010) considers that these differences have resulted in qualitative research being looked upon less favourably by policy makers and funding bodies.

There are however numerous quality criteria for qualitative research leading Tracy (2010) to describe the literature as “brimming with criteria for qualitative goodness” (p.837). As examples, Morse (2015), cite Guba and Lincoln’s (1985) transformation of qualitative inquiry with the overall goal of trustworthiness in research, by identifying different criteria, made up of the constructs of credibility, transferability, dependability and confirmability. Koch (1994) describes how trustworthiness can be demonstrated by the use of an audit trail to which the reader can refer. Roberts et al. (2006) refer to just two criteria, arguing that

reliability and validity are key principles that researchers can use to demonstrate the trustworthiness of research.

To promote focused dialogue on quality in qualitative research, Tracy (2010) lists eight criteria for quality. She begins with the need to demonstrate that the research is a worthy topic, that it demonstrates rich rigour with abundant data, demonstrates sincerity, credibility and resonance. Also that the research makes a significant contribution, is ethical and that the research question, methods and procedures are coherent. Within the construct of sincerity Tracy considers self-reflexivity to be “one of the most celebrated practices of qualitative research” (p.842). Tracy discusses two aspects of self-reflexivity, both the insight a researcher has about any potential biases, and how these biases impact on the research process. Self-reflexivity as it relates to the current study will be discussed in the next section.

11.4.1 Reflexivity and the Researcher’s Role

When describing reflexivity, Tracy (2010) refers to the need for honesty and authenticity about one’s self in terms of strengths and shortcomings, being aware of the subjective bias that may arise from our own thoughts and feelings. Etherington (2004) in a book about reflexivity references the information provided about the research contexts which can also have an impact on research findings.

In this study, which is an exploration of the parent role in speech interventions, the researcher’s background of almost 40 years as an SLT working with children with SSDs could have impacted on the research in a number of ways. Firstly there are aspects of the dual role as SLT/researcher which may have strengthened the data. In other research exploring parent experience of therapy, parents’ accounts were obtained away from the clinic by a researcher they had not previously known (Davies et al., 2017). This research has garnered parent views using conversation with an SLT with whom they had a relationship even prior to the start of the study. Parents were familiar with the clinic, situated in a

healthcare setting that they use frequently with their children. The data was obtained over a number of weeks as parents attended the intervention, allowing for mutual trust and confidence to develop which may have increased the validity of the data (Morse, 2015).

However talking to a clinician may have influenced what the parents shared in their conversation. There are numerous assumptions parents may have made about what it was appropriate or necessary to discuss with the clinician so they may have failed to refer to certain topics that were in fact important to them. It was also important to reflect that as the research was carried out in a clinical setting, being aware that there are limits on clinical time, parents may well have been reluctant to engage in conversations that they felt would have taken up valuable SLT time. The parents may also have made assumptions about what aspects of what the child had done at home was of interest to the SLT which may have influenced what they shared in the demonstration segments.

The dual SLT/researcher role may also have resulted in the researcher making assumptions about the views reflected in the data, e.g. that 'nothing works' to facilitate parents' involvement (Tambyraja, 2020). In addition, familiarity with the use of supportive intervention strategies as a clinician may have influenced the way the researcher carried out coding and formed the strategies into categories.

Although the dual role of SLT/researcher and the setting itself may have had an impact on the research, there are other factors that are important when aspiring to carrying out high quality research. Tobin and Begley (2004) reflect that there is a muddled use of quality criteria which may stem from researchers feeling a need to 'prove' a lack of bias using positivist terminology when research methods use a qualitative paradigm. This is not to reject any means of demonstrating research integrity in qualitative research, but the authors suggest criteria used to evaluate it should be different. They list criteria that describe rigour

using terms that are appropriate to qualitative research, three terms will now be described: credibility, transferability, dependability.

11.4.2 Credibility

Credibility aligns with the concept of validity in the quantitative paradigm as described by Tobin and Begley (2004). The evaluation of qualitative data requires a different process, with many researchers carrying out respondent validation (Bryman, 2016). This refers to how well the researcher demonstrates a match between the participants' views and how they are reported. Baillie (2015) suggests member-checking which in the case of this research would mean sharing transcripts to provide an account of what was said in the conversations/interviews to the participant to verify that the researcher's findings are congruent with their views. These studies were however carried out over a number of years. The analyses were not carried out until much later when all but one of the children no longer had a relationship with the service. Therefore it was not possible to carry out member-checking in this research, so establishing that the thematic analysis had truly represented participant views and experiences was not possible.

11.4.3 Transferability

This concept, which is aligned to validity, refers to how the findings generalise to other contexts. In discussing transferability Tobin and Begley (2004) acknowledge that in the naturalistic paradigm, multiple voices are represented and as such there is no direct transferability. Baillie (2015) suggests that the provision of rich description and by providing negative cases for comparison, readers can make judgements of how likely the outcomes would transfer to other settings. The rich description in this research is achieved by basing the three analyses on more than 50 hours of data. However in common with other small-scale studies there is only limited generalisability of the results as there is only a small number of participants (Denscombe, 2017), particularly that there is only one SLT. In this

study only one of the 16 parents approached did not go on to participate. It could be that this small group were representative of the caseload in general. Conversely by recruitment of participants from families who were already referred into the speech service, inviting them to 'opt in' to the research may have resulted in participants who were more cooperative and positive about parent participation than if they were selected more randomly.

11.4.4 Dependability

This criterion which aligns to reliability in quantitative research is said in the discussion by Tobin and Begley (2004) to be achieved by a process of audit. Records and documents can demonstrate to the reader how methods were chosen and decisions were made. The technique described by Baillie (2015) is for the researcher to keep pertinent records with a record of the thinking behind the research decisions. In this research an audit trail of decisions was kept through a research diary. The diary was a record of how the researcher's thinking evolved.

Other strategies used to demonstrate dependability in this research was the regular sharing of the data with the PhD supervisors to discuss data collection and interpretations of the data. Also after the inter-rater reliability exercise, SLTs with experiences working with children with SSDs described the sessions they viewed as typical of intervention sessions for this clinical population.

11.4.5 Triangulation

The process of using two or more theories, participant groups, research methods or even investigators is referred to in the literature as 'triangulation' (Baillie, 2015). If two or more data sources present the same findings, this is used by researchers to support the quality of their work. If similar findings are obtained from different sources, it makes conclusions more credible such as those of Wilkinson et al. (2010) who used a mix of CA and quantitative and qualitative methods to evidence change in their participants' conversational behaviour.

Triangulation of data can be carried out systematically as was by Spencer and Bryant (2019) who compared the discourse analysis, standardised assessments and reports of a patient with aphasia in their discourse analytic case study.

In this research in contrast, triangulation was carried out at a descriptive level. In this study, the quantitative analysis and the CA showed that mothers were more likely than the SLT to make direct correction of the children's errors. Mothers also referenced using speech correction in the TA. Similarly there was consistency in the findings of the analyses between one of the mothers in the TA reporting difficulty perceiving correct or inaccurate speech attempts by the child. This difficulty with speech perception was also seen in the interaction of several of the mothers during the CA. This consistency of the data across analyses adds to the strength of the findings.

11.5 Strengths and Limitations

In the previous section I have discussed research findings alongside the criteria used to determine scientific rigour. In the next two sections I will discuss other strengths and limitations of the study.

11.5.1 Strengths of the Study

Of previous studies carried out examining the interaction that takes place during speech interventions, the focus has been on speech-teaching exchanges and not the session as a whole (Gardner, 1994; Hulterstam & Nettelbladt, 2002). One strength of the current study is that the sessions were filmed in their entirety allowing the researcher to capture all of the interactions including any introductions. This allowed new insight to be made about how the SLT made explicit to the child the need to make speech change even before the first activity took place.

Another strength of the study is that data was collected in the clinic whilst the intervention was taking place. The mothers were not being asked to recall incidents that had happened some time earlier. Other researchers who have explored parent views have used surveys such as Glogowska et al., (2001) who attempted to avoid difficulties with recall by asking parents to rate agreement to statements about aspects of therapy rather than asking them about therapy that had taken place 12 months earlier. Glogowska and Campbell (2000) justify their 12-month delay from beginning therapy and carrying out interviews by stating that views would have crystallised by the time data was collected. In my research participants may not have had time to develop crystallised views of speech interventions, but the resulting detailed description is of parents' real-time experiences.

Researchers have also used semi-structured interviews (Baxendale et al., 2013; Davies et al., 2017; Marshall et al., 2007; Sugden et al., 2019; Watts Pappas et al., 2016) to access parent opinion. Not only is there also a time-lapse between interventions and these interviews, the information gleaned also depends on the questions being asked. The questions are guided by the research question of the study which may not reflect parents' key concerns. A strength of this research, is that the parents were talking about their real-time and real-life experiences, and topics were determined by the parents themselves. It may be that this methodology, by relying on issues the parents raised, may not examine some topics in as much depth as in interviews (Watts Pappas et al., 2016) but over the course of the programme they raised a range of topics that gave insight into how they experienced and valued the intervention their child was receiving.

Other studies of parents' experiences of intervention have asked parents for their views (Davies et al., 2017; Marshall et al., 2007; Watts Pappas et al., 2016). There have been studies of parent participation in interventions with improved outcomes for the child (Bowen & Cupples, 1998; Lancaster et al., 2010), also comparisons have been made of adults

interacting with children with and without SSDs (Gardner, 1989; McCartney, 1981). A strength of my research data is that rather than single interviews, the examination is of authentic and in-depth parents' real-time experiences of therapy alongside an examination of their interaction with the child over the course of the intervention.

An inter-rater reliability exercise was carried out in Study 1, establishing the consistency of the coding and that the sessions were typical of speech interventions carried out by other experienced paediatric SLTs (see Chapter 5, Section 5.5.12).

11.5.2 Limitations of the Study

Although the relationship between SLT and parent can be considered a strength, the working relationship between the parents and SLT is a possible source of social desirability bias (King & Bruner, 2000) and a potential limitation. This bias is the tendency for subjects to present themselves in a way that gains approval from others, and as such, parents may have been reluctant to give negative feedback to a clinician they had built a relationship with.

A methodological limitation of the study was that the framework analysis was made on conversational data which consisted of numerous short turns. Although TA is flexible enough to be carried out on most types of qualitative data, Braun and Clarke (2013) reflect that short answers do not provide 'rich' descriptions. This data is less rich and as a result the codes reflect more of the semantic content of the data than the more conceptual interpretations of the data (Braun and Clarke, 2013). Clarke (2021) observes that this is common in applied and practitioner-led analyses. The resulting analysis is less interpretative and closer to a summary of the topics that the mothers talked about than would have been in an analysis of semi-structured interviews which, carry their own disadvantages, as described in the previous section.

In common with other small-scale studies there is only limited generalisability of results. This is due to the small number of participants (Denscombe, 2017) obtained using a

convenience sampling approach possibly limiting the diversity of demographic characteristics of participants. Using a similar methodology on a larger number of participants would go some way to addressing this issue.

Another limitation of the data in terms of its generalisability was that it was only collected from a single SLT participant. The research was carried out in a small country with only one team of paediatric SLTs. At the time only two clinicians worked with the caseload of children with mild-moderately severe SSDs that were participants in this study: a newly qualified clinician and the researcher who was her line-manager. Given the difference in experience and the relationship between the two it would have been inappropriate to invite the newly qualified SLT to participate.

After demonstrating and discussing therapy tasks with parents the therapist makes an assumption that they will go on to use the most helpful strategies during home practice. The methodology used, whereby all of the filming was done in the speech clinic did not establish whether parents were using the same strategies at home. This is a limitation because it may be that the mothers did not make the same introductions as the SLT feeling that presence in the speech clinic itself had established that speech work is the 'business at hand'. It also could be that the activity had been well-practiced and that the parent had carried out preamble work at home which they felt did not need repeating. Parents may have used the homework demonstration segments as a way to display progress to the clinician rather than treating it as a practice session and may not have considered that they should be using the same techniques as they would in a typical homework session.

This section has described some of the strengths and limitations of this research. I will now consider the implications of my work by considering the value of the findings for clinicians, for managers when considering service delivery options, for those who plan services, for families and above all for children with SSDs.

11.6 Clinical Implications

SSD is known to be a high-prevalence condition (Eadie et al., 2015; Law et al., 2000; Shriberg et al., 1999; Wren et al., 2016), in some children difficulties can persist into mid-childhood (Wren et al., 2021) and adulthood (Lewis et al., 2015). Given that SSDs have been shown to have an impact on children's acquisition of literacy (Nathan et al., 2004), educational progress (Skebo et al., 2013; Wren et al., 2021), language development (McLeod et al., 2017), social development (Hitchcock et al., 2015), self-esteem (Verissimo et al., 2012) and life outcomes (Felsenfeld et al., 1994), research about SSDs is of importance to clinicians, families and those who plan speech services.

Whereas there has been considerable research interest into what intervention approaches and targets to use in a speech programme (See Chapter 2, Section 2.1), there is scant empirical research into how therapy programmes are delivered, how speech is taught on a turn-by-turn basis and which aspects of intervention are evidence-based kernels (Baker & McCabe, 2010; Embry & Biglan, 2008). There is even a suggestion by Gierut (2005) that 'what' is targeted in a speech programme is more important than 'how' it is taught which might imply that supportive strategies have no value. Gardner (1994) suggested that we need to know more about what happens in therapy because it might not work the way we think it does. It is only with detailed descriptions of therapy being carried out that we can start to examine how speech targets are best taught. This will help determine, not only which approaches are more effective i.e. contrasting minimal pairs and empty set, but also what strategies need to be used, in what quantity, and in what combination such as whether modelling and articulatory strategies are better used in combination or alone. This study makes a contribution towards this knowledge about how therapy works by offering a description of how, in one speech clinic, therapy targets are elicited, evaluated and where necessary how repair is carried out by the SLT and parents. The detailed description of

supportive strategies and how explicit the SLT is in their use is also a valuable opportunity for clinicians to reflect on their own professional practice (Tykkylainen, 2009).

There is a long history of concerns about waiting times to access speech and language therapy services (McGill et al., 2020; Rvachew & Rafaat, 2014) partly due to the financial constraints on the public purse. A recent global pandemic has further reduced access to SLT services in some areas and responses such as the use of teletherapy has resulted in increasing demands on parents to fill the gaps (Chadd et al., 2021; Lee, 2018; Tohidast et al., 2020). There is increasing evidence that parent training is valued by clinicians (McLeod & Baker, 2014; Sugden et al., 2018a; Sugden et al., 2018b; Tambyraja, 2020) and is considered as a way to improve parent capability. It has long been known that parents with training can make a difference in the progress of children with other SLCN (e.g. Roberts & Kaiser, 2012; O'Brian et al., 2013; Shields, 2001). Training for children with SSDs is typically embedded within interventions (e.g. Bowen & Cupples, 1998), the training used in this research whereby the clinician demonstrated activities to parents, followed current practice (Sugden et al., 2018a; Sugden et al., 2018b). Additionally, the therapist talked to the parents about theoretical concepts that underpinned strategy use and gave out information sheets (for sample scripts see Appendix 11). The results of the quantitative analysis showed during the speech intervention activities not all parents were equally successful in the use of the strategies demonstrated by the SLT. In particular, parents showed little use of the explicit articulatory strategies that the SLT was demonstrating. This knowledge is important to speech and language therapy practitioners and to those who develop policies for service delivery because it demonstrates that parents are unlikely to pick up skills simply by watching the activities being carried out.

Requests from the parents to clarify activities that had just been demonstrated illustrates how important it is for the SLT to schedule time to discuss the content of the

activities to make sure that parents are clear about what to do and that it is functional for the family. This allows for adjustments before the family leaves the clinic and avoid a week of unsuccessful homework. Some mothers expressed concern about their speech model, this is another issue that may need discussing so that parents leave the clinic confident that they are competent to deliver the intervention.

Findings about the difficulties parents have when carrying out speech activities show that demonstration of strategies may not meet the needs of all parents. Some may need more explicit coaching about interaction with a child with SSDs. Parents need to be well coached about how to set up the sessions to make it explicit to the child that the activities are about speech change rather than simply playing games. They also need to be shown how children are given explicit feedback about their speech attempts and what speech change needs to be made. This knowledge could help clinicians design training and coaching programmes for parents. This would help to make the best use of the limited clinical time available (Skahan et al., 2007) and improve outcomes for children with SSDs.

The information about the difficulties parents have carrying out home practice could also guide clinicians and educators on the content of training for students and support staff. This has been criticised for being generic, focusing more on ‘what’ needs to be targeted i.e. the speech sounds and error patterns, rather than ‘how’ to carry out the activities (Gardner, 2006).

This research provides evidence that listening to what is said during an intervention is a valid way for clinicians to gain insight into parent perspectives of SSDs and the success or difficulties they had carrying out their children’s speech practice. The same methodology could be applied by the clinician to listen to parents of children with other SLCN. Learning about parent views and their priorities helps us to ensure that these are put at the heart of what happens in a speech clinic, so strengthening the relationship with the parent. Discussion

about what parents are struggling with offers the SLT opportunities to suggest ways of overcoming those obstacles and where necessary reduce the demands on parents. As an example, some of the mothers anticipated a struggle following the SLT's recommendation to use reading as a context for speech practice. It is important that the SLT fully explores with the parent how to incorporate speech tasks into their daily activities, to agree on target words that the parents can use and to clarify the activities before the parent leaves the clinic.

In previous studies, parents have provided multiple suggestions about the cause of SSDs (Glogowska, 1998; Kummerer & Lopez-Reyna, 2006; Marshall et al., 2007; Marshall et al., 2017). The parents in this research were no different with suggestions ranging from hearing, autism, laziness on the child's part and in some cases that they may have unwittingly not done enough in the past to correct their child. If the SLT engages in conversations with the mothers about the current evidence for the causes of speech disorders, some of the guilt felt by the mothers could be assuaged.

There was evidence from both parental report and the CA that some parents had difficulties determining correct and error speech sounds. It is important that parents can perceive speech errors in order to give accurate feedback to the child. Without clinical experience parents may find this difficult and so those who commission services may need to consider how realistic it is to place demands on parents to fill gaps in services rather than employing trained clinicians.

A principle of EBP and of family-friendly practice is that the family's informed decision needs to be respected (Mulley et al., 2012), the findings from this study indicate that not all parents have the skills to easily carry out a speech programme and demonstrates why the training needs of parents must be considered prior to giving them speech activities to carry out. It may be that parents decide not to take part in their child's programme. This understanding is important for those who plan services as parental involvement in speech

programmes may not suit all families and cannot be relied upon to make up the shortfall in speech services.

11.7 Future Directions

This research has described how 13 mothers participated with an SLT during intervention for SSDs. Inevitably during the analysis and discussion of findings, more questions have been raised and these will now be discussed.

Although the study identified the strategies used by the mothers and clinician, finding similarities and differences in use, how the clinician uses strategies is based on clinical experience and not empirical evidence. Further research is needed to explore which strategies are evidence-based ‘kernels’ (Embry & Biglan, 2008) that make a difference to the child’s progress, how often they should be used, in what combination and at what point on the child’s journey to speech accuracy. Further research could match strategy use with an intervention approach e.g. identifying at what point of a minimal pairs or maximal opposition programme the child benefits from articulatory information or modelling. Some work has already contrasted the use of requests for clarification using correct or incorrect versions of the child’s error (Gozzard et al., 2008; Masso et al., 2014; Weiner & Ostrowski, 1979) but these studies were carried out without a detailed analysis of how the clarification request was delivered, particularly examining prosodics such as pausing and word stress. In the same way that the Learnability Project has examined selection of speech targets (Gierut, 1989, 2001, 2007; Gierut et al., 2001; Gierut et al., 2010), extensive research with children of different ages and different levels of severity is warranted to determine how best to elicit, evaluate and repair speech attempts. This knowledge could determine which strategies relate to the clinician’s personal style and which are evidence-based kernels (Embry & Biglan, 2008).

Without clinical experience, making phonetic judgements can be difficult (Klein et al., 2012; Munson et al., 2012). Comments from one of the mothers in this research suggested that she was finding it difficult to perceive accurate and inaccurate speech attempts. The error pattern being worked on was changing a non-English voiceless palatal stop [c] to [t] and [k]. This is perhaps a harder judgement to make than listening for cluster reduction or error patterns where the error and target are English phonemes. Further research is warranted to establish which error patterns parents find easier to perceive. This information could help SLTs consider error patterns when deciding which children receive SLT-led therapy and which dyads are likely to succeed with a family-led approach that gives the parent the responsibility for carrying out much of the speech practice.

The analyses show that the mothers were not using supportive strategies in the same way as the SLT. The parent accounts of how they experienced the intervention also identified some of the mothers' struggles. Although demonstration of activities is a well-used form of parent training in a speech clinic, indications from this study are that watching the clinician carrying out activities may not fully prepare parents for carrying out the activities alone. Further research is needed to identify more successful approaches to parent training, identifying precisely what parents need to know in order to successfully carry out speech practice. Research could track what parents said against teaching points made by the SLT and strategy use by the parent to see how best to coach parents to carrying out the intervention. This knowledge should take into account the needs of parents of children with mild to moderate speech difficulties who are not likely to need extended speech programmes, and parents of those children who are likely to need more intensive support.

The data on which the analysis of parent strategy use was made was what the mothers did in the homework demonstration segments. The mothers were asked to show what they had been doing, with no request to replicate exactly what they would have done at home.

Several comments by the mothers indicated that there may have been differences therefore what was demonstrated in the clinic did not replicate home tasks. Asking parents to film themselves at home carrying out homework and analysing this data may add new insights into how parents carry out speech tasks.

Three methods of analysis were used on this research data. One way of looking at the data is to carry out triangulation as described in Section 11.4.5. The triangulation carried out in this study was descriptive rather than being approached systematically. Further research could consider carrying out a similar study with a more systematic comparison of the analyses.

This research examined the supportive strategy use of a single clinician. Further insight may be provided by analysing a larger number of clinicians including those trained in different universities and those working in different countries. This comparison would help to establish what are the 'core' therapy talk strategies, what is a clinician's personal style and if the differences seen between the SLTs in Gardner's data and my data represent changes in the way SLTs interact over the 25 years between the two studies.

Insight into parent experience of the speech intervention was gained by looking at what the parents said during the intervention. Recording and analysing what parents say during interventions for other SLCN could be equally valuable. Such information would be a valuable resource for clinicians in understanding how to include parents in other therapy programmes.

11.8 Conclusion

The two studies described in this thesis examined what parents do and what they talk about when participating in speech interventions for children with SSDs. The research has not addressed the issue of how the children are assessed, the nature of an SSD or child speech

outcomes. Rather the research examined what adults do during the intervention sessions, an aspect of intervention which has been considered by some to be less important than the targets selected Gierut (2005). The research made a comparison of how one SLT and thirteen mothers used supportive intervention strategies during speech activities, focusing on what the SLT and mothers did, not on the child outcome. What the parents talked about during the sessions was also analysed to gain an authentic account of parents experiencing therapy whilst it was taking place.

There are a number of reasons for taking into account parent experience of therapy. Firstly it is an important part of family-friendly practice (Watts Pappas et al., 2009). Also much of the intervention carried out in publicly-funded clinics is of a lower intensity than the two to three sessions per week suggested in the evidence-base for interventions for SSDs (Baker & McLeod, 2011; Sugden et al., 2018). This concern, along with reported long waiting times for access to speech services (McGill et al., 2021; Rvachew & Rafaat, 2014), has led to suggestions that parents make up for the shortfall in intervention intensity (Joffe & Pring, 2008; Sugden et al., 2020). In response, SLTs often give parents tasks to carry out at home (Bowen & Cupples, 1998, 2004; Dodd et al., 2006; Gunther & Hautvast, 2009; Sugden et al., 2019). Understanding how parents experience carrying out activities is therefore of importance to clinicians and to those who plan services.

Whilst in the literature there is empirical evidence for different interventions for SSDs (Crosbie & Dodd, 2005; Dodd et al., 2006; Gierut & Champion, 2001; Allen, 2013), to date there is no empirical evidence about precisely how interventions are delivered such as if particular strategies are evidence-based kernels of speech intervention (Embry & Biglan, 2008). For example, although there have been a number of studies in the use of communication breakdown and repair in speech disorders (Masso et al., 2014; McCartney, 1981; Weiner & Ostrokowski, 1979), Baker and McCabe (2010) argue that there is no

unequivocal evidence of the specific role these strategies play in the success of cognitive-linguistic interventions. Also there is no empirical evidence about which strategies are better used with different types of speech disorder or at different points on a speech programme. Equally there is little about how explicit the adult should be about the goal of the intervention and what the child is being asked to do. By counting the strategies used by the parents and by making a comparison with an SLT on a turn-by-turn basis using CA, this research adds to the evidence-base about how strategies are used in a speech clinic.

This study builds on previous research describing the supportive intervention strategies used by SLTs and parents, looking at one parent in detail (Gardner, 1994). This study found that the SLT used some of the same strategies as in Gardner's study, adding to the knowledge base by showing a previously unidentified feature of speech intervention, that the SLT makes explicit from the start of the session that the aim of the session is for the child to make speech changes. This study examined a larger number of parents than Gardner and although the parents did achieve some successful exchanges, they tended to use an interactional style that was not explicit to the child about what they had to change. Parents used praise without giving the children information about what was being praised. When they attempted repair, parents used the less explicit strategies that have been used to seek phonetic repair in mundane conversation (Tarplee, 1993). By using neutral strategies or correction they gave the children the message that their speech attempts were being rejected, but they did not tell them what to do instead.

This research is the first to analyse mothers' accounts of their child's speech disorder and their experiences of therapy whilst they were either watching or carrying out the activities. The accounts by the mothers were unsolicited in that they were not produced in response to questions by an interviewer outside the clinic setting, but they demonstrate this is a valuable method of getting an authentic account of the mothers' experiences. The mothers

talk about the difficulties they have carrying out the activities at home, particularly in fitting practice in already busy schedules. An important finding is also the difficulty that some parents have in deciding if a speech attempt is correct or not. This evidence was seen in the CA analysis and also raised by some of the mothers in their conversations.

The research has a number of clinical outcomes that are of value to SLTs, families and those planning services. The research demonstrates that parents do not naturally pick up strategies from watching the SLT deliver the intervention. This has important implications for the way parent training is delivered. Parent training for SSDs is typically embedded in the therapy programme with parents observing the SLT carrying out the activities (Sugden et al., 2018a, Sugden et al., 2018b). This research indicates that this approach may not be explicit enough for parents who may well not pick up therapy talk strategies through observation. Similar consideration may also be made of the way in which Learning Support Assistants and students are trained. Importantly there may also be some children's error patterns, particularly where the children present with disordered sound systems, that are better tackled by a clinician with experience in the perception of phonetic detail in disordered speech (Munson et al., 2012).

As I have come to the end of this research I have come to the realisation that if family-friendly practice (Watts Pappas et al., 2009) and EBP (American Speech-Language-Hearing Association, 2005; RCSLT, 2019; Speech Pathology Australia, 2020) requires practitioners to take the needs and views of service-users into account, it might mean reconsidering the demands made on parents to carry out homework. These demands may not be realistic for all families. This may mean that SLTs have to reconceptualise the role of some parents in the speech clinic. This does not mean that parents do not have a role, instead different ways may be needed to deliver training to support parents to meet their children's speech needs. There may also be some parents who decide not to carry out home practice.

This decision should be respected. Ultimately whoever delivers the speech programme, it is important that children with SSDs receive timely and high-quality intervention to reduce the potential long-term impact of their disorder.

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Appendices

Appendix 1

ETHICS REVIEWER'S COMMENTS FORM

This form is for use when ethically reviewing a research ethics application form.

1. Name of Ethics Reviewer:	Ray Wilkinson
2. Research Project Title:	Investigating and coaching the modelling and feedback strategies used during homework sessions by parents of children with speech disorders
3. Principal Investigator (or Supervisor):	Hilary Gardner
4. Name of Student (if applicable):	Rachel Bear
5. Academic Department / School:	Human Communication Sciences

6. I confirm that I do not have a conflict of interest with the project application
--

7. I confirm that, in my judgment, the application should:			
Be approved:	Be approved with suggested amendments in '7' below:	and/or	Be approved providing requirements specified in '8' below are met:
	X		X
			NOT be approved for the reason(s) given in '10' below:

<p>7. Approved with the following suggested, optional amendments (i.e. it is left to the discretion of the applicant whether or not to accept the amendments and, if accepted, the ethics reviewers do not need to see the amendments):</p> <p>Ethics Application form:</p> <p>p. 2, A 2.1: Dr Hilary Gardner is Senior Lecturer</p> <p>p.2 A3: make starting and finishing date of project consistent with the presentation of these dates again on p. 10 (A8) – currently the dates are different</p>
<p>8a. Approved providing the following, compulsory requirements are met (ethics reviewers <u>do not</u> need to see the required changes)</p> <p>Under 'complaint' section on both the Information Sheet for parents (p. 4) and Information Sheet for SLTs (p. 3), add in Professor Shelagh Brumfitt's name, role (Head of Department, Human Communication Sciences) and contact details (this is because people involved in project should have name of someone outside of immediate project to complain to if necessary).</p>

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8b. Approved providing the following, compulsory requirements are met (ethics reviewers need to see the required changes, which should be highlighted in the resubmitted form):

9. Not approved for the following reason(s):

10. Date of Ethics Review: 23rd December 2013

Signature of reviewer:



Ray Wilkinson

Appendix 2. Ethics Application

Date:	11 th September 2013
Name of applicant:	Rachel Ena Bear
Research project title:	Investigating and coaching the modelling and feedback strategies used during homework sessions by parents of children with speech disorders.

Complete this form if you are a **member of staff or a postgraduate research student** who plans to undertake a research project which requires ethics approval via the University Ethics Review Procedure

or

Complete this form if you plan to submit a **'generic' research ethics application (i.e. an application** that will cover several sufficiently similar research projects). Information on the 'generic' route is at:

www.sheffield.ac.uk/ris/other/gov-ethics/ethicspolicy/approval-procedure/review-procedure/generic-research-projects

If you are an undergraduate or a postgraduate-taught student, this is the wrong form.

PLEASE NOTE THAT YOUR DEPARTMENT MAY USE A VARIATION OF THIS FORM: PLEASE CHECK WITH THE ETHICS ADMINISTRATOR IN YOUR DEPARTMENT

This form should be accompanied, where appropriate, by all Information Sheets/Covering Letters/Written Scripts which you propose to use to inform the

prospective participants about the proposed research, and/or by a Consent Form where you need to use one.

Further guidance on how to apply is at: www.shef.ac.uk/ris/other/gov-ethics/ethicspolicy/approval-procedure/review-procedure

Guidance on the possible routes for obtaining ethics approval (i.e. on the University Ethics Review Procedure, the NHS procedure and the Social Care Research Ethics Committee, and the Alternative procedure) is at:

www.shef.ac.uk/ris/other/gov-ethics/ethicspolicy/approval-procedure/ethics-approval

Once you have completed this research ethics application form in full, and other documents where appropriate, check that your name, the title of your research project and the date is contained in the footer of each page and email it to the Ethics Administrator of your academic department. Please note that the original signed and dated version of 'Part B' of the application form should also be provided to the Ethics Administrator in hard copy.

Ethics Administrators are listed at:

www.shef.ac.uk/polopoly_fs/1.99105!/file/Ethics-Administrators.pdf

I confirm that I have read the current version of the University of Sheffield 'Ethics Policy Governing Research Involving Human Participants, Personal Data and Human Tissue', as shown on the University's research ethics website at: www.shef.ac.uk/ris/other/gov-ethics/ethicspolicy



- A1. Title of Research Project: Investigating and coaching the modeling and feedback strategies used during homework sessions by parents of children with speech disorders.
- A2. Contact person (**normally the Principal Investigator, in the case of staff-led research projects, or the student in the case of supervised-postgraduate researcher projects**):

Title: Mrs

Name: Rachel Bear

Post: Student

Department: Human Communication Sciences

Email: rebear1@sheffield.ac.uk

Telephone: 0035054003070

A2.1. Is this a postgraduate researcher project? If yes, please provide the Supervisor's contact details:

Title: Dr
Post: Senior Lecturer
Email: h.gardner@sheffield.ac.uk

Name: Hilary Gardner
Department: Human Communication Sciences
Telephone: 0114 22 22456

Title: Dr
Post: Lecturer
Email: sarah.spencer@sheffield.ac.uk

Name: Sarah Spencer
Department: Human Communication Sciences
Telephone: 0114 22 22411

A2.2. Other key investigators/co-applicants (**within/outside University**), where applicable. **Please list all (add more if necessary):**

Title:
Post:
Email:

Name:
Department:
Telephone:

Title:
Post:
Email:

Name:
Department:
Telephone:

A3. Proposed Project Duration:

Start date: November 2013

End date: July 2015

A4. Mark 'X' in one or more of the following boxes if your research:

<input type="checkbox"/>	involves adults with mental incapacity or mental illness
<input type="checkbox"/>	involves prisoners or others in custodial care (e.g. young offenders)
<input checked="" type="checkbox"/>	involves children or young people aged under 18 years
<input type="checkbox"/>	involves using samples of human biological material collected before for another purpose
<input type="checkbox"/>	involves taking new samples of human biological material (e.g. blood, tissue) *
<input type="checkbox"/>	involves testing a medicinal product *
<input type="checkbox"/>	involves taking new samples of human biological material (e.g. blood, tissue) *
<input type="checkbox"/>	involves additional radiation above that required for clinical care *
<input type="checkbox"/>	involves investigating a medical device *
<input type="checkbox"/>	is social care research
<input type="checkbox"/>	is ESRC funded

* If you have marked boxes marked * then you also need to obtain confirmation that appropriate University insurance is in place. The procedure for doing so is entirely by email. Please send an email addressed to insurance@shef.ac.uk and request a copy of the 'Clinical Trial Insurance Application Form'.

It is recommended that you familiarise yourself with the University's Ethics Policy Governing Research Involving Human Participants, Personal Data and Human Tissue before completing the following questions. Please note that if you provide sufficient information about the research (what you intend to do, how it will be carried out and how you intend to minimise any risks), this will help the ethics reviewers to make an informed judgement quickly without having to ask for further details.

A5. Briefly summarise:

i. The project's aims and objectives:

(this must be in language comprehensible to a lay person)

Purpose: *There is an increasing body of evidence showing that speech and language therapy for children with speech difficulties can be successful. Despite agreement within the speech and language therapy profession that parental involvement is vital to the success of therapy with children there has been little published research into how parents carry out the specific techniques of modelling and feedback during their homework sessions.*

The project aims to improve outcomes for children who receive therapy for speech sound difficulties by comparing how therapists and parents carry out speech activities. This information will then be used to devise a programme to coach parents to use the techniques that are the most helpful to children. The intervention programme will then be trialled during a second phase.

ii. The project's methodology:

(this must be in language comprehensible to a lay person)

Project Methodology

This project will be carried out in Gibraltar where the researcher is employed as a Speech and Language Therapist in the Gibraltar Health Authority (GHA). The researcher is required to submit this Ethics application to the Chief Executive Officer of the Gibraltar Health Authority Mr F. Pitto for his approval prior to commencing the research.

Phase One: January 2014 – June 2014

Design and Method: The initial exploratory phase (pilot phase) of the study will comprise of a series of case studies of children during their regular speech and language therapy

sessions. The therapy programme will incorporate a number of techniques which have shown to be effective for children with speech sound difficulties.

- Listening tasks
 - Phonetic production training
 - Minimal pairs activities
 - Homework
1. Prior to beginning the programme establish the stability of baseline by a repetition of initial assessment after approximately one month.
 2. Begin weekly sessions at the Primary Care Centre with parent attending. The sessions will be video recorded.
 3. The following speech programme will be administered.

Familiarisation Phase

Familiarisation of the new phonological rule and the imitation of the new sounds and words will be carried out using Metaphon and sound copying activities.

Imitation Phase

This phase uses five contrastive pairs incorporating imitation tasks into focused and play activities and aims for a response rate of up to 60 to 100 responses per session.

When child achieves 70% success imitation of single words over two weeks move to the

Spontaneous Phase

Use the contrasts within spontaneous communicative contexts. Continue to aim for a response rate of up to 60 to 100 responses per session. Give feedback to child via the meaning of their responses. Continue to 90% success rate and then measure spontaneous speech. If less than 50% accuracy in spontaneous speech continue **Spontaneous Phase** with 5 new contrastive pairs.

In addition to working through the speech programme, progress is probed with a different set of 20 pictures every third treatment session. If the child achieves 90% success on the probe a conversational speech sample will be taken. If the child achieves more than 50% success treatment will be discontinued.

Three months after the end of the programme, a further conversational sample will be taken to assess whether progress has been maintained. A decision using Speech and Language Therapy department protocols will be taken at this point as to the need for a further programme. If a further programme is offered data will not be included as research data.

Parents will be thanked and informed that the research phase has ended for their child. Conversation Analysis techniques will be used to scrutinize the data from the therapy sessions in detail. An analysis will be made of the ways the therapist set up an appropriate 'workspace' for carrying out speech activities, what strategies they use to elicit speech targets, how they give feedback, how they manage repair and how they promote generalisation to everyday speaking activities. The same observations will be made of parents when they demonstrate the homework tasks that they were set the previous week. During the sessions parents will be given general feedback about how they and their child have carried out the homework tasks. The feedback may include the parent watching the video recording on an Apple I Pad. The detailed analysis of the data may not take place until after the conclusion of the therapy programme.

The information gathered in this research phase will be used to develop an intervention programme which will form the basis of the second, experimental phase of therapy.

A further application will be made for ethical approval for the second phase when phase one is complete.

Participants:

A maximum of five English speaking children with a phonological delay or disorder attending for therapy accompanied by at least one of their parents.

Inclusion Criteria

- Child eligible to receive speech and language therapy as part of the GHA Speech and Language Therapy (SLT) Mainstream Service (i.e. not on the Special Needs Caseload)

- Parents have given consent to a therapy programme using the GHA SLT Mainstream service generic consent form (attached)
- Aged between 3;00 – 6;11 yrs
- Child has been diagnosed by a qualified speech and language therapist as requiring therapy for speech sound difficulties and that they are likely to respond to the minimal pairs approach
- Have passed a hearing screen either at the time of referral to speech and language therapy or prior to embarking on the therapy programme
- At least one parent fluent in English and willing to attend weekly therapy sessions
- Speech not found to have changed significantly between two pre-assessment sessions administered one month apart prior to the initial therapy session

Data Collection

Data collection will take place at the Department of Speech and Hearing, Primary Care Centre, Gibraltar, the child's home or in a quiet room in the child's school depending on where the child would typically receive their therapy programme.

Video recordings will be made of the entire speech and language therapy sessions beginning with the parent/child dyad demonstrating the homework task carried out during the previous week. The therapy programme will be individualised for each child. The therapist will carry out therapy games and tasks according to phase the child is at within the programme protocols and set new homework tasks.

Parent insight into how tasks are carried out at home and how the child responds may be useful when planning phase two thus the discussion that naturally occurs during the

therapy session between the therapist and parent will be scrutinised as it may include potentially useful information.

Assessment

Assessment 1: A speech sample containing a minimum of 200 words will be collected.

An independent and relational analysis and score of the Percentage of Consonants Correct will be carried out using this data. This will inform the decision as to whether or not a therapy programme is necessary. It is at this point that the child's name will be put onto a list for potential inclusion in the research project. Parents will be sent the parent letter and Information Sheet. The following week another member of the team will call parents to find out if they are willing to participate. A script has been prepared to use with parents. If they agree an appointment will be given for the signing of consent forms.

The child's speech targets for the programme will be determined from the independent and relational analysis using a traditional approach where the choice will be made according to the following factors

- stimulable sounds are selected over non-stimulable sounds
- early developing sounds will be selected over later developing sounds
- priority will be given to sounds that have the most functional impact on the child's speech

Assessment 2: This will take place four weeks after Assessment 1 using a sample of the words from the initial assessment. If there is change in the target error pattern between Assessment 1 and Assessment 2, the parents will be advised that starting a regular programme is not advised and therefore child is not eligible for the programme. The parent would be advised that if the child did not continue to make expected progress and a programme of therapy were to commence at a later date, they would have the option of

using video recording within their programme in the same way as in the research programme although the data would not be used for the research. They would be thanked for their interest and participation in the programme. The child's progress will be monitored according to SLT department protocols and further therapy offered as appropriate.

A6. What is the potential for physical and/or psychological harm/distress to participants?

No physically invasive techniques are used during the study.

The children will participate in typical speech therapy sessions which children routinely enjoy because they involve playing games with an adult and earning motivational stickers.

The child will be engaged in play activities for most of the 50 minute therapy session. The researcher is a qualified speech and language therapist and is alert to signs of tiredness or distress due to the level of difficulty of the task. If the child is found to need a break in the tasks, he or she will be allowed some time to play with their choice of activity from the selection in the clinic until they are ready to cooperate. If necessary the session will end early.

As is the case when any child attends the Primary Care Centre for therapy, some of the sessions may involve missing some school time. The number of sessions are kept to a minimum and it is usually felt by education staff that the benefit in improved intelligibility and phonological awareness activities warrants the short amount of time out of class.

There is a potential for parents to feel uncomfortable whilst being videotaped if their child is being uncooperative. The researcher will be sensitive to this and reassure parents as appropriate. Parents have the option to stop the camera at any point during the recording,

but if the researcher becomes aware of increasing parental embarrassment, parents will be reminded of this option.

A7. Does your research raise any issues of personal safety for you or other researchers involved in the project? (especially if taking place outside working hours or off University premises)

Parents will be given the choice to hold initial interviews in their home if this is more convenient for them.

If yes, explain how these issues will be managed.

Home visits may be made, but data will not be collected after 7 pm. The researcher would also ensure that should a home visit be planned the address is known to another speech and language therapist to whom the researcher will make a pre-arranged phone call prior to the home visit and then again 60 minutes later or at the conclusion of the visit whichever is sooner. If the visit has not finished, calls to the speech and language therapist will be made every hour until the visit has ended. The safety measure would be explained to the participants before the session starts.

A8. How will the potential participants in the project be:

i. Identified?

The participants will be selected from the Mainstream caseload which is covered by the researcher and one other Speech and Language Therapist.

As from the pilot study start date i.e. January 2014 to the end date in June 2014 all children who require a new therapy programme will be considered as potential participants and all children who meet the inclusion criteria will be placed on a list stored on the secure password protected GHA server. Each week the researcher will review the list and send initial letters and information sheets to parents of any child on the list.

ii. Approached?

The researcher will send the initial letter and information sheet to the parents of all children who meet the inclusion criteria inviting them to join the project.

iii. Recruited?

One week after they have been given the information sheet and letter a speech and language therapist from the GHA (not the researcher) will follow up the invitation with a phone call to find out if they are willing to take part in the study. The speech and language therapist will use the information in the script provided when answering any parent questions. This stipulates that whether they agree or decline will not in any way affect their child's current or future access to speech and language therapy services.

If parents are willing to participate, an appointment will be made to meet the research therapist in either the Primary Care Centre or in their own home. At this appointment they will have the opportunity to discuss the research, read through the consent form, ask any further questions and arrange for the initial therapy session should they decide to go ahead. Once five participants have been recruited and complete the project, no further participants will be recruited.

A9. Will informed consent be obtained from the participants? Yes

Yes No

If informed consent or consent is **NOT** to be obtained please explain why. Further guidance is at: www.shef.ac.uk/ris/other/gov-ethics/ethicspolicy/policy-notes/consent

A9.1. This question is only applicable if you are planning to obtain informed consent:

How do you plan to obtain informed consent? (i.e. the proposed process?):

The initial information sheet will include information about the collection and storage of video and written data. The information contained in this document will be discussed with the parents and any questions answered.

Parental consent will be sought for the following

- Parents to agree that their child's therapy session is recorded and the video data analysed using conversation analysis approach.
- Parents agree to being recorded whilst carrying out homework tasks
- Parents give consent for video and scanned written data produced in the sessions to remain confidential and safely stored on the GHA password-protected server, on an encrypted computer drive or an encrypted hard drive kept within a locked cupboard in the Department of Speech and Hearing for the duration of the study and up to ten years after the end of the study. At the end of this time the data will be safely destroyed according to GHA protocols at the time.
- Parents give consent for written data or transcripts from the video recordings from the study to be used in my PhD thesis which will be publicly available and in academic presentations to other researchers or in publications arising from the research.
- Potential child participants will be given a demonstration of the video recording equipment at the first assessment session and asked if they will join in the programme.
- Parents will be told that if they or their child decline to take part or if they wish to withdraw from the programme at any time their child will continue to receive their regular speech and language programme. They will not have to give a reason for withdrawing.

- Parents will be given the option to additionally consent to video recordings being used for academic presentations to other researchers as long as the image is altered by using a video software programme to blur or distort faces so that they cannot be identified and express permission is sought prior to use.

Remember to attach your consent form and information sheet (where appropriate)

A10. What measures will be put in place to ensure confidentiality of personal data, where appropriate?

One copy of the assessments will remain part of the child's speech and language therapy file and subject to GHA Department of Speech and Hearing departmental storage protocols.

The data obtained for the study will be anonymised through the use of participant pseudonyms. All written documents will use the pseudonym and be scanned and stored on an encrypted laptop computer, an encrypted hard drive in a locked cupboard in the Department of Speech and Hearing or on the secure password-protected GHA server for the duration of the study and for up to ten years after the end of the study.

The video recordings will use the pseudonym in the file name and be made on a password protected Apple I Pad or a JVC hard disk camcorder. Immediately after the session the recordings will be uploaded to an encrypted drive on the researcher's laptop and deleted from the recording device. Long-term storage will be on an encrypted laptop computer, an encrypted hard drive in a locked cupboard in the Department of Speech and Hearing or on the secure password-protected GHA server for the duration of the study and for up to ten years after the end of the study

Care will be taken to delete recordings from the camera, I Pad or non-encrypted drive including the recycle bin after transfer of the data.

The recordings and written data will remain part of the child's speech and language therapy records at the end of the study period and as such will be securely stored according to the GHA protocols in place at the time.

The participants' pseudonym will be used to identify paper records, electronic data, when writing up the research or when the data is to be shared with other researchers in academic journals or in academic presentations arising from the research.

If the children should make a reference to a person, location or event that involves a third party that could identify them, names will be altered in the transcript and that part of the video recording will be deleted.

Ages of children will always be recorded as the chronological age at the time any particular data is collected because in Gibraltar, with its small population, the child's date of birth is frequently unique to them and so could easily identify them.

A11. Will financial/in kind payments (other than reasonable expenses and compensation for time) be offered to participants? (Indicate how much and on what basis this has been decided)

No

A12. Will the research involve the production of recorded media such as audio and/or video recordings?

YES NO

A12.1. This question is only applicable if you are planning to produce recorded media:

How will you ensure that there is a clear agreement with participants as to how these recorded media may be stored, used and (if appropriate) destroyed?

The storage and use of data will be discussed at the interview with parents along with the other issues of consent.

The consent form will specifically refer to storage and use of video and electronically stored written data.

Guidance on a range of ethical issues, including safety and well-being, consent and anonymity, confidentiality and data protection are available at: www.shef.ac.uk/ris/other/gov-ethics/ethicspolicy/policy-notes

University Research Ethics Application Form - Part B - The Signed Declaration

Title of Research Project:

Investigating and coaching the modelling and feedback strategies used during homework sessions by parents of children with speech disorders.

I confirm my responsibility to deliver the research project in accordance with the University of Sheffield's policies and procedures, which include the University's '*Financial Regulations*', '*Good Research Practice Standards*' and the '*Ethics Policy Governing Research Involving Human Participants, Personal Data and Human Tissue*' (Ethics Policy) and, where externally funded, with the terms and conditions of the research funder.

In signing this research ethics application form I am also confirming that:

- The form is accurate to the best of my knowledge and belief.
- The project will abide by the University's Ethics Policy.
- There is no potential material interest that may, or may appear to, impair the independence and objectivity of researchers conducting this project.
- Subject to the research being approved, I undertake to adhere to the project protocol without unagreed deviation and to comply with any conditions set out in the letter from the University ethics reviewers notifying me of this.
- I undertake to inform the ethics reviewers of significant changes to the protocol (by contacting my academic department's Ethics Administrator in the first instance).
- I am aware of my responsibility to be up to date and comply with the requirements of the law and relevant guidelines relating to security and confidentiality of personal data, including the need to register when necessary with the appropriate Data Protection Officer (within the University the Data Protection Officer is based in CiCS).
- I understand that the project, including research records and data, may be subject to inspection for audit purposes, if required in future.

- I understand that personal data about me as a researcher in this form will be held by those involved in the ethics review procedure (e.g. the Ethics Administrator and/or ethics reviewers) and that this will be managed according to Data Protection Act principles.
- If this is an application for a ‘generic’ project, all the individual projects that fit under the generic project are compatible with this application.
- **I understand that this project cannot be submitted for ethics approval in more than one department, and that if I wish to appeal against the decision made, this must be done through the original department.**

Name of the Principal Investigator (or the name of the Supervisor if this is a postgraduate researcher project):

Hilary Gardner

If this is a postgraduate researcher project, insert the student’s name here:

Rachel Ena Bear

Signature of Principal Investigator (or the Supervisor):

	Date:
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Email the completed application form and provide a signed, hard copy of ‘Part B’ to the Ethics Administrator (also enclose, if relevant, other documents).

Appendix 3



Parent and Child Speech Programme Information sheets

These sheets have been written to help you with your child's speech homework.
Please ask if anything is unclear.

1. Setting speech targets

Children learning speech follow a fairly predictable route. We know the sounds and the speech patterns that a child is most likely to use in their first words. We also know which sounds they find harder.



When we assess a child's speech we look at the pattern of their errors and which speech sounds they cannot say. We compare your child's speech patterns to what we would expect of a child of the same age. This helps us to decide on the sounds or words to work on next and what level of difficulty to begin with.

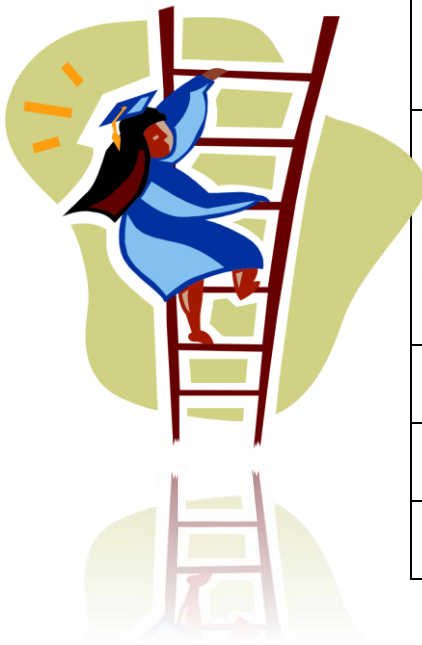
What we know about your child's speech

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2. Ladder of difficulty

In our speech assessment we also think about how easy or how hard the speech task is. The chart below shows speech tasks arranged from the easy tasks at the bottom of a ladder to the harder tasks at the top. In therapy we start with the easy tasks. We move up the ladder as your child masters each level. We want your child to achieve about 80% success with a level before moving up to the next one.

If your child has difficulty with more than one sound they may be at a different level for each sound.



Taking part in conversation	hardest
Sentences	
More complex words .e.g. those that have two or three speech sounds together or more difficult contexts: e.g.	
Single words:	harder
Nonsense words:	
Single sounds:	easy

Where is your child on the ladder?

.....

.....

.....

.....

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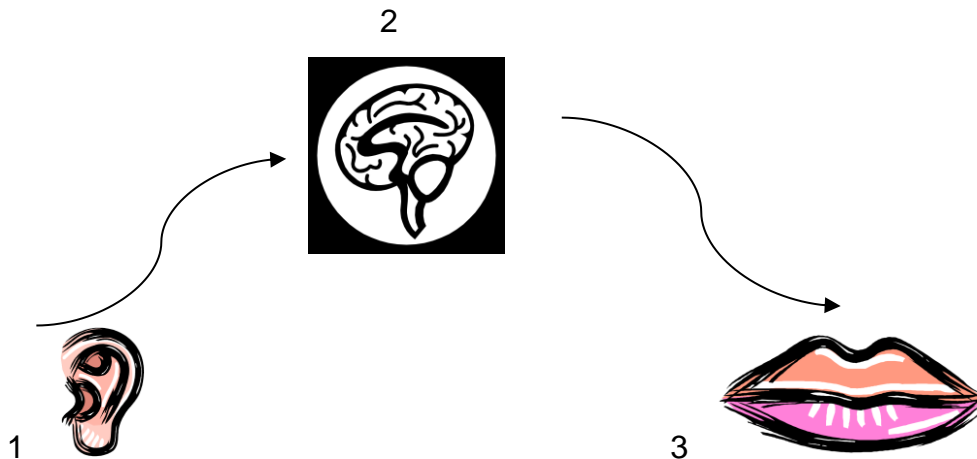
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3. Speech Processing

Thinking about how all children learn language and produce speech helps us understand what is happening in the speech therapy programme.

Language learning involves listening. First the child hears speech (1), processes the sounds and stores the information in the brain (2). When the child wants to say a word, the relevant stored information is sent to the mouth (3).



We call the message that is sent from the brain to the tongue, lips, voice box and soft palate to make words “**the motor program**”. If your child is to use clear speech the motor program has to tell the speech muscles to say words in the new, accurate way.

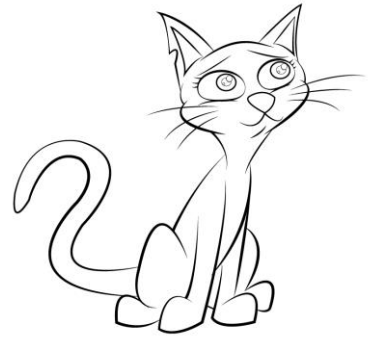
BUT.....We know that most children can also produce speech by copying someone else saying a word. Copying involves making a temporary motor program and sending this message to the tongue, lips, soft palate and voice box. The child is saying the correct sounds of the words **but needed help to get there**. At the start of therapy we can use copying as a tactic to teach your child the new speech patterns, but **this way is not a long-term solution to producing clear speech**.

Your child has to learn to make the new speech sounds on their own without the help of a model to copy. In this speech programme you will find out how to play listening and **thinking games** and give the special praise during speech tasks so that that your child will learn the motor program message that must be sent to the mouth.

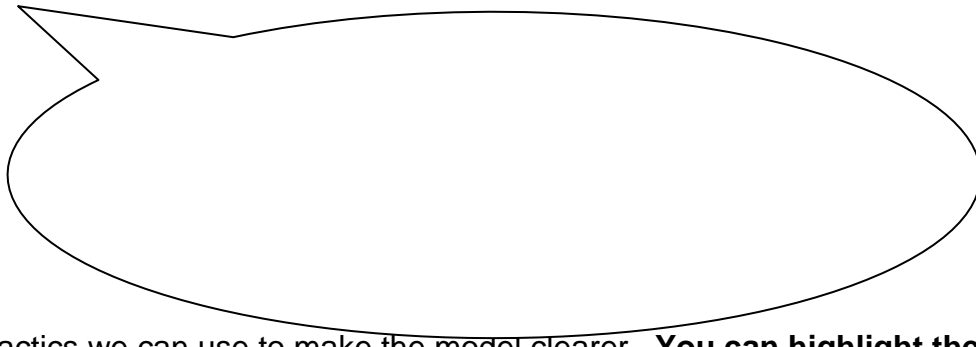
4. Tactic One: Copy Cats

At the start of therapy your child may need help saying the new speech patterns.

One of the ways we can help is by saying the word out loud as a 'model' for your child to copy.



We try to make the model sound natural, but at the start of the speech programme the child may need a lot of help and your speech model will have to be very clear.



There are tactics we can use to make the model clearer. **You can highlight the word by** getting close to your child so that your face can be seen, pausing and then saying the word louder. You can say the word very slowly. You may have to **break the word up slightly at first.** Reducing the speed of the model is one of the easiest ways of simplifying the speech task.

We use the most natural sounding word that your child can copy without making an error. **You may need to change the tactic as your child makes progress and speaking tasks become easier.**

Watch the therapist and discuss what tactics work best for your child. You may wish to write down what copying tactic works best for your child.

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5. Tactic Two: Prompts

To support your good **speech model**, our speech programme uses words and visual prompts to help your child say the new speech sounds accurately

Visuals

- Pictures that can be associated with the speech sounds
- Hand movements that can show where to make the sound
- Letters may be helpful with children who are starting to read

Words

You can tell your child how to make the sound

- e.g. *“open your mouth wide”*,
- *“make a long hissy sound”*
- *“don’t forget the shooshy sound”*.

We will ‘fade out’ these prompts with time, but your therapist will discuss with you what words and gestures to use **now**. You may wish to note the prompts here

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6. Tactic Three: Repair

If your child makes an error saying a speech sound they may need help to make a **repair**. This means using prompts to get back on target.

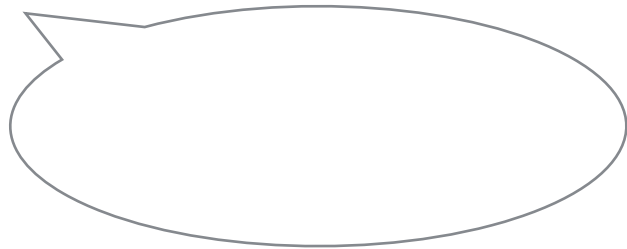
Start with very clear prompts e.g. *“I did not hear the k sound at the back”*. As your child gets better at saying the new sounds you can offer less support until your child starts to ‘self repair’ any mistakes they make.



7. Tactic Four: Target the Praise

We know that parents are very good at praising their children, but praise alone is not enough. If the child hears us say “Great work, well done” each time they do their speech practice they know that we are pleased but not why.

Instead, praise during speech sessions must be precise to let your child know how near they were to the target and how to change any mistakes.



It may help your child to know

- ☀ what they did with their tongue, teeth and lips such as “Well done, you used the back of your tongue”
- ☀ about the sound they made e.g. “that was a super hissy ssssound”
- ☀ how the words they said sound such as “I heard you saying ‘shoe’ so well!”

The feedback you give with the praise **must be clear** so that your child learns the new speech patterns and avoids making the same mistakes.

The therapist will give you examples of **target praise** you could use with your child. You can write examples here

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Appendix 4



Department of Human Communication Sciences
362 Mushroom Lane
Sheffield S10 2TS UK

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International: +44 (0) 114 222 2418

Fax: +44 (0) 114 222 2439

Email: hcs-support@lists.sheffield.ac.uk

<http://www.shef.ac.uk/hcs>

Department of Speech and Language Therapy
Primary Care Centre
Gibraltar

Date:

Dear Parent

As you may know, in addition to my post as Speech and Language Therapist I am studying for a PhD at the University of Sheffield. My research project is about making speech homework activities more effective during speech therapy programmes.

I am writing to ask if you would be willing to take part in the project along with(insert child's name)..... Attached to this letter is an information sheet that tells you more about the project. Please read it carefully.

You will be contacted by ...(insert name of second Speech and Language Therapist)... in one week to find out if you are willing to take part in the study, and if so, to arrange a meeting with me to answer any further questions and to sign the necessary consent forms.

Thank you for taking an interest in this research.

Yours sincerely

**Rachel Bear BSc (HONS) MEd Cert MRCSLT
Lead Speech and Language Therapist/PhD Student**

Appendix 5



Rachel Bear
Department of Speech and Hearing
Primary Care Centre
Gibraltar

Date:

Department Of Human
Communication Sciences

Head of Department
Professor Shelagh Brumfitt Senate
Award Fellow
PhD, M.Phil, Dip CST, Cert MRCSLT
(Hons)

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Parent Consent Form Phase One

Project Title: Investigating and coaching the modeling and feedback strategies used during homework sessions by parents of children with speech disorders.

Researcher: Rachel Bear

Participant name for the study.....

Please tick

box

1. I confirm that I have read and understand the information sheet dated December 2013 for this project and I have had the opportunity to ask questions.

2. I understand that my participation with my child is voluntary and that I am free to withdraw from the project at any time without giving a reason.

3. I understand that Rachel Bear will be filming my child's speech and language therapy sessions and I will be participating with my child.

4. I understand that the video and scanned written data produced in the sessions will be confidential and safely stored on an encrypted computer drive or encrypted hard drive kept in a locked cupboard in the Department of Speech and Hearing or on the secure password protected GHA server for the duration of the study and up to ten years after. The data will then be safely destroyed according to GHA protocols in place at the time.

5. I understand that information from my child's assessment and his/her performance during the therapy sessions may be used in any of the following:

- Rachel Bear's PhD Thesis,
- academic presentations to other researchers
- publications arising from this research

6. I understand that transcripts of conversations between me and Rachel Bear may be used in any of the following

- Rachel Bear's PhD Thesis
- Academic presentations to other researchers
- Publications arising from this research

7. I understand that transcripts of conversations between me and my child may be used in any of the following

- Rachel Bear's PhD Thesis
- Academic presentations to other researchers
- Publications arising from this research

8. I understand that transcripts of conversations between Rachel Bear and my child may be used in any of the following.

- Rachel Bear's PhD Thesis
- Academic presentations to other researchers
- Publications arising from this research

9. I confirm that participation in the project has been explained to my child and he/she is willing to take part.

10. I agree to be part of this research project

11. * I agree that film taken during my child's sessions may be used during academic talks to other researchers as long as the image has been altered using a video software programme to blur or distort faces.

* optional

Name of Parent

Date.....Signature.....

Name of Researcher.....

Date.....Signature.....

Appendix 6



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Email: hcs-support@sheffield.ac.uk

Rachel Bear
Department of Speech and Hearing
Primary Care Centre
Gibraltar

Date:

Parent Consent Form : Phase Two

Project Title: **Working with parents to develop strategies to support their children's speech and language therapy homework.**

Researcher: Rachel Bear

Participant name for the study.....

Please tick
box

1. I confirm that I have read and understand the information sheet for this project dated January 2016 and I have had the opportunity to ask questions.
2. I understand that my participation with my child is voluntary and that I am free to withdraw from the project at any time without giving a reason.
3. I understand that Rachel Bear will be filming my child's speech and language therapy sessions and I will be participating with my child.

4. I understand that the video and scanned written data produced in the sessions will be confidential and safely stored on an encrypted computer drive or encrypted hard drive kept in a locked cupboard in the Department of Speech and Hearing or on the secure password protected GHA server for the duration of the study and up to ten years after. The data will then be safely destroyed according to GHA protocols in place at the time.

2. I understand that information from my child's assessment and his/her performance during the therapy sessions may be used in any of the following:

- Rachel Bear's PhD Thesis,
- Academic presentations to other researchers
- Publications arising from this research.

3. I understand that transcripts of conversations between me and Rachel Bear may be used in any of the following

- Rachel Bear's PhD Thesis
- Academic presentations to other researchers
- Publications arising from this research

4. I understand that transcripts of conversations between me and my child may be used in any of the following

- Rachel Bear's PhD Thesis
- Academic presentations to other researchers
- Publications arising from this research

5. I understand that transcripts of conversations between Rachel Bear and my child may be used in any of the following.

- Rachel Bear's PhD Thesis
- Academic presentations to other researchers
- Publications arising from this research

9. I confirm that participation in the project has been explained to my child and he/she is willing to take part.

10. I agree to be part of this research project

- * I agree that film taken during my child's sessions may be used during academic talks to other researchers as long as the film has been altered using a video software programme to blur or distort the image.

* optional

Name of Parent Date.....Signature.....

Name of Researcher..... Date.....Signature.....

Appendix 7



Department of Human Communication Sciences
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Sheffield S10 2TS UK

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<http://www.shef.ac.uk/hcs>

Department of Speech and Language Therapy

Primary Care Centre
Gibraltar

Information Sheet for parents: January 2016

Project Title: **Working with parents to develop strategies to support their children's speech and language therapy homework (Phase Two).**

Why am I being contacted?

Your child has been offered a block of speech and language therapy sessions. You are being invited to participate in a research project that will take place during these sessions. Before you decide if you are going to take part, you should know why the research is taking place and what it will involve.

What is the purpose of the project?

The research project looks at how speech and language therapists help parents support their children when carrying out speech homework. The first phase (which has now been completed) looked in detail at how therapists and parents carry out speech tasks. From this research some strategies have been developed that the therapist can share with parents during the therapy sessions. The current phase of the project will look at which strategies are the most effective.

Why has my child been selected?

You have received an invitation to participate because

- your child has mild-moderate or moderate speech difficulties and is about to begin a programme of speech therapy
- your child is aged between 3;00 – 6;11 years
- your child speaks English
- your child has normal hearing
- you can speak and read English

The person who is planning to carry out the child's speech homework tasks must be the person coming to the weekly sessions.

Do I have to take part?

You can decide if you want to take part once you have read this information sheet about the research and have asked any questions you may have.

What if I don't want to take part?

If you decide not to take part your child will still receive their therapy as usual.

If you do decide to take part and then change your mind you are free to drop out of the project at any point without giving a reason. If you do drop out, your child would still get their speech programme as usual.

What will happen if I do take part?

Assessment of your child's speech shows that he or she will benefit from a short programme of weekly therapy and has been offered eight weekly therapy sessions. The therapy that the children receive in the eight research sessions are no different to therapy sessions given to other children with speech difficulties in the GHA department.

What is different about the research programme is that parents will also be given information and training about working with their child and all of the sessions will be videotaped.

At the start of each therapy session all parents will be asked to carry out one of the homework tasks they have practiced with the child, we will then talk about the task. I will play some therapy games with the child and set new tasks to take home.

The whole of the session will be videotaped for later analysis and in the analysis I will look at how easy it has been for the parents to follow the therapist's instructions. It will always be clear when recordings are being made and of course you can ask for the camera to be turned off at any point in the session.

What will happen to the data and video recordings?

All information collected during the project will remain confidential.

Your child will be given a pseudonym (a fake name) which will be used on all videos and in the written data. Some of the information from the video tapes may be used later in my PhD Thesis which will be publicly available. This information may include what your child has done in the therapy sessions and conversations you have had with the therapist about how your child has carried out the homework activities. Written data may also be used in presentations to other researchers or in publications arising from the research.

Video data and scanned written data will all be stored on the password-protected GHA server which can only be accessed by me, or on an encrypted hard drive which will be kept in a locked cupboard at the Speech Department when not being analysed. It will remain in this safe storage until the end of the study period (2018) and may be kept for up to another ten years. When the data is no longer needed it will be safely destroyed according to the data protection protocols in place in the GHA at the time. As your child will be receiving speech and language therapy during the project-therapy programme and assessment data will also remain part of your child's medical records.

Who will see the videos?

The analysis of the videos will only be carried out by Rachel Bear. The research supervisors and a second speech and language therapist may also need to see some of the video data but they will not know your child's real name.

Also and only if you consent to this: parts of some of the film, with the image altered by using a video software programme to blur or distort faces (so that they cannot be identified), may be shared with other researchers at academic conferences. **You may agree to take part in the research without giving consent for the film to be used in this way.**

Is there any risk involved in the study?

There is no risk to your child in the study. At the start, parents sometimes feel a little uncomfortable during video sessions. You should soon get used to the camera.

Are there any benefits in being involved in the study?

Joining the study should not change the number of speech therapy sessions your child gets but if you do take part you may find discussion with the therapist helpful and you may find out more about how to help your child at home.

The study will help speech and language therapists learn about how to make therapy more effective for other children with speech difficulties.

What happens if I change my mind?

You may drop out of the project at any time. Your child will still get speech and language therapy as usual even if you drop out. You will not have to give a reason why you are withdrawing.

Has the project been approved?

This research project has been seen by the University of Sheffield's Ethics Review Panel and has been approved by Mr F. Pitto, Chief Executive Officer of the GHA.

When do I sign the consent forms?

We will make arrangements for you to sign the consent forms before the start of the programme. You may wish to discuss your decision with members of your family. If there is anything that is not

clear or if you need to know more you are encouraged to ask further questions. Please take time to decide if you want to take part.

Who do I go to if I have a complaint?

Please contact Rachel Bear on 54003070 or rachel.bear@gha.gi or Gaynor Vatvani Acting Chief Speech and Language Therapist at the PCC gaynor.vatvani@gha.gi

You could also contact the Dr Hilary Gardner h.gardner@sheffield.ac.uk or Dr Sarah Spencer sarah.spencer@sheffield.ac.uk who are the university supervisors of this project.

Thank you for taking an interest in this research. Please keep this information to refer to in the future.

Rachel Bear BSc (HONS) MEd Cert MRCSLT

Speech and Language Therapist/PhD Student

Appendix 8

Script for Speech and Language Therapist inviting parents to join project

Please use this script when you approach parents/call them to invite them to join the project.

I am speaking to you on behalf of Rachel Bear who is a speech and language therapist in the department of speech and hearing.

You should have already received an invitation and information about a research project that Rachel is carrying out. The project is looking at how parents work with their children during their homework tasks so that a programme can be designed to train other parents when they are working with their children.

*Are you interested in hearing more about the project***(If parent declines, thank them for their time and hang up)**

The research at this stage involves the researcher (that is Rachel) taking video recordings of your child's therapy sessions.

The video will be in two sections, part will be of the therapist working with your child and part will be of you doing activities that you have practised at home with your child.

Rachel may show you parts of the video during the session but she will not analyse it in detail until later.

I have to stress that you are under no obligation to take part in the research. If you decide not to take part, no one will ask you why.

If you do not take part it will not affect your child's therapy programme. Your child will receive therapy as usual.

*If you are interested I will arrange a follow-up interview to ask further questions and sign the necessary consent forms. **(arrange a convenient time)***

Do you have any further questions right now?

If you have questions you can ask at the follow-up interview.

If parents have further immediate questions that you cannot answer, please tell them that you will find out the information and contact them again.

Appendix 9: 19.9.14 Initial list of Codes:

Strategies used to elicit target words

1. Request : Giving a prompt to “say it”, “what is it?”, “do you remember this one?”, “and.....?”, “What have we got here?”, “look at this one!”, “what was the word we were practising?”, asking a question to elicit the target e.g. what do we wear on our feet? or sentence/phrase completion.
2. Context: Being the next one to take a turn, being shown an object or picture to name. This may be a non-verbal request to say the word i.e. looking at child and waiting for response. Includes other non-verbal strategies to elicit a word e.g. by pointing at a picture to say a word.
3. Spontaneous: Child produces target word without a specific prompt from adult

Facilitative Cues

4. Pause, look at child and model target word, stressing word
5. Pause and look without vocalising
6. Natural model
7. Stressed model
8. Stretched model
9. Broken model(e.g. f: ish)
10. Forced alternative
11. Listen: specifically asking child to listen to or copy a verbal model
12. Modelling lip shape without actually vocalising
13. Vocabulary: giving more information about the target word e.g. “it belongs to the dog”, “he has been eating too many sweets”, “nee nor nee nor”, or giving more information in the form of a gesture or conventional sign
14. Speech cues: visual
15. Cued articulation: using Cued Articulation prompts or other visuals such as pointing to part of face
16. NDP consonant picture symbols
17. Speech cues: verbal
18. Articulatory cue: “push your lips out”, “make it at the back”, “You blew the sound out”, “use your magic finger on your tongue”
19. Imagery cue: “that is the poppy sound”, “you made a long sound!”, “shoosh it out”,
20. Phonetic cue: telling the child a speech sound, “they all start with t”
21. Literacy cue: e.g. “what letter is it?”
22. Making a deliberate error for child to correct
23. Pointing at targets without a model

Responses to child speech attempts

24. Meaning positive : Confirming that child has got their message across usually in a minimal pairs game e.g. “did you say car?”
25. Negative information: e.g. “no”, “no it’s not a ...”, includes non-verbal responses e.g. head shaking.
26. Semantic confusion: in a minimal pairs type activity deliberately responding in a way that demonstrates child has not made contrast

27. Repeat: Any of the following strategies that ask child to repeat but gives no other information “say it again”, “try again”, “I will give you another chance”, “Pardon/what?”, “Sorry?”, “what did you say?”, “I did not hear you properly” “hmmm?”
28. Repeat error: Adult says the error back to the child without any change
29. Not moving on: indicating that the exchange is not yet over but not providing any other feedback
30. Moving on in the activity thus closing the turn without giving any feedback
31. Volume/Speed: encouraging child to change an aspect of speech that is not related to articulation e.g. volume “say it louder” or speed “you need to be quicker”, “we are going to do a race”
32. General Praise/encouragement: “good girl”, “good try”, “wow”, “that is so good”, “you can do it!” including nonverbal praise such as Nodding/smiling/pointing
33. Speech Praise: praise specifically referring to child’s speech e.g. “you said that very well”
34. Confirm target: by repeating target
35. Behaviour: comment about child’s behaviour rather than speech “you are being silly”, “don’t you want to try?”, “You are going ahead of yourself”
36. Reward: reference to an end of session treat stating either positive or negative - e.g. being allowed to keep a picture in play.
37. Speech Change (not specified): giving a verbal prompt for e.g “say it in the new way”, “you said that with your new sound” “how did (therapist’s name) say it?”, “say it properly”
38. Reflect: Inviting child to engage in reflection about their speech e.g. “what was that one?”, “are you sure that you did it at the back?”, “did you hear yourself?”.
39. Metalinguistic comment: “it sounds like...”, “does it rhyme?”, “does it sound the same?”, “which sound will you say?”, “that is a tricky one!”
40. Abandoned

Comments not directly related to speech

41. Activity: Discussion about how the activity is completed, “have you made a pattern?”, “you are making that ball too big”, “do they go together?”
42. Social comment: Oh no!
43. Behavior

Appendix 10

<p>Codebook for quantitative analysis (Study 2)</p>	<p>Coding Guidance: If the same code occurs more than once in single turn, only code once. If more than one type in one turn code all (except neutral)</p>
<p>Examples of turns coded Abandoned</p>	<p>Examples of turns not coded as Abandoned</p>
<p>Adult is overt about not working on target. (target coat) “no that one is going out because it is a jacket and it will confuse us” “I’m gonna leave that one out because I think that one is just making life difficult” Shakes head</p>	<p>If no work is not done on the target e.g if it appears that the adult has not heard the child producing the word it is not coded.</p> <p>A correction of a word “no its not an x it is a y” is coded as such.</p> <p>If the adult moves on to the next turn without giving any form of evaluation do not apply any code.</p>
<p>Examples of turns coded as Articulation</p>	<p>Examples of turns not coded as Articulation</p>
<p>Includes the use of Cued Articulation prompts or other visuals such as pointing to part of face Includes descriptions the adult gives to the child about what they have done “you blew the sound out”, “shoosh it out” “That’s it ! You’ve got to say it at the back because it starts with a c” Includes the modelling of articulatory positions when adult pauses, eye contact has been engaged and head is held static e.g. biting lip when eliciting a [f] and opening mouth, raising tongue to velar position when eliciting a [k] “with a” (making cued articulation gesture)</p> <p>Includes imagery cues and reference to sound symbol cards “and if you remember the word and you say it with a k you can keep it”</p>	<p>Does not include imagery cues that refer to the sounds as concepts “that is the poppy sound”, “you made a long sound!”(coded as concept) Does not include cues that discuss articulation without <i>specifying</i> what to do e.g. “what have you got to do to say this word?” would be coded as concept.</p> <p>The contrast with ‘model’ is how much explicit information is being given about saying the word</p>
<p>Examples of turns coded as Concept</p>	<p>Examples of turns not coded as Concept</p>
<p>Includes talking to the child about the meaning of homonyms “is that the one you meant to say?” “So you are going to make a key?” Comparing meaning “make sure it does not <u>sound like</u> the sea”, “you can have it if you can say it” “can you say it again because <u>I was not quite sure what i heard</u>” “that is the one that I heard” Includes semantic confusion</p>	<p>If in a minimal pairs activity the focus is on naming the pictures when they are side by side, but without potential semantic confusion, it is a speech rather than a conceptual task.</p> <p>The last card of a contrast task when the child only has one of the pair left is neutral not concept.</p> <p>Forced alternative models are coded as model rather than focus on the concept/meaning difference</p>
<p>Examples of turns coded as Confirmation</p>	<p>Examples of turns not coded as Confirmation</p>

Adult offers a verbatim repeat (including pitch matching) of the child's turn as an evaluation. The turn should act as sequence-closing.	If the adult turn is not pitch-matched, it implies semantic confusion and so would be coded as concept.
Examples of turns coded as Correction/negative	Examples of turns not coded as Correction
No Aaron that one is sellotape If it was a brush it would look like this, so that is a comb No no it is not a pillowcase	If the child is given no information such as 'pardon/what did you say?' Code as neutral.
Examples of turns coded as Metalinguistic	Examples of turns not coded as Metalinguistic
"think about that tricky word" - this gives the child no information apart from the word being hard to say Do you remember how to say the word? This is inviting self-repair Adult makes a deliberate error for the child to correct This code is used when the cue refers to literacy and the written representation of speech "what <u>letter</u> is it?" or "It rhymes with ...". "look at the letter" "you know this letter" "look at the word" We are going to <u>learn</u> how to say that word" "this one was the hardest one" Did you hear yourself and <u>thought</u> 'no it's different'? Did you say that one right? Have you got that word "they are nearly <u>the same</u> ". (With no other information as to what way they are the same). "use your <u>new way</u> "	If reference is made to speech production or specific articulators the articulation code is applied. If this is reference is made to 'the work you have been doing' it is coded as neutral. Turns-which do not include metalinguistic concepts of talking about talk e.g "you said that so beautifully" can be coded as praise. Referring to 'remembering a word e.g. "Can you remember it again?" - is neutral elicit because there is no reference of remembering how to say it. Do you know what we call that one (refers to the name rather how to say the word) - this is neutral
Examples of turns coded as Model	Examples of turns not coded as Model
The adult says the word for the child to imitate The adult produces a forced alternative for the child to select from. Listen to me saying it. The adult invites self-repair from the child by offering a version with contrast in pitch or timing "It's got a special name it's called a (.)kettle" The adult says part of the word (e.g. the initial syllable) for the child to imitate	If the adult just refers to one segment e.g. [s:] then code as articulation. Because the adult is referring to how to articulate a single sound not the word - which would be more the case if cueing with a syllable If the adult offers candidate understanding and it is pitch-matched, sequence closing then it is confirmation.
Examples of turns coded as Neutral	Examples of turns not coded as Neutral

<p>Initiating “and then we have” (with rising intonation indicating that a response is expected) “What is this one then?” “It is your turn” Non-verbal strategies where the adult points to a picture without making a comment. Eliciting tasks that refer to the ‘word’ rather than the ‘speech task’ - “can you remember what it was?” Comment about the difficulty level of the activity Can you say that? Sentence completion activity</p> <p>Evaluating Describing emotions: Aren’t you in the mood today? that’s OK!</p> <p>Repair “oo” without other information. “ Say it louder so that we can hear you” (does not give child any information about segmental changes), but it was clear that the adult had not had any difficulty knowing what the word itself was “Oops you have forgotten?” yeah yeah (encouraging child to continue making response. Not yet praise because response not made) A verbal or non-verbal indication that the exchange is not complete but no other cueing strategy is used e.g. the adult does not move finger on to the next picture show what good work you have been doing Joint laughter with the child Negotiation such as “there will be no toys after if you do not do it” has been included here - but was rare in the data</p> <p>Speed: comments are coded as neutral as they do not give children information about phonetic change.</p>	<p>Do not record turns as neutral if another code is <u>also</u> being applied</p> <p>Where child takes a turn in a series in a game only code the first turn.</p> <p>Do not code absence of evaluation as neutral. This would just not be coded.</p>
<p>Examples of turns coded as Praise</p>	<p>Examples of turns not coded as Praise</p>
<p>“ good girl”, “good try”, “wow”, “that is so good”, “you can do it!” Ok nonverbal praise such as nodding and smiling “you can keep that cos you said it beautifully” “I knew that you knew it” Child “winning” a card or token Do you <u>know how well</u> you copied me saying that? “let’s put that here with the ones that you say right”</p>	<p>If reference is made to speech production then coded as articulation. This may result in a double code.</p> <p>If there is no overt response e.g. child just completing their turn, it is not coded.</p>
<p>Examples of turns coded as Vocabulary</p>	<p>Examples of turns not coded as Vocabulary</p>
<p>Sentence/phrase completion e.g. “a birthday ...” “top and...” What did we do with the paper? (Gesturing tearing it) The adult gives more information about the target word “it belongs to the dog” to elicit the target “paw” “he has been eating too many sweets” to elicit the target “fat” “nee nor nee nor” to elicit the target “fire engine” Blowing to elicit the target “fan”</p>	<p>“It is not an X it is a Y...” is coded as correction</p>

Appendix 11: Parent and therapist working together to create an understanding of the therapy process

One of the clinical aims of the therapist during the sessions was to share ‘therapy talk’ strategies with the parent. Methods used to achieve the aims were discussing an information leaflet, discussing strategies that were being demonstrated and sharing video clips of the sessions with the parents.

1. Using the leaflet to explain the speech processing model

Extract 1 Frank Session 1 “the message”

- 1 T: but if you think when we learn speech
- 2 ((pointing to ear on diagram))
- 3 we get the message (.)
- 4 (points to the path between ear and brain)
- 5 sent to the brain so
- 6 that's when we learn the sound
- 7 M: °yes°
- 8 T: so if he has already learned the sounds
- 9 in the way that he's learned them
- 10 so that his brain tells his mouth
- 11 (pointing to diagram)
- 12 to do things in the old/ way/

13 M / yes/

14 T: that's what we want.

15 This is the bit that we want to change

16 ((pointing to line between brain and mouth))

17 we have to change that the way that the sounds are

18 sounds are=

19 =that the words are stored

20 and that the message goes (.)

21 M: To his mouth

22 T: to his mouth right

23 he can now

24 he can now make that transition from

25 f:(.) a

26 we know that he can do that

27 but when he's

28 his brain is telling him the word

29 he's got the the old way

30 M: ye yeah

Frank is playing on the carpet with a train set whilst the therapist and his mother are sitting at a large table with the speech processing diagram in front of them. The therapist uses the diagram to explain to Frank's mother about the speech processing model, that it is the brain that is important in learning speech sounds. Frank's mother gave a quiet 'yes' which was unconvincing agreement, but the therapist continued. In line 12 the therapist referred to Frank as having learned the sounds in his 'old way' which in line 13 elicited a more convincing agreement from Frank's mother. In lines 14-19 the therapist points to the picture of the brain and tells Frank's mother that it is the way that words are stored that needs to be changed. At the end of line 20 the therapist hesitates and at this point, Frank's mother completes what the therapist was saying, that the message goes to Frank's mouth. The therapist then describes that Frank can now make a transition between /f/ and /a/ explaining that he is now able to imitate this transition but when he says the word independently he uses his 'old' way. Frank's mother agrees in line 30.

2. Making observations during therapy sessions to justify strategies

Extract 2 Frank Session 1 "he almost went back to the ..."

Ten minutes after extract 1, there was evidence that Frank's mother understood what Frank has to learn to do. Frank was on the floor building a train track. The therapist is holding a box of track pieces and giving a piece to Frank when he says the target 'four' correctly.

- 1 T: can you remember how to say that word?
- 2 F: ((looks up, upper teeth on lower lip
- 3 in labiodental position))
- 4 T: (.) f:our

5 F: ((gazing up at therapist))
6 f: b four
7 T: °h: / ye::::s / ((gives him play piece))
8 M: / huhuhuhu/
9 like that
10 M: he / almost went back to t/he
11 T: / yeah yeah yeah/
12 yeah but he's thinking about it
13 this is practice haha
14 this is just practice and practice and
15 practice (0.5)
16 and obviously he's got a lot of
17 unlearning to do
18 M: m:
19 T: cos he's had lots of years of him
20 doing the other way
21 M: yeah yeah

22 yeah it's funny cos when he does
23 sometimes he'll go [ɹ:]
24 or is it it was uh [f]
25 four
26 yeah it was [f 'or]
27 and y
28 and then you'd
29 ah you heard the [b] sound
30 and then he'd go f '(0.5) or and he
31 and so he'd stop himself from doing
32 the b
33 T: yes he can't quite get that sequence
34 on his own
35 with uh I think without that little
36 gap
37 which is why I am saying f 'or
38 ((points to symbols as she said
39 each sound))

As Frank was playing, the therapist begins by asking him a known-answer question that elicited his target word. She uses a ‘therapy talk’ elicitation, asking Frank if he can ‘remember’ how to say the word. Frank looks up at her and puts his teeth in the position for a /f/ sound. The rest of the word is not forthcoming so in line 4 the therapist provides a model. Frank begins his imitation with [f] and then [b] to begin the word with his stored version [bor]. He checks himself and restarts producing a more accurate version albeit with a gap between the fricative and the vowel.

Whilst the therapist praised Frank in line 7, his mother in line 10 made the observation that ,“he almost went back to the” without completing her utterance with a word for what he almost went back to. Her observation begins a short explanation by the therapist that Frank has to ‘unlearn’ his speech habits and in lines 12-17 that practice will resolve the issue.

In lines 21-32 Frank’s mother goes on to describe what she has observed in Frank’s speech when he self-corrects errors in the word “four”. The therapist concurs in line 33 and uses this explanation to justify the strategy she is using. Frank’s mother offers a quiet ‘yeah’ to agree.

3. Coaching during the therapy sessions

Extract 3 Josie Session 5 “watch Mummy’s face”

In the following extract which occurred at the start of Session 5 is taken from a longer episode in which the therapist was attempting to resolve tension between Josie and her mother. Josie had been frustrated by the speech activity and so was refusing to cooperate with speech work at home and this was impacting on her cooperation in all aspects of everyday life. The therapist remained off camera as Josie’s mother demonstrated how Josie

was not managing to make the consonant to vowel transition in the syllables that they had been given. The therapist then began to coach Josie's mother on the rate at which the model should be presented for Josie to achieve success. The therapist carried out the coaching off-camera.

1 T: lets see if mummy can say it more slowly to
Josie
2 and then you can listen
3 cos w've got to get it that she is to
Mother
4 always right
5 M: yeah ((nods))
6 J: ((looks down at activity sheets))
7 T: [s: ar]
8 J: [dar]
9 T: s:o listen like this one and you have got
10 to watch
11 ((Josie turns to her mother, sharing a smile))
12 mummy's face when she opens her
13 mouth cos she is such a lovely mummy
14 isn't she
15 she has got to go like this

16 s: [ar]
17 J: [((opens mouth)) ar]
18 T: can you do that one
19 J: s: ar
20 T: [its slower]
21 M: [yeah]
22 T: Yes
23 that's she's not got time to move from
24 the s into the ar
25 M: OK
26 T: so you have got to say
27 to her
28 watch me
29 wa and and you have got to present it
30 more slowly
31 try it more slowly because I think
32 that's
33 I thought that must have been

34 where it was

35 T: so watch mummy again

36 M: ((looks at Josie)) s:ar

37 J: s: tar

38 M: ((looks at therapist))

39 T: even slower

40 s: (0.7)ar

41 you have got to give yourself a

42 there is a slight break we will speed it up

43 but at the moment she cannot manage it

44 s (0.7)ar

45 J: s(0.5) ar

46 T: she can do it if there's that gap

47 M: [yeah] [yeah]

48 T: so try try doing / it aga / in.

49 M: / ready J / osie

50 s:(0.5) ar ((gazing at Josie))

51 J: s (0.4) ar ((gazing at mother))
52 ((turns to therapist smiling))
53 T: that's doing it right
54 M: well done
55 T: now you have got a smile
56 was mummy saying it the way you wanted it
57 try it again
58 try another one
59 again
60 that gap
61 J: s:(0.4) a
62 M: that's perfect

The extract begins by the therapist addressing Josie, but the information she was giving, that Josie's mother needed to present the model more slowly was intended for Josie's mother. In lines 3-4 she then turns to Josie's mother to say that they needed to be sure that the elicitation was supportive enough that Josie would produce an accurate response (Hodson, 2011), which elicits a nod from Josie's mother, but the rationale behind the statement had not been given. In line 7 the therapist gives Josie another model, which she produces as a stop. Between lines 9 and 15, the therapist encourages Josie to watch her mother's face and then in line 16 gives a slower presentation of the target which Josie imitates in line 19. The therapist reiterates the slowness of the model which Josie's mother agrees with.

The therapist again explains to Josie's mother how she needs to explain to Josie about the new sound and she presents the model in line 36. Josie's attempt was not accurate, in that she produced a stop before the vowel. The mother clearly recognises this and in line 38 looks to the therapist for support. In lines 39-44 the therapist again models how slowly elicitation needs to be and Josie produces an accurate imitation. In line 50 Josie's mother models the syllable and Josie in line 51 achieves an accurate imitation turning to the therapist with a smile. The therapist identifies her smile and instructs her to repeat. In line 62 her mother identifies her success with "that's perfect".

4. Using video clips as a context for discussion

Extract 4 Gary Session 2

Gary's mother and the therapist are sitting at a large table watching video clips of the previous week. Gary is playing on the floor with a box of toys. He has just been asked not to take any more toys from the box because the adults cannot hear the video. The adults continue talking about the video.

1 T: dyou know dyou know which fish he is on video

2 he looks like one in a film on video

3 G: a kwown one on video

4 M: kwown yeah I heard it

5 T: so that was there so he can say it

6 so that was a kwown one

7 M: yeah

8 T: not a cuh lown one

9 M: hmm mm

10 G: and like fainny memo on video

11 M: memo yeah

12 T: finee that was really muddled.

13 M: hmm mm

14 T: Finding on video

15 G: finding meyo on video

16 M: meyo again yeah

17 T: it really changed he's really

18 he is not sure [what

19 M: [pronunciation

20 and how to say it

21 T: he is not sure how to do it ((shakes head))

22 M: Hmmmm

23 T: these longer words the short words are fine

24 but the longer words

25 M: si now I understand why you record because now

26 watching it here it is perfectly clear but

27 before with him not that I didn't notice before
28 T: you can't tell
29 M: but obviously you notice a lot better
30 when you are watching it back yourself

The first three lines of this extract are from the video recording which the therapist and Gary's mother were listening to. In line 4 Gary's mother identifies a speech error. In lines 6 and 8 the therapist tells the mother that this was a speech error but refers back to when he had said clown accurately. They then listen to Gary attempt to say 'Finding Nemo' and in lines 16 and 17 both notice inaccuracies in his attempt. They listen again to Gary saying the word Nemo and both comment on how his attempt had changed. The therapist in lines 21 to 24 tells Gary's mother that this is evidence of how unsure Gary is of how to say the word, and that it is the longer words that are the issue. Gary's mother then tells the therapist that she understands the rationale for filming because this gives her the opportunity to notice a lot better what is happening in the sessions.

Appendix 12: Transcription Notation System

The transcript notation used is based on that used by Atkinson and Heritage (1984) with the use of IPA symbols where appropriate, examples are shown below.

International Phonetic Association (IPA)

The transcription system of the IPA (International Phonetic Association, 1999) is used in single square brackets where this is important to the interpretation of the exchange.

Mother: right let's try again
 what is the next one

Child: [fwaɪ]

Mother: fry

Participants

The participants in the extract are represented by initials on each turn. The clinician is represented by 'T', the mother of the child in the exchange by 'M' and the child by the initial of their pseudonym.

Line numbering

Numbers in the left hand margin indicate the line number in the extract.

Single arrow

A single arrow at the left margin between the line number and the participant initial indicates a feature of interest to the analyst at the time.

9 F: ((makes f cue)) f: (0.5) an

10 → T: ((gives puzzle piece to Frank))

11 → there you go

Overlapping Utterances

The point at which one utterance is joined by another is marked by a left-handed bracket. The point at which the overlap ends is marked by a right-handed bracket.

T: He [still needs that] support
M: He [needs to] sit still

Contiguous Utterances

Where a second utterance is latched to a first, they are linked with equal signs.

T: you know by saying it to her=

M: = she gets it

T: without me just saying “put your teeth together”

Intervals

Intervals are timed in one tenths of seconds. They are placed in parentheses either within or between utterances. A micropause is indicated by a period within parentheses.

T: that’s it there

because the w is the sound that he used to say

so it is like (0.5) the old sound and the new sound mixed together

(0.8)

M: mmm (.) it’s hard for him

Characteristics indicated by Punctuation Marks

: A colon indicates extension of the sound or syllable preceding. Longer extensions are indicated by more colons.

? A question mark indicates rising intonation.

! An exclamation mark indicates an animated tone.

T: Can you do it with your tongue this time l:::if ?

K: l:if

T: You can can’t you!

Intonation

Rising and falling shifts in intonation are indicated by upward and downward arrows prior to the rise or fall.

N: [c ↓↑ a [p]]
M: [↓kæ p^h]

Volume of Speech

An utterance, or part utterance, that is louder than the surrounding talk is indicated with capital letters.

M: and again this one

O: nail

M: PARDON
O: [θneɪʃəl]

An utterance, or part utterance, that is quieter than surrounding talk is indicated with degree signs.

T: where do the kids play (0.5) in when you go camping
what area do you call it
G: ° the play place°

Emphasis

Where an utterance, or part utterance is emphasised, this is indicated by underlining.

Child: [nʌfɪŋk]
Mother: say that word again
Child: [nʌfɪŋk]
Mother: nothing ((nods))
Child: [nʌfɪŋ]

Speed of speech

When an utterance is faster than the surrounding speech it is enclosed within < >

When an utterance is slower than the surrounding speech it is enclosed within > <

Smiley Voice

The currency symbol £ is used to enclose parts of speech that are produced with a smiley voice.

T: So don't you worry about that
>I looked at everything last week< (0.5)
£ alright and I have got to do
I have decided guess what £
((kneels down)) I have to teach you some sounds don't I

Double Parentheses

Double parentheses are used to indicate details of the scene or some other quality of talk.

F: one [du wi wɔ]
M: uh what did you say?
F: ((points at trains))

Appendix 13 Participant Data: All participant assessment scores and speech targets

Participant Initial	Pre-therapy baseline assessment	Assessment at start of therapy	Assessment at end of therapy block	Assessment at 20 week follow-up	Therapy targets
A	PCC 43%. Words elicited by naming a selection of toys.	Child-specific probe Stopping of fricatives (onset) 67% Stopping of affricates (onset) 100% Velar fronting 92% Cluster reduction 64%	Child-specific probe Stopping of fricatives (onset) 29% Stopping of affricates (onset) 100% Velar fronting 85% Cluster reduction 13% PCC 64%	PCC 79%	/f/ /k/
B	Carried out prior to recruitment to research	PCC 72%	PCC 80%	PCC 79%	/sh/
C	Speech goals established in a previous therapy block	Attended for 2 sessions.	Study 1 had ended	-	/s/
D	PCC 80%	Attended for 1 session	Study 1 had ended	-	S + consonant clusters
E	PCC 63%	Did not attend	-	-	-
F	PCC 51%	PCC 48%	PCC 84%	PCC 88%	/f/ /dz/ s + consonant clusters
G	PCC 83%	PCC 89% *	PCC 94%	PCC 95%	/l/
H	PCC 38%	PCC 38%	Left programme	-	/f/
I	PCC 78%	PCC 76%	PCC 88%	PCC 79%	/s/ /th/
J	PCC 34%	PCC 40% **	PCC 35%	PCC 34%	/s/ /sh/
K	PCC 64%	PCC 69% *	PCC 82%	PCC 82%	/l/

L	Speech goals determined prior to T1	PCC 84%	PCC 86%	PCC 88%	/l/
M	Unwilling to cooperate	PCC 41% ***	PCC 57%	Left programme	/f/
N	PCC 63% (carried out by another SLT)	PCC 47%	PCC 48%	Left programme	/t/ /k/
O	PCC 53%	PCC 52%	PCC 62%	Left programme	S + consonant clusters.
P	Speech goals determined prior to T1	PCC 70%	PCC 91%	PCC 91%	S + consonant clusters

Notes:

* although Quick Screener score showed an increase, the target sound /l/ had not changed.

** although Quick Screener score showed an increase, J's PCC score indicated a severe disorder and intervention was warranted