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Can a teacher improve speech clarity in children presenting with speech sound disorders using targeted interventions?

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A Research Dissertation submitted to the Froebel Department of Primary and Early Childhood Education, Maynooth University, in fulfilment of the requirements for the degree of Master of Education (Research in Practice)

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Supervised by: Ms. Bernie Smyth

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Researcher: What did you enjoy most?

Conor: That there was just so much laughter.

Abstract

This action research was influenced by a past pupil who presented with a range of complex needs, including unclear speech which hampered his ability to communicate effectively. Although I tried to address this need, my lack of knowledge inhibited the effectiveness of strategies put in place, and I felt as though my practice was insufficient to meet the needs of all the children in my class.

This study, which was carried out with four 2nd class children in a suburban DEIS 1 Junior School in Dublin, examines whether I as a primary school teacher can effectively implement a programme which improves speech clarity for children who present with speech difficulties. Using a mixed methods approach, and following the ethical standards laid down by Maynooth College, formal and informal pre- and post- interviews and discussions took place with the four children and their parents. Nineteen questionnaires were distributed to school staff, and two speech practitioners were also interviewed. A reflective journal was maintained. I designed and implemented an 11-week intervention focussed on improving a specific target sound (TS). The intervention took place in a learning support classroom three times weekly for each group, withdrawing them from their mainstream classroom. Evidence-based methodologies were put in place to address speech perception, phonological awareness, sound production and minimal pairs. For this study, the TS for group 1 was /r/ while /sh/ was the TS for Group 2.

Although the improvement of the children's speech clarity was not strikingly noticeable,

unexpected positive developments were evident in regard to speech perception, phonological

awareness and spelling. All children were more conscious of correct pronunciation of their

TS and established self-awareness of their own sound production; however this did not

transfer to their social engagement with their peers.   School staff expressed concern about

the rising number of children presenting with speech difficulties, and the impact of this in the

classroom. This was echoed by the speech practitioners. The collected data contrasted the

importance of informed intervention in addressing speech needs and potential difficulty in

accessing these services.

The lack of improvement in the children's speech clarity and information gathered from

interviews highlights the need for professional intervention for children presenting with SSD.

While phonological awareness strategies can be implemented to improve children's self-

awareness of sound production, this research has found that this is a difficulty for teachers

who are not sufficiently trained to assess, diagnose or treat. This study detailed the benefits of

collaboration between various professionals in order to provide the highest standard of

services. This research also exposed the challenges in accessing speech services which

emphasises the need for improvements in how the system operates, with recommendations

for improved on-site services for speech and language.

Acknowledgements

Firstly, I would like to thank my supervisor Ms. Bernie Smyth. You have gone above and beyond in terms of your advice and support. Your positivity and encouragement, especially during challenging times made this process a thoroughly enjoyable experience. I simply can't thank you enough for all you have done.

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To my family and extended family who I love dearly, thank you for always being there for me. To my mam Bernie, my dad George and my sister Ciara you are my safe space and my happy place. I can never thank you enough for everything you have done and continue to do for me.

Finally, I would like to thank my wonderful past pupil who inspired this research journey. Working with you has been one of the greatest pleasures of my career so far and I feel privileged to have learned so many professional and life lessons from you.

From the bottom of my heart, thank you.

Table of Contents

Acronyms

ABC   Area Based Childhood Programme

ASD   Autism Spectrum Disorder

ASHA   American Speech-Language-Hearing Association

CBTS   Computer Based Therapy Service

CDI   Childhood Development Initiative

DES   Department of Education and Science

DEIS   Delivering Equality of Opportunity in Schools

HSE   Health Service Executive

LE   Lateralisation Error

NCCA   National Council for Curriculum and Assessment

NCSE   National Council for Special Education

NSOME   Non-Speech Oral Motor Exercises

PLC   Primary Language Curriculum

PSD   Persistent Sound Disorder

SET   Special Education Teacher

SLP   Speech and Language Pathologist

SLT   Speech and Language Therapist/ Speech and Language Therapy

SNA   Special Needs Assistant

SSD   Speech Sound Disorder

TS   Target sound

Chapter 1: Introduction

1.1 Focus and Aims of the Study

In an article released by the Irish Times newspaper, in December 2010, 23,000 children were on assessment and therapy waiting lists for speech and language treatment (Cradden, 2011). Again, in 2015, The Irish Times detailed waiting lists involving 13,000 adults and children

(Bardon, 2015), with a similar article by the same newspaper released in June 2022, over ten years later. As of this date, the number of adults and children waiting for a speech and language assessment stands at 18,091 (Cullen, 2022).

While the gaps in provision may be multi-factorial, it is evident that, for more than ten years, Speech and Language Therapy (SLT) services in Ireland are not readily available for those who need them. However, speech in this sense goes beyond just the concern of the SLT. Unclear speech may affect significant daily tasks such as communication and has been shown to negatively impact children both socially and emotionally (Preston et al., 2020). As teachers, it is particularly important to consider the negative impact of poor speech on children's academic development (McAllister et al., 2020), given the link between speech and reading skills (Boyce, 2015).

This action research aims to investigate if I, as a teacher, could use targeted interventions to improve speech clarity in children with speech sound disorders. If effective, this would make

a valuable contribution to the needs of the school in which I work. A further aim of this study is to examine the effectiveness of inter-agency collaboration in this area, given the already over-crowded curriculum (NCCA, 2010).

1.2 Research Background, Context and Intervention

1.2.1 Background

The philosophy of Friedrich Froebel has influenced my professional practice as a teacher, and my values as a person. The ontological and epistemological values of relationships, respect, and dialogue have been identified through reflective practice, and I strive to uphold these in my work in the classroom. Indeed, it was important to me to extend these values to the action research carried out with my pupils. As a teacher, self-improvement is essential, in order to provide the children with the highest standards of teaching and learning. Choosing action research allowed me to gain a deeper understanding and realisation of my personal and professional identity, which will continue to inform my practice into the future.

Over the past number of years, there has been a recurring discussion amongst our school staff that a significant number of children in the school community are presenting with speech difficulties. This was highly evident, having experienced this myself in my own classes. Indeed, my primary reason for undertaking this research topic was inspired by one child I taught previously who has Down Syndrome. Among other needs, this child presented with

very significant speech issues. During team meetings with his special needs assistant (SNA), SET, and his parents, his speech needs were consistently listed as a priority. However, although strategies were put in place to try to address this, it was my inexperience in the field of speech sound difficulties that prevented me from catering fully for his needs, and not enabling him to reach his potential. As a result, I felt I was not fulfilling my professional duties and carried a sense of guilt for a long time due to this. Given some of the struggles that some families in our school community face, many children either cannot or do not avail of speech services outside of school. This raised the question of what could be done within the school setting to cater for their needs, considering most schools may not have a trained speech and language therapist freely available when required.

1.2.2 Research Context

Since graduating from the H.Dip in Froebel in 2014, I have been teaching in a suburban DEIS 1 junior school in Dublin, where this action research took place. It is a school with a cohort of 250 pupils, most of whom live in the surrounding housing estates. The school consists of an Early Start setting, two junior infant and two senior infant classes, three classes each at 1st and 2nd class level, as well as an ASD class. There are eight Special Education Teachers (SET) who also support the mainstream teachers in the school. After 2nd class, the majority of children will transfer to the senior school which is on the same campus. I have taught at every mainstream class level, and I am looking forward to my first experience working as a SET for the coming academic year. In the current year, based on my research interests, I identified four children in my 2nd class with unclear speech who I felt would

benefit from participation in this action research. Having identified this issue, I received permission from the Board of Management to conduct this research. For the purposes of this study, these pupils have been given pseudonyms – Ethan, Conor, Jason, and Brian.

1.2.3 Intervention

I, being mostly untrained in the field of speech and language, endeavoured to develop an informed programme to improve the clarity of children's speech. To do this, I engaged in online training courses with Elklan and Clinical Assessment and Therapy and Training Services Ireland (CATTS). In addition, I sought advice from trained experts and immersed myself in relevant literature, in order to strive for rigour in my research. Founded on Froebelian philosophy, this action research was underpinned with child-centred approaches, carried out through play and was adapted to suit the individual needs and interests of the participating children (Bruce, 2012).

This research was carried out over an 11-week period in three phases, from mid-January to mid-February (Phase 1), mid-February-mid March (Phase 2), and mid April-mid May (Phase 3); however, I was forced to take a five week pause between phase 2 and 3 due to Covid absences and the Easter break. The children were split into two groups based on the TS that they were working on. Thirty-minute intervention sessions were carried out in a withdrawal style and took place in a learning support classroom, while a support teacher taught in my mainstream classroom. Ethan and Conor focused on /r/ as their TS on Monday and

Wednesdays, while Jason and Brian's TS was /sh/ on Tuesdays and Thursdays. The four

children then worked together on a Friday. A variety of evidence-based methodologies were

put in place to help children become more aware of their TS. Activities targeting speech

perception, phonological awareness, motor production, and minimal pairs were carried out

through child directed games. Although I, as the researcher, led these sessions in the

beginning, the children became more independent as the intervention progressed. To support

transfer of the speech skills practiced during intervention sessions, further practice was

carried out in the classroom with the whole class group.

As values set the foundation of action research, engagement with reflective practice allowed

me, as the researcher, to identify my own values prior to beginning the research (McNiff,

2014). Discussions, interviews, and questionnaires were carried out with the participating

children, their parents, practising speech and language therapists, school staff, and my critical

friend. The above data sources informed the progression of this action research, with this

triangulation adding to the credibility and validity of the research.

1.3 Contribution to Researcher Knowledge

The action research process has enhanced both my personal and professional learning.

Through reflective practice, the identification of my ontological and epistemological values

have informed how I work with the children in my care and as part of the wider school

community. I as a practitioner can now recognise when I am not living to my values of

relationships, respect and dialogue and thus amend my actions to reflect the above. Having

been largely untrained in the field of speech sound disorders, engagement with the literature,

industry professionals and action research itself has led to increased knowledge in the field.

My professional practice has been enhanced having become more aware of speech sound

disorders and the issues faced by children who present with these difficulties.

1.4 Contribution to Research

This study has highlighted the benefits of collaboration among professionals as a means of

best practice. The desire for greater input of SLTs regarding addressing the speech needs of

children presenting with SSD has been highlighted by school staff. This proposes the notion

of the Irish school system developing to reflect the positive practices of countries such as the

US and Canada, where SLTs work on-site in schools rather than as separate entities. Having

had similar short-term schemes successfully piloted in the Irish context, this research

promotes this potential new approach.

1.4 Chapter Overview

Chapter 1: The information presented in the **Introduction** chapter gave a brief overview into

the rationale and structure of this action research. I also outlined the impact that this learning

journey has had on myself both professionally and personally. Finally, an insight into the

potential impact of this intervention on wider research outlined. The above will be discussed in greater detail throughout this study.

Chapter 2: The **Literature Review** chapter provides a foundation that supports this research journey. This chapter focuses on literature pertaining to my values in regard to facilitating communication and its effect on learning. As my prior knowledge of SSD was limited, much of the literature review is focused on understanding SSD and the methodologies used in addressing this difficulty. Finally, I explore the implications of poor speech on children's social, emotional, and academic development, as well as considering how the Irish education system could reflect best practice of other countries internationally.

Chapter 3: The **Methodology** chapter gives a detailed overview of my research design, approaches used, and the tools used for data collection. I outline the justification for choices made and support this with relevant literature throughout. This chapter outlines how personal and ethical guidelines of Maynooth University have been upheld.

Chapter 4: Having analysed the data, the themes which emerged are presented in the **Findings and Discussion** chapter, in a similar format to that of Chapter 2: the Findings and Discussion chapter is presented in similar themes reflective of chapter 2 - values, communication, children's profiles, and implications going forward. The collected results are presented and discussed side by side and connect data sources throughout for means of triangulation.

Chapter 5: The **Conclusion** chapter summarises my findings and identifies the limitations of this study. Recommendations for policy and practice are made, along with the new directions that I hope to take as a result of my learning.

Chapter 2: Literature Review

Perhaps the lesson is that the avenue you follow to helping a child often entails far greater

creativity and insight than administering an articulation or phonology pill

(Bleile, 2020:23).

2.1 Introduction

This review provides a critical examination of a range of current literature on the research

topic: *Can a teacher improve speech clarity in children presenting with speech sound*

disorders using targeted interventions? The aim of this literature review is to create new

learning in the area of children's speech difficulties while establishing links with my personal

and professional values. This will be organised into four main themes: Values,

communication, SSD, and implications for the classroom and beyond.

First, my values of relationships, respect, and dialogue are outlined, as these underpin my

practice. The role of communication and the development of children's communication skills

are presented. SSD, evidence-based interventions, along with the implications of SSD on

children's social, emotional, and academic development are then reviewed. Finally,

collaboration with parents and SLTs and a review of provision in other countries are

examined.

2.2 Values

'A basic component of the teacher-student relationship is the student's perception that their

teacher cares for them and supports them' (Lavy and Naama-Ghanayim, 2020: 1).

Law et al. (2019) outline the difficulties that teachers face in the battle between addressing

the needs of the children while also fulfilling the demands of a packed curriculum. Good

teachers are typified by self-confidence and by defending their values, while remaining

cognisant that their concerns may not be considered by those in power (Kelchtermans, 2009).

This 'fundamental paradox' (Kelchtermans, 2009: 267) guides the researcher to implement

necessary actions which reflect their values, while also recognising the best interest of the

child.

2.2.1 Relationships

Rucinski et al. (2018) suggest that building quality student-teacher relationships require more

than just the teacher showing warmth to the class as a whole. They propose the idea that the

child must be aware that the teacher supports and cares for them as individuals. Although a

positive classroom climate created by the teacher leads to stronger links with the individual

child, this does not directly impact a child's academic outcomes, however; rather, it

influences their emotional functioning (ibid).

Taxer et al. (2019) examined how student-teacher relationships influence the teacher's

feelings of anger or enjoyment and how these impact on their emotional exhaustion. They

propose that the quality of teacher-student relationships was highest at the beginning of an

academic year. Teachers at this point of the year experienced higher levels of professional

enjoyment and lower levels of anger and job exhaustion. However, as levels of teacher

enjoyment decreased and the levels of exhaustion increased, the quality of student-teacher

relationships were impacted negatively (Taxer et al., 2019).

2.2.2 Respect

Respect should enhance classroom environment and be modelled as part of the hidden

curriculum rather than as a series of set lessons (Miller & Pedro, 2006). It underpins much of

the Social, Personal and Health Education (SPHE) curriculum, which refers to building and

fostering respect for oneself, others, the environment, and diverse cultures, among many

other elements (NCCA, 2009). Teachers should reflect, consider their values, and understand

their context to create a respectful classroom atmosphere (Sanville, 2003 cited in Miller and

Pedro, 2006). As such, respect should be modelled for children, since they may be more

likely to replicate this behaviour (Thompson, 2018).

Meador (2019) describes respect as being a 'two-way street', with respect maintained

regardless of the background of the child and especially in the case where stressful situations

arise. Moen et al. (2019:333) mirror this concept, with the term 'bidirectional-respect'. It is

essential that mutual respect exists also in the relationship between teacher and parents, as this is often the main point of contact (Miller & Pedro, 2006). If the children are exposed to a similar type of mutual respect between teachers and parents, it is hoped that this will also be replicated (ibid).

2.2.3 Dialogue

Mercer et al. (2009) describe dialogue as involving the contribution of opinions of multiple parties, in this case teacher and student. Howe et al. (2019) have outlined five ways in which dialogue can be practised in classrooms:

(a) Open-ended questions,

(b) Extending and elaborating,

(c) Acknowledging and critiquing differences of opinion,

(d) Inquiry, and

(e) Awareness of the value of dialogue.

For the student to experience the full benefits of wholesome dialogue, these should be practised in classrooms (Howe et al., 2019). The Primary Language Curriculum (PLC) (2019) reflects a range of the above elements, presenting a broad sense of dialogue and encouraging teachers to create multi-faceted opportunities for exploration, problem solving, and discovery to help aid children's talk.

While research exists on children's interactions within small groups, little research exists on dialogue between teacher and student (Howe et al., 2019). This gap in research may be linked to the ideologies during an era of, as Farrell (2009) describes, when teachers were seen as having a higher status than their students. According to Howe et al. (2019), researchers, who view dialogue in a broad sense, focus on the inquiry and productive natures of dialogue, whereas researchers who perceive dialogue as an ethos value elements such as open-mindedness and respect (Howe et al., 2019). This links with the idea of open-mindedness and respect, mentioned above, which suggests that "students are the first and most important source of feedback, since they are the ultimate 'raison d'etre' for teachers and their teaching" (Kelchetermans, 2009: 262).

2.3 Communication

"Speech typically is the preferred form of communication, because it allows a person to live most widely in their community" (Bleile, 2020: 17).

Sullivan et al. (2019) suggest that effective communication is an element of a successful 'learning community'. White and Gardner (2012) examine the concept of non-verbal communication, classifying this as body language, facial expressions, gestures, and use of space. They note that, while some forms of non-verbal communication occur naturally, some may need to be actively practised. Lewkowicz (2021) points out that the development of speech and language skills can be influenced by a child's ability to lip read. Considering that

this starts at around eight months of age, given the introduction of face masks as a result of

the COVID19 pandemic, we may witness negative impacts on children's language and

communication skills. He goes on to talk about the importance of facial expressions for

communicative purposes. Difficulties often arise in one's ability to read facial expressions

when the entire face is exposed, so, as a result of mask wearing, further difficulties may arise

since only half of the face is visible (ibid). The American Academy of Pediatrics (2021) puts

forward a contrasting viewpoint and suggests that there is no evidence that the wearing of

face masks has an effect on speech and language development in children. They compare

this, for example, to when those with an impairment of one sense experience a heightening of

the other senses.

Many writers and researchers in the area of SSD outline the difficulties that children may

have when engaging in verbal communication. One of the aims of the Primary Language

Curriculum (PLC) is to enable the child to communicate effectively. For verbal children, this

assumes clarity of speech. As communication often occurs at high speed, Lewis (2018)

argues that pronunciation is an essential element for the intelligibility and comprehensibility

of speech for both the speaker and the listener. When the speaker experiences difficulties in

pronunciation, it then falls on the listener to decode and contextualise. As a result of this, it is

thought that adults also rely heavily on lip reading in situations of high volume or

interpreting accented speech (Lewkowicz, 2021). For example, non-native speakers of a

given language may use pronunciations that differ from the expectation of listening native

speakers (Lewis, 2018).

