



The
University
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Sheffield.

**The secret life of twins: we'd tell you if we could! Parental perspectives on the early
language acquisition of twins and twin language
study**

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I dedicate my work to my children.

Please know you can do anything you put your mind too.

It may not always be easy, but do not let anything stand in your way (and if it tries to), know I will be there, as you have been for me, cheering you on with all my might!

Abstract

Purpose

This thesis, the secret life of twins: we'd tell you if we could! Parental perspectives of the early language acquisition of twins and twin language study, asks three questions:

- To what extent do parents of twins feel their children have/had a speech and language delay?
- Are there any factors that parents feel may have/had impacted on their child's speech and language delay?
- How far do parents feel they have/had been supported with the speech and language delay?

The thesis starts by presenting the background and reasoning for the research, together with the discussion of limited research in the field. A balanced and in depth discussion and review of the literature studies four main themes: typical language development, twin development from birth-five years, parental perceptions of twin language and nature versus nurture. It also explores the interlinked subthemes within these.

Design/Methodology/Approach

This research adopts the perspective of Pragmatism. Within this study, I use my narrative to show my positionality alongside the research, and my motivations for conducting this study, which includes consideration of the research topic and research questions, methodological framework, and consideration of mixed methods research. This study is both quantitative and qualitative, using online questionnaire methodology to conduct a large-scale study, considering my own narrative to look at the connection between the two, and utilising the content analysis approach.

Findings

The research questions, methodological framework and literature review established the foundations for the content data analysis and coding. I used a combination of online analysis systems, and an excel spreadsheet to which I exported the quantitative data and manually input the responses from the free text sections and created a coded system. The qualitative

findings were analysed using the constant comparative method and principles of content analysis. The data are presented through a range of multi-media, charts and graphs, word clouds, statistics, and text.

The thesis then moves to discussion and ends with my Conclusion and final thoughts.

Originality

This research has established new knowledge on parental perspectives of twin language delay and emphasizes the significance of these. It explores the prevalence and significance of delayed speech and language acquisition to children in a twin pairing and sets out the implications from the effect of attending an early childhood education setting and the need for an early intervention approach in speech and language for twins.

Table of Contents

Acknowledgments.....	2
Abstract.....	3
Table of Contents.....	5
List of Figures	6
List of Tables	7
Declaration.....	8
Chapter 1: Introduction	9
Chapter 2: Framing Narratives.....	14
2.2. My Story: My Children – My Inspiration.....	15
2.3. My Story: My Role in Early Years Education	25
Chapter 3: Literature Review	31
Chapter 4: Methodology.....	63
Chapter 5: Findings & Analysis.....	98
Chapter 6: Discussion and Conclusion	129
Final thoughts, Reflections and Contribution to Knowledge.....	154
References	155
Appendix 1	169
Appendix 2	179
Appendix 3	180
Appendix 4	186

List of Figures

Figure 1: The following table represents the ‘type’ of twins each respondent is parent to.	102
Figure 2: The age findings of the responses are summarised in the following chart.	103
Figure 3: The combination (same sex/opposite sex) findings of the responses are summarised in the following chart.	104
Figure 4: The gestation findings of the responses are summarised in the following chart.	105
Figure 5: The birth weight findings of the responses are summarised in the following chart.	106
Figure 6: The findings of the responses for number of children are summarised in the following graph.	107
Figure 7: The gender and position of children findings of the responses are summarised in the following graph.	108
Figure 8: The twin language findings from the responses are summarised in the following chart. ..	109
Figure 9: The information on twin language findings from the responses are summarised in the following chart.	110
Figure 10: The preference for information responses is summarised in the following chart.	111
Figure 11: The responses for the number of twins with speech and language delay are summarised in the following graph.	112
Figure 12: The responses for the age of twins with speech and language delay are summarised in the following graph.	113
Figure 13: The responses for additional medical needs are summarised in the following graph.	114
Figure 14: Table of Other Medical Needs	115
Figure 15: The responses for the confirmation of speech and language delay are summarised in the following graph.	116
Figure 16: The responses for the number receiving therapy are summarised in the following graph.	117
Figure 17: The responses for the therapy provider are summarised in the following graph.	118
Figure 18: The responses for the therapy access are summarised in the following graph.	119
Figure 19: The responses for ease of referral are summarised in the following graph.	120
Figure 20: The responses for frequency and delivery of speech therapy are summarised in the following graph.	121
Figure 21: The responses for referral timescale are summarised in the following graph.	122
Figure 22: The Likert Scale responses for progress are summarised in the following graph.	123
Figure 23: The Likert Scale responses for satisfaction are summarised in the following graph.	123
Figure 24: responses for family history of speech delay are summarised in the following graph.	124
Figure 25: responses for involvement in speech and language support are summarised in the following graph.	125
Figure 26: Word cloud illustration of support responses.	126

List of Tables

Table 1: Paradigms: Language commonly associated with major research paradigms	69
Table 2: Paradigms, methods, and tools.....	70
Table 3: Timetable for Research	72
Table 4: Steps in undertaking Content Analysis (Brenner et al., 1985)	91
Table 5: Participant Characteristics	99

Declaration

I, Victoria Horsnall, confirm that the Thesis is my own work. I am aware of the University's Guidance on the Use of Unfair Means (www.sheffield.ac.uk/ssid/unfair-means). This work has not been previously been presented for an award at this, or any other, university.

Chapter 1: Introduction

1.1. Introduction

I am a mum to four children, two daughters and a set of twin boys, and I work in the field of early childhood education (ECE) as the manager of a nursery school in the southeast of England. Throughout my role, over the last seventeen years, I have worked with numerous children who have had a speech and language delay, many of whom were part of a twin pair. In the United Kingdom, the multiple birth rate is 15.4/1000 maternities, with 9873 sets of twins born in 2018 (Office for National Statistics, 2018), there is also a significantly high prevalence of twins in Hertfordshire (Office for National Statistics, 2018). From a young age it was apparent that my own twins had a speech and language delay, and it was this combination of my professional and personal situations that directed my academic interest in the field of twin studies.

Creswell (2002), states that educational research is, “a cyclical process of steps that typically begins with identifying a research problem or issue of study. It then involves reviewing the literature, specifying a purpose for the study, collecting, and analysing data, and forming an interpretation of information. This process culminates in a report, disseminated to audiences that is evaluated and used in the educational community” (p. 87). Whilst Del Siegle (2019) discusses educational research generally as, descriptive to include qualitative approaches such as narratives and case studies, associational or intervention. López-Alvarado (2017) adds that, “Educational research should have three objectives: to explore issues and find answers to questions (for academics), to share policy (e.g., relationships between education/work/training, for policy makers) and to improve practice (for practitioners)” (p. 1).

This is an education doctoral thesis, based in the field of early childhood education, with its foundation in twin studies and the social sciences. Throughout a child’s earliest years, age 0-7 for the context of this research, it is presumed that children will learn and develop against expected age and stage related markers, which show how they are progressing. Education is often understood as formal schooling, with structure, curriculum, policy and teaching practices and processes. It is this education system that plays a significant role in

society. It sets out how children learn and retain their knowledge, based in a particular controlled environment. In this case I am looking at speech and language development in twin pairs, compared to their singleton peers and against curriculum and developmental expectations, and the educational support available both inside and outside of educational settings. Commonly, education now includes supporting children's services such as speech and language therapists, inclusion support workers and occupational therapists, which in theory should enable children to access their education fully. This thesis also considers the significance of parent voice in education and parents as educators, and special educational needs support. It is based on my experience as an early year's professional, a parent and researcher. This thesis identifies an issue for a particular group of children, with the intention of evaluating and developing practice to challenge this need and current practices, and looks at the relationships between theory, policy, and practice. I have drawn on my own experiences and professional knowledge to contribute to the research in both theory and professional practice in education. This has improved my own professional practice and knowledge and will extend professional understanding for schools and professionals. It will inform educational policy, practices and curriculum and will inform service providers for supporting and teaching children. I intend for publication of this research to distribute the knowledge and have impact on the field.

In this thesis, I position both my own personal and professional narratives alongside twin parents' perspectives of speech and language delay, using a large-scale study, to explore the rate of speech and language delay in twins, influencing factors and types and levels of support.

1.2. Justification for the Research

The aim of this thesis is to explore the issues and interest surrounding twin language development and delay, exploring any inter-linking factors, parental perceptions and the voice of the parent linked to this. The idea for the theme of this thesis developed from both my personal and professional lives. As a parent of twins, with speech and language delay, I'd had what I felt to be an interesting story to tell about their learning and development, particularly in terms of speech and language delay, and of their access to education. In my role in early years, I always had several twin pairs attending at the same

time, and more often than not, one or both children would need additional support in communication. Many of the recent findings and background information surrounding twin research came from the Twins Early Development Study (TEDS) (Oliver & Plomin, 2007), which found that significantly twins learn and develop generally along the same rates and stages as their singleton peers, apart from their speech and language. I was intrigued to find out whether other families had similar stories and to establish whether this actually was a significant issue for twin children and their families, and if it was found to be relevant, how I could look further to see if this research could be built upon or developed to improve the provisions and services available. It was important for me to consider the perspectives of the parents and include their voices in the data and findings of the research, particularly after my own journey. Looking at existing research, there was early acknowledgement that twin pairs might develop their language skills differently to their singleton peers (Day, 1932). Since then, there is a significant gap in the literature up until approximately the late 1990/2000's, with the TED study (Oliver & Plomin, 2007) and twin children's language research (Dodd & McEvoy, 1994; Thorpe, 2006). These examples of research are not exhaustive but were however few and far between until the last decade, where interest in the field has picked up momentum (Rice et al., 2018, 2020; Segal, 2021). However, whilst there is research on language development (Bowen, 1998; Fletcher & O'Toole, 2016) and parents as educators (Ramaekers & Suissa, 2011), there is not specific research on twin language development considering parental perspectives, which is the gap in the field I aim to fill and add an original contribution to knowledge.

Chapter one gives the outline of the arrangement of this thesis and lays out the justification and background of this study which focuses on the three research questions below:

Research question one: To what extent do parents of twins feel their children have/had a speech and language delay?

From parental perspectives and information, this question allowed me to determine the levels of speech and language delay in twins, considering factors such as identical and fraternal pairings, and whether this delay was later confirmed by a professional. It also allowed me to explore the prevalence of twin language, and if this impacted occurrences of speech and language delay.

Research question two: Are there any factors that parents feel may have/had impacted on their child's speech and language delay?

This question enabled me to consider factors that parents felt may have impacted on their child's speech and language, considered against those identified throughout the literature, research data and thematic responses. It highlighted several key areas for discussion, relating to birth, medical, special educational needs, and family specific factors.

Research question three: How far do parents feel they have/had been supported with the speech and language delay?

This question enabled me to consider the support parents felt they have received, whilst reviewing several factors, including the early provision of twin language specific information, whether families were able to get a diagnosis, therapy provision, access and referrals, frequency of therapy, timescales, and progress and satisfaction of the system and provision available.