2.3.1 Primary Language Curriculum (PLC)

The PLC emphasises the importance of communicative relationships, language, and experiences but seems to lack consideration for children who may experience communication difficulties due to poor speech. The skill of being able to talk features highly in the PLC, with the techniques of being able to produce speech sounds in order to communicate effectively falling by the wayside.

At various stages from junior infants to sixth class, the curriculum in all eleven subjects includes objectives where the children are expected to 'talk' or 'communicate'. This may present challenges, given that educational performance can be negatively impacted for children with speech difficulties (Farquharson and Boldini, 2018). To address such issues, collaboration with speech and language therapists is merely "advised" (DES, 2017: 12) rather than being expected or noted as being best practice. Later, I will examine literature pertaining to the collaboration between teachers and SLTs.

2.3.2 Facilitating communication in the classroom

Farrell (2009) examines classroom communication, describing the transaction of communication as being both verbal and non-verbal. He explains that there are rules under which this usually takes place (ibid). Pollard et al. (2008) emphasise the necessity of these rules being clear and note the importance of speaking and listening for effective communication.

Farrell states that "the main purpose of communication in a classroom is to instruct and inform" (Farrell, 2009:7). This creates an image of the teacher merely pouring information out to their students for the purpose of regurgitation (Sullivan et al., 2016), with connections to Freire's 'banking' theory and Pollard et al.'s (2008) 'transmission model'. They go on to promote a constructivist approach, which views communication as equal interaction and sharing of knowledge between parties (Pollard et al., 2008). When examining communication in the classroom, the teacher must consider the children's backgrounds and previous experiences of communication and how their varying communication styles may conflict with each other (Farrell, 2009).

2.3.3 Effects of classroom environment on learning and speech

As much of the day may be spent in the confines of a classroom, it is important for teachers to create a quality learning environment. Prodi et al. (2019) outline the negative impact that classroom noise can have on a child's overall performance. In noisy classrooms, the child's ability to hear may be strained. This can result in an increase in response time, stunting fluid communication which was especially noticeable among older children (ibid). Children with SSD who experience either frequent or high levels of classroom noise are thought to have significant difficulties with speech perception and comprehension (Klatte et al., 2010; Brosseau-Lapré and Roepke, 2022).

As a result of high-volume classrooms, teachers are at increased risk of experiencing

dysphonia (hoarseness) as they try to project their voice in order to be heard. Schiller et al.

(2021) conducted a study to uncover the impacts dysphonic speech has on children's levels

of perception and comprehension. It was found that dysphonia has greater negative impacts

on speech perception than on comprehension (Schiller et al., 2021). This is significant for

children who struggle with SSD, as a combination of the above elements may cause difficulty

for children to be able to communicate fluently.

2.4 Speech Sound Disorder (SSD)

"Speech sound disorders is an umbrella term referring to any difficulty or combination of

difficulties with perception, motor production, or phonological representation of speech

sounds and speech segments"

(American Speech-Language-Hearing Association, 2014).

Wren et al. (2016) state that speech development relies on a combination of in-tact motor

skills, language skills, and cognitive skills and that, by eight years old, children should have a

grasp on all speech sounds. Children who present with SSD may either have multiple errors

of speech and are difficult to comprehend or present with few errors and are thus more

intelligible (Cabbage et al., 2022). Speech is one of the "most precise motor behaviours that

is routinely performed at a faster discrete rate than any other human behaviour" (Kent, 2004:

496). According to Kent (2004), kinematics, which refers to the mechanics which move a set

of objects, may be altered for a child with SSD, as their speech may be at a reduced speed.

Two presenting speech disorders in this study are rhotacism and lateralisation errors, which

are presented below.

2.4.1 Rhotacism

"Rhotacism is a speech impediment that is defined by the lack of ability, or difficulty in,

pronouncing the sound R" (Bohren, 2018). Boyce (2015) emphasised the importance of

addressing /r/ distortions, given its impact on children's phonics and reading skills. It is

thought that, "between 2 and 5% of speakers exhibit residual speech errors that persist

through adolescence or even adulthood" (McAllister et al., 2020: 2). Preston et al. (2020)

recognise the negative social and emotional impact on those who present with /r/ distortions.

The effects of these difficulties, if not addressed, may also negatively affect academic and

future occupational outcomes (McAllister et al., 2020).

Preston et al. (2017) recognise the difficulties of /r/ production, given the multiple

movements required and the variety of techniques which facilitate its production – bunched

or retroflex. Given the complexity of correct /r/ production, providing the child with the

knowledge of both bunched and retroflex /r/ techniques, and giving them the autonomy to

choose their preferred technique, has resulted in more significant improvements in sound

production accuracy (McAllister Byun et al., 2014).

Preston et al. (2020) present five cues to help a child to produce /r/.

    (a) raising the front of the tongue,

    (b) retraction of the root of the tongue,

    (c) Lowering of the midline of the tongue,

    (d) Sides of the tongue touching the molars, and

    (e) Rounding of the lips.

It is important to note that the use of any or all of the above elements may be different for each child depending on their error (Preston et al., 2020). Considering the complexity of correcting this error, the child may be assisted in their sound acquisition with the use of visual or oral feedback. Indeed, Preston et al. (2020) suggest the use of hand gestures which imitate the movement and shapes of the tongue to aid sound elicitation. However, overuse of feedback may result in the child becoming over reliant on this tool which may, in turn, affect how they retain the speech sound (ibid).

2.4.2 Lateralisation Errors (LEs)

Overby et al. (2022) describe LEs as being nondevelopmental, occurring when excess air escapes from the sides of the mouth rather than over the central line of the tongue "affecting sibilant fricatives /s, ∫ (sh), z, ʒ(zh)/ and affricates /ʧ (ch), ʤ(j)/" (Overby et al., 2022: 750) (See figure 1). Like children who present with a rhotacism, there are possible social impacts

in that the child may become withdrawn. LEs, which often rely on intervention, can be positively addressed through traditional articulation approaches and biofeedback (ibid).

LEs cause difficulties for clinicians as often "they are notorious for being resistant to treatment" (Farquharson and Tambyraja, 2022: 629). They go on to refer to a study carried out by Overby et al. (2022) which uncovers best practice and the challenges experienced and when treating LEs. This study was carried out among 214 practising speech clinicians. 97% of participants agreed that LEs are reliant on intervention. Best practice should involve LEs being treated regularly (at least once weekly) and on a one-to-one basis. Challenges faced in treating LEs include changing motor placement, late intervention, and the child's lack of motivation (ibid).

2.5 Intervention Approaches

In a survey carried out among speech and language pathologists (SLPs) in America, Diepeveen et al. (2020) found that the majority favoured traditional methods or a combination of methods for intervention, which are chosen based on their own experience and available resources. SLPs often have to make professional decisions based on their own experience, as the field of SSD lacks research in the type of intervention that is best suited to a specific SSD (ibid). Furlong et al. (2018) concur and claim that interventions need to consider the child's age, needs, and personality, as well taking the willingness of parental input in consideration. Dodd et al. (2018) explain that because the errors that are associated

with a phonological disorder and an articulation disorder are different, the types of

intervention will differ slightly too. Crystal (2011) associates an articulation disorder with the

movements required to produce different sounds, whereas a phonological disorder is linked

to errors in phoneme production. However, a mastery of both is required for intelligible

speech production (Dodd et al., 2018).

There are many different approaches to intervention used by SLTs, and the eclectic approach

to therapy includes a variety of techniques such as non-speech oral motor exercises

(NSOMEs), computer-based speech therapy (CBST), speech perception, phonological

awareness, and the use of minimal pairs, which are discussed below. This approach is often

preferred by practitioners, as the use of extensive techniques allows for intervention

programmes to be suited according to each individual child (Lancaster et al., 2010).
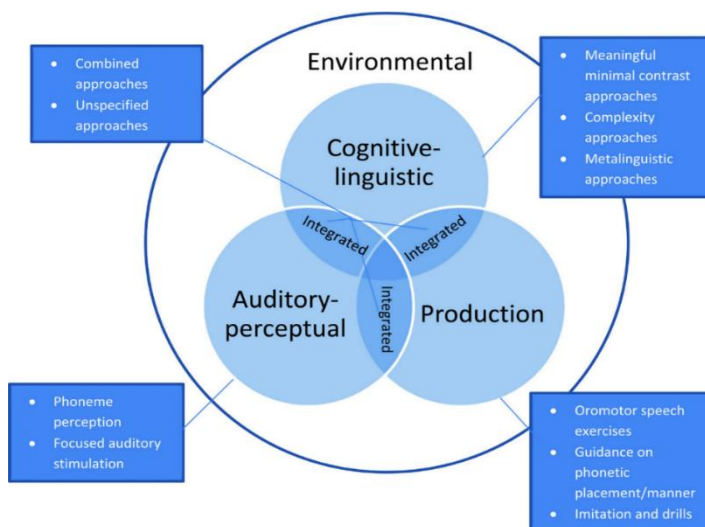
Model of intervention procedures for targeting speech-sound disorder (SSD) (Wren et al., 2018:449).

Wren et al. (2018) provide a model which includes five categories suitable for use in an intervention:

- The environmental approach promotes practice and use of speech as part of everyday interactions.
- Audio-perceptual intervention styles expose children to their mispronounced sound(s) with the objective of igniting the child's awareness of their speech sound difficulty and thus trying to amend it.
- The cognitive linguistic approach makes children aware of general speech sounds as well as the correct form of their target sound.
- The production strategy aims to actively engage children in phonetic and motor placement tasks.
- The integrated approach encourages simultaneous use of two or more of the above approaches.

On the other hand, Ukrainetz (2009) argues that the eclectic approach does not offer individualised treatment, as it is often favoured due to "related tradition and available resources" (Ukrainetz, 2009: 86). As such, Farquharson and Tambyraja (2022) encourage practitioners to tailor their practice to suit the needs of each individual child and urge that simply using an eclectic approach or traditional articulation therapy, for example, may not be catering for the child who needs phonological intervention.

2.5.1 Non-Speech Oral Motor Exercises (NSOMEs)

It is thought that around 60% of SLPs use NSOMEs (Alhaidary, 2021). These include lip, jaw, cheek, and tongue strengthening exercises, blowing, moving and massaging facial muscles. However, these techniques are often challenged since they lack evidence to support their effectiveness. In a study by Potter et al. (2019) which distinguishes between SSD and motor speech disorders, it was found that 3-17 year old presenting with SSD had similar tongue strength to their typically developing peers. This therefore suggests that SSD does not link to tongue strength. They go on to propose that research does not support the practice of NSOMEs currently being practiced by 85% of SLPs (Potter et al., 2019).

Preston et al. (2020) suggest that NSOMEs may contribute to tongue strength which often is not a contributing factor for those with /r/ distortions. Instead, it is recommended that therapy time be spent implementing more appropriate strategies (ibid).   Although SLPs have reported on the successes of these exercises, it must be recognised that they are usually used in conjunction with other traditional speech therapy techniques and, therefore, should be relied on as a separate entity (Alhaidary, 2021). If these oral exercises are being utilised, they should be used along with making speech sounds in order to practise the desired behaviour (ibid).

2.5.2 Computer Based Speech Therapy (CBST)

With the enhancement of technology, more interactive resources have become available to aid in the treatment of children with SSD. Furlong et al. (2017:2) note the effectiveness of these programmes to be "moderately strong". As this technology can be used outside of face-to-face treatment, the frequency levels of intervention increases. However, the difficulty of accessing these resources for families who are struggling financially should be considered (Baker, 2012). Jesus et al. (2019) suggest that the effects of CBST on improving SSD are positive, with reasons provided for this success including children's high engagement levels, motivation, and interest in technology (Jesus et al., 2019).

2.5.3 Speech Perception

Van Riper (1996) advises that children with speech difficulties often cannot correct their own speech mistakes, given that they may not be able to recognise them perhaps due to formed habits. He questions whether a child's speech errors come about as a result of imitation and gives an example of a father with a lateral lisp presenting his child who also has a lateral lisp for therapy.

Van Riper and Irwin (1959, cited in Cabbage and Hitchcock, 2022) emphasise the use of auditory perceptual work prior to getting the child to engage with sound production. The inclusion of perceptual and phonological elements have been more recently supported by

Munson et al. (2005), who suggest that this aids in speech development. Van Riper and

Erickson (1996) promote the method of ear training as a four-step process.

- Recognising the target sound (TS),

- Locating the position of the TS in a word,

- Bombarding the child with the TS, and

- Differentiating between correct and incorrect pronunciation of the TS (ibid).

Brosseau-Lapré and Roepke (2022) suggest that Van Riper's (1963) ear training technique

should be practised for 20-30 minutes in the case of one-on-one therapy and slightly longer if

in a group context. However, they noted greater improvements in speech accuracy when ear

training was combined with speech production interventions.

2.5.4 Phonological awareness

Brosseau-Lapré and Roepke (2022) suggest that children with SSD who struggle with the

phonological representation of words may be at an increased risk of reading difficulties.

Although the use of phonological awareness strategies alone may not be sufficient in

addressing the needs of children who present with phonological disorders, they generally

responded better to this than if treated using an articulation-based approach (Hegarty et al.,

2018).

Farquharson (2019) focused on difficulties of /r/, /l/ and sibilants (LEs) which are more likely to cause difficulties with phonological processing. Benway et al. (2021) echoed this idea and went on to encourage the inclusion of perception and phonological skills during the speech assessment process, to pinpoint if the child could benefit from the inclusion of this type of intervention. Should this be the case, it is suggested to implement phonological awareness activities in a small group context rather than individually or with a full class (Brosseau-Lapré and Roepke, 2022).

2.5.5 Minimal Pairs

Combiths et al. (2019) describe a minimal pair as a set of words with only one differing sound element. For example: 'w ake' and 'r ake' which have a differing initial sound. Minimal pairs usually contrast the child's error and their target sound (Dodd et al., 2009). Cabbage et al. (2022) found that the minimal pairs approach is included in the top three approaches used by SLPs along with the cycles approach, which provides exposure to numerous sounds rather than individual TS (Franklin and Daniel, 2016) and traditional articulation approaches. In a study carried out among 11 Australian based SLPs, it was suggested that for the minimal pairs approach to be successful, it should be used in conjunction with other approaches (Furlong et al., 2021).

2.5.6 Setting, Frequency and Duration of Intervention

Regarding group therapy, Preston et al. (2020) view best practice to take place in homogenous groupings on a regular basis. This is compared to more commonly seen scenarios of infrequent sessions which consist of heterogeneous groupings. This is not a criticism, however, as stretched time, resources, and large caseloads are taken into consideration (ibid).

Regular frequency and suitable grouping style assists in achieving high practice trials (dosage) during therapy sessions (Preston et al., 2020). In the case of a group setting, Skelton and Richard (2016) suggest that dosage could further increase by one child engaging with the target sounds during another child's turn. Farquharson and Tambyraja (2022) challenge this ideology and suggest that, with the addition of one extra child into a group setting, the dosage can decrease by 13 trials.

Farquharson et al. (2020) conducted a study to understand the impact that speech therapy in schools can have on children with SSD. The results were found to have made a significant increase in children's speech. From autumn to spring, children were seen to have a 3.91% increase in their percentage of consonants correct (PCC) score. Gillon (2002) noted a 6.8% increase in PCC after a ten-week intervention which focused on speech sound production but a 14% increase in PCC after a ten-week intervention which also included phonological

awareness. It should be noted, however, that these interventions were designed by researchers rather than schools (Gillon, 2002).

2.6 Implications

In the past, the idea of children being seen not heard was considered regularly, however, there is a moving shift from this ideology with greater value placed on children's contributions (Roulstone and Lindsay, 2012). Article 13 of the United Nations Convention on the Rights of the Child (2010) outlines children's rights to freely express themselves through any form of media they choose. Lyons and Roulstone (2018) note the importance of becoming aware of the child's perspective which may help to uncover any issues of poor self-esteem or wellbeing.

2.6.1 Social & Emotional Impacts on Children with SSD

According to Krueger (2019), a multi-faceted approach to assessing the social impact of SSD on a child must be considered. Elements such as perceptions, feelings, and attitudes of both the child and of those with whom they interact must be considered to help gain a rounded understanding of elements that affect the child. It is noted that children with SSD may experience social difficulties regarding how they believe others perceive them to be (ibid).

In a study carried out by Roulstone and Lindsay (2012) among children with speech, language, and communication needs, high importance is placed on the children's own perspectives. It found that children experienced feeling vulnerable regarding their own emotions and social acceptance. It should be noted, however, that, while some children outlined the difficulties that they face, other children looked at aspects of their life with more positivity. What was particularly striking in this document was the children's desire to be listened to by their family, teachers, and peers without being interrupted (ibid).

Parents, according to Roulstone and Lindsay (2012), were most concerned with their children developing a sense of independence and experiencing inclusion. While academic success was deemed to be important, they also placed higher value on life skills and day to day living. They urge practitioners to seek greater understanding into how SSD may impact a child socially, emotionally, and academically and to formulate their intervention based on this.

2.6.2 Academic Impacts

According to Kuhl (2004), social interactions influence both speech perception and speech production in children. She argues that children who experience difficulty in interacting with others due to human interference or their own brain function may have lower levels of language development. Children with higher levels of phonic perception are expected to advance faster, as they have the skills necessary to associate words with the physical object, recognise patterns, and segment words (Kuhl, 2004).

Farquharson and Boldini (2018) claim that SSD can influence a child's general educational performance. Wren et al. (2021) echo this idea but also consider the children whose speech disorder then becomes classified as a persistent speech disorder (PSD) after they reach the age of typical acquisition. Even if children who are experiencing PSD receive a diagnosis at the age of eight years old, they may still experience poor educational success into teenage years (Wren et al., 2021).

This knock-on effect can occur even into later life, highlighting the need for intervention. In an American based study, Tambyraja et al. (2020) recognise the large number of children with SSD who receive speech therapy within the school setting. Of this cohort, it is thought that 25% of these children would qualify for reading support. As phonological awareness plays such a vital role in word decoding and thus for reading skills, the benefits of including phonological awareness in speech therapy sessions was outlined (Tambyraja et al., 2020).

2.6.3 Parental involvement

The importance of positive relationships and respect between teacher and parent must not be under-valued as this, in many cases, may be the primary point of contact with the student's home life. Greene et al. (2007) recognise the benefits that parental involvement in a child's education can have for them academically, and is especially effective with engagement and support from the child's teacher. The notable decrease in levels of parental involvement in education as the child transitions through the education system was noted (Greene et al.,

2007). Daniel (2015) confirmed this research concept and added that this decrease of involvement may be due to the child's growing independence or the parent's hesitance due to the increased complexity of the curriculum. In addition to this, Roulstone and Lindsay (2012) found that in the early years, speech and language therapists reported that 60% of their intervention delivery involved working with parents. However, this dropped to 10% by the time the child reaches secondary school. These statistics concur with the findings of Greene et al. (2007).

Linking back to the theme of SSD, in a survey carried out among speech-language practitioners (SLPs), it was noted that parents who already have an active interest and involvement in their child's education are more likely to engage in extra work and activities provided by the SLP (Tambyraja, 2020). In a survey carried out by Tosh et al. (2017), in an Australian context, home programmes delivered by parents were shown to be effective for children's speech and language development. However, only 4% of parents in the 2017 study said they would rather have parental intervention instead of their child receiving individual treatment from an SLP.

2.6.4 Essential Teacher-SLT Collaboration

Gallagher et al. (2019: 2) promote the potential benefits of "inter-professional collaboration" (IPC) between teacher and SLT, which have shown benefits to the child's development and ultimately their outcomes. The teacher can become more familiar with the language and

techniques used by the SLT and, in turn, the SLT may gain a greater understanding of the school curriculum. This, however, does not come without challenges. As this collaboration often occurs infrequently, differing opinions may cause strain in forming strong working relationships which can thus result in a lack of understanding between professionals (ibid).

2.6.5 Current SLT Access

A study carried out by Daniel and McLoed (2017) in the Australian context explores challenges associated with SSD faced by parents, teachers and the children themselves. Interestingly, a report from the Parliament of Australia (2014), outlines the gaps in provision of school-based speech services. Areas such as "New South Wales, the Northern Territory, the ACT and Western Australia either have no speech pathology services in their public-school systems or very limited provision" (Parliament of Australia, 2014: 52). While this was met with shock and anger from parents, other concerns arose regarding waiting lists, child development, and challenges in accessing community-based speech services. As in the Irish context, should a child need speech and language intervention, parents face financial and time difficulties in order to access these services (Daniel and McLoed, 2017).

Elements of this setup differ with countries such as Canada and the United States where children who need various types of therapy are facilitated in schools. Using a three-tiered approach, SLPs working in schools in Ontario, Canada address the varying needs of children within the school setting.

- Tier 1: Whole class support, done in collaboration with the teacher.

- Tier 2: Support given in a small group setting to target children who may be at risk of delays in literacy.

- Tier 3: Intense individualised support for children who have been identified as having a developmental disorder.

(Terreberry, 2021)

The American Speech-Language-Hearing Association (ASHA) (2010) recognise the ever-changing nature of schools and the challenges faced by teachers. This is also applicable for school-based SLPs who initially implemented interventions to address difficulties such as voice, language difficulties and articulation errors. This has adapted to include elements involving tele-practice, curricular based work, and evidence-based practice (ibid). The primary focus of a school-based SLP is addressing the needs of the child. However, their role also extends to collaboration with teachers and other school staff, working with parents and continuing their own professional development. It should also be noted that school based SLPs set targeted goals which cover a variety of difficulties, whereas private practice sets goals specific to the presented disorder (Graham Interview, 2022).

2.6.6 The Irish Context

Steps have been made in the Irish context in an effort to move towards a similar style. The Chit Chat 2008-2011 programme as part of the Childhood Development Initiative (CDI),

based in Tallaght, Dublin saw SLTs working on site in primary schools and early years

settings. An increase in child attendance, less disruption to the child's day, and parents

feeling less stigmatised came about as a result of this delivery model. In addition, teachers

received greater support from SLTs and noted the benefits of children missing less school

time to access such services. This study found that improvements were seen, on average,

after a six week period. After this time, 19% of children were signed off from the service,

while 31% received further therapy in this capacity. The 50% of children who had on-going

needs were then referred directly to the Health Service Executive (HSE) (Childhood

Development Initiative, 2016).

The Area Based Childhood Programme (ABC) was launched by the Irish government in

2013 in a bid to tackle poverty and disadvantage through prevention and early intervention.

Later in 2018 as part of the School Inclusion Model, the HSE and Department of Ed piloted a

schools speech and language scheme which saw speech and language therapists and

occupational therapists working inside the school setting (Gallagher, 2018). Due to its

success, the scheme was extended to the year 20/21. Interestingly, nowhere in the Irish

Association of Speech and Language Therapist (IASLT) Strategic Plan 2020-2022 is this

direction of change mentioned (IASLT, 2020). Furthermore, the specific criteria to register

with the IASLT website remains restrictive to those outside of the speech and language field.

2.7 Conclusion

The chapter outlines literature on my own set of values, communication, speech sound disorders, intervention approaches, and implications for the classroom. Elements of professional collaboration and the structure of Irish and international speech services were particularly important as this informed the course of my research going forward. The following chapter presents the methodological approach to this action research in my classroom.

Chapter 3: Methodologies

3.1 Introduction

Action research stems from a person's desire to improve their own practice through reflection, inquiry and action (McNiff, 2002). This aligns with my ontological and epistemological commitments to investigate if I, as a teacher, could improve speech clarity in children presenting with speech sound disorders, by using targeted interventions. In this chapter, the mixed methods approach of qualitative and quantitative assessments, reflective journal, interviews, questionnaires, observations, and audio recordings will be presented. Ethical considerations are also discussed. This will all provide insights into how the chosen methods were used to implement and collect data for this action research.

3.2 Research Design

3.2.1 Participating Children

This research was carried out directly with a group of four pupils in my 2nd class. I taught this same group of children while they were in 1st class, and so I am very aware of their needs, strengths, and interests. Ethan has a diagnosis of ASD, and is being monitored on the Continuum of Support, but is currently supported within the classroom. Given his increased levels of independence and declining need for support, his SNA access has been steadily

reducing over the past two years (Dept. Of Education and Skills, 2014) and is coping well in the mainstream environment.

Brian receives out of classroom learning support. Prior to beginning this intervention, he was recently signed off from SLT. His SLT encouraged participation in this research project to maintain practice of his TS. Conor and Jason do not fall into either of these categories and are both doing well academically and socially, though both present with a noticeable lack of clarity in their speech. None of these children have a speech diagnosis but were selected by me, as I have been conscious of the lack of clarity in their speech since I began working with them two years ago.

3.2.2 Action Project Intervention

This action research was carried out in a withdrawal style over an 11-week period. These sessions took place in a learning support classroom. Ethan and Conor (Group 1 - /r/) were withdrawn on Mondays and Wednesdays, while Jason and Brian (Group 2 - /sh/) were withdrawn on Tuesdays and Thursdays. Fridays involved full group games activities with the opportunity to model new skills, creating opportunities for peer support. This was advised by my critical friend. The SET supervised my class while I worked with the children.

Prior to beginning the intervention, the children designed a group name and logo (Figure 2) which was displayed throughout the action research. The project sessions with the children followed a format of 30-minute duration, with a similar style and content repeated throughout. Given the importance of auditory bombardment, the beginning of each session targeted phonological awareness and listening skills. A varied selection of teacher modelling, stories, peer listening, and 'Articulation Station' app games were used to help the children recognise correct and incorrect TS production. Children engaged in 'thumbs up' and 'thumbs down' activities based on the above. To ensure continuity, focus was consistently brought back to phonological awareness skills during speech production practice (Brosseau-Lapré, 2022).

Preston et al. (2020) recommend teaching children of tongue anatomy and its functions through use of visuals (Figure 3), child friendly toys, hand movements, verbal cues, and eliciting the TS through sounds that the child can make successfully. This technique known as phonetic shaping was also referred to by Van Riper (1996) as 'progressive approximation' (Van Riper, 1996: 245). Mouth models (figure 4), playdough tongues, and mirrors were used to recreate and visualise correct movement of the tongue, lips, and teeth.

Considering my value of relationships, building the children's confidence and self-esteem was essential. The phonetic shaping technique involved using a sound that the children could make successfully to initiate their TS. In the case of both /r/ and /sh/, drawing out the /i/ (eg. Ea, ee) sound encouraged similar tongue placement to produce their TS.

- Group 1: /i/ - /r/ (eee-rrr)

- Group 2: /i/ - /sh/ (eee-sshhh)

Cognitive reframing strategies which focused on the creation of entirely new sounds were implemented to redirect the children's attention from their difficulty with their TS. Group 1 (/r/) worked on the 'growly' sound. The inclusion of the /g/ sound encourages the tongue away from the hard palate and to touch the top molars, similar to the desired shape for /r/. The cognitive reframing strategy implemented with Group 2 was referred to as the 'flat tire' sound. Here, the children practised repeating and holding the /t/ sound to encourage the midline of the tongue away from the hard palate and the boarder of the tongue to touch the molars (Graham, 2018), with airflow over the tongue rather than from the sides.

The minimal pair strategy, which targets two words that sound similar (eg. rise and wise) emphasises correct pronunciation for meaning making. Storkel (2022) promotes the use of minimal pairs in older children who may only be presenting with a mild SSD, as the focus of this activity is on a single target sound. This was practised using card games, dominos (figure 5), and the 'Minimal Pairs for Speech Therapy' app.

It was suggested by our school speech and language therapist that children should practice their TS, on average, 100 times during a speech session. Games (figure 6) such as treasure hunts, Jenga, Connect 4, and Hungry Hippos, all of which were selected by the children

themselves, were adapted to involve high frequency practice of the TS. Doing so provided

the children with a level of autonomy and helped to maintain their interest and motivation to

continue practicing their TS. This was a particularly important element to include in the

intervention in order to make the process as collaborative and enjoyable as possible for both

myself and for the children.

Conversational style dialogue took place naturally prior to and after each session. During this

time, the children shared elements that they did or did not enjoy, asked questions and shared

worries and suggestions. By engaging in this collaborative approach, the intervention was

adapted and improved where necessary to meet the needs of the participants.

3.3 Research Framework

3.3.1 Action Research

Action research is influenced by values which can be identified through reflective practice.

This assists in creating our own living-educational-theory (Whitehead, 1989). Here, we are

asked to scrutinise some aspect of our practice, develop our knowledge of it, and take necessary

action for enhancement purposes with the aim of generating new knowledge from the process.

Whitehead (2018) suggests that we do this by asking, "how do I improve what I am doing?"

(Whitehead, 2018:71). Through active reflection, questioning, examination, and critique, I was enabled to home in on elements of my practice that needed self-improvement.

As a result, we may stumble upon the likelihood of being a *living contradiction* (Whitehead, 2018: 7), realising that we are not living to our values as perhaps previously assumed. I labelled myself on numerous occasions as being a living contradiction. On 20th October 2021, I noted in my reflective journal, "I left work earlier completely hoarse. It's no wonder as I was the one who spent the entire day talking. I claim to value dialogue but today that was almost non-existent." (Reflective Journal, 20 October 2021). This act of the children listening, while my voice was dominant, mirrors the 'transmission model of teaching' (Pollard et al., 2008: 334). Areas for improvement were clearer by engaging in reflective and reflexive practice.

The importance of the role that the participating children held in enabling me to implement the intervention cannot be underestimated (Cohen et al., 2018), as action research depends on the contributions of others. McAteer (2013) examines the actions of a child in how they problem solve and adjust to achieve success, for example, a child's determination when learning how to walk. She refers to the child's egocentric nature and their world being '*all about me'* (McAteer, 2013: 7). I informed the children of the collaborative nature of the research relaying that both parties (the children and myself) play a vital role in the study, albeit from different perspectives. However, 'I', as the researcher, will be at the forefront of this action research (Whitehead, 1989).

3.3.2 Collaborative approach

Considering the children as co-researchers, meaningful collaboration was essential. Throughout the process, I gave the children autonomy to choose a group name, logo, games, and activities, which I then manipulated to suit the practice needed to be done. We engaged in informal dialogue and noted important information in my reflective journal. During this, I asked the children,

- What is going well?

- What can I do better?

- Is there anything that you are not enjoying?

Any information shared was used to adapt and improve the experience for the children. The voice and contribution of the children became a critical element in the collaborative process. Not only was I striving to live to my value of dialogue but I was also seeking to adapt and improve my practice.

My value of relationships which I strive to uphold rely on mutual respect and trust between all participants. In the case of the relationship between teacher and parent, the importance of the role of the parent as primary caregiver was key. Greene et al. (2007) recognise the academic benefits that parental involvement in a child's education can have, especially with support from the child's teacher.

I regularly kept the parents informed of their child's progress and of the activities and methodologies being used. As Lancaster et al. (2010) promote the idea of an eclectic approach, I provided parents with the resources familiar to the children to reinforce the activities at home had they wished to do so. While I wanted to make this research as collaborative as possible, I kept to my value of respect considering that this was not possible for all parents.

3.3.3 Slow approach

I admire Glenn's (2020) perspective of taking a 'slow' approach to action research, unlike 'fast academia' (Glenn, 2020: 3), where much desire lies in the finished product and achieving fast results. This hastiness can be to the detriment of action researchers as often the research can lack depth and seem incomplete. Although often criticised, Glenn encourages this approach to action research as researchers themselves need time to reflect on and identify their own values, before engaging in the research process itself. This Master of Education has allowed me, as the researcher, to engage with this slow approach which has led to wholesome engagement in personal, intellectual, and relational awareness (Glenn, 2020). As action research is carried out over extended time, this slow approach provides opportunities to reflect, adapt, and implement new actions.

 3.4 Research Methods

3.4.1 Qualitative Research

I chose to include qualitative research as the human element is at the forefront. By gathering

qualitative data, the ontological actions and experiences of the researcher and participants

were taken into consideration. Kozleski (2017) encourages the use of qualitative data to

allow for examination of the minor events that happen in classrooms daily. She argues that

this gives way to ensuring social validity.

For qualitative research to be successful, I had to take time to consider the feedback from the

children and my critical friend and adapt my research process based on this (Kozleski, 2017).

The entries in my reflective journal lend itself to the qualitative ideology which influenced the

development of my research project and teaching style. A child in my class queried as to why

they hadn't been selected. Considering my value of honesty, I explained to them the nature of

the research in a way that maintained the dignity of the participating children. On reflection, I

had witnessed myself as being a *living contradiction* (Whitehead, 2018), since I consider

inclusion to be a personal value.

I adapted to ensure that the rest of the class had an indirect part in the research. No data was

obtained from these children. The four directly participating children regularly modelled their

new skills and practised in groups with the rest of the children playing a supporting role. This increased the participant's practice trials and created an inclusive environment.

With quantitative research, the element of researcher bias and its time-consuming nature must be considered (Mulisa, 2021). While Mulisa (2021) outlines the benefits of carrying out qualitative data in a face-to-face scenario, Lobe et al. (2020) also recognise the potential difficulties of this as a result of Covid19 social distancing procedures. They note that factors such as equipment, internet connection, and suitable communicative environment are necessary for the effective collection of qualitative data. During an online interview with a practising SLT in January 2022, ethical issues of privacy, confidentiality and consent had to be considered and addressed (Lobe, 2020).

3.4.2 Quantitative Research

Although quantitative data is scientific and numbers based, Forster and Eperjesi (2017) note that all types of data are susceptible to interpretation. They also outline the possible limitations of quantitative data in an action research setting given that this type of research is small scale in design. Kozleski (2012) concurs and suggests that quantitative research may be more restrictive, as it focuses on a structured or given topic.

I chose quantitative data based on the recommendation of a Dublin based SLT. This was obtained in the form of auditory, sorting, reading, and writing assessments. I was able to gauge the success of my intervention through score comparison. This was also used in the form of a staff survey. The quantitative element of this survey provided information on staff member's awareness of SSD and their ability and confidence in being able to address this need.

3.4.3 Mixed Methods Research

Appreciating the value of qualitative and quantitative data, I focused my data analysis primarily on a mixed methods approach. The most prominent elements of both qualitative and quantitative data were combined to evaluate whether the intervention results have contributed to my research question (Ertesvag et al., 2021). They note that much research evaluates qualitative and quantitative data as two separate entities. By integrating the data, I came to have a richer understanding of the research. This was achieved by

    (a) Merging the data,

    (b) Explaining the findings, and

    (c) Building on findings and creating new knowledge.

(ibid).

Guest (2013) suggests that the integration of qualitative and quantitative data should be examined in two dimensions (a) timing and (b) purpose. This is what he referred to as the 'point of interface' (Guest, 2013: 146). I referred to the timing as the duration of intervention and all

that happened during the process. The purpose related to my reasoning for undertaking this intervention was to be able to make a valuable contribution to the needs of the school. Having evaluated the data using a mixed methods approach, the purpose and implications of the research has changed. This will be discussed in Chapter 4.

3.5 Data Collection Strategies

3.5.1 Reflective Journal

Brookfield (2017) suggests that how we act and the decisions that we make as teachers are based on our assumptions, the context of the workplace or of general educational policies and ideologies. As action research is heavily linked to values, much time was spent reflecting on both my professional and personal values prior to commencing the research process (McNiff, 2002). This engagement allowed for adaptations and improvements in my practice. Initially, my reflections were from my own perspective. Over time, they became more complex as my action research required input from multiple sources. Brookfield's Four Critical Lenses theory encourages the input of students, colleagues, relevant literature, as well as focusing on the self (Brookfield, 2017). The addition of others added depth and empathy in self-questioning and self-critique.

Schon is connected to the concept of engaging in reflection-in-practice and reflection-on-practice. Reflection-in-action is carried out during daily practice where, as a practitioner you

are always "thinking on your feet" (Schon, 2016:54). The potential complexity of digesting a situation, reflecting on it, and then deciding an immediate course of action was more accessible (ibid) in the withdrawal setting.

The reflective process presented personal challenges and while I recognised its' value, I often lacked the motivation to engage in the practice. Realising the importance of reflection-on-action, in February 2022, I adapted my reflective style from written reflection to audio recordings. To add structure to this, I regularly asked myself a series of questions.

- What is going well/needs improving? (mine and the children's perspectives)

- How are the children doing in terms of progress and emotionally?

- Have I lived to my values today? If not, why not? How can I change this?

By adding small structural changes, the process immediately became more natural and inviting and as a result informed the progression of the research intervention.

3.5.2 Interviews

Forster and Eperjesi (2017) view the action of conducting interviews to be a good source of qualitative data in that the views and experiences of the participant are at the forefront. Cohen et al. (2018) mirrored this ideology and perceived the act of conducting interviews, although time consuming, as allowing the researcher to see the world from the perspective of another. I chose to use interviews as a method of data collection given the flexibility and possibility of

in-depth discussion (ibid). My approach to interviews varied, depending on the age and role of the participant.

Prior to beginning the action research project, I engaged in a semi-structured interview with the participating children. The questions were designed to uncover the children's knowledge of 'speech,' awareness of their own speech issues and the outcomes of not being understood or being able to understand. This style of interview is particularly important to consider when dealing with as partaking in an interview scenario may have been an unfamiliar experience (Cohen et al., 2018).

As some of the children showed signs of nervousness in this scenario, I ensured that the concluding interview was conducted with a more informal style and conversational style. This time, the aim of the interview was to discover new learning, elements which the children did or did not enjoy and how I, as the researcher, could improve going forward. The qualitative feedback was interpreted through the eyes of a child, taking into account their age, culture, background, and development level (Cohen et al., 2018).

A formal, structured interview was conducted on 17th January 2022 with a practising Dublin based SLT. The questions were designed to further inform my own intervention and gauge opinion of the role schools could play in developing children's speech. In May 2022, I also had the opportunity to conduct an interview with an American Based SLP, Amy Graham. In

contrast, this written interview aimed to compare the provision of school-based SLPs in the American school system to the Irish context and uncover more about the role of the teacher in addressing children's speech needs.

While the data collected from an interview was reflective of the participant's opinions, the content received can be open to interpretation by the researcher and may be viewed differently from one person to another (Forster and Eperjesi, 2017). While this may be viewed as a disadvantage, I upheld my values of honesty when evaluating data obtained from interviews.

3.5.3 Questionnaires

Like interviews, questionnaires can be a source of both qualitative and quantitative data, however, they provide limited data and potential discrepancies may not be easily clarified for the participant (Bucknall, 2012). This method may prove less time consuming than an interview and can involve a larger number of participants.

A questionnaire was distributed to the teaching staff in my school setting. This 14 question survey was delivered using the Survey Monkey online facility. It was sent to 19 teaching staff (9 mainstream teachers, 6 SETs and 3 Early Start teachers), of which 19 responses were received. To ensure accuracy and to obtain the highest quality of data, the questionnaire was reviewed by a staff member before being released to the entire teaching team (Denscombe, 2003). Adjustments were made based on their critique. This questionnaire revealed concerns surrounding the problem of speech difficulties within the school and how well staff feel that

they can tackle this issue. The data obtained from this gave insight to staff perspectives which have encouraged the route of my research going forward.

3.5.4 Observation

My engagement in observations varied between structured and unstructured styles (Bucknall, 2012). Structured observations took place in the small group, withdrawal setting. I was observing the children's technique in using new speech skills. As these tasks are quite specific and could be considered as quantitative, no obvious issues arose in relation to observation objectivity. At the evaluation stage, much care was taken to avoid making assumptions on any observations made (Forster & Ejister, 2017).

By carrying out unstructured observations in a natural setting, such as the classroom or yard, the interference or influence of the researcher is limited (Denscombe, 2003). In the classroom, this tool proved to be flexible yet time consuming (Bucknall, 2012). Bucknall considers observations to hold a higher value as the researcher is likely to remain more open (ibid). Observations of the children's reactions, feelings, or comments during speech sessions were noted and analysed quantitatively. Honesty was maintained to ensure validity, adhering to my ethical considerations and my own values of respect.

3.5.5 Audio recordings

Audio recordings allowed for identification of speech errors as well as for comparative purposes (Macrae, 2017). Assessing speech sound production is a regular occurrence among speech and language practitioners (ibid). While this method of data collection is reliable and concrete, I was aware that it may impact participants if they are conscious that they are being recorded while also not recognising nonverbal communication (Denscombe, 2003). Permission was sought from parents before collecting data in this format and also sought from children every time audio recording took place. One child requested not to be recorded. In accordance with my ethical standards and values, their wish was respected.

3.6 Reliability and Credibility

3.6.1 Critical friend

MacPhail et al. (2021) interestingly points out that the words 'critical' and 'friend' may seem conflicting. They aptly describe the notion of a critical friend as one who questions, provokes thoughts, and criticises while also being respectful, trustworthy, and supportive. My critical friend questioned much of my thinking, my intervention design and has been an expert source of guidance and support.

While Carlson (2019) demonstrates the positive aspects of involving a critical friend in the action research process, he also recognises the potential drawbacks. Including a critical friend

does not automatically ensure critical thinking and he found that, oftentimes, critical friends can be informative rather than transformative. Nonetheless, critical friends provide the opportunity for engaging in the sharing of dialogue (ibid).

This puts into perspective the importance of being cautious and selective in choosing a critical friend. On engaging with my own critical friend, I took a three-dimensional approach

    (a) collaborative approach,

    (b) willingness to accept criticism and create necessary change, and

    (c) openness to engaging in all aspects of the critical friend relationship

(MacPhail et al., 2021).

During a meeting on 4th February, I had a prepared list of queries based on what had happened in the previous month that needed clarification. She advised to "step back and consider (child's name) age related readiness and development" and suggested greater emphasis on "more familiar phonological awareness activities". Ideally, I had hoped to conduct semi-formal meetings at a monthly frequency, but this was not always possible. Informal discussions took place on a regular basis which allowed time to implement or change suggestions made prior to semi-formal meetings.

3.6.2 Triangulation

Data collected was scrutinised using a mixed methods approach. Triangulating this made for depth of meaning in my research (Sullivan et al., 2016). As each group played a different role in the research, the data collected was varied. This along with self-reflection and the awareness of my epistemological and ontological values assisted in the triangulation of data. Being at the centre of the research, I could compare, contrast, and evaluate the contributions of all parties to discover to what level my research question has been answered.

3.6.3 Validity

McNiff and Whitehead (2010) outline two types of validity in research - *personal validity* and *social validity.* Throughout this process, my actions and thoughts have been under constant self-scrutiny. By engaging in reflection, I have witnessed the battle of forming contrasting perspectives of a given scenario based on when the reflection took place. This has encouraged self-reflexivity and has aided in developing my own personal validity.

To ensure the social validity of my research, I relied on my critical friend, colleagues, and input from industry experts. I remained conscious of how my collaborative approach and my value of relationships could potentially be tested. All interactions with these groups were approached with openness and trust. Social validation may decrease the risk of self-approval and instead the claim to knowledge made by the researcher may be more informed (McNiff and Whitehead, 2010).

3.7 Ethical Considerations

3.7.1 Sampling

I approached the parents of the participating children in an informal and conversational manner to discuss the intention of the research project and requested their child's participation to which they all agreed. I approached the children in the same manner. My class as a whole played a supportive role in the research, though no data was collected from these children.

My critical friend played an essential role in critiquing and questioning my research. I required the indirect involvement of all teaching staff by engaging in a questionnaire. To gain insight from experts in the field and to add rigour to my research, two speech practitioners engaged in interviews. As one practitioner input stems from a Dublin based context and the other from an American based context, this added variety to the research.

3.7.2 Sensitivity

This action research was approached with care considering children can be seen as vulnerable participants in research (Cohen et al., 2018). The children were made aware that they were chosen due to the contribution they could make to the research. Had the children show signs of discomfort or stress, they were made aware that I or the SET were there in a supporting role, if required.

I highly value the use of dialogue and used this as a tool in an open and honest manner for communication and problem solving. Where a sensitive issue could potentially have arisen with a parent, I would have followed this dialogic course of action. Had a serious disclosure been made I would have addressed and followed the school's Child Protection Policy. None of these issues arose.

3.7.3 Consent and Assent

I was very conscious of requesting any participation in a way that would not pressurise the participant, especially in the case of the children (Cohen et al., 2018). I engaged in detailed face to face discussions with the parents and children. Written consent and assent were received (see appendix 1). My critical friend and school staff were informed of the research objectives and process. I made the Board of Management aware of my intended research (see appendix 2) and gratefully received funding for an Elkan course to support my foundational learning prior to beginning the research process. A letter of thanks to the Board of Management was presented by the principal.

3.7.4 Power Dynamics

Cohen et al. (2018) suggest that, as the researcher has much influence over research elements, they may be seen to be in a position of power. Noffke and Somekh (2009) take a softer approach to power dynamics and recognise the element of care commitment needed to engage

in this type of research. I made participants aware that this research journey stems from a desire for self-improvement and that that research is based on my own practice. To reflect Noffke and Somekh's (2009) take on power dynamics, I aimed to give the children autonomy. I continued to openly welcome, reflect upon and implement relevant feedback or criticism from children, staff, and parents. By doing this, I was able to create a power balance with all parties.

3.7.5 Vulnerability

My primary concern was to ensure that the self-esteem of the participating children was not impacted negatively. As some of the children were aware of their own speech issues, I endeavoured to design the intervention which accommodated their interests and emphasised their talents in the hope that this would take focus away from any existing difficulties. I could foresee possible concerns regarding informing parents of their child's suitability for participation, as this is not something that I had discussed with them previously. However, all parents were open and willing for the child to participate. Parents and children were made fully aware of their right to withdraw without explanation at any stage (Johnson et al., 2017) and that this decision would be fully respected.

3.7.6 Data Storage

In accordance with my ethical standards and personal value of trust, all data was stored securely. Hard copy data, such as consent and assent forms, questionnaires, and samples of the

children's work were stored in a folder marked private and locked in a filing cabinet on the school premises. Soft copy data such as audio recordings and surveys were stored in a password protected file on my personal OneDrive account.

All participants and their contributions remained confidential. Children's names were given pseudonyms throughout this written thesis. This level of privacy which was promised prior to beginning the research was upheld throughout. To ensure absolute confidentiality, no participants' names were stated in my reflective journal as was often carried between my home and work setting. Participants were made aware of the future possibility of the work being published only in an acknowledged educational publication. In accordance with Maynooth University's Research Integrity Policy 2021, data will be stored for a minimum of ten years.

3.8 Conclusion

In this chapter, I have provided a rounded insight into my intervention and the research which supports this. The participants and their roles in the research were outlined above and I have presented how data was collected and evaluated. The selection of a wide range of methodologies and participants allow for the rich collection of varied data, thus adding to the validity and credibility of the research. My ethical standards, that of Maynooth University and personal values form the foundation of my research design.

Chapter 4: Findings and Discussion

4.1 Introduction

In this chapter, analysis and findings are presented alongside each other. Firstly, the results of the children's assessments will be outlined. Following this, I will present my data under the following themes: confidence, impact on schools, and professional judgement. My values of relationships, respect and dialogue will be weaved throughout this chapter. The purpose of this research is to explore whether a teacher can successfully design and implement a programme to improve children's speech clarity. Having analysed all collected data, unexpected results emerged from the research and therefore have altered my intended research going forward. This will be discussed in greater detail later.

Group	Target Sound	Children
1.	//r/	Ethan & Conor
2.	/sh/	Jason & Brian

Initially, I had not intended to carry out this action research in a cyclical approach. However, as my own learning developed, the methodologies included in the intervention had to be adapted to reflect this. The assessments carried out at the beginning of each cycle informed the progression of that cycle.

   (a) Mid January - Mid February (Phase 1)

   (b) Mid February - Mid March (Phase 2)

   (c) Mid April - Mid May (Phase 3)

Due to the Easter break, the children's Covid absences and my own absence due to Covid, the intervention was forced to pause for a five-week period. This had a noticeable impact on Phase 3, as the methodologies and skills practised in the previous two cycles had to be reinforced. Data which was analysed using a mixed-methods approach was collected by means of interviews, questionnaires, audio recordings, writing samples, observations, and a reflective journal.

4.2 SSD Intervention Profiles

4.2.1 Assessment Overview

Prior to beginning the research intervention and following its conclusion, a number of assessments were carried out with the children.

      A. Auditory

      B. Sorting

      C. Reading

      D. Written

The **auditory** assessment involved a series of 20 words being read out to the children by the researcher. Some target words were pronounced correctly, some words with their target sound being pronounced incorrectly - substituting /w/ for /r/ in the case of Group 1 or with a lateral lisp in the case of Group 2. In the case of a /w/ for /r/ substitution, the context of the word was explained to the children. The children used a 'thumbs up' or 'thumbs down' sign to signal correct or incorrect target sound production. The initial assessment was carried out in January 2022 and subsequently carried out in March 2022, rather than May 2022 due to high rates of success for the children during Phases 1 and 2 of the intervention (see below: 4.2.2; 4.2.3; 4.2.4; 4.2.5).

Sorting activities allowed the children to engage with minimal pairs individually. Storker (2022) promotes the use of minimal pair activities for older children who may only be presenting with mild SSD, as its focus is on a single target sound. This activity tested how the children interpreted the sounds as they themselves produced them. It consisted of eighteen picture cards. The initial assessment was carried out in January 2022 and then in March 2022 due to high rates of success for the children during Phases 1 and 2.

During the pre-intervention **reading** assessment, the children focused on their TS at word level. Following the guidance of a Dublin based SLT, I tallied "*the mistakes that the children make in your first assessment and use this as quantitative data.*" The graphs presented in each child's profile below reflect this information and show the total number of words read by the child with their target sound at various stages of the word and their correct pronunciation.

Ethan and Conor completed a **written** dictation activity to test the frequency of /w/ for /r/ substitutions in spelling. Having discovered that the children's identification accuracy was higher during the listening activity when their target sound was pronounced correctly, it was assumed that this would be reflected in their spelling during the dictation writing task. The dictation passage includes 17 initial or medial /r/ words. The errors made in the photographs below have been marked in red, while the correct usage of /r/ has been marked in green. Each sentence was called out twice by myself and the children were asked to repeat it to ensure the correct word order.

    The dictation story should read as follows:

  On a really hot day, Ron and Ross went rafting on a river. They put root beer in a rucksack. They rode their bikes down the road to the river. They went rafting. Ron was rubbish but Ross was really good. They had a rest after a great day.

The purpose of carrying out the auditory, sorting, reading, and writing assessments was to compare and evaluate progression in the clarity of the children's speech. Below, a profile has been created for each child which outlines results from their pre and post intervention assessment. Although much of this data is qualitative, it was evaluated using a mixed methods approach.

4.2.2 Ethan

Ethan is an outgoing child who has great capacity for retaining factual information. He has a diagnosis of ASD and is on low level SNA support. Ethan has a good level of vocabulary and has slightly above average numeracy skills and slightly below average literacy skills in comparison with his peers (see appendix 3 for further assessment details).

 (a) Auditory

Auditory Assessment - Ethan
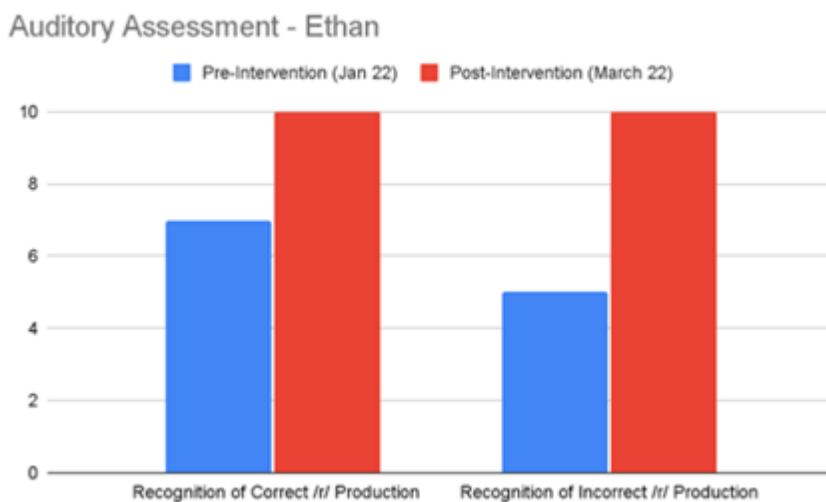
In the pre-intervention listening assessment, Ethan displayed some difficulty in being able to recognise when /w/ was incorrectly substituted for /r/. On three occasions, he asked for words to be repeated. Concentration difficulties were evident. This may have had an influencing factor on the outcome of the results. Ethan completed this task with ease during the follow up assessment.

(b) Sorting

Ethan displayed low levels of being able to recognise /r/ as the initial sound in the pre-intervention sorting assessment. At this point, Ethan was substituting /w/ for /r/ at all stages of words and had no awareness of minimal pairs which is reflective in the above results. He showed high levels of accuracy in the mid-intervention assessment, having become more familiar with minimal pairs and his TS error.

(c) Reading

Reading Assessment (Word Level) - Ethan

■ Total Words Read   ■ Pre-Intervention (Jan 22)   ■ Post Intervention (May 22)
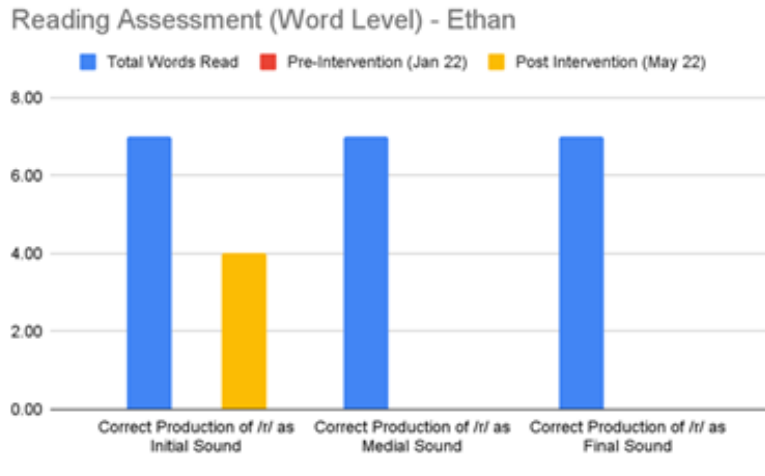
The above data shows significant difficulty in producing the /r/ sound clearly at all positions of words, with no clear /r/ productions (red bars not present on graph because no score was given). What is most recognisable is the lack of improvement in the clarity of Ethan's speech in the post intervention assessment (yellow bars). Although slight improvements are clear when /r/ is the initial sound, Ethan used phonetic shaping exercises for a short time during this assessment. In addition, evidence of speech clarity is absent outside the concentrated group setting.

(d) Writing

Written Assessment
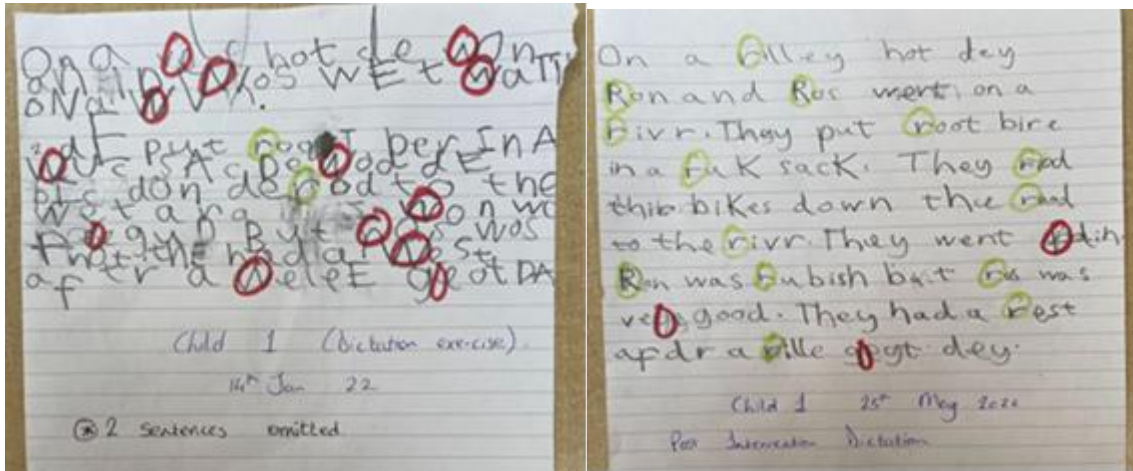
In the pre-intervention assessment, of the 17 initial or medial /r/ sounds, Ethan correctly identified 2 initial /r/ words. Although these were not spelt with absolute accuracy, the initial /r/ sound was recognised and noted. The images above show a significant improvement in the post intervention assessment. It is possible that improvements in the auditory and sorting activities contributed to this improvement.

4.2.3 Conor

Conor is an enthusiastic student. He is an outgoing and a considerate friend. He has mature social skills and a quick sense of humour. Conor has a great work ethic and has average numeracy and literacy skills, compared to his peers (see appendix 4 for further assessment details).

(a)   Auditory

Auditory Assessment - Conor
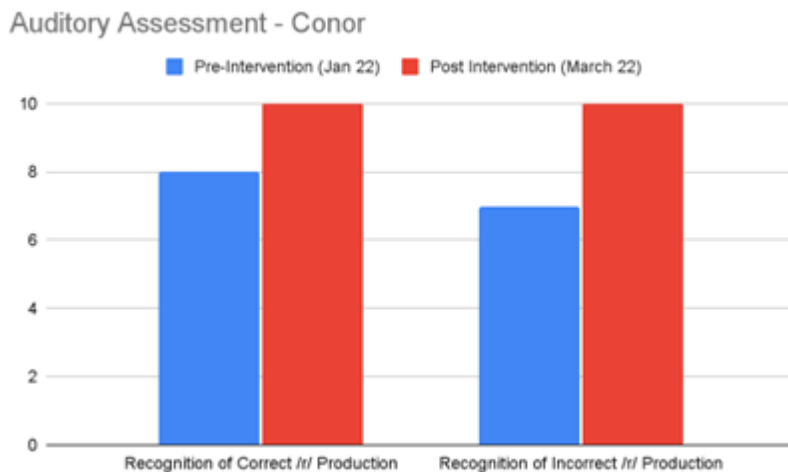
Conor also showed some difficulty in being able to recognise when /w/ was incorrectly substituted for /r/. However, he was 100% accurate in the 'thumbs up' and 'thumbs down' symbols during the post-intervention assessment.

(b)   Sorting

Sorting Assessment
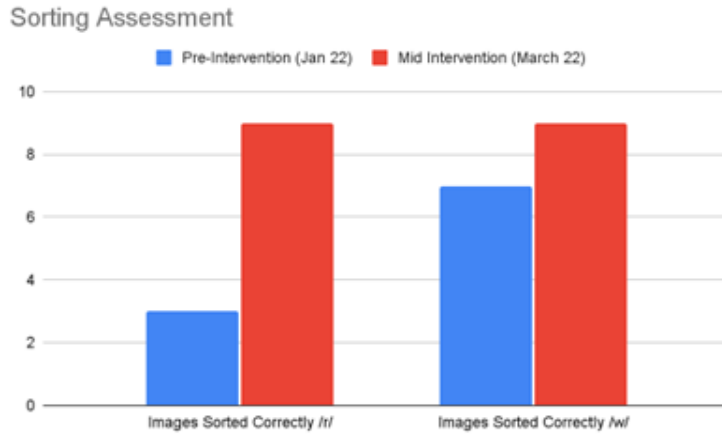
Conor displayed low levels of being able to recognise /r/ as the initial sound in the pre-intervention sorting assessment. At this point, Conor was substituting /w/ for /r/ at all stages of words but had good phonological awareness skills. He showed high levels of accuracy in the mid-intervention assessment, having become more familiar with minimal pairs and his TS error.

(c) Reading

Reading Assessment (Word Level) - Conor
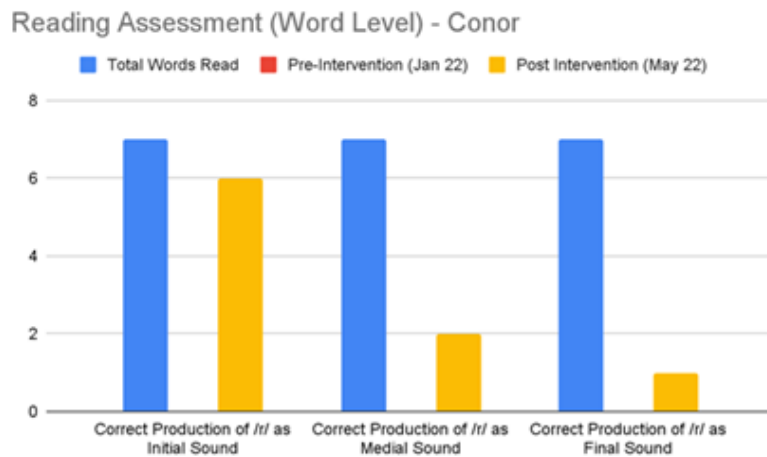
The pre-intervention quantitative data at word level shows significant difficulty in producing the /r/ sound clearly at all positions of words, with no TS produced clearly (red bars not present because no score was given). In the post intervention assessment, Conor showed noticeable improvements with /r/ as the initial sound. During the post intervention assessment in my reflective audio recording, I noted feeling *"over the moon to see him really using the bunched technique that we practised, ok it might not be perfect but there is a definite difference.''* On numerous occasions, Conor corrected his own pronunciation of his TS while reading or in conversation outside of the intervention setting. Although this was an infrequent occurrence, he showed signs of self-pride and a boost in self-confidence.

(d) Writing

The dictation passage above includes 17 initial or medial /r/ words. Of these 17 words, Conor correctly identified 7 that began with /r/. Although these were not spelt with full accuracy, the

initial /r/ sound was recognised and noted. Similar to Ethan, Conor also made noticeable improvements in his spelling in /r/ identification in the post intervention assessment.

4.2.4 Jason

Jason is a gentle child who shows signs of maturity beyond his years. He can appear to be shy until a solid relationship is established. Jason is a diligent student and has slightly above average numeracy and literacy skills in comparison with his peers (see appendix 5 for further assessment details). His lateralisation errors are quite significant and this is also the case for one of his siblings.

(a)   Auditory

Auditory Assessment - Jason
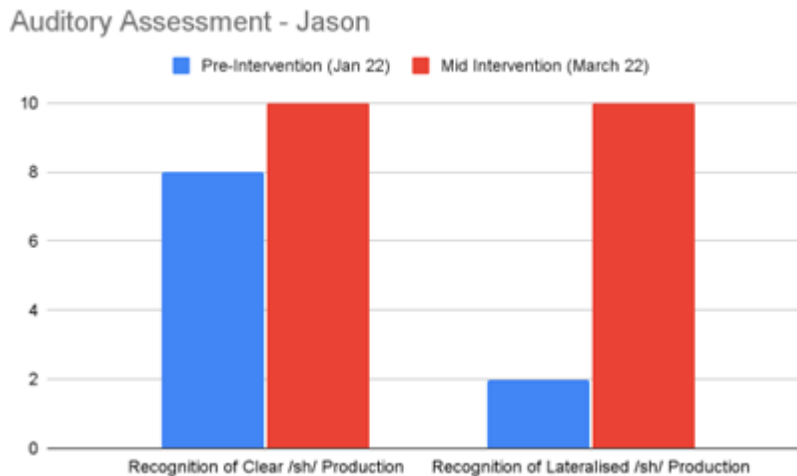
In the pre-intervention assessment, Jason displayed significant difficulty in being able to hear and identify /sh/ lateralisation. It is worth noting that this lateralisation was not overtly

emphasised, but done so in a way to imitate the extent to which the child lateralises the TS, nor was he previously aware of his lateralisation. He became more aware of the sound produced during /sh/ lateralisation and, therefore, shows improved results in the mid intervention assessment.

(b)   Sorting
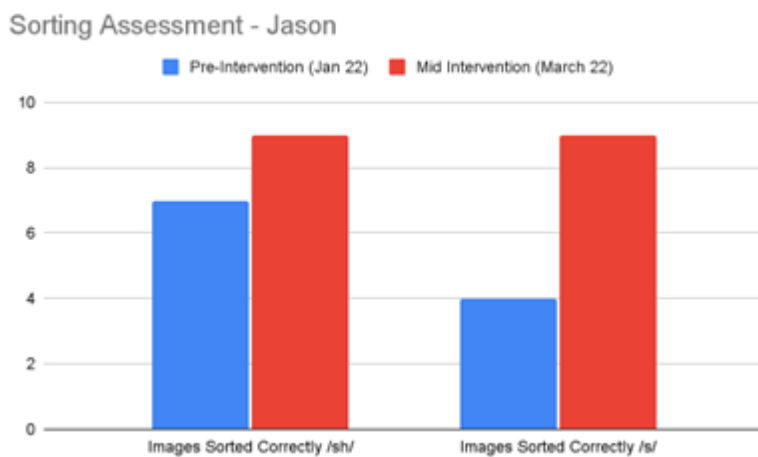
Jason has good phonological awareness skills but, like the auditory assessment, showed little awareness of the lateralised sound. This accuracy increased in the follow up assessment.

(c) Reading

Reading Assessment (Word Level) - Jason

Legend:
- Total Words Read
- Pre-Intervention (Jan 22)
- Post Intervention - no cue (May 22)
- Post Intervention - with cues (May 22)

Categories (x-axis):
- Non lateralised /sh/ as Initial Sound
- Non lateralised /sh/ as Medial Sound
- Non lateralised /sh/ as Final Sound
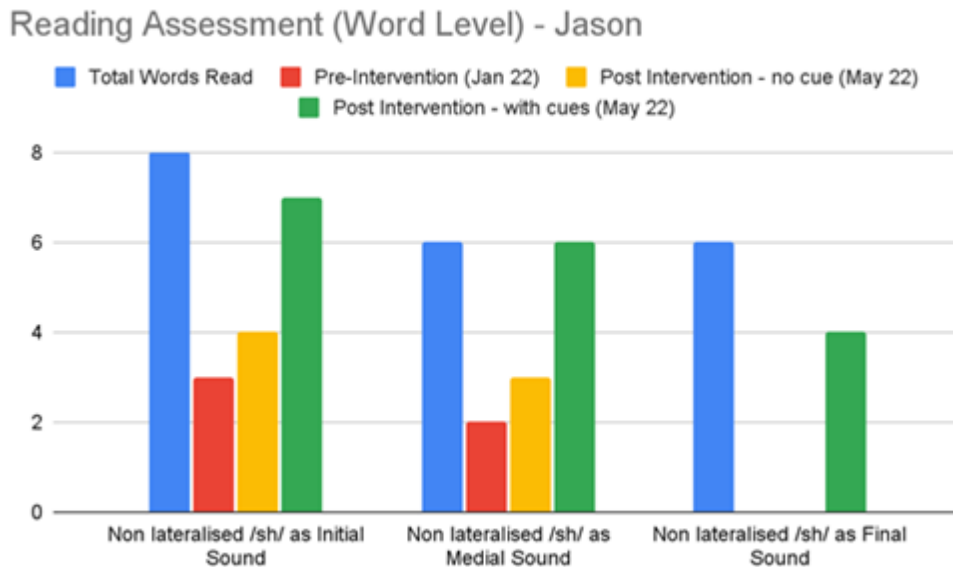
The pre-intervention quantitative data at word level shows lateralisation of /sh/ at middle and final stages of words. Strangely, initial /sh/ lateralisations were not clear in the audio recording, whereas Jason would usually lateralise /sh/ at the initial stage of a word. This questions Macrae (2017) idea of the usefulness of audio recordings in identifying speech errors. It could be argued that while they are valuable to a certain degree, face to face communication with the child can also be advantageous.

During the post intervention assessment (yellow bars), Jason continued to produce target words with a lateralisation. Having witnessed his successes using both phonetic shaping and cognitive reframing over the course of the action research, I requested to repeat the assessment but this time using visual cues (green bars). Clear improvements in non-lateralised TS production are

evident, however, the process and its results support the theory of LEs being difficult to treat (Farquharson and Tambryaja, 2022). These skills do not transfer to conversational style or outside the project group setting.

4.2.5 Brian

Brian is a kind friend who usually plays with one main group. He especially enjoys the yard setting. He has below average numeracy and literacy skills and receives support for both daily. He has become more aware of these difficulties as he has gotten older. Brian engaged with local SLT services and was signed off in January 2022. On contact with the SLT, she encouraged Brian's participation in this action research for further practice and reinforcement purposes (see appendix 6 for further assessment details).

(a)   Auditory

Auditory Assessment - Brian
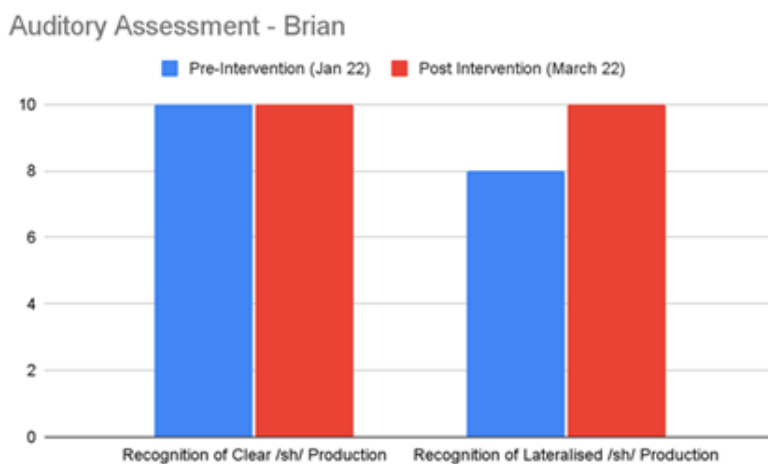
Brian displayed high levels of accuracy throughout noting that *"this is so easy''*. As Brian would have below average literacy levels in comparison with his peers, the high levels of accuracy in both assessments is particularly interesting and may be reflective of Brian's experience of attending speech therapy.

(b)   Sorting

Sorting Assessment - Brian
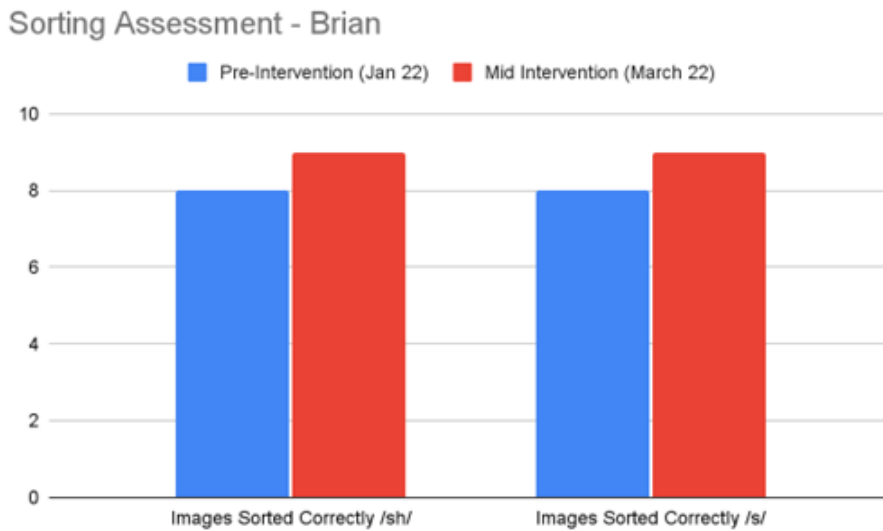
Brian's prior knowledge of lateralised errors may have been a contributing factor to the high levels of success in both the pre and mid intervention assessment. He showed good phonological awareness skills and high levels of self-confidence during the process.

(c) Reading

Reading Assessment (Word Level) - Brian

■ Total Words Read   ■ Pre-Intervention (Jan 22)   ■ Post Intervention (May 22)
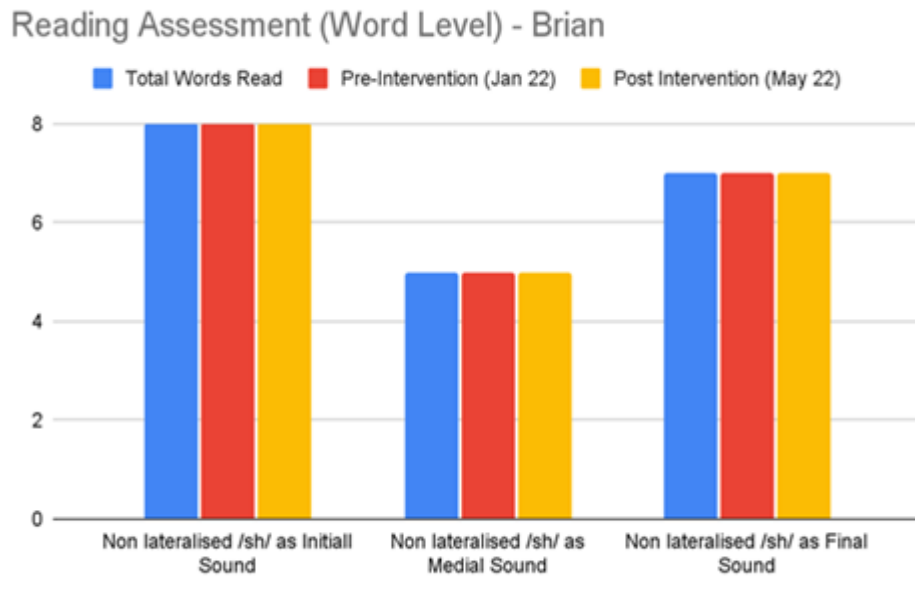
This data shows that Brian pronounced each word without a lateralisation in both the pre and post intervention assessment. This is reflective of the information passed on by his previous SLP, whereas, although he had mastered this TS, his participation in this intervention was recommended for reinforcement purposes.

4.3 Theme 1: Confidence

Sullivan et al. (2016) propose that effective communication is a tool for success. As I have identified dialogue as a core value, much of my action research was informed by the opinions and experiences of others (Mercer et al., 2009). The interviews, questionnaires, and discussions carried out of the course of this study have revealed a recurring theme of confidence issues.

Given my value of relationships, I strived to ensure that the children felt comfortable to use their own voice in their day to day life and when expressing opinions, emotions.

4.3.1 Parents

Evidence of Preston et al.'s (2020) proposal of SSD negatively affecting social and emotional development was supported, given the recurring theme of poor confidence found in the data. In the opening questionnaire (See Appendix 7) which three of the four parents took part in, concerns regarding confidence were highlighted by 2 mothers. It was noted that *"he will lose his confidence and that he could get bullied'',* while another noted that she would like her child to have *'some more confidence speaking to people''.* This is a concern that I also share for all participating children as I have previously witnessed incidents where their speech was commented on by other children or they were not comfortable to speak out. While this was a cause of frustration for only one child, the concern of this affecting their self-confidence grows as they get older.

4.3.2 Children

Through reflective practice, I identified respect as a core personal and professional value. I witnessed myself as a living contradiction, as at times my actions did not reflect my values (Whitehead, 2018). During pre-intervention interviews (See Appendix 8) with the children, they all displayed signs of nervousness and a distinct lack of confidence, which I had rarely

witnessed previously. Their answers were short and hesitant. In my reflective journal entry on 12th January 2022, I noted feeling *"guilty for having put the children in that situation. Maybe this could have been done in a slightly better way just to save them any feelings of discomfort.''* To have been entirely respectful to the children, I should have stopped and altered the process as soon as these emotions were recognised.

I approached the post intervention informal interview (See Appendix 8) with greater awareness of my value of respect. The children appeared to be more comfortable working with me in a small group. There was a noticeable difference in ease and confidence of answer delivery as well as in the quality and quantity of the answers. New knowledge was also evident. When asked what the word 'speech' meant, Conor answered – *"Well it kind of means like, at the start I thought it was about just talking as you know, I didn't think it was about eee and rrr* (phonetic shaping exercise) *I thought it was just about talking but now I know it's more''.* This comment also conveys that although the improvements in speech clarity were minimal, the children gained a greater understanding of their own speech and ultimately valuable learning took place as a result of the action research process.

4.3.3 School Staff

A questionnaire carried out among school staff (See Appendix 11) identified varying levels of confidence regarding recognition and the ability to address SSD. While 74% of staff agreed or strongly agreed that they would be able to recognise children's speech difficulties, only 21%

agreed or strongly agreed that they would be able to address these needs. The results of this questionnaire suggested greater levels of confidence among staff if there was a possibility of schools having on-site SLTs. Supported by Gallagher et al.'s (2019) proposal of interprofessional collaboration, it was noted that "enhanced relationship with a professional observed as a colleague rather than a visitor provides for improved collaboration and thus results". To address confidence, the willingness shown by staff to collaborate with SLTs reflects that our "practice is motivated by the best interests of the pupils entrusted to their care" (The Teaching Council, 2016: 6).

4.3.4 The Researcher

My professional confidence as both a researcher and teacher were tested over the course of this study. A positive classroom climate (Ruckinski et al., 2018) is essential for building relationships with the children. This action research highlighted the importance of the teacher-parent relationship, given the argument put forward by Greene et al. (2009), linking the parent as the primary point of contact. In the post intervention questionnaire, of the three returned forms, all parents noted no change in their child's speech and that their expectations of the research were not met. I felt that I had not met the parents' expectations of the intervention and this, in turn, had a negative impact on my confidence.

At times, it was difficult and somewhat embarrassing to accept personal shortcomings, especially as I had approached the parents, children, and my school with much enthusiasm.

These feelings impacted my confidence in my own abilities and reflected Taxer et al.'s (2019) theory of levels of enjoyment at times impacting classroom climate. Through reflective practice, I realised that "*this course is a learning process and it is by making mistakes and learning from them that I am indeed living to my value of honesty*" ('Reflective Task 1': 9th September 2021). In living to my value of respect (Moen et al., 2019), I approached the parents and gave an explanation of my hypothesis for the lack of improvement. Having built a strong relationship over the previous two years, I felt the parents were appreciative of the explanation and were, generally, understanding.

4.4 Theme 2: Impact on Schools

4.4.1 Literacy

The children's pre and post intervention assessment results, which have been outlined above, show certain literacy difficulties. The pre intervention results show significant difficulties in the children's own speech perception and spelling. By following best practice, the implementation of evidence-based methodologies led to improved results in the children's literacy. That suggests that these are elements that teachers have sufficient training and expertise to address, though difficulties regarding speech clarity remain evident, further suggesting the necessity of professional invention to correctly address specific speech needs.

 My value of dialogue was emphasised during a discussion with a colleague also undertaking this Master of Education course. During an informal discussion, she described her experience of dealing with SSD, specifically an /r/ distortion, in 5th class in primary school. She outlined her struggles with literacy and noted that her parents related this to speech difficulties, which is reflective of McAllister et al. (2020) and Boyce's (2015) theory of SSD affecting academic development.

On approaching these literacy difficulties with the teacher, it was noted that *"it's not something they work on in the senior school anyways and that it should have been addressed when I was learning my phonics in the junior school."* This study contradicts this thought and suggests that a speech difficulty relies on more than just the teacher's input. ASHA (2010) outlines that SLTs are there to support both children and teachers, further highlighting the benefits of schools having on-site SLTs.

4.4.2 Time

Given the already packed curriculum (NCCA, 2010), the data collected from the staff questionnaire recognised the difficulties in finding time during the school day to address children's speech needs. A Dublin based SLT who in January 2022 had a waiting list of 183 children noted that "*especially in this area (socio-economic disadvantage) we would rely on schools to carry out speech homework. It would benefit if some sort of speech therapy could be done even for 20 minutes every day with the children who need it"*. She did, however,

recognise the time and staffing limitations involved in this. In the staff survey, teachers outlined conflicting time concerns about children missing part of the school day and teachers being expected to fit this work into an already hectic day. This was also reflected by the SLT, noting that the "drawback of having outside speech therapy during the day is that the children are missing so much school in the travel time to and from speech therapy.''

My action research relied on the supervision of an SET for my class. Over the course of the intervention, due to various reasons, there were times where this could not be provided. As a result, the intervention session would not occur or else take place in the classroom. Although this was a rare occurrence, the lack of continuity proved to be a limitation to the study: *"Not only was I frustrated but the kids were disappointed too"* (Reflective Journal, 6th May 2022). This situation showed a contrast in my values. It is important to note here that in upkeeping my ethical standards, there were no negative feelings towards the two SETs who agreed to supervise my class as I realised the sacrifices that they had already made to allow me to carry out this research. While I engaged in dialogue with the children to explain why the session couldn't take place, I was putting the relationship at risk, given the break in routine and trust that the session would take place.

4.5 Theme 3: Professional Judgement

4.5.1 Speech Practitioner

For comparative purposes and seeing the potential benefits of the onsite speech services of international school systems from the literature, I conducted a written questionnaire on 4th May 2022 with practising American based SLP Amy Graham (see appendix 10). Graham owns her own private practice and has many years experience as an SLP. Given the lack of progression in the children's speech clarity, I began to doubt the potential of my research question and wondered if this research was leading me in a different direction. The style of questioning was to gain deeper understanding into the importance of speech services within American schools and the impact that teachers have on addressing children's speech needs.

Graham outlined that school-based speech services usually take place once or twice a week in small group settings. She noted that the potential effects of this service being hypothetically withdrawn may include

1. Elimination of specific SEN positions as these may no longer be required.

2. Children not being able to avail of private therapy due to cost.

3. Higher demand on therapists working outside of the school setting.

Having used a collaborative approach to this research and, as Gallagher et al. (2019) recommend collaboration between professionals, there was a noticeable difference in the

stance of the two interview speech practitioners. When asked about the role of teachers in trying to address children's speech needs, Graham suggested that "*teachers would need very specialised training from SLPs in order to provide any kind of supplemental services or be able to incorporate specialised intervention*". She went on to note that *"well-meaning professional with experience or education in other backgrounds frequently implement counter-productive interventions without that input.''* Although it was difficult to process this information after much effort had been made to ensure the success of the action research, this was a source of validation for my hypothesis of the necessity of professional intervention to adequately meet the needs of children presenting with SSD.

Interestingly, the interview held with a Dublin based SLT considered the role of the teacher in a more positive light. She praised the willingness of teachers to collaborate with SLTs and went on to note that *"We (teachers and SLTs) are working together and you don't really feel like you're stepping on toes especially in this area (area of socio-economic disadvantage) anyway".* When considering the contrast of these attitudes, the level of experience of the practitioner, as well as the structure of the different school systems, must be considered. This idea of the trained professional being an essential component in the implementation of a speech programme reflects the minimal improvements made in regard to the children's clarity of speech. This reaffirms the differences between the roles of the teacher compared to the role of the SLT.

4.5.2 Teachers

In May 2022, a survey was sent out to all teaching staff in my current setting (see appendix 11). As my research progressed to the later stages of the intervention, taking into account the assessment results and the interview with Graham, this questionnaire considered the attitudes of staff towards a system that reflects American practices. Staff were asked to consider the benefits and drawbacks of having onsite SLTs working in Irish schools. Interestingly, the concerns outlined by Parliament of Australia (2014) also arose in this questionnaire. The below comments are direct quotes from teaching staff members in the questionnaire. I have chosen to list direct quotes in order to provide a greater insight into the thoughts and opinions of the participating staff members.

Benefits

- Parents more likely to attend school for sessions than external agency.
- The children who may never get brought to SLT & most in need can access it on site. Teacher & SLT can communicate easier about in school & at home programmes.
- Where to begin?? Children would have regular, consistent access to the support they need!! The school would benefit from regular communication with the S&L therapist. Communication with parents could be easily facilitated. It would be more time efficient as travel time is reduced…
- Less time spent by teachers training and planning for children with speech and language issues.

- Professional services for children who need it.

- Instant access to supports rather than outrageous waiting lists. Enhanced relationship with a professional observed as a colleague rather than a visitor provides for improved collaboration and thus results. Speech issues more likely to be identified and lowers the risk of the child going through the education system undiagnosed.

- Children would always turn up for appointments.

- It would make diagnosis and intervention quicker which would make progress better for the child.

Drawbacks

- Conflict of interest or disagreements between staff about best course of action to help a child. Teachers may be unhappy with the child missing lessons.

- None

- None

- Parents become too dependent on the school.

- None in my opinion. Timetable would need to be looked at to ensure children are not missing out but this could be easily done if all staff & school community see the value & benefits of SLT.

- N/A

- I can't see any drawbacks.

- Parents see it as a "school thing" and become less involved!!

- Children missing out on class, which I suppose is already happening for some of them

- Cost of hiring a speech and language therapist. Extra time needed to be fit into an already packed schedule for teachers to facilitate these children getting support.

The staff were asked to consider the impact that pupil's speech difficulties have on their academic emotional, social development. For all three categories, the overwhelming majority recognised that speech difficulties impact these categories either 'a great deal' or 'a lot'. No staff member chose 'none at all.' Interestingly, an additional comment noted that *'The level of impact that speech difficulties would have on a child's emotional/social development and learning would depend on the severity of their speech difficulties'.* My discrepancy in not being more specific in my questioning language has been taken into consideration when analysing the results. Due to this oversight, the selections for 'a great deal' and 'a lot' may not have been as high; for example, a child who may have mild speech difficulties. This may be seen as a minor limitation of this study.

Emerging from the responses from school staff was the child-centred approach within the school. Teachers considered the best interest of the child in regard to receiving support while not missing out on school time and they showed willingness to partake in best practice by upskilling through collaboration. The fact that some parents cannot or do not access necessary speech services for their children was recognised but not criticised, showing the commitment of the school staff towards supporting the parents.

Considering the value of care shown by the staff, interestingly, one staff member recognised

the differences between the role of the teacher and role of the SLT. It was noted that

"teachers are not qualified SLTs and cannot be expected to effectively implement

programmes. SETs are not trained SLTs. Children deserve early intervention led by qualified

SLTs." This is supported by the quantitative data collected in the questionnaire. While 74%

of staff either agreed or strongly agreed that they would be able to recognise children who

have speech difficulties, only 22% agreed or strongly agreed that they would feel confident in

their ability to address these needs. Recognition of roles in the above comment, the emphasis

of providing adequate services and the lack of confidence shown by teachers in being able to

do so, add to the benefits of having on-site SLTs in Irish schools.

4.5.3 Seeking Future Change

Considering the feedback provided from the staff survey, the majority found more positives

than drawbacks in regard to SLTs working on-site in schools and it was noted that *"it is a*

serious flaw in the current education system that there are no speech and language therapists

employed by all schools, especially in DEIS schools''. This was supported by the Dublin based

SLT who worked as part of this ABC Programme. She detailed that this scheme which was

established in 2014 saw SLTs "stationed in schools for families who couldn't engage in typical

HSE services.'' She promoted the benefits of this programme stating that "it (ABC

Programme) makes so much sense. I just can't believe that I am in a clinic and all of the kids

are in school, it just makes no sense to me.'' She shared the success of the scheme, alike what

was evident from the Chit Chat Programme and detailed that while the children in need of

speech services were being catered for, there were also greater opportunities for teacher training and collaboration.

4.6 Conclusion

This chapter present the findings and discussion of all data collected during the action research process. Three main themes emerged from the data: the impact of SSD on confidence, its effect on schools and the importance of professional judgement. The emergence of these themes provided rich data for the research due to the involvement of a wide range of participants and data collection sources.

Chapter 5: Conclusion

5.1 Introduction

In this conclusion chapter, I aim to summarise my findings and outline how these affect the implications for this research going forward. The progression of this research is informed by the practice styles of other countries but also of past piloted speech schemes in Ireland. Following this, I will consider the limitations of this research and outline the impact this research journey has had on me as an action researcher.

5.2 Summary of findings

In my mixed methods approach to data collection and analysis, all findings were triangulated to work towards the credibility of the research. To get a broad understanding of attitudes and approaches towards SSD, I carefully chose a wide range of methodologies and participants. Reflecting on my values and connecting these with my practice underpinned this action research. Working closely with the children and their parents strengthened my value of relationships. Indeed, as a result, respect, particularly for the children, grew as I saw their diligence and dedication during the intervention.

The children, as primary participants, showed improvements in speech perception, as evident through the auditory and sorting assessment. Ethan and Conor, whose target sound was /r/, showed greater awareness of their TS, with regard to spelling. While participation in this

intervention may have contributed to these results, daily classroom literacy stations and phonological work may also have been a significant factor. An objective of this action research was to improve speech clarity. While Ethan, Conor, and Jason showed slight improvement, this was primarily within the confined settings of the intervention setting. As such, these skills were not transferred at conversational level or outside of the resource room setting. Brian's results remained constant throughout, however.

The results found from the children's pre and post intervention assessment caused me to doubt whether a teacher can indeed improve the speech clarity of children presenting with SSD. Considering this and taking on board the importance of professional intervention, which was advised by industry experts, this current research emphasises the need for greater access to speech services for those presenting with SSD. However, it has also shown the importance of the teacher effectively implementing phonological awareness strategies for developing sound perception skills.

Prior to beginning this research, I viewed my value of dialogue as a bypassing act, not realising its value when engaged with purposefully. Its value deepened further with reflective practice. Effective dialogue with industry experts was a source of new knowledge and advice. Indeed, communication with parents created connections in that we shared similar concerns about the children. Dialogue with an M.Ed colleague conveyed how the impact of having a SSD can be felt after its correction, and into adulthood. Communication with colleagues reaffirmed the need for increased and improved speech and language services, where they

generally saw the benefits of having school-based SLT services similar to that of the

American school system.

Considering this, perhaps the most detrimental result for me as the researcher was the data

obtained from the interview with American based SLP, Graham. A comment pertaining to

the need for expert intervention in addressing SSD validated the children's quantitative

results, as well as the data obtained from my reflective journal which queried this point.

Having made a diligent effort in designing and implementing the research intervention, this

news created feelings of disappointment. This validation was the point that changed the

research journey going forward, the focus now being the potential for greater presence of

SLTs on-site in schools. While on the surface this may appear to be a mammoth task, steps

towards this type of model have already seen positive results in Ireland.

5.3 Limitations

Considering the specialised nature of my research topic, I relied heavily on training courses

prior to beginning the action research. My intervention had to constantly adapt and change to

reflect my ongoing learning. As a result, the process often felt disjointed and, on reflection,

largely uninformed; which was hard to accept as my passion for the topic grew. Elements of

the intervention were very much trial and error, with a lack of continuity in assessment. This

stands as the primary and overriding limitation of this study. Reflecting on my personal

knowledge and on feedback from staff, the need for closer consultation with SLTs or for

more training courses to be made available to teachers with interests in this field were

highlighted.

The effect of the intervention taking a five-week break must be considered also when

considering the results. In addition, what also must be considered were times when the

intervention took place in the classroom due to disrupted supervision. I entertained these

session types as they happened infrequently and for continuity purposes, however difficulties

arose in that the concentration of the participating children was effected as other children

looked for my attention. This raises the question of whether this type of research would have

been more effective had the researcher been in a support role that did not rely on mainstream

supervision.

5.4 Recommendations

Having completed the action research intervention, I have identified gaps in my research and

in the field that could benefit from further research. For practice to be effective, the key

recommendations from this current research are as follows:

- The contribution of SLTs to teacher training and how teachers approach students with
   SSD in the light of the PLC.
- Further research into teacher engagement in the classroom, which could examine best
   practice in how teachers scaffold discussions and questioning to include all children,
   particularly those with SSD, or other learning disabilities.

- Further efforts be made to reduce times spent on waiting lists for speech services with emphasis on both public and private practices.

- A review of SLT practice in Ireland, to identify key areas where in-school services might be piloted, as this model has been shown to be advantageous both in Ireland and internationally.

- Further training opportunities for teachers looking to upskill. As it stands, only one postgraduate course to gain qualification as a SLT exists in Ireland. This course, which is provided by the University of Limerick, is a full time, two year course and is not offered through an online platform. I recommend that this qualification be expanded in the future, to make it more accessible to practicing teachers or those with interests in working in the field.

5.5 Contribution to Research

This research has shown the value of professional collaboration (Gallagher et al., 2019), in that elements of my intervention were informed by the advice of trained professionals. Examining and comparing the Irish school system to the speech services provided in international school systems has highlighted the potential for change in Ireland. Given the consistent waiting lists, concerns of parents and teachers and the success of previous piloted schemes in Irish schools emphasises the need for positive change. This current study and its results have highlighted the potential benefits for both students and teachers for schools having on-site SLTs, in that both students and teachers receive increased levels of support.

This research has also exposed the limitations of professional capacity, in that we rely on expert knowledge to provide sufficient services.

5.6 Impact on the researcher

I began this learning journey with minimal knowledge in the field of SSDs. What began as action research full of determination, enthusiasm, and hope, shifted over the course of intervention. *"Week 6, Day 1 of speech intervention. At this stage I've come to the realisation that I may have underestimated how intricate this skill development* (speech sounds) *really is. It doesn't help that I'm unsure if I am demonstrating things correctly or if I'm even doing the correct activities"* (Heffernan, 'Reflective Journal (voice recording, 14th February 2022). As my academic learning was constantly building, I came to understand aspects of my practice that needed to improve to be able to execute this research to the highest standard.

While engaging in action research for professional development was the primary focus, it has also been a journey of personal self-discovery, which Clandinin and Connelly refer to as the 'personal-social continuum' (2004:589). This experience has helped me to realise my own limitations and the realisation that passion cannot always trump knowledge and experience. This is one of the key personal results of this action research. On the other hand, I have come to clearly identify my ontological and epistemological values as well as my desire for self-improvement. This Master of Education has highlighted the benefits of professional

development for the benefit of the researcher, the children and the wider school community

and has encouraged me to continue on a lifelong learning journey.

5.7 Conclusion

As proposed by McNiff (2002) and Whitehead (1989), the purpose of action research

blossoms from the drive to improve our practice. This is the ultimate reasoning behind

choosing this learning journey. Although the desired results may not have been achieved

specifically, through reflective practice I came to fully appreciate the challenges and

positives that stem from non-linear action research. This journey has undoubtedly tested my

knowledge, patience and at times, my self-esteem. However, overriding these challenges

have grown new levels of determination and an undiscovered passion for the field of SSD.

This has roused my enthusiasm for further knowledge in this area, along with enhancing my

relationship with my pupils, my teaching colleagues, and the parents with whom I will

continue to work.

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Appendices

Appendix 1: Consent Forms, Assent Forms, Information Sheets

 (a)

Maynooth University Froebel Department of

Primary and Early Childhood

Education

Roinn Froebel Don Bhun- agus

Luath- Oideachas

Ollscoil Mhá Nuad.

Dear Parent(s)/Guardian(s),

I am a student on the Master of Education programme at Maynooth University. As part of my

degree I am doing a research project. The research will focus on enhancing my teaching in

order to improve the speech of children with speech sound difficulties

In order to do this, I intend to carry out research with a small group of children in a resource classroom. These short sessions will occur 3-4 times a week. The research will be done with a fun, child-centred approach. The data will be collected using observations, a daily teacher journal, audio recordings and feedback from the children themselves.

The child's name and the name of the school will not be included in the thesis that I will write at the end of the research. It is important to note that your child will be allowed to withdraw from the research process at any stage.

All information will be confidential and information will be destroyed in a stated time-frame in accordance with the University guidelines. The correct guidelines will be complied with when carrying out this research. The research will not be carried out until approval is granted by the Froebel Department of Primary and Early Childhood Education.

I would like to invite you and your child to give permission for him/her to take part in this project.

If you have any queries on any part of this research project feel free to contact me by email at mshefferenan.stbjns@gmail.com

Yours faithfully,

Sarah Heffernan

(b)

Child's name …………………….

I am trying to find out how I can help the children in my class to pronounce words more clearly. I would like to find out more about this. I would like to listen to you when you are in school and to write down some notes about you.

Would you be ok with that? Pick a box

Yes	No

I have asked your Mam to talk to you about this. If you have any questions I would be happy to answer them. If you are happy with that could you sign the form that I have sent home?

If you change your mind after we start, that's ok too.

Sarah Louise Heffernan   69699856

(c)

Maynooth University Froebel Department of

Primary and Early Childhood

Education

Roinn Froebel Don Bhun- agus

Luath- Oideachas

Ollscoil Mhá Nuad

PARENTAL CONSENT FORM

I have read the information provided in the attached letter and all of my questions have been answered. I voluntarily agree to the participation of my child in this study. I am aware that I will receive a copy of this consent form for my information.

Parent / Guardian Signature_____

Parent / Guardian Signature_____

Date: _____

Name of Child _____

Child's signature: _____

Date: _____

(d)

Maynooth University Froebel Department of

Primary and Early Childhood

Education

Roinn Froebel Don Bhun- agus

Luath- Oideachas

Ollscoil Mhá Nuad.

Information Sheet

What is this Action Research Project about?

I am required to conduct an action research project, examining an area of my own teaching. I will then be required to produce a thesis documenting this action research project.

What are the research questions?

● How can I enhance my teaching to cater for children with speech sound difficulties in the mainstream?

What sorts of methods will be used?

● Observation, Reflective Journal, Questionnaires, Feedback, Audio Recordings

Who else will be involved?

The study will be carried out by me as part of the Master of Education course in the Froebel Department of Primary and Early Childhood Education. The thesis will be submitted for assessment to the module leader Dr Bernadette Wrynn and will be examined by the Department staff. The external examiners will also access the final thesis.

What are you being asked to do?

You are being asked for your consent to permit me to undertake this study with your child. In all cases the data that is collected will be treated with the utmost confidentiality and the analysis will be reported anonymously. The data captured will only be used for the purpose of the research as part of the Master of Education in the Froebel Department, Maynooth University and will be destroyed in accordance with University guidelines.

(e)

Maynooth University Froebel Department of

Primary and Early Childhood

Education

Roinn Froebel Don Bhun- agus

Luath- Oideachas

Ollscoil Mhá Nuad.

Child's assent to participate

My mam has read the information sheet with me and I agree to take part in this research.

Name of child (in block capitals):

_____

Signature: _____

Date: _____

Appendix 2: Letter to Board of Management

Maynooth University Froebel Department of

Primary and Early Childhood Education

Roinn Froebel Don Bhun- agus Luath- Oideachas

Ollscoil Mhá Nuad.

Dear (name of chairperson) and members of the Board of Management,

As part of my masters degree I am doing a research project which has now been

approved by my thesis supervisor in Maynooth University. The research will focus on

enhancing my teaching in order to improve the speech of children with speech sound

difficulties.

I intend to carry out research with a small group of children in a resource classroom.

These short sessions will take place 3-4 times a week. The research will be carried out

with a child-centred approach. The data will be collected using observations, teacher

journal, audio recordings and feedback from the children and parents.

The children's names and the name of the school will not be included in the thesis that I

will write at the end of the research. All information will be confidential and information

will be destroyed in a stated time-frame in accordance with the University guidelines.

The correct guidelines will be complied with when carrying out this research.

In complying with the ethics procedure of Maynooth University, I would like to formally

request the permission of the Board of Management to undertake this research in our

school. I hope that you will look upon this request favourably.

Yours faithfully,

Sarah Heffernan

Appendix 3: Ethan - Auditory, Sorting, Reading Assessment

Ethan - Auditory Assessment (January 2022)

Target sound pronounced correctly (/r/)	Target sound pronounced incorrectly (/w/)
Rake	Cherry
Rhino	Rat
Carrot	Ride*
Rug	Ring*
Horse	Giraffe
Run	Rub
Corn	Bear
Arrow	Camera
Parrot	Rainbow
Robot	Read*

Correct 'thumbs up' symbols - 80% accuracy.	Correct 'thumbs down' signal 50% accuracy.
100% correct in mid intervention assessment (March 2022)	100% correct in mid intervention assessment (March 2022)

Ethan - Sorting Assessment
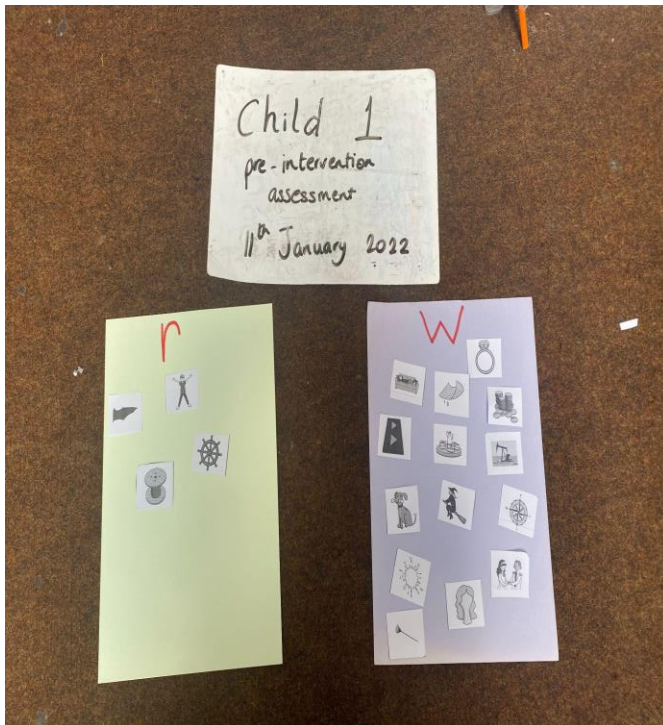
100% accuracy in the mid intervention assessment (March 2022)

Ethan: Pre-Intervention Reading Assessment (word level)

Correct TS production

Incorrect TS production

Ring	Horse	Bear
Rose	Carrot	Tiger
(unsure of word)	Scissors	Flower
Run	Corn	Door
Rain	Camera	Star
Robot	Parrot	Hair
Rug	Heart	Pepper
Rabbit	Arrow	Pear

Post Intervention Reading Assessment (Word Level)

Ring	Carrot	Star
Run	Heart	Pepper
Rice	Corn	Tiger
Rug	Camera	Bear
Read	Parrot	Car
Rectangle	Arrow	Jar
Radio	Thorn	Mirror

Appendix 4: Conor - Auditory, Sorting, Reading Assessment

Conor: Auditory Assessment

Target sound pronounced correctly (/r/)	Target sound pronounced incorrectly (/w/)
Rake	Cherry
Rhino	Rat
Carrot	Ride*
Rug	Ring*
Horse	Giraffe
Run	Rub
Corn	Bear
Arrow	Camera
Parrot	Rainbow
Robot	Read*

Correct 'thumbs up' symbols - 80% accuracy.	Correct 'thumbs down' signal 70% accuracy.
100% correct in mid intervention assessment (March 2022)	100% correct in mid intervention assessment (March 2022)

Conor: Sorting Assessment
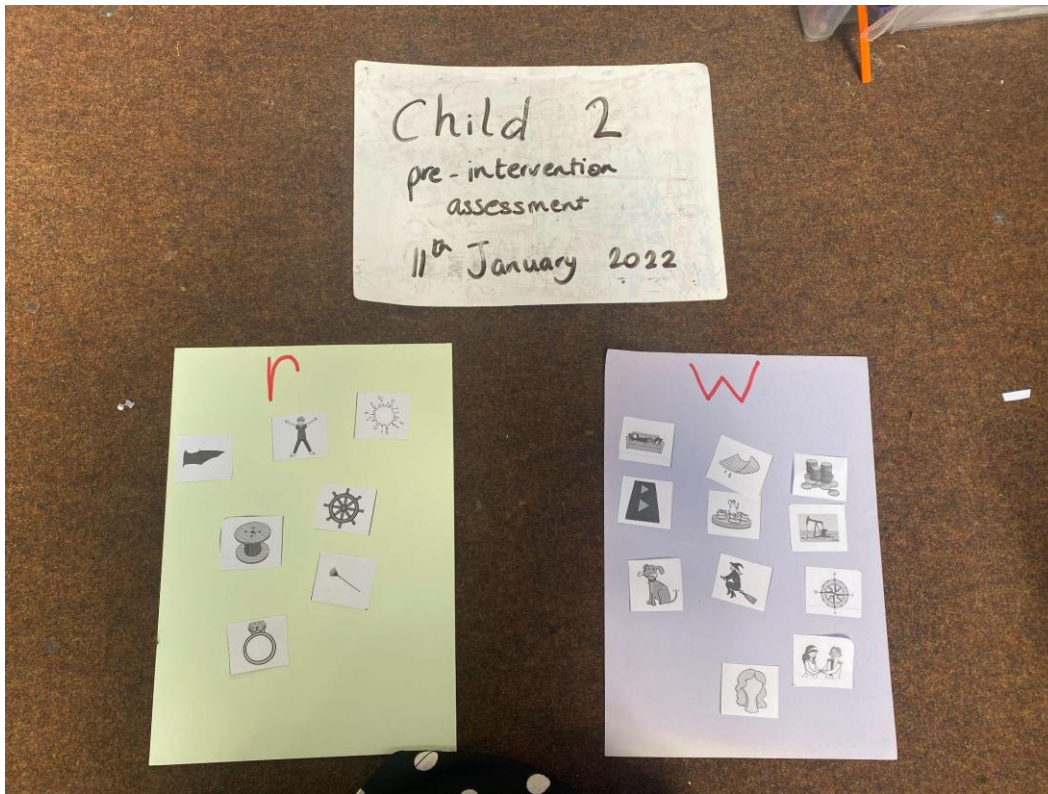
Conor: Pre-Intervention Reading Assessment (Word Level)

Correct TS Production

Incorrect TS Production

Ring	Carrot	Bear
Roses	Horse	Hair
Rain	Corn	Star
Read	Heart	Tiger
Robot	Scissors	Flower
Rope	Parrot	Jar
Red	Arrow	Pear

Conor: Post Intervention Reading Assessment (Word Level)

Ring	Heart	Star
Red	Horse	Door

Rain	Carrot	Hair
Ride	Parrot	Car
Read	Camera	Flower
Raise	Arrow	Paper
Remote	Corn	Tiger

Appendix 5: Jason - Auditory, Sorting, Reading Assessment

Jason: Auditory Assessment

Target sound (sh) pronounced clearly	Target sound (sh) with lateralisation
Shirt	Shiver
Shop	Shape
Shower	Shine
Ship	Shave
Shampoo	Sheep
Sheet	Shane
Chef	Shake
Shoot	Shield
Share	Shark
Shelf	Shell

Correct 'thumbs up' symbols - 80% accuracy.	Correct 'thumbs down' signal 20% accuracy.
100% correct in mid intervention assessment (March 2022)	100% correct in mid intervention assessment (March 2022)

Jason: Sorting Assessment
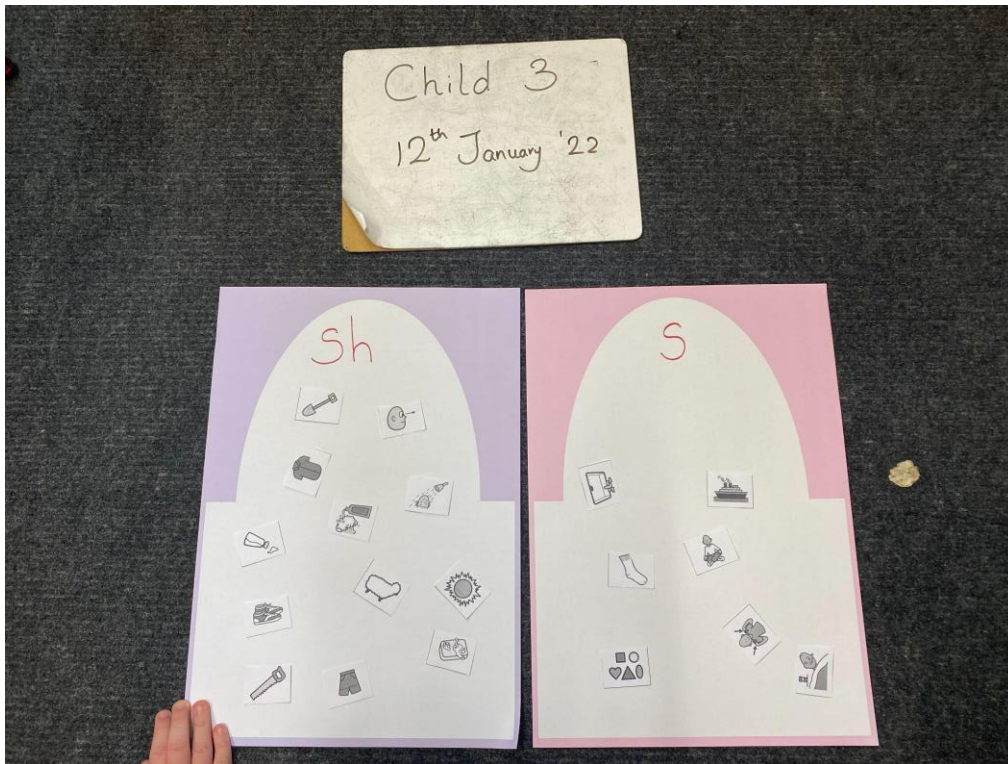
Jason: Pre-Intervention Reading Assessment (Word Level)

Shoes	Mushrooms	Fish
Sheep	Fishbowl	Push
Ship	Seashells	Bush
Shirt	Marshmallows	Wash
Shorts	Pushups	Wish
Shapes		
Shoulders		
Shower		

Jason: Post-Intervention Reading Assessment (No Cues)

Shoes	Spaceship	Push
Sheep	Marshmallows	Flush
Shovel	Pushups	Smash
Shot	Lampshade	Bush
Shorts	Mushrooms	Wish
Shake		
Sheet		
Shower		

Jason: Post Intervention Reading Assessment (With Cues)

| Shampoo	Fishing	Bush
Shirt	Fishbowl	Dish
Shave	Lampshade	Wish
Sheet	Cushion	Push
Shower	Mushrooms	Smash
Shapes	Marshmallow	Crash
Shovel		
Sheep		

Appendix 6: Brian - Auditory, Sorting, Reading Assessment

Brian: Auditory Assessment

Target sound (sh) pronounced clearly	Target sound (sh) with lateralisation
Shirt	Shiver
Shop	Shape
Shower	Shine
Ship	Shave
Shampoo	Sheep
Sheet	Shane
Chef	Shake
Shoot	Shield
Share	Shark
Shelf	Shell

Correct 'thumbs up' symbols - 100% accuracy.	Correct 'thumbs down' symbols - 100% accuracy.
100% correct in mid intervention assessment (March 2022)	100% correct in mid intervention assessment (March 2022)

Brian: Sorting Assessment

Brian: Pre-Intervention Reading Assessment

Shoes	Mushrooms	Fish
Sheep	Fishbowl	Push
Ship	Marshmallows	Bush
Shorts	Flashlight	Flush
Shake	Seashells	Wish
Shave		Crash
Shower		Dish
Shoulders		

Brian: Post Intervention Reading Assessment

Shapes	Marshmallows	Push
Shot	Cushion	Wish
Shower	Lampshade	Splash
Shoulder	Pushup	Wash
Sheet	Fishbowl	Dish
Short		Bush
Sheep		Flush
Shoes		

***The below answers and comments are excerpts given by partipcants.**

Appendix 7: Parent Questionnaires

Parent Pre-Intervention Questionnaire (February 2022)

1.   Does your child have/had any health issues which may influence their speech? (eg.

hearing/feeding issues, breathing difficulties, illness etc)

No

2.   What are your main concerns about your child's speech?

Just that he will pronounce all of the words properly.

3.   Has their speech had any effect on their daily lives so far?

Not really but I did notice some words sound different.

4.   Do you have any concerns about how this may affect them as they get older?

I'm just afraid that he will lose his confidence and that he could get bullied.

5.   What changes would you like to see for your child at the end of this project?

Say all of his words properly and some more confidence speaking to people.

6.   What has the feedback from your child been like in regards to the project work in

school so far?

Yea he says he likes it and wants to do more.

7.   Would you be willing to continue the project activities with your child at home?

Yes I would be willing to help at home.

8.   Any additional comments or questions.

No, I just hope he does well.

Thank you for taking the time to complete this questionnaire.

Parent's Post Intervention Questionnaire (May 2022)

Dear Parent,

We have now reached the end of our speech intervention project. I am now at the stage of gathering and analysing the work that the children have done during this time. I would kindly ask that you fill out the below questions as honestly as possible. I would like to thank you sincerely for allowing me to work with your child on this speech project. I hope that they have found the experience enjoyable.

1.   What has the feedback from your child been like in regards to the project work in

school so far?

   Yea he said he really enjoyed it.

2.   Has the project had any effect on their speech?

   Not really to be honest.

3.   Did you see any results you had expected/hoped for?

   No.

4.   What is your top priority for your child in school?

   Get better at his reading and hopefully his speech too.

5.   Any additional comments or questions.

   Just thanks for trying to help.

Appendix 8: Children's Interviews

Children's Pre-Intervention Interview (11th January 2022)

● What does the word 'speech' mean to you?

  It means like, what do you call it, it means like, get better at like, it's the way you talk.

● Do you think it's important to be able to understand someone when they are speaking? Why?

  It is good because we need to talk to our mam and friends.

● What would you do if you couldn't understand them?

  I'd get them to get a piece of paper and write it.

● Do you think that there is anything about the way that you speak that we could make even better?

  Maybe some words, actually I don't have a clue.

● Has there ever been a time when someone found it hard to understand what you were saying?

  Yes, I have a very funny story. Once when I was four, I couldn't say chocolate, I was saying ssssocolate, then my uncle walked in ten minutes later and told them that I wanted chocolate (still pronounced as sssoclate).

● Have you ever found it hard to understand someone else when they were speaking to you?

I forgot.

Children's Post Intervention Interview (May 2022)

1.   What does the word 'speech' mean to you?

   Well it kind of means like, at the start I thought it was just about talking as you know. I didn't think it was about eee and rrr (phonetic shaping exercise) I thought it was just about talking, now I know it's' more.

2.   Do you think having clear speech is important and why?

   100% because if you can't have clear speech and you want something and you go to shop, you just waste everybody's time.

3.   What have you enjoyed (a) most and (b) least about our project?

   Most – that there was just so much laughter and all the games and hunts and stuff

   Least – in between there was hard bits.

4.   Can you tell me something new you have learned during this project? Anything else?

   Overall I learned to say my /r/ better but that's the only thing I learned nothing else other than that.

5.   Do you feel better having taken part? In what way? If not, why not?

   Yes because its' fun and now I'm actually able to say 'run' (pronounced as 'won') but the other part no because let's just say I like doing things in the classroom and like

there might be something exciting going on and I have to come in here and miss half of

it.

6.   What could I do to make this project better?

- *Do more letters at once because I still need help with two of them.*

- *Nothing really because you're already great.*

Appendix 9: SLT Interview

Interview with practising SLT conducted 17th January 2022. This SLT works for the HSE.

●   Do you think schools are doing enough to cater for children's speech needs?

Schools are usually very willing to collaborate with SLTs especially in this area we would rely on schools to carry out speech homework. It would benefit of some sort of speech therapy could be done even for twenty minutes every day but that's usually not feasible due to staffing. We are working together and you don't really feel like you're stepping on toes.

●   How can teachers (considering the vast majority are not trained speech therapists) cater for children's speech needs either in mainstream classes or during resource hours?

It would be great if teachers could get more training to identify the kids who need us really quickly and if there was extra language support. Then there were schools who were running screenings so every kid at junior infants was screened to see how their speech and language was coming along and then they were automatically flagged and referred to us.

●   What in your opinion are the benefits and drawbacks of group therapy?

Some kids who come to speech are going to get it quicker than others so it's about how to balance the groups. In terms of the positive, they are getting so much modelling from the other kids so even the time when they are not practicing the sound they are

getting so much auditory bombardment and its' also nice for kids to see that they are

not the only ones who can't make the sound.

● What in your experience do children enjoy and benefit most from - individual or group

therapy?

I can't comment too much as I don't have a massive amount of experience in this yet.

● How would you structure a 25 minute group session?

The first five minutes I'd usually do auditory bombardment work and make games out

of it. When you're getting them to make the sound we usually do it through games. I

also wouldn't tell the kids we are practicing the /r/ sound, just call it the growly sound

instead. Don't step them up too fast, you have to stick it out even if progress is slow.

● What methodologies, activities and strategies for group speech therapy would you

recommend and why?

The bulk of what we see are consistent phonological disorders so the methodology we

use is minimal pairs. Then if they're not able to make the sound we have to actually

teach them how to make it.

● What are your thoughts on non-speech motor exercises?

It is not supported by evidence based research. You might build awareness of the

mouth instead.

● How would you record progress pre and post intervention?

I'd use quantitative data and do tallies. Wait until they are on 80% accuracy before

moving on.

● In what ways can parents play a role in a speech intervention? How valuable is their

contribution?

For most kids, parents are the agents of change but for some families, it is the

teachers. Sometimes parents can put too much pressure on the kids so it's about trying

to find the right balance.

Appendix 10: SLP Interview

Questionnaire with American Based SLP Amy Graham, May 2022.

Dear Amy,

I want to begin by thanking you for taking the time to complete this interview. I have been

following your page since beginning my Masters and this has been a significant influencing

factor on my research to date. The aim of this interview is to discover more about the impact

of speech services in American schools and to compare these to the Irish context where this

service is lacking. I'm hoping that this will provide an interesting comparative study and give

insight into possible areas of improvement for children with speech difficulties in Irish

primary schools. I hope to be able to openly credit your contribution to this research in the

final dissertation, however, in maintaining personal and university ethical standards, your

identity can remain confidential if you wish.

Again, many thanks for your time and willingness in sharing your expertise. It is greatly

appreciated.

Sarah Heffernan

1.   Can you provide a brief outline of the provision of speech therapy in American primary

schools?

   Schools in the US provide speech services only if educational impact is determined.

   For SSD, these services are often provided in small group settings 1-2 times a week.

2.   Hypothetically, should this service be withdrawn, how might this impact (a) children

with speech needs, (b) school staff, (c) speech therapists working outside the school setting?

   If withdrawn, may children would not receive speech therapy as private intervention

   is frequently cost prohibitive. Special education staff would likely not be needed and

   therefore their positions be eliminated. Therapists outside of schools would likely be in

   more demand.

3.   What are the academic and social implications for children who would benefit from

speech therapy but do not/cannot avail of these services?

   That would be very individualised, but impact would most likely be negative if they

   cannot access the services.

4.   How can teachers (considering the vast majority are not trained speech therapists) cater

for children's speech needs either in mainstream classes or during resource hours? *(Resource*

hours - children are withdrawn from full class settings and work in a small group capacity

with a special educational needs teacher).

   Teachers would need specialised training from SLPs in order to provide any kind of

   supplemental services or be able to incorporate specialised intervention.

5.   How does private speech therapy differ from school-based speech therapy? What are the benefits and drawbacks of each?

In schools, goals are targeted that impact education so some deficits may be overlooked. Private therapy is often not covered by insurance so thorough intervention can be more targeted to any type of deficit.

6.   What are the main points for an untrained SLP or person interested in speech difficulties to consider when trying to design and implement a speech programme?

I wouldn't recommend it without consulting SLPs…… Well-meaning professionals with experience in other backgrounds frequently implement counterproductive interventions without an input.

7.   Any other significant information or points of interest.

None I can think of.

Appendix 11: Staff Questionnaire

Staff Questionnaire.

1.   What is your current role? (Mainstream Class Teacher, SET, Early Start Teacher)

   - *Mainstream – 47%*

   - *SET – 37%*

   - *Early Start – 16%*

   Question 2-5 to be answered by class teachers only.

2.   Do you currently have children in your class who miss a portion of the school day to

attend speech and language appointments?

   - *Yes – 36%*

   - *No – 74%*

3.   If yes, How many? How often? How long?

   - *Three children. All for one hour a week for eight weeks.*

   - *One child. Leaves one hour early for a six week intervention.*

   - *Two children. One misses 90 minutes once a week, the other children come in one*
     hour late once a week.

   - *Very erratic, no pattern*

4.   How many children in your class would you consider to have speech difficulties?

   - *0 – 0%*

- *1-3 – 42%*

- *4-7 – 42%*

- *8+ - 17%*

5. How many years experience do you have as a primary school teacher?

- *Less than 5 – 32%*

- *5-10 – 21%*

- *11-15 – 11%*

- *15-20 – 11%*

- *20+ - 26%*

6.   Tick which of the following you consider to be a speech difficulty.

- *Stammer - 89%*

- *Lisp - 84%,*

- *Speaking with an accent other than where they were brought up – 5%*

- *Speaking in a loud voice – 16%*

- *Grunting – 26%*

- *Incorrect pronunciation – 100%*

- *Structural issues (eg. cleft palate) – 78%*

- *Speaking in a whisper – 32%*

- *Omitting sounds from words – 100%*

7. I feel confident in being able to recognise children who have speech difficulties

- *Strongly Agree – 16%*

- *Agree – 58%*

- *Neutral – 21%*

- *Disagree – 5%*

- *Strongly Disagree – 0%*

8.   Having a child with speech difficulties would impact how I work with them in class.

- *Strongly Agree – 42%*

- *Agree – 32%*

- *Neutral – 11%*

- *Disagree – 11%*

- *Strongly Disagree – 5%*

9.   I would be able to address the speech needs of a child presenting with such difficulties.

- *Strongly Agree – 5%*

- *Agree – 16%*

- *Neutral – 26%*

- *Disagree – 42%*

- *Strongly Disagree – 11%*

10.   How much of an impact do you consider a pupil's speech difficulties might have on their academic progress.

- *A great deal – 37%*

- *A lot – 42%*

- *A moderate amount – 16%*

- *A little – 5%*

- *None at all – 0%*

11. How much of an impact do you consider a pupil's speech difficulties might have on their social development.

- *A great deal – 63%*

- *A lot – 21%*

- *A moderate amount – 11%*

- *A little – 5%*

- *None at all – 0%*

12. How much of an impact do you consider a pupil's speech difficulties might have on their emotional development.

- *A great deal 47%*

- *A lot – 42%*

- *A moderate amount – 5%*

- *A little - 5%*

- *None at all – 0%*

13. What would be the benefits of schools having an onsite SLT?

   See 4.5.2

14. What would be the drawbacks of schools having an onsite SLT?

   See 4.5.2

15. Any additional comments.

- *I would love if we could get SLT back in our school as the percentage of children in early start each year with speech and language disorders seems to be increasing.*

- *Teachers are not qualified SLTs and cannot be expected to effectively implement programmes. SETs are not trained SLTs. Children deserve early intervention led by qualified SLTs.*

- *N/A*

- *Speech and language problems are one of the biggest issues in our school.*

Figures

Figure 1: Place Voice Manner (PVM) Chart

PVM Chart: English			PLACE							
			LABIAL		CORONAL				DORSAL	
MANNER		VOICING	Bilabial	Labiodental	Dental	Alveolar	Postalveolar	Palatal	Velar	Glottal
OBSTRUENTS	Stop	Voiceless	p			t			k	ʔ
		Voiced	b			d			g	
	Fricative	Voiceless		f	θ	s	ʃ			h
		Voiced		v	ð	z	ʒ			
	Affricate	Voiceless					tʃ			
		Voiced					dʒ			
SONORANTS	Nasal	Voiced	m			n			ŋ	
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(Bowen, 2019).
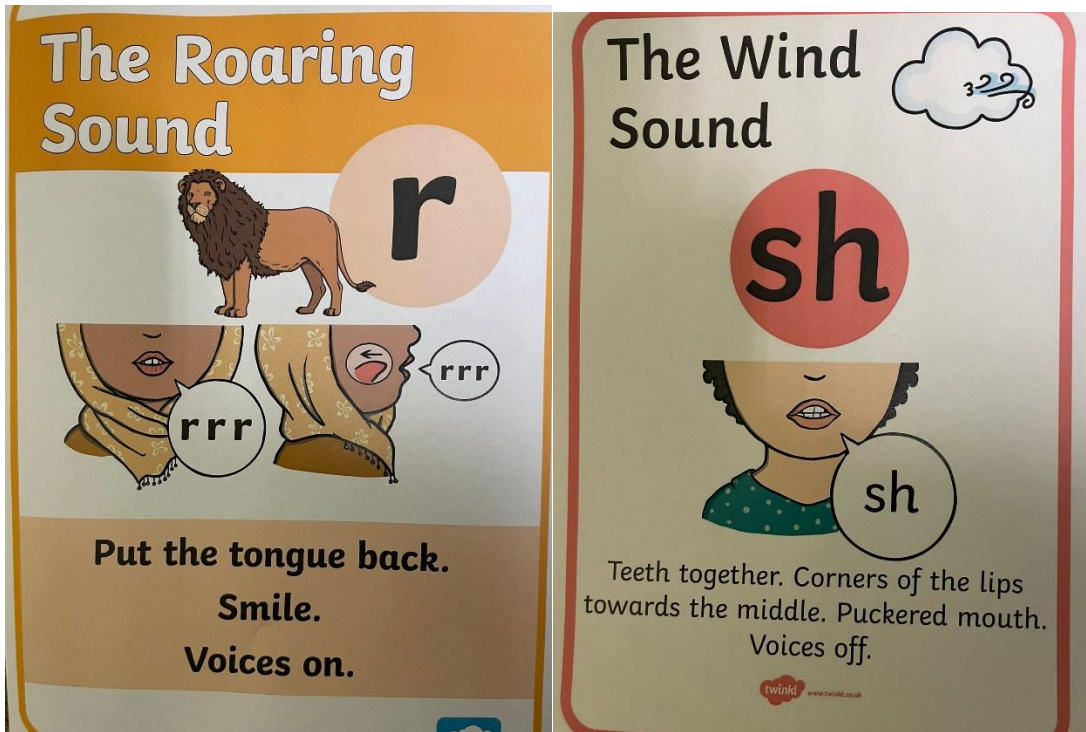
Figure 2: Group Name and Logo

Figure 3: Visuals

Figure 4: Mouth Model

Figure 5: Minimal Pairs Games

Figure 6: Board Games