In the second chapter, I explain my own story from two perspectives, both as a parent and a professional, for the purpose of expressing my positionality and explaining my position for establishing the research. The narratives are separate from the collected data of the participants and the study, laying out the picture for further discussions.

In chapter three I critically analyse and give a balanced discussion and evaluation of the literature linked to the themes of this study in four main areas: typical language development from birth to five years, twin development from birth-five years with focus on language development and delay, parental perceptions of twin language and nature versus nurture. It also explores the inter-linked subthemes within these.

Having reviewed the literature in relation to the study, chapter four considers the methodological framework and methods for the study, research questions, research procedure, the approach to data analysis and ethical considerations.

In chapter five, findings, analysis, and interpretations of the questionnaires are presented and discussed. It includes reference to the literature, consideration of the concepts of data analysis and the structures to support theory of the study.

Chapter six offers an examination of the findings with consideration to the process of how the study was carried out, including any possible limitations due to the research design. The conclusion offers discussion of what I believe to be the significance and possible influence of the research for an extended audience, for example, families, educational provisions, service providers and researchers. This shapes, what I have found to be the contribution of new knowledge to research in the field of twin studies and social science. Building on the findings of this research, this chapter also proposes themes to extend or add to research this area in the future.

The following chapter is where I explain my own story in two parts. Firstly, as a parent and secondly as a professional.

Chapter 2: Framing Narratives

2.1. Introduction

In this chapter I present two narratives. I introduce myself and my family; my children, who are a constant source of inspiration. The narratives are designed to lay out and give the background of my interest in the theme for this research and thesis, and to show my positionality alongside it. The premise for this research and thesis was inspired by the learning and development of my own children. It includes both my personal story as a parent, and my point of view as an Early Years Professional and working parent in the field of early childhood education, who had also chosen to continue to further my studies. Through my passion for twin studies and throughout my reading, and research literature, I realised that my own personal story was echoed in various guises, with families over several years throughout my setting and through various social links. The twin community is quite well connected! There are no names included in the narrative, rather positions, for example twin one and two, however I have gained informed consent from my husband and children to share our story and pictures in this thesis. Clough (2002) argues that narrative can offer a 'deeper view of life in familiar contexts; it can make the familiar strange, and the strange familiar' (p. 8). Researchers have a role to give in the expression or inclusion of their particular stories, and that of the extended narratives they are linked with, however, this may not be entirely straight forward. Moen (2006) suggests that "as we make our way through life, we have continuous experiences and dialogic interactions both with our surrounding world and with ourselves. All of these are woven together into a seamless web, where they might strike one as being overwhelming in their complexity" (p. 56). My Children – My Inspiration, is intended to look through a personal lens at a snapshot of my family's story. During the telling of my stories, I have endeavored to give a true, fair, and ethical account of my children, family, friends, and colleagues, as well as to any others who may be associated in the expression of my story.

2.2. My Story: My Children – My Inspiration.

I consider myself truly fortunate to have been blessed with a large family of four children, two daughters and twin sons. However, with more children the likelihood of everything not being quite so straight forward was undoubtedly increased! My team, as I like to call them, between them have each found different areas of their education tricky, which I know to be a normal part of education and development. It is these ‘tricky’ areas on which I have become interested over the years and which have sparked many discussions, assignment topics and areas of research – including my passion into twin language, language acquisition and development.

In September 2011, my husband and I welcomed fraternal (non-identical/dizygotic) twin boys to our family. At this time, our two daughters were aged two and twelve. I was healthy, apart from the late development of cholestasis in the final weeks of my pregnancy, and lucky enough to carry them to 38 weeks, which is classed as the full-term mark for twins. They were born with little distress, at good weights and in full health. Uncommonly, they spent no time in the Special Care Baby Unit. On day one whilst still in the hospital, they passed all their preliminary medical tests. However, during the hearing screening for baby two, they could only get successful readings from one ear. They assured us this was extremely normal and booked to retest the hearing two weeks later. At this point, the hearing was retested and was all in the normal ranges for both ears, so he was fully discharged from care.

Life was lively with twin boys, let alone a growing family of young children. However, time passed relatively smoothly and very quickly. I returned to work at our family Nursery School when the boys were 6 months old and, in the Autumn of 2012, I started my master’s degree with the University of Sheffield. The twins started at my Nursery at two years old, where they settled extremely well and would embrace the daily routine, always becoming involved in all daily activities. My youngest daughter, who has exceptional character, started in the reception class at our local village school. It was here that I met two teams of teachers, who would go on to be a huge support to my family and become great friends, although I did not know it at the time! It became clear that although my daughter was working at age related expectations within her literacy, her language skills, both receptive and expressive were

something quite impressive – in fact, she would often speak like she had swallowed a dictionary and would come out with the most hilarious statements. I put this down to family circumstances. She was the first baby to be born into our wider family for almost thirty years, which meant she was entirely surrounded by a wonderful family of grownups, who doted on her and would spend endless hours engaging her in great activities and games. This certainly had an impact on her language abilities and communication skills. From the age of two she had a firm grasp of the English language and the confidence to hold a conversation with whomever needed. However, her twin brothers on the other hand, were quite different, as of course siblings often are.

The twins attended nursery for five sessions per week with little problem or concern. They were happy, well settled, and sociable little boys. At this stage they did not have as much language as their sister had had at the equivalent age, although were quite comparative to their peers and I understood this general delay to be very usual for twin pairs. As a parent, it is all too easy to fall into the trap of comparing siblings, whilst as a practitioner, this is always something I try and discourage parents from doing. At two and half years old they passed their two-year check with the Health Visitors, which included a hearing test. There were no concerns surrounding either child, and the Health Visitor assured us that they both had an acceptable level of expressive language and receptive understanding. However, as time moved on the twins both progressed as expected across all areas of their learning and development, except for their language development. Although as a family we could understand them and they could clearly communicate well with each other, their language development was starting to cause concern for me as their mum and as an Early Years Professional.

Just before the twins turned three years old, I was awarded my MA in Early Childhood Education Studies. I was extremely proud to have achieved this. When I started my studies with a two-year-old and twin babies, it felt like an exciting, but daunting challenge to take on, but I hugely enjoyed the process. It also meant that I had to dedicate time for myself, and the weekend study schools away, and time for reading, research and putting my work together. Importantly, it also allowed me to explore areas of my own interest, which started me down the route of research into Twin Studies. I decided that I was not ready to stop and applied to roll straight onto the Doctor of Education program. I understood that places on

this course were sought after and was delighted when I was offered a place. I also expected that as my children grew, it would become trickier to study and negotiate busy family life.

Autumn term commenced and at the age of three, after a meeting with their key person and the support of Nursery I decided they needed to see a Speech and Language Therapist to see if they met the threshold for therapy. The first step was to attend a drop-in clinic, where they would only see twelve children per session and booking an appointment was not an option. Taking twin toddlers anywhere was never particularly straight forward and this would be no exception. The clinic had a system of first come first served and wait to be seen in order. The nearest clinic was approximately a forty-five-minute drive, especially in rush hour, so I decided that I would make arrangements for my daughter to be dropped at school by her Grand-parents, so that the twins and I could arrive on time and have a straightforward start to the day. After getting ready for work, getting four children up, fed, and ready for School and Nursery and out of the house by 7.15am the family was on our way. The session opened at 8am for drop ins until 12pm. The twins and I walked through the door at 8.05am – I thought this was impressive! Well, I was wrong! Eleven of the twelve slots were already taken, they would only see one of the two children, as the second child would take them over numbers for the session – even though they were twins and obviously from the same family. We would also have to wait for three hours to be seen, only to return another day for the second twin to be seen. I queried whether or not one or both twins could be put on a list for another session, but this was also not allowed. I was extremely frustrated by this and already exhausted. I decided not to wait for three hours for one appointment, in a packed waiting room, with lively twin boys! I raised my concerns with the therapist taking the names for the bookings and she kindly took mine and the children's details to add to the electronic system for future reference. She also emailed the service manager to see if there was any way in which they could help at another point – it seemed ridiculous that I would potentially keep having to turn up at an oversubscribed service, only to be turned away and start again another day. This was not part of my plan to get my children the help they needed! I found this a tough part of having twins. There are quite a few things you cannot access as a twin parent, for safety reasons and general practicalities. For example, you cannot go to baby swimming lessons with one parent, you cannot go to baby yoga as each child needs their own adult and accessing mother and baby groups feels

almost impossible with only one pair of hands. To then be told that you cannot access something for a possible medical or additional need is very frustrating.

The children continued at nursery, whilst I waited for the dates of the next clinic.

Fortunately, in the coming weeks I was lucky to get the help of a Speech and Language Therapist who was visiting the setting to assess the needs of another child. After discussing our situation with her and what had happened at the drop-in clinic, she added both twins to their referral list for an assessment, this was possible as the details were already on the system from our visit to the drop-in clinic. Four weeks later, the twins had both had a speech and language assessment. It was determined that twin one, did not meet the threshold for speech and language therapy, although he was showing signs of speech and language delay, but that twin two, did meet the threshold and would need speech and language therapy. I did not feel that the twins used a “twin language,” but they could understand each other well and often tried to translate words if one were misunderstood. It was at this point the Speech and Language Therapist began collaborating with the key person at Nursery with a targeted plan for his support. Each week the key person would work on the targets individually and in small groups, also with his twin, this was reviewed half termly each time that the speech and language therapist would visit.

At the age of around 3 1/2 years, the twins started at a second nursery setting, two days per week nearer to home whilst I was working in the office. This setting fell under a different borough and meant that different speech and language therapy options were available. This borough ran a small group therapy intervention which they would deliver at the setting. Both twins continued to make good progress against the developmental milestones set out in the Early Year’s Foundation Stage framework. Twin two started to make good progress with his speech and language interventions delivered at both settings, with the support of his key persons and work at home with family.

With their older sister already attending the local village primary school, it was an easy decision as to where to apply for the twin’s school place. She had been making good overall progress although found reading and writing trickier. Her expressive and receptive language skills were still both impressive, she did however not pass the year one phonics screen the first time around, missing out by a couple of words. When asked what she had been up to she declared there is no correct spelling of nonsense words as she knew they were not real!

(Later in the Autumn term she went on to correctly spell all of the words). She loved school and thrived in the environment and was well supported by a wonderful Early Years and KS1 team and was in the fortunate position to be in a class of only twenty children. I was happy with the school, and it was a logical progression for the twins. I had also been fortunate to become friends with a great group of other mums from my daughter's year, who were (and continue to be) an invaluable source of support and friendship.

In the Autumn of 2016, the twins started 'Big School'. After attending Nursery from the age of two, they had a smooth transition into school life. The EYFS team knew our family after previously teaching our daughter and had met the twins on several occasions before they started. My husband and I had made the decision that the twins should be separated for their education. This was the focus for the thesis for my MA, but it is also a policy adopted by the School and our County Council. For us, this was an easy decision to make, the twins have different personalities, different abilities, different likes and dislikes and different friends. At Nursery they did not depend on each other and were both very independent. They were placed in separate classes, but in the same school unit, which meant they were taught separately, but if needed they could play together during free play activities or break times. They were also grouped across the whole of the year group, into small classes for phonics and math's, this meant they could potentially mix if they were at the same ability level, which they never were! They would also mix as a whole unit for Physical Education, so I was happy that they would have plenty of opportunities to be with each other if they wanted to be or if they needed some reassurance.

Having early Autumn birthdays, the Twins turned five quickly into term. Knowing that the twins were behind with their speech and language development, and that research shows that routinely twins develop the same as singletons, apart from an average delay of six months with speech and language compared to their peers, there was a definite benefit to being the oldest in the year group. Both boys were happy and settled at school and making progress. As with their sister, they were in two smaller than average size classes, which meant there was lots of support where needed. Speech and Language therapy continued at school, with his usual therapist visiting school and extending targets and advising school, as necessary. The twins and I also attended an annual review at the Speech and Language therapy clinic, where they reassessed twin two, decided on new targets and advised us of

some new activities to practice at home. Twin one started to quickly make solid progress at school, and although twin two were making progress at school, he was at the lower level for his phonics, spellings, reading and writing. School also reported that he was a sociable and lively character, who sometimes found it hard to follow instructions, although they were not always sure that he just had not heard the instructions clearly across the busy EYFS unit, which had approximately forty children in it. During class time and small group work there did not tend to be a problem.

Later this term, as part of the routine childhood Reception class screenings, the school nursing team visited the school to conduct the entry health checks on ears and eyes. Twin one passed both screening tests. Twin two passed the eye screening, but there was a query on the hearing test. He did not score very highly in the second ear. The nursing team sent home a letter to say that this frequently happened, especially with young children, particularly boys. This could be down to distractions on the day or being worn out at the end of the screening and simply not listening properly. They notified us that they would return two weeks later to re-check the ear that did not perform well – no big deal! In honesty, I did not give this a second thought, until the re-screening happened, and they still could not get satisfactory results. They referred us to Paediatric Audiology, and I waited for an appointment, with the expected wait time of 16 weeks! Another service that was under huge demand. I phoned the audiology department and was added to the cancellation waiting list, in the hope I would be able to speed up the process. Fortunately, within a matter of days I was called with an appointment to attend at the end of the week, at our local clinic, this was a relief. This appointment was during the afternoon of the school day, which was also good because of course, siblings were not allowed to attend clinics (in fairness, they need to be incredibly quiet places), and I was blessed with incredibly supportive friends who picked up the others for playdates, in case I could not get back in time.

The appointment and testing went well. Twin two worked hard to follow all the tests and listen to all the sounds. They took a thorough family history and performed several medical assessments of the ear as well as the hearing screening itself. At the end of the screening, he was diagnosed with a 'unilateral hearing impairment,' he was essentially deaf in one ear! There are lots of mixed feelings when you discover that your child has a potential disability,

or that things might not be as straight forward as you wish for them, but there was also an over-riding feeling of relief. Relief that there is a reason that things are not progressing as 'normal' for your child and that this reason can be worked on and supported. They scheduled us for three monthly reviews, throughout the year, to make sure that the screening was correct and importantly did not get any worse. They also referred him to a specialist consultant for a full health check, ophthalmology, blood testing, and to Great Ormond Street Hospital for assessment and an MRI, to see if they could diagnose why he has this type of hearing loss. I was also informed that this type of hearing loss, and the part of the ear it affects, cannot get better, however when he is a teenager there could be potential for surgical intervention. It is also significant to register that at this age and time in his education, my son was too young for a hearing aid to be beneficial for his particular type of hearing loss.

I sent an email to his class teacher, (in retrospect, probably a very frantic one), to schedule a meeting to discuss his diagnosis and to make an action plan to put in place the suggested actions from the audiologist. They had given us guidance on how to support a hearing-impaired child in the classroom, which I was able to discuss and pass on. The diagnosis had happened to fall on a Friday afternoon before the October school holidays, so she arranged to meet with me immediately when school reopened on the Monday morning. I was incredibly grateful for the time his reception teacher gave to the meeting, to the fact that she really listened to the information I had to pass on and that she was thoughtful in discussing how she thought everything could work and all of the actions she would immediately put in place. It was a very reassuring meeting for both parties. Of course, after I received his diagnosis and had been given all of the information, many things started to make sense. For example, his reception class was a two-form entry, with a joint classroom shared by forty-five children, if his name had been called across the classroom, he simply had not heard it, or perhaps been able to follow an instruction about which he did not know. It was not that he simply did not want to do something or was misbehaving, he probably just did not know he had been asked! The twins were also fortunate in that although that year was a two-form entry, the forty-five children were then split into two smaller classes for their teaching (although the shared spaces would still be problematic). This is clearly great for helping all children to listen, not just hearing-impaired ones! It also

meant that there were at least four teaching staff available (two full-time teachers and two full-time teaching assistants), that knew twin two and were able to support and help him. This would definitely be beneficial in ensuring he could sit near to an adult, have a clear view of their face, and repeat any instructions as needed. Over the coming days feedback from his teacher was positive and he was being well supported and everything at school was heading in the right direction. Other than the hearing loss itself, one of the “side effects” of this type of impairment, is a “buzzy” head, meaning that lots of movement and movement breaks would be essential, these were easy to incorporate into his routine as early years is already geared up to be more flexible and to have less structured sitting learning in the classroom. His teacher also incorporated the daily mile as part of their morning routine, which she reported had a great effect on him being “ready to learn.” By teatime each day, I would always be able to tell the days that had included more physical exercise than others!

At this point in time, I spent lots of time reading all the information I had been given from the various medical professionals’ twin two had started to see and did lots of further reading around hearing impairments and the types of adjustments I would need to make and the problems it was likely to cause. Again, speech and language delay were linked to hearing impairments. Although both twins had speech delay at a younger age, it continued to be more significant for twin two and he continued with his speech and language therapy both at school with his class teacher or teaching assistant, home, and the external NHS appointments. School also put into place daily sessions to include individualized support in one-to-one sessions or small group intervention for him, with their specialist speech and language teacher. Hearing services also provided a teacher information sheet of important adjustments and classroom ideas.

Importantly, at this time, aged five, they were both making good progress with their speech. Reception school year for the twins went by smoothly and in a flash. As a family we would practice the speech and language targets each week, read stories together every night, practice reading books and singing. The children always completed their home learning and would take part in extracurricular activities and clubs. I was lucky to be able to work school hours and therefore be able to drop them off and pick them up from school every day, and to be part of their busy worlds (as well as my own!). At the end of reception, twin one had grown out of his speech and language problems, but they were still apparent in twin two.

The end of school year reports arrived and twin one had made good progress across the year, meeting or exceeding all of his age related expectations, whilst twin two in comparison, had met a few of his age related expectations but was working towards in many more; this is when I realised that however unique and special the twin bond is, that some days it was also going to be really tough having a twin brother who did not have a disability.

The twins moved onto year one and were again in separate classes, they both had wonderful teachers who were without a doubt on our team. These separate classes seemed to work well for them, they are entirely different in personality, preferences, academic and sporting ability, food choices and friendships! Being fraternal twins, genetically they share the same amount of genes as any other sibling (just happens to be one born at the same time!). Both twins continued to make a good level of progress and were happy at school, although the more formalised set up and structure of year one, definitely started to have an effect on twin two, who would find it harder to sit for longer periods of time or have to concentrate for longer. The classes were busier in numbers, as they had become mixed year groups and classes of 30. This was not ideal for twin two, who found it tricky to listen, which meant he was physically exhausted at the end of every day. However, the small group interventions and one to one sessions for his speech and language development carried on. He was making progress and coupled with reviews every six months with the speech and language therapist, this was all positive. At the end of this school year the Speech and Language team decided to sign him off their case load. They decided as he was making good progress and school “knew what they were doing” that they did not need to formalise his interventions any further. I had quite a worried conversation with the therapist, as although he was making good progress, his speech and language was still clearly behind. Adding to this that he was hearing impaired and still too young for a hearing aid, I did not want him to fall back behind when everything seemed to be working. They agreed to keep him on the list for another six months, but they would not visit or support further, however this meant he would remain on the list for additional support at school. Six months passed and he was cut off! They assured us he would still receive additional support from school; however, school could no longer offer this as he was not on the Speech and Language teams list. It was obvious to us and school that the hearing impairment had a huge effect on his speech and

language development, his concentration and behavioural patterns and his ability to learn. I always try not to compare my children, but having a twin, who started off with a similar level of speech and language delay, probably just because they were twins, and who by all accounts grew out of it naturally, makes it hard not to.

There is of course so much more to our story, a school move, trips to Great Ormond Street Hospital, hearing aid fittings and support from different services, occupational therapy, and educational psychology to name just a couple. I will however add that I am incredibly proud of all my children for tackling their obstacles head on, and for standing shoulder to shoulder to cheer each other along the way – it is not always easy! For now, I leave my narrative here, at the supposed end of our speech and language journey, and I end this as I started, I consider myself truly fortunate to have been blessed with a large family of four children, two daughters and twin sons.

2.3. My Story: My Role in Early Years Education

I have not always worked in the Early Years Sector. My undergraduate degree was a BSc in Health Studies, looking mainly at the health of the nation, which included access to health care, education, employment, and key services. It looked at anthropology and different demographics across the UK, along with the development of policies, usually based on government white papers. When I left university, in 2002, I went to work in a Hertfordshire based Doctors surgery, in the role of Information Technology Management. I found this to be a valuable experience and really useful in understanding how policy informs practice. It also gave me an insight into the make-up of the local demographic. One of my daily roles, was to register all births from hospital notifications that had happened in the preceding twenty four hours. This is where I first noticed the trend of apparently high-birth rates in twins, compared to singletons, along with other factors I found interesting, such as the increasing age of mothers, compared to what I know to be considered the prime age for pregnancies, and the increased age of the service users' population as a whole.

After three years, in December 2005, I left the Doctor's surgery to work in my family owned nursery school. I joined at this time as the increase in administrative tasks, policies and curriculum based paperwork was overwhelming the setting, so my position was to lighten the load in administration, as this is what I'd essentially been doing over the previous two years. This was going to be for six months, whilst I planned for the business and my family. Little did I know that I would still be here seventeen years later.

Initially I spent much of my time updating policies and procedures, registering children, processing data, and getting up to speed with the curriculum. This meant that I understood our demographic well and noticed that the setting had, what I thought was a high number of twin children. I also took an "Introduction to Pre-School" course. Six months came and went, and I had already decided that I'd stay at the setting, because I really enjoyed my role working with children and their families, and all the paperwork this entailed.

At this point, in 2006, I enrolled on a level three course, entitled 'Diploma in Pre-School Practice'. This is a diploma for people wanting to work as part of the early years' workforce, including both care and education elements, for children aged between birth to five years. As a minimum requirement, all staff at our setting that work directly with the children are required to have a relevant level three qualification, and this meant that once qualified I'd

be able to work in the ratio with the children and support the staff team when needed for cover for staff training or sickness. To complete the course, I attended college part-time for four terms, whilst working and carrying out work based placements in various childcare settings. The four units that made up the course were promoting children's development, early learning, best practice in pre-school settings and working with children with special educational needs. This fourth unit was an option chosen from a list of several topics, and where I began to understand the foundations of working with children with Special Educational Needs (SEN) and supporting their families. There was a big emphasis on "parent partnership" throughout this course, which cemented the idea that as well as parents being the child's first caregiver, that they are also significantly their first educator too. It highlighted the value of parental involvement and working in partnership, whilst also introducing the impact that the parent voice could have, and the importance of this. After completing the course, I split my working week between the classroom with the children and the office. Each term I would be responsible for registering the new families and their children and creating the registers for each class. This manual input of data gave me an in depth understanding of the make-up of each cohort, for example, age, gender, and siblings. It became clear early on that the nursery always had twins registered, always nearly in every class, and frequently more than one set.

In 2007, the Children's Workforce Development Council (CWDW) launched The Early Years Professional Status (EYPS) accreditation. This was a level six qualification which required the candidate to already hold a degree. This government initiative created the idea, that by 2010 all Early Years Children's Centres would be required to have at least one Early Years Professional (EYP), which would be further rolled out to all childcare settings, needing to have an EYP in place by 2015. At this time, I was the only practitioner at my setting to hold a degree, so I enrolled on the training, as it was a requirement to have a practitioner in the setting with this accreditation. This accreditation was designed to be equivalent to Qualified Teacher Status (QTS) but for the Early Years Foundation Stage, ages 0-5 years, rather than the 5-18 years of QTS. I completed the accreditation in Autumn 2008. It was both theory and practical based, with assessments both in my own setting and at a placement. There were 39 standards to meet and provide evidence for, split into six areas of professional expertise. These were: knowledge and understanding, effective practice, relationships with

children, communicating and working in partnership with families and carers, teamwork and collaboration and professional development. The design of the EYPS was to drive quality across the Early Years sector, and to highlight the significance and the importance of the work of the Early Years sector, and equal qualifications (DfES, 2006a; CWDC, 2006). I also became Deputy Manager at the setting.

The following Spring term 2009, I gave birth to my daughter and spent six months on maternity leave, returning for the start of the new school year in the Autumn. As part of my role the managers would network with other PVI providers, once a term, to discuss any relevant factors relating to nursery life, for example, numbers of children, staffing and funding. It became apparent that other settings had also seen the trend in twins.

In Autumn 2011, I gave birth to my fraternal twin boys and again took some time out of the setting, returning the following Spring 2012. Having really enjoyed my previous studies I started to look into the options for relevant post graduate courses and decided to apply to study for a master's qualification in early childhood education. At this point, I had been promoted to Manager at the setting, and it was really important to me to continue to further my education. Competition between local Private, Voluntary, and Independent (PVI) settings was always present and having highly qualified and experienced staff was crucial to our provision. I was accepted onto the programme at the University of Sheffield and started in the Autumn of 2012, when the twins were one year old, (along with another lady who also had twins the same age!). Working full-time and studying with a young family was a challenging task, however I felt that this time absorbed in learning, was actually time for myself that allowed me to adopt a different headspace.

Having seen the substantial and constant numbers of twins at my own setting and in the local area, and now having my own twins and a link to local twin groups and services, I decided to focus on twins for my MA dissertation, and on an area that I'd seen cause much debate in twin forums and the news; whether or not twins should be separated into different classes for their education (Horsnall, 2014). This was based on interviews and questionnaires of both parent and teacher perspectives. Both the opinions of the parents and teachers who participated in my study were extremely valuable, as they gave two perspectives and different sources of data for the research, in both personal and professional voices, and I thought the influence of parental voice on the placement of their

children, in comparison to government and local policies was extremely relevant. I was intrigued by the sibling relationships of twins, and if this offered any further depth for learning and development.

Horsnall (2014) states that “the number of twin families accessing the setting is on trend with other years, averaging five sets of twins attending at any one time. In a setting with approximately 100 children, twin children make up ten percent of our demographic” (p. 18). With the number of twins in the setting came the observation that regularly one or both children would need additional support with their speech and language development or communication (Horsnall, 2014). Likewise, there were many occurrences where one twin would have an additional, special, or behavioural need. This was also apparent when compared to the needs of their singleton peers. As a setting the practitioners work with the EYFS framework and supporting documents. This highlights seven key areas of learning and development, on which the setting builds its early years curriculum. The first of these areas is Communication and Language, due to the fact it underpins all other areas. Throughout our sessions with the children, daily planning, observations, and assessments, I was able to identify further which of these children would need additional support and the processes in place for this. As part of my role, I would frequently have to discuss with parents the type of support the nursery could offer as a setting, and signpost to external services such as speech and language therapy, or how they could access support from a paediatrician. Frustratingly, services were often hard to access, for example, referrals for speech and language therapy assessments, could not be made until the child had turned four, or could not be accepted from a PVI setting, meaning I had to refer families back to their GPs, who would then contact us for supporting information. This seemed to add another layer of time and resources that was not always necessary. Waiting until the child had turned four also meant that by the time the referrals had been accepted and parents had waited a significant amount of time for the assessment appointments, the child would often be moving onto school, without the professional support needed in place. I also found inconsistencies, across services and provision available to families, seemingly with an element of potluck to what support the child would get. For example, some families received weekly therapist visits, whilst others could not get an assessment visit. The introduction of a drop-in assessment service, run by the NHS, was designed to ease pressure on services and reduce

waiting times, however the service was quickly overwhelmed and limited the number of appointments for families to attend, meaning they were unable to access the support at all. The EYFS puts partnership working with parents as key to its approach, and I found this practice beneficial in supporting and meeting the needs of these particular children. However, early identification of problems was important, and I felt it would have been useful to have clear processes in place for families and providers. I was interested to understand the parental perspectives of the system and their own situations, and to give a platform to their voice in the decision-making for support.

As a setting, many of our staff attended training in supporting communication and language development. Teachers would support children with small group and one-to-one activities and interventions and would support and practice the targets set by external services such as Speech and Language therapy, when these had been provided. I could definitely see the need for additional support in this area for our class demographic and I wanted to explore the notion that twin children could have greater affected delays with their speech and language development. A robust system needed to be in place for supporting children with a particular need, further to what was offered at the setting.

I found that throughout my professional role, one of the benefits of continuing to study, meant that I could be a positive role model and mentor to my staff members, who too were continuing to train. The further established and longer my team has been together, the more experienced they become and their desire to further their own education becomes greater. The levels of their own training in turn becomes higher, with staff undertaking level four advanced practitioner, degree, and teaching qualifications. Continuing my own professional development has meant that I have always felt able to confidently act as a mentor for them. It was this drive and the enjoyment of continuing to study, which pushed me to apply to the Doctor of Education (EdD) course, at the end of the MA. Again, the course structure allowed me to focus on topics that I am passionate about, and from which the theme of this thesis was developed. Through my role in education, my practice and work based knowledge has informed this research focus. It was important to me to explore whether other families had similar stories, and to establish whether this actually is a significant issue for twin children and their families, based on the trends I'd seen throughout

my own professional practice. This perspective also informs my analysis and interpretation of the data.

2.4. Summary

In this chapter I have told my story as a mum to a family which includes twin boys with speech and language delay, and as a professional working in early years education, as a way to frame the research study for this thesis.

In the following chapter, I examine the literature alongside the themes of this research in four main areas: typical language development, twin development from birth-five years, parental perceptions of twin language and nature versus nurture. It also explores the inter-linked subthemes within these.

Chapter 3: Literature Review

3.1. Introduction

In this chapter I examine the literature in relation to the themes of the study, which explores the extent to which parents of twins feel their children have/had a speech and language delay; if there are any factors that parents feel may have/had impacted on their child's speech and language delay; and how far parents feel they have/had been supported with speech and language delay. The sections of the chapter are set out as follows: research focus, typical language development from birth to five years, theories of language development, receptive and expressive language, twin development from birth to five years with focus on language development and delay, Nature Vs Nurture, twin types and zygosity, data on parent perceptions of twin language, medical risks in twin pregnancies, twins and disabilities and/or special educational needs (SEN) and early intervention. The chapter concludes with an outline of the sections discussed within it.

To start the literature review process, I was looking for relevant information in three main areas. Firstly, background material that would be of wider relevance to the field; secondly, research and literature that would reflect on matters that would potentially be closely related to my study; and finally finishing with literature that is directly related to my research (Wellington et al., 2005). My searches used a broad range of sources including, the University of Sheffield's online library, peer-reviewed journal articles, academic books, articles from professional journals, educational databases such as the British Education Index (BEI) and ProQuest, published thesis and dissertations, historical policy and educational documents, current educational and policy documents from the Department for Education (DfE), government sources for statistical data such as the Office for National Statistics, and materials from other professional associations, the British Educational Research Association (BERA), charities and research institutes.

3.2. Research Focus

This study focuses on the number of twins that have a considered speech and language delay, using parental perspectives and exploring the factors behind this. It looks at the number and types of interventions on offer and accessed by children, and how far the parents feel they have been supported with their child's speech and language delay. This study is based in England and brings in responses and comparisons from the United Kingdom, where relevant. There are several factors which may affect speech and language acquisition, including: premature birth, low birth weight, siblings close in age and being part of a large family, all of which are factors that are more common in multiple birth families. Other additional factors consider siblings as role models for speaking.

3.3. Typical Language Development from Birth to Five Years

To be able to understand the speech and language delays, which form the 'atypical' language development, that children from twin pairs may experience, I first explore what is considered as 'typical' language development in children aged birth to five years. Fletcher and O'Toole (2016), suggest that "for most children, learning a language is an effortless achievement" (p. ix). There are many fields interested in child development and particularly language development, of which many have made substantial contributions to the field of language development and communication disorders. For example, as well as education and linguistics, much research has come from psychologists and the genetics fields. The ability to speak and understand makes up a large part of child development, Fletcher and O'Toole suggest this because, "we have engaged in these various linguistic activities for a long time - a good part of the competence that underpins our linguistic ability was in place by 5 years of age" (p. 1).

3.4. Theories of Language Development

The theoretical framework for this research is the paradigm of pragmatism. Weaver (2018) suggests that "A paradigm is a theoretical framework comprising the set of basic beliefs that guide the research or practice" (p. 97), whilst Conerly et al., (2021) further this

to add that “paradigms are philosophical and theoretical frameworks used within a discipline to formulate theories, generalizations, and the experiments performed in support of them” (p. 13). In educational research, a theoretical paradigm, is used to define a researcher's “worldview”. Mackenzie & Knipe (2006) argue that “this worldview is the perspective, or thinking, or school of thought, or set of shared beliefs, which informs the meaning or interpretation of research data” (p. 7). Pragmatists are interested in useful knowledge, which can help answer the questions of the research. Creswell (2013) states that, “Researchers using this framework will use multiple methods of data collection, techniques, and procedures of research that “best meet their needs and purposes” and that best address their research questions, for example, for example, that this framework is used when researchers doing case study or ethnography use both qualitative and quantitative (i.e., surveys) data collection” (p. 29).

Key existing theories that underpin the language development aspect of the research are summarised below. Theories of language development are important as they establish a framework for interpreting children’s language development and language behaviours. These theories help us to explore language development, so we can analyse how language development happens in children and why it takes a typical or atypical route. Language theories are also a starting point for researchers to create hypotheses, test ideas and build upon. New data and findings can then add to the field of knowledge surrounding language theories.

This section is a brief chronological historical summary of theories of language development. There are many theories regarding language development, which also need to be considered when discussing typical development (Otto, 2010). In very general terms, theories of language development consider how genetics and the environment could influence language development and in research, different language development theories place different levels of significance on nature and nurture, which both have important roles to play in terms of this research. Discussion considers whether the processes of language development are learned or innate, giving rise to the Behaviorist and Nativist perspectives, two of the significant theories of language development.

Jean Piaget – Cognitive and Constructivist Theory

Piaget put forward a cognitive development theory (1936). This theory is about the nature and development of intelligence in people. It looks at the nature of knowledge and how people therefore gain knowledge, build upon it and how they use it. In philosophy, this theory of knowledge is known as epistemology. This perspective agrees that nature is most significant in the process of language development and argues that “language development occurs according to stages of cognitive development... language appears when one has ability to represent symbols in the mind. This leads to the creation of words, which leads to language acquisition” (Otto, 2010, p. 79). These language symbols are essentially a structure or code, to which people associate meaning, allowing them to communicate with each other (Woodward, Markman and Fitzsimmons, 1994). Suggesting that people therefore develop their language skills, based on their own experiences. Piaget (1936) defines the four stages of cognitive development as:

- Sensorimotor stage: birth to 2 years
- Preoperational stage: 2 to 7 years
- Concrete operational stage: 7 to 11 years
- Formal operational stage; 12 and up

These are significant as the theory suggests that knowledge and intellect are part of the nature of the child. During the sensorimotor stage, children learn and gain knowledge and information through sensory experiences and handling objects. This stage focuses on basic motor skills, reflexes, and senses. The preoperational stage focuses on the development of language, presuming that basic language skills and foundation have been acquired in the first stage. The concrete operational stage considers the development of children using logic, up until this point they are considered to still be literal thinkers. Children progress in thinking and start to understand different points of view. The formal operational stage includes deductive reasoning, further understanding of logic and an awareness of abstract ideas (Piaget, 1936). This theory added to the knowledge of intellectual growth in children.

Piaget’s constructivist theory of learning (1964) establishes that existing knowledge is built upon to develop new knowledge. The two combined therefore extend the knowledge of the individual (Phillips, 1995). A person is therefore successful when they can retain this new knowledge (Bond, 2012). This is subjective as people will have different life experiences and will develop different knowledge and views of the world (Elliott et al., 2000). In education,

constructivist theory implies that learners will play an active role as they are building on both old knowledge and new experiences, the culture a person is raised in will play an influential role, social interactions of children are developed within society, teachers will be facilitators and both old and new experiences are valued (Zadja, 2021).

Criticisms of Piaget (Johnson, 1962; Bandura and McDonald, 1963) include his overestimation of the importance and significance of interactions amongst family, friends, and teachers on cognitive development. Vygotsky (1962) disagrees with the four stages of cognitive development set out by Piaget, arguing in its place that children are continuously learning independently of any prescribed stages).

Burrhus Frederic Skinner – Behaviourist Theory

One of the first theories around language development came from Skinner (1957). Inspired by the work of Watson's (1924) behaviorist approach, which puts importance on people's reactions and the way they behave in particular situations, opposed to the feelings or state of mind of that person. Skinner further developed the idea of behaviorism and proposed that language development is shaped by environmental influences (Greer, 2008; Barnes-Holmes, 2000), introducing the idea of operant conditioning. This is an approach to learning that uses punishments and rewards to change behaviour (Skinner, 1953). Skinner argued that language is learnt through reinforcement, "children learn language based on behaviorist reinforcement principles by associating words with meanings. Correct utterances, saying things correctly, are positively reinforced when the child realizes the communicative value of words and phrases" (Lemetyinen, 2012, p. 1). Therefore, when a child gains attention or praise from copying language, they are motivated to try again. Parents reinforce this behaviour by talking back. However, there are criticisms and difficulties attached to the theory (Stillman, 2014), one such being that it puts a limit on human behaviour, suggesting that it can only be influenced by external factors and not biologically determined. Chomsky also suggests that the ability to develop grammar and the process in which this happens is not clearly explained. Chomsky also argues that a child's development is not helped by praise and reward. Further arguments discuss how young children may find it hard to clearly pronounce or repeat words they hear from adults, and Skinner offers little justification to language attainment and its purpose (De Lourdes, 2012).

Lev Vygotsky - Social Interactionist Theory

Lev Vygotsky presents the interactionist theory (1962), which proposes how nurture is vital in the process of language development and ties biology and sociology to its explanations of how language is developed. Otto (2010) suggests that “This perspective believes that language is acquired through social interaction in the environment” (p. 15). Vygotsky puts forward the idea of a social development model, where socio-cultural interactions precede language development and cognition (Eun, 2019). Its foundation is based that a child will only learn language from an adult who wishes to interact and communicate with them and highlights the importance of quality social interactions to a child’s learning and development (Newman and Latifi, 2021). Criticisms of this theory (Phillips, 1995; Fosnot, 1996; Fox 2001) are that it disregards the value of the individual, meaning that it does not consider the input or ability of the child, and does not represent the whole picture of a child’s learning needs or abilities. Nor does it attempt to justify how development happens.

Noam Chomsky - Nativist Linguistic Theory: Universal Grammar

The purpose of language was further explained by Chomsky (1965), who puts forward a nativist perspective, which proposes language is an ability you are born with, rather than something you need to acquire with learning. He hypothesised that language is an “innate fundamental part of the human genetic make-up” (p. 56), and language development is therefore a natural process for humans. Chomsky argued that “children will never acquire the tools needed for processing an infinite number of sentences if the language acquisition mechanism was dependent on language input alone” (p. 56). He therefore suggested that learning language was innate in people. Consequently, Chomsky proposed the theory of universal grammar, “an idea of innate, biological grammatical categories, such as a noun category and a verb category that facilitate the entire language development in children and overall language processing in adults” (Lemetyinen, 2012, p. 2). This suggests that as people “needed better communication to survive, language was developed, and therefore, superior structures that support language development evolved in human brains” (Shukla, 2022, p. 3). Criticisms of Chomsky’s model argue that it discounts the importance of social interaction to language development and is argued that children who are protected from language, would not develop the ability to talk. Hinzen (2012) argues that “universal grammar is in conflict

with biology: it cannot have evolved by standardly accepted neo-Darwinian evolutionary principles” (p. 638).

Theories are important for several reasons: they play a part in the development of research questions, they direct and make meaning to what is seen and discovered throughout the research study, by helping to inform what data should be collected and how this is then interpreted (Collins and Stockton, 2018). Language theories inform the present study by setting out the basis of what information is already known and what information is imperative to collect. Research can challenge and/or confirm a theory and in turn offer a structure for practical strategies and actions. Theories can also help propose explanations for the data that has been found or observed. It is not necessarily the theory itself that is important, more so how they help us to decipher and understand the data and its link to child development (Reeves et al., 2008).

My work follows Piaget’s theories of cognitive and constructivist development. The cognitive theory suggests language occurs through both nature/innate abilities and the constructivist theory adds the factor of nurture/environmental events. The theories consider how children develop through a series of stages and in a contemporary understanding of child development that considers the importance of both aspects. Every child is born with an individual genetic code that will predetermine their development in all areas, but this can be seen as the framework that will be adapted by environmental factors, such as health, physical and social interactions (DiLalla, 2006). When considering language development, some children could potentially have stronger language skills than others due to genetics, but how and when these skills are developed in the child’s environment, means increased language skills could be obtained (Feldman, 2019). The premise of this thesis is that children who are part of a twin pairing could have a speech and language delay, simply because they are a twin. This follows the idea that it is an innate ability and is discussed further in consideration of the nature vs nurture debate (see section 3.8), and follows that children then construct their overall knowledge based on their own experiences, which includes the significance of parental involvement.

3.5. Developmental Psychology

Burman (2017) states that “developmental psychology investigates biological, genetic, neurological, psychosocial, cultural, and environmental factors of human growth” (p. 7) and has been shaped by many theories and branches of psychology. Developmental psychology firstly considered child development, children’s minds, and learning (Hall, 1883). Piaget (1928) introduced a detailed theory of development, along with many other theorists adding weight to the field (Vygotsky, 1978; Bowlby, 1958). Developmental psychology also considers the long standing argument of nature and nurture (Levitt, 2013).

Whilst this work is based on developmental psychology, there are criticisms of this view. Kontopodis (2019) discusses how “developmental psychology has often been criticised as the science of the white, heterosexual, adult, middle-class men and has sometimes even been explicitly racist – especially in its early phases” (p. 4). Whilst Piaget overestimated the “ability of adolescence and underestimating infant’s capacity” (Babakr et al., 2019, p. 517) and discounted some cultural and social interaction factors. His studies also raised some methodological concerns, with ethical and bias problems from studies with his own children.

Over the last 50 years, there has been a large amount of research into these theories and their role in language development. Early Years Practitioners understand that although most children may follow the typical stages of development, they do not all do so at the same rate, as discussed in the Early Years Foundation Stage (EYFS) (DfE, 2021) and Birth to Five Matters Guidance (Early Years Coalition, 2021). Fletcher and O’Toole (2016) suggest that “some are precocious learners, and then there are the minority for whom progress is slow and difficult. To identify and characterize the minority, we need to have full awareness of the range of ability among the majority” (p9). The following studies began to explore language development in young children.

One of the first studies to be considered as part of modern research (post – 1945) into early language development was carried out in the 1960s by Brown at Harvard. This proved to be a highly influential study, as it developed new tools and indicators for the field. This research developed a measure of both progress and comparison known as, ‘a summary measure – the average length of the child’s utterances, in morphemes – MLU(m)’ (Brown,

1973, Fletcher & O'Toole, 2016). A morpheme is classed as a 'minimal meaningful unit' of language. This measure is significant as a general indicator for grammatical development and works on the principle that new knowledge should increase the length of utterances. This study was made up of three child participants. In simple terms, this was a longitudinal study, that worked by counting the number of words or utterances of the child over a period of time and repeated at different ages. All three children showed an increase of words/utterances from their starting points over time. However, the rates of this for the three participants were significantly different. One of the drawbacks to having a small number of participants was the question of whether or not they represent the population accurately.

In 1985, Wells completed the Bristol study in the United Kingdom. Again, this was a longitudinal study. This group of participants was much larger, involving 128 children of typical development, aged 15-60 months old. It was suggested that this sample was, 'representative of the urban child population in terms of sex, month of birth and class of family background' (Wells, 1986, p. 117). This study confirmed, 'the variation in rate of development' (Fletcher & O'Toole, 2016) suggested in the differences between the children in Brown's data. In contrast to Brown's study, Wells reduced the frequency of his data collection to every three months, but largely increased the number of participants. Both of the studies completed by Browns and Wells used children's conversations between adults or children to sample the children's language. Language sampling can show a clear knowledge of typical development in children; however, this is not the only evidence seen in the studies.

In the 1990s, the MacArthur-Bates Communicative Development Inventories (CDI) was developed in the United States (Fenson et al., 2007). This system, rather than using conversations recorded with children, gains its information and data taken from standard checklists completed by parents. Fenson et al., (2007) suggest that these measures can effectively evaluate communication skills in children, which includes their "early signs of comprehension, to their first nonverbal gestural signals, to the expansion of early vocabulary and the beginnings of grammar" (p. 7). These checklists can be completed in less than one hour and look at vocabulary and grammar; the first known as 'words and gestures scale' and the second 'words and sentences scale'. This quick completion means that much

larger samples of children can be surveyed and detailed information collected. The large quantities of data mean that this process can, 'reliably identify individual differences and the range of abilities across children at particular ages' (Fletcher & O'Toole, 2016). This study involved 1803 children between the ages of 8 to 30 months.

Finally, in 2002, The Avon Longitudinal Study of Parents and Children (ALSPAC, Roulstone et al.) was carried out as a large-sample study based in the United Kingdom. This included 1127 children aged 25 months old. Parents were given a questionnaire to give information about their child's expressive language. The children also completed a standardised test, taken from, 'the receptive part of the Reynell Developmental Language Scales' (RDLS), (Fletcher and O'Toole, 2016). The study findings showed that:

These data serve to highlight once again the enormous differences in rates of speech and language acquisition that exists within the general population, with large numbers of children already achieving 3–4-word sentences at 25 months, whilst some of their peers are still only babbling or at single word level (Roulstone et al., 2002, p. 265).

From theories and research, practitioners and researchers have a clear knowledge and assessment of what is deemed 'typical' language development. From these, many sets of standards have been developed to show age and stage standards. Bowen (1998) discusses both 'receptive' and 'expressive' language when considering typical language development. 'Receptive' language is the process of learning to listen and the understanding of language, whilst 'expressive' language is learning to speak and use language for yourself. The following stages form typical stages for both.

3.6. Receptive Language

From birth we start to learn language. Sounds from people and the environment can be picked up by new-born babies. Babies have the ability to listen to the speech of people nearby, such as family members, and may freeze in response to hearing new sounds. Babies may 'jump' or cry when hearing an unexpected noise (McMurray, 2014).

At birth to three months, babies may start to acknowledge your presence by turning their heads whilst you speak or beginning to smile when they hear a familiar voice (Senju and Csibra, 2008). Often, they will find this familiar voice soothing and settle at hearing it, for

example when crying. Likewise, an unfamiliar voice might cause the baby to stop their action and become inquisitive by listening closely. At this age, babies are often comforted by a particular tone, not necessarily from a familiar person (Bronson, 1972).

Between four and six months, babies may start to develop meaning from words, for example the word 'no'. Bowen (1998) states that:

They are also responsive to changes in your tone of voice, and to sounds other than speech. For example, they can be fascinated by toys and other objects that make sounds, enjoy music and rhythm, and look in an interested or apprehensive way for the source of all sorts of new sounds such as the toaster, birdsong, the clip-clop of horses' hooves or the whirr of machines (p. 129).

At seven to twelve months typical development, babies can not only listen when spoken to, but will also respond by turning their head or looking at your face, especially when called by name. They will start to enjoy games and rhymes such as peekaboo (Kleeman, 1967). At this stage of development, they will also start to recognise familiar names such as 'mummy, daddy, dog, ball etc.', they will also start to be able to follow instructions, such as 'wave hello' or respond to questions, such as 'more food?' (Buckley, 2003).

Between one and two years the child will be able to better follow instructions and have further understanding of questions. They will be able to point to pictures in a book and some of their own body parts when named, e.g., eyes and ears. At this point they will also enjoy stories, songs, and rhymes. They may be able to join in with actions and sounds and like to have stories and games repeated (Kenney, 2005).

Bowen (1998) explains that at two to three years toddlers will, "understand two stage commands ("Get your socks and put them in the basket") and understand contrasting concepts or meanings like hot / cold, stop / go". They will also show excitement at noises such as the phone ringing. They may try and answer the phone or imitate the use of it.

A typical three and four-year-old will be able to understand, 'who, what and where' questions (Bowen, 1998). At this age a child should be able to hear you call them from another room and it is at this point where hearing difficulties may be picked up.

It is at four to five years when a child has developed a full range of understanding and can comprehend most things they hear at home or in an Early Years environment (Sheridan, 2011). At this age a child should be able to answer questions about themselves. They will

also enjoy stories and be able to answer questions about what they have heard and will be able to recall basic parts of the story. At this age there should be no doubts about the child's hearing, comprehension or speech and language. It is at this point any doubts should be referred (Fitzpatrick et al., 2011).

3.7. Expressive Language

From birth, 'new-born babies make sounds that let others know that they are experiencing pleasure or pain' (Bowen, 1998).

At birth to three months a baby will smile when a parent or familiar face comes into view (Senju and Csibra, 2008). When happy they will make a series of content sounds and will repeat the same sounds over. A babies' development is unique, and they will produce different cries for different situations, for example if they are hungry or hurt (McMurray, 2014).

Between four and six months babies become much more vocal. They will express this when you are engaging with them in activities or games or when they are amusing themselves. At this age babies will babble along as if talking or part of the conversation (Brown, 1979).

Bowen (1998) notes that, 'this "speech-like" babbling includes many sounds including the bilabial (two lip) sounds, p, b, w, and m'. It is also during this age that babies will use sounds and gestures if they want something and can express urgency in their tone.

At seven to twelve months the way in which a baby babbles will start to change. Their vocal range will include both long and short vowels as well as more consonants. Instead of crying a baby may use some speech or sound to express meaning or gain attention. It is at this age when a baby may speak their first word (Snow, 1977).

Between one and two years a child will develop a broader range of words. They will be able to ask small questions and combine two words to make, 'stage one sentence types' of Bowen (1998). The clarity of words will get better as more initial consonants are used.

At two to three years the child will have a large range of vocabulary. Sentences will be small but understandable by family, they will have a word for most things. The child will be able to name objects, comment or describe for attention (Huttenlocher et al., 1991).

From three to four years children should be able to produce longer sentences by combining four or more words. They will be able to share things that they have been doing at home or in the early years environment and they will be interested and take enjoyment from doing this. At this point, speech will usually be clear and smooth. People who are not familiar with the child should be able to understand their speech (Sénéchal, 2008).

At four to five years the child, 'speaks clearly and fluently in an easy-to-listen-to voice' (Bowen, 1998). They will be able to build and use long and detailed sentences. They will be able to use their imagination to tell long and detailed stories, sticking to the subject and using some grammar. 'Most sounds are pronounced correctly, though he or she may be lisping as a four-year-old, or, at five, still have difficulty with r, v and th' (Bowen, 1998). A child of this age will be able to easily communicate with other children and adults.

Practitioners use many tools to assess a child's language and development, such as the EYFS progress check at age two and assessment against the Early Years Outcomes to see whether a child is showing typical development for their age (DfE, 2021). These may also highlight when a child may be delayed or indeed ahead for their age. This means that practitioners have a clear understanding of 'typical' development and what is expected to continue to support and extend this development. Alongside this, parents will also be invited to attend a two-year check with the Health Visitors. This again ensures whether a child is meeting their expected milestones and will flag any areas needing to be reviewed further or for extra support (Kendall et al., 2014).

3.8. Twin Development from Birth to Five Years with Focus on Language Development and Delay.

The Twins and Multiple Birth Association (TAMBA) is one of the largest UK charities that focus on everything twin. Its aim is to improve the lives of families with twins, through campaigning, research and providing information. They suggest that 'Multiple birth children can be slower than singletons to develop language. Typically, they are older when they start to speak and use simpler, shorter sentences' (2015). They also discuss that many multiples may not show signs of having a language delay or sets that do may however catch up naturally with time. This supports the idea that there may be other contributing factors

involved in language acquisition. TAMBA (2015) agrees that “Speech and language difficulties occur more often in twins and triplets because they are more likely to experience a combination of the factors that predispose all children to speech and language difficulties (such as prematurity or being part of a large family)” (tamba.org.uk). They also note the significance of other factors such as input of immature speech from siblings, gaining less attention and for shorter time periods, less eye contact and unfocused conversation, children having less time to express themselves and children replying on behalf of each other.

Children affected by one or more of these factors could show signs of delayed language development, not on par with their peers. TAMBA (2015) also discusses the use of ‘twin language’ between the siblings, ‘Multiples tend to talk quickly, loudly and in short sentences – presumably to increase their chances of being heard. This can mean words are shortened (‘sister’ may become ‘ter’) or mispronounced. If the children use many of these shared words, it may sound like a private language.’ In my own experience of twins, both at home and in the nursery setting, twin pairings tend to talk over each other and progressively faster and louder as the conversation goes on. This makes it hard for them to be understood easily and to have appropriate interactions with their peers. It is suggested that this is a short phase in which children then start to adapt to their own family’s language. On occasion they may use both, but it is unusual that twins would continue to use prolonged ‘twin language’ exclusively (TAMBA, 2015).

Research by TAMBA (2015) shows that most twins grow and develop along roughly the same lines as their singleton peers with the exception of language development. Their figures suggest that on average, language development of pre-school twins can be around six months behind singletons of the same age and that children who have minor delays could catch up by the time they are approximately six to eight years old. However, it is shown that multiples can also suffer much more serious language delay than their peers (TAMBA, 2015; Myrianthopoulos et al., 1976; Rice et al., 2014). It is therefore important that the earlier help they can receive, the better the outcome will be. TAMBA (2015) states that, “Intellectual development is pretty similar for multiples and singletons, except in language. Any other differences are thought to be insignificant, and probably relate to prematurity.

However, it highlights the importance of multiples being given individual attention from the start' (TAMBA, 2015).

A search of the literature (see section 3.1 for literature review process) shows that the majority of previous research in this field is up to forty years old. There are more recent examples such as the Twins Early Development Study, which started in 1994, which continues to evolve as the research is examined under different lenses to show different results to the research (Oliver and Plomin, 2007). As part of my research, I aimed to consolidate and add to this knowledge, bringing the topic up to date, whilst using parental perspectives to show that twin language acquisition is a significant area of interest.

The Twins Early Development Study (TEDS) looks at early development of twins, focusing on three common psychological problems, 'communication disorders, mild mental impairment, and behavior problems' (Trouton et al., 2002, p. 445). Sets of twins were assessed to consider genetic and environmental factors which may affect language and cognitive development. The research suggests that although communication disorders are a common childhood problem, 'little is known about their genetic and environmental origins (Trouton et al., 2002, p444), the links between them and how they develop in early childhood. This study also considers the link and relationship to siblings, 'siblings of the TEDS twins are assessed in the same manner in order to test the generalizability of twin results to non-twin siblings and specially to test the hypothesis that twin estimates of shared environmental influence are inflated as compared to non-twin siblings' (Trouton et al., 2002, p445). The TEDS study is one of early significance, as it is one of the foremost, large-scale twin projects across the world, which has followed twins from birth through to adulthood. Some of the first findings showed that, "language problems even at 2 years of age are highly heritable, significantly more heritable than individual differences in the normal range of language development". Trouton et al. (2002), state that, "a key issue for TEDS is the extent to which the same genetic factors affect individual differences in language and non-verbal cognitive development in early childhood" (p. 445).

To further their research, Spinath, Plomin and Koeppen-Schomerus (2003) come back to the idea of twins and their siblings. Their next research study looked at the idea of environmental influence affecting cognitive abilities especially in early childhood. Their findings discuss Nature Vs Nurture. Their argument is that 'siblings are similar, but the

reason is nature rather than nurture. Cognitive abilities appear to be an exception to the rule that environmental influences are non-shared rather than shared' (p. 97). It is then these differences in their own nature that determine how they need to be treated and cared for, and certainly how they will learn.

As well as genetics, Dollaghan et al., (1999) discuss the link to maternal education and development of speech and language. They suggest that their measures, 'of children's spontaneous speech and language differed according to the educational level of the children's mothers' (p. 1432). Their further findings suggest that children have greater exposure to language and better development if they are from a family with a good job rather than part of the welfare system. The research also links a number of socio-demographic factors to children's development. These include, 'family income, paternal education and race or ethnicity' (p. 1433). They conclude that parental education and income are significant to speech and language development.

Mather and Black (1984) suggest that 'the identification of individual differences in children's language acquisition has caused significant changes in theoretical and research approaches to studying language development' (p. 303). Variability in language development is studied to establish whether or not hereditary and environmental factors can affect language development in individual children. This will vary between factors and the particular skill examined. Sakai (2005) looks at language acquisition and brain development. He argues that "language acquisition is one of the most fundamental human traits, and it is obviously the brain that undergoes the developmental changes. During the years of language acquisition, the brain not only stores linguistic information but also adapts to the grammatical regularities of language" (p. 815).

His research shows how children acquire natural language, where children start to understand speech and begin to use it, throughout the first few years of life. The research discusses how, "the knowledge of and competence for human language is acquired through various means and modality types. Linguists regard speaking, singing, and language comprehension as primary faculties of language, i.e., inherent, and biologically determined, whereas they regard reading and writing as secondary abilities" (p. 815). The initial language development for twins is therefore developed naturally, whilst other factors such reading

are taught abilities. In this instance, twins who are subject to speech and language therapy will be challenging their stored language memory, which is then a taught ability.

Linked to heritability, Tomblin and Buckwater (1998) discuss the fact that, 'twins provide a form of natural experiment in which the sharing of genes and the sharing of environment are presumably varied independently of each other' (p. 188). It may be significant to remember that identical twins share all of their genes, whilst fraternal twins typically only share 50% (Segal, 2017). This will no doubt affect the findings and outcomes of the research.

Dodd and McEvoy (1992), suggest that this language acquisition of twins can be known as atypical, as multiple birth children are prone to language disorders. Although some researchers discuss the use of 'twin language' others argue that this is not a unique language, rather a part of the developmental delay. They further discuss that, 'multiple birth children are prone to phonological disorder and consequently their speech is often unintelligible' (p. 273). It therefore follows that children of part of a multiple birth are more likely to understand their siblings 'mispronunciations' compared to their peers of the same age understanding them. In my own life, this is quite common with my sons. They can nearly always understand and interpret the language of their sibling, in turn, for an adult or peer that is struggling to understand them. "The idea that twins can share an idiolect, unintelligible to other family members, has gained widespread acceptance among parents of multiple birth children, professionals such as teachers, and the general population" (Dodd and McEvoy, 1992, p274). This idea creates the notion that twins are an area of interest to the wider population. According to Dodd and McEvoy (1992), previous research on speech and language development of multiple births has been based on either biological factors or the situation of the twin, for example having a sibling of the same age. It is suggested that as care givers are often part of a three-way conversation with twins, there would be a different pattern of discourse to that of a singleton relationship. Adult responses with twins are less individually aimed and significantly each child, therefore, has fewer personal interactions. A more directive style of speech is also used, compared to that used with singletons (Stafford, 2006).

In addition, it is commonplace that twins are more likely to be left to play with each other, than for a singleton to have as many significant interactions as possible with a child of the same age (DiLalla, 2006). Therefore, multiple birth children have more interactions with

children at their same developmental level, thus initiating early vocal sounds between the pairings. These early sounds are considered to be early communication skills. Of course, this means that these early sounds are likely to be echoed and repeated to each other, which reaffirms the undeveloped language. This is in comparison to a singleton who is an only child, or that with an older sibling, both who would converse with the child using 'real words.' (Ketrez, 2022). Dodd and McEvoy (1992) state that:

If some multiple birth children establish imitative patterns of interactive vocal play pre-verbally, this established style may affect their later acquisition of word phonology. They may continue to imitate each other's phonological forms for the words and consequently mentally represent their twin's pronunciations of particular words (p275).

This process helped to form part of the development of my own twin's language acquisition, and in return, their subsequent speech and language delay. Further argument queries whether this process of language development should be considered delayed or disordered, or purely simply different from their singleton counterparts. I am in agreement with Dodd and McEvoy and believe it possible that the development of twin languages could be, 'an alternative pattern of phonological acquisition' (p. 276), as it does not always follow the typical language development path. It would therefore be appropriate to suggest that twin language could be measured against outcomes specific for twins, instead of general outcomes for a whole age group. Along with this, specific early intervention for twins could reduce the achievement barriers even further.

The different types and amounts of speech and language therapy available to families are not discussed deeply throughout the research, as they differ greatly across the country. However, there are several options available for families living in the Southeast of England, and these are discussed as this is where the research took place. There are several services available including NHS speech and language therapy (SALT) including drop-in sessions, visits to clinics and sessions at home or during a nursery session. Private SALT sessions that can be sourced and conducted as needed; and group sessions created and completed by County Council; as well as individual intervention provided by early childhood and school settings. My research endeavors to determine which services are available across the UK, and which are deemed successful, and the number and/or percentage of twin children who are affected.

3.9. Nature Vs Nurture

One of the biggest discussions regarding twins is the nature versus nurture debate, as it focuses on genetic inheritance compared against the influence of environmental factors. Studies suggest that this idea was initially coined by Galton (1865) (Waller, 2012; Burbridge, 2001). Interest slowly grew until the early 1920s, when the first twin and adoption studies were published (Merriman 1924; Theis 1924). In the next decade, other publications quickly followed (Day, 1932; Davis, 1936). They were among the first to explore the development of linguistic skills in twins. The influence of genetic research and scientific capabilities grew throughout time, leading to the acceptance of both genes and the environment when considering the causes of individual differences, behaviour, and abilities.

Whilst for the purpose of this thesis, I will only be able to touch on the idea of nature versus nurture, the information surrounding this, particularly in the field of education, has been deeply researched and documented (Plomin and Asbury, 2005; Haughbrook, R. et al., 2017; Spinath et al., 2008). Plomin and Asbury (2005) suggest that “both genetics and environment, and the interplay between them, contribute importantly to the development of individual differences in behaviors including mental health and cognition” (p. 86). It makes sense that when looking at speech and language development that, nature versus nurture, or genetics versus environmental factors could play a significant role into the outcomes for each child. Rice et al. (2014) notes that, “the relative contributions of nature and nurture are long-standing issues in studies of toddlers’ language acquisition” (p. 917). Indeed, when looking at the premise of this study, I am considering whether twins are historically predisposed to the possibility of having a speech and language delay, compared to their singleton peers, simply because they are part of a multiple birth. The benefit of twin studies is that “twin children provide unique opportunities to differentiate genetic and non-genetic influences on language acquisition” (Rice et al. 2014, p. 917). If this is the case, the nature or environmental factors for a child could potentially be irrelevant, however further down the line, I will also look at how these factors could also be affected due to the impact of having twins as part of the family dynamic. Likewise, I will explore and consider all other relevant factors that have been included as part of my research. I will also acknowledge differences between identical and fraternal twins as this will also have a bearing on different

factors. For example, because identical twins share the same genetic code, looking at their language and development, their academic progress, or their health, can help us to determine whether genetic or environmental factors have played a role (Plomin and Asbury, 2005). Twin studies and research show that language delay has a higher prevalence in children that are part of a multiple birth, are therefore also suggesting that this is down to nature rather than nurture (Thorpe, 2006).

The results of a study into 473 sets of twins (Rice et al. 2014), who were followed since birth and compared with single born children, found that at 24 months old, 31 percent of fraternal twins had language delay, which rose to 47 percent in identical twins. This suggests that language delay owes more to nature rather than nurture. Rice et al. (2014) report that, “significant heritability was detected for vocabulary and grammar phenotypes in the full sample and in the sample selected for late language emergence (LLE). LLE and the appearance of word combinations were also significantly heritable” (p. 917); they also suggest that genes are accountable for approximately 43% of the overall deficit in twins. They also report that, “although language emergence is generally apparent by 24 months of age, some children show late language emergence (LLE), defined as language below age and gender expectations in children without other disabilities” (p. 917). In the study from Rice et al. (2014), 17% of two-year-old singleton children were not yet combining words, in contrast to 71% of twins in the same age group. This is a significant difference. They also discuss the “twinning effect” relating to a lower level of language performance for twins in comparison to their singleton peers. This twinning effect was expected to be equivalent for both identical and fraternal twins, but however was higher for identical twins, which again reinforces the argument that language development has heritable factors.

Plomin and Asbury (2005) discuss how:

Quantitative genetic research—exemplified by the twin design that compares identical twins (monozygotic, MZ) and fraternal twins (dizygotic, DZ)—has gone beyond merely demonstrating the importance of genetic influence (heritability) to investigating more sophisticated issues such as developmental change and continuity, heterogeneity and comorbidity, and the interplay between genes and environment (p. 86).

3.10. Twin Types and Zygosity

There are two main types of twins, Identical (monozygotic) and Fraternal (dizygotic). The term zygote refers to a fertilised egg cell that has been produced from the union of a female gamete (egg or ovum) and a male gamete (sperm). In twin studies, monozygotic refers to derivation from a single egg, and dizygotic from two separate eggs. McNamara et al. discuss that in traditional models of twinning, “it has been thought that dizygotic twins result from fertilization of 2 distinct ova by 2 separate spermatozoa, whereas monozygotic twins are the product of a single ovum and sperm that subsequently divide to form 2 embryos” (2016, p. 172). This is considered to be a widely accepted model of zygotic twinning (Hall, 2003; Weber et al. 2010; Kilby et al. 2006), however further research has hypothesised several variations to include further categories (McNamara et al, 2016).

In Identical (monozygotic) twins, a single egg is released and then fertilised. It then splits into two, (this fertilised egg could also split into three or more, to create triplets or higher multiples, albeit this is rare), which throughout pregnancy will develop into Identical twin babies. McNamara et al. find that, “Monozygotic twins result from postzygotic splitting of the product of a single fertilization event” (2016, p. 173). These twin babies will have the same genetic make-up, they will be the same sex and share the same physical features, however, some characteristics such as personality depend on non-genetic factors, so could vary.

McNamara et al. state that, “Dizygotic twins are the product of 2 distinct fertilization events, resulting in dichorionic diamniotic twins with each conceptus developing to become a genetically distinct individual” (2016, p. 173). In Fraternal (Dizygotic) twins, two eggs are released at the same time and then fertilised by two different sperm. These embryos will then grow and develop throughout pregnancy, into two babies that are equivalent to any other singleton brothers or sisters, just born at the same time, as they grew from two separate zygotes. They do not have identical genetics, although will share some of the genes because they have the same parents, on average this is approximately 50%. “Twin studies showed that MZ twins are much more similar than DZ twins. This suggests genetic influence as MZ twins are genetically identical, like clones, whereas DZ twins, like nontwin siblings, are only 50 percent similar genetically” (Plomin and Asbury, 2005, p. 89). For this reason, they

may look alike as siblings could, but not identical, and they may be either a same sex or mixed sex pair.

Whilst twin science teaches us that there are just two types of twins, Identical and Fraternal, a research review from 2016 suggests a third category may exist, known as polar body or half-identical (McNamara et al). In this instance, after the egg has been released from the ovaries, it splits and is then fertilised by two separate sperm (as opposed to Identical twins where the egg is fertilised first and then splits, creating two identical halves). These Polar body twins would therefore share the same chromosomes from the mother but get different chromosomes from the two separate sperm of the Father. It is for this reason they could be same or different sex. Their physical features could also be very similar, although not identical.

Whilst Identical and Fraternal are probably the most well-known, there are also further rare sub-types that are less well known. These include, conjoined twins, chimeric twins, mirror-image twins, vanishing twins, superfetation/superfecundation, and parasitic twins. These are often variations of identical twins and usually develop from unique situations. Segal (2021) also extends this further by considering “twin-like sibships”. She proposes that:

Modern reproductive technology and revisions of conventional family structures have yielded a curious array of twin-like sibships. Many of these pairings pose the same rearing questions and educational issues for parents and teachers as do ordinary monozygotic and dizygotic twins (p. 89). Adding to traditional multiples, she considers the significance of surrogate multiples, adoption multiples, same-sex family multiples and combined multiples, looking at the implications for the pairs, their families, and friends, and whether or not they qualify as twins.

However, for the purpose of this research, to keep the definitions clear due to similarities in the scientific terms, the main terminology used will be that of Identical and Fraternal twins. This was also the terminology used in the parental questionnaires.

3.11. Data on Parent Perceptions of Twin Language

Whilst there is limited data on the parents' perceptions of twin language development, there is research to show parental perceptions of language development on singleton children and data on parental perceptions of children with additional needs, special educational needs and/or disabilities. This purpose of this section is to explore and discuss these findings. Rice (2020) suggests this limited data on language acquisition in twin studies is for several challenging reasons including, the need for large sample sizes, preferred use of population based samples, difficulty identifying twins, lack of comparison data on language phenotypes, lack of previous studies, and confusion between twin language attributions and language impairments.

Therefore, because there are limited studies and data for twin language studies, there is also limited data on parent perceptions of twin language development as a result.

3.12. Parental Perspectives

As a parent and a researcher, I am aware of the significance of parental involvement in a child's care and education. A report commissioned by the Department for Education (DfE), completed by Roulstone and Lindsay (2012) agrees that "parental involvement in the decisions that affect their children is an accepted, indeed required process" (p. 16). Parents are the primary caregivers and educators of young children, but so often, the impact and potential they have on their children's learning and development is underestimated (Schaefer, 1972; Ramaekers & Suissa, 2011). Jensen de Lopez (2021) also acknowledges that parents, "may also be concerned that they are responsible for their child's language delay, revealing worries that perhaps they did not give their children enough attention, or that they had not been patient enough with them" (p. 1740). Similarly, Ash et al., (2020) highlights that mothers, as part of an American study, reported, "receiving confusing or irrelevant diagnostic terms for language disorder" (p. 826), meaning that the problem was misunderstood or mislabeled, and therefore the correct support was not easy to ascertain or access, or that they were "distressed about their children's language problems" (p. 827),

causing psychological harm to the mothers, a distrust of services and negative perceptions of speech and language delay.

This area has been a focus of much research for several decades, indeed, Schaefer (1972) states that, “clearly, there is a linkage between the nature of a parent-child interaction and certain aspects of the child’s intellectual development” (p. 277). He adds that even at this point of time, “the awareness of the major role of the parent as educator is emerging from childhood development research” (p. 277). Over the past fifty years, this concept has grown, and it is widely acknowledged that parents and caregivers are a child’s first educators, particularly in the early years, (Stromdahl, 2018; Clough and Nutbrown, 2014) and even more within research looking at language development or with children with Special Educational needs or disabilities (Ramaekers et al, 2011; Silva et al, 2017; Bruin, 2018). In the findings from their research (2021), Jenson de Lopez et al., acknowledges “parents as experts” (p. 1742). This was split further into three subcategories and included the themes of: impairment, disabilities, and changes over time, recognising the significance of the parents’ role in the care and education of the child. They expand the theme of acknowledging parents as experts, explaining that this refers to, “how parents construed their children’s speech, language, and communication (dis)abilities in a functional and contextualised way” (p. 1742).

However, McGregor (2020) suggests that “although parents are experts about their children, they are not reliable at judging whether their elementary-aged child’s language development is on track relative to that of other children” (p. 987), an idea also discussed by Hendricks et al., (2019). They also argue that a child’s main two advocates are parents and teachers, when it comes to identifying and securing access to services. It is also noted that often teachers are not successful in judging a child’s appropriate level of development. A study of fifteen primary school teachers (Antoniazzi et al., 2010) found that teachers reported themselves ill-equipped to identify speech and language disorders. The study also found that teachers’ assessments of children scored lower compared to the values of language screening tests, indicating there was more of a problem than they realized. Roulstone and Lindsay (2012) argue that in the context of education, parental involvement is important on two levels:

The first is where parents get involved in events in the life of their child's school such as helping out in the classroom and joining the parent teacher association; the second is where a parent supports their child at home with school related work, such as listening to them read, helping with homework and projects (p. 16).

They suggest that the second of these has greater educational benefits for children, a concept discussed by Harris and Goodall (2007). However, in the findings from Roulstone and Lindsay (2012) some parents reported that their concerns were not taken seriously, or that it took a long time to receive a referral or support, an average two years (Rannard et al., 2004), because they were not referred for an assessment after raising their initial concerns. However, notwithstanding concerns about parents' voices, literature and policy documents support the initiative that early identification for children with speech, communication and language needs is the way forward (Field, 2010).

Parental perspectives on disabilities and special educational needs are a complex area to cover, as for many parents with children that would fall in these categories this is a hugely emotive subject. As both a parent of a child with a disability and additional needs and a practitioner working with children who often fall into these categories, I can see that some issues affect some parents more than others, for example some families with a child who has a speech and language delay, may not consider this to be an additional need whereas others do. I can see how this can be distressing for families. Some families might also find it upsetting that their child needs additional support, whereas others may simply view it as a starting point for learning and part of who their child is. It is therefore important that such rigorous ethical considerations are put into place as part of the research, as the harm and effect on one family could be entirely different for another. As a researcher it is not for me to decide the significance of the level of need for each family, however it is important to minimize the distress to families involved in the research and to acknowledge that some areas discussed in the research may be emotive.

McLeod and Harrison, 2009, state that, "speech impairment, which includes articulatory, phonological, and motor speech disorders, has been identified as the most common communication concern amongst parents and teachers of pre-school children" (p. 1213). The number and type of referrals to Paediatricians, suggest that speech disorders are the most common diagnosis in young children, (Mullen and Schooling, 2010; Broomfields and Dodd, 2004). Wren et al., (2016), estimate that the prevalence of speech disorders in young

children to be 3.6%, whilst Norbury et al., (2016), estimate language disorders to be 7%. It is also acknowledged that the speech impairments might continue beyond childhood and that these speech difficulties may broaden further than unclear speech. For example, Jenson de Lopez et al., (2021), discuss that, “there is evidence to suggest that language disorders can have long term impacts on academic, psychosocial, and health related outcomes” (p. 1739).

As speech and language therapists, are working with not only the child, but the family and often practitioners, it is reasonable to suggest that therapy must be based on a holistic approach. Typically, Speech and Language Therapists would make an assessment and plan an intervention, with parents being encouraged to manage this at home and follow through on the suggested exercises and activities, often corresponding with their child’s educational setting/key person or teacher, in a plan to meet the suggested goals that have been set.

McCormack and McAllister (2010) discuss that it is unclear whether the perceptions of Speech and Language Therapists are consistent with parental perceptions, when considering activities that have the potential to be affected by the child’s speech impairment. They suggest that “knowledge of parents’ perceptions of the impact of having speech impairment and their preferences for management is necessary for practice to become more family-friendly” (p. 381). Jenson de Lopez et al., (2021) agrees that as, “Language disorder is a long-term disorder, which makes it important to prioritize and understand the voices and perspectives of parents” (p. 1739). They also suggest that this is a “neglected condition not only in research but also in debates about policy and practices” (p. 1739). McGregor (2020) discusses the idea that a child’s impairment may not be visible, and often the terminology for language delay is not well known, or confusing due to the many variations, which means that parental experience then becomes a challenge. Whilst other disabilities or impairments are often given clear labels, for example, Dyslexia (Kamhi, 2004), which successfully allows people to identify it, this lack of clarity can also undermine the significance of the language delay. Jenson de Lopez et al., (2021) suggests that “this lack of awareness and visibility of language disorders can lead to a lack of service provision and information to enable parents to make sense of their child’s disorder (p. 1740). This may also potentially lead to parents requesting the advice and diagnosis from several professionals, to understand their child’s particular diagnosis or need, in doing so hoping, “the professional who knows the cause of

the problem will also know the most effective way to treat it” (Kamhi, 2004, p. 107).

McGregor (2020) agrees that:

It is essential to help parents understand the diversity of labels that may apply to their child in various settings and at various times. Without this understanding, parents will find it challenging to communicate with the different professionals who serve their children, and they will be unable to find other families who share their experience. Moreover, we must guide parents to evidence-based information about language development and disorder so that they can understand their child’s needs (p. 986).

Regardless, there is limited knowledge about the interpretations parents make regarding their own child’s speech and language delay. Dollaghan (2007) recognises that parental voices, opinions, and expertise are three values that should inform evidence-based practice. However, he acknowledges that they are not always considered by professionals or in the decision-making process. He argues that an increased awareness of parental views and experiences are crucial because they advise policy and procedures and improve outcomes. Roulstone and Lindsay (2012) found that, “the desired outcomes of parents for their children with speech, language, and communication needs were social acceptance and independence, rather than outcomes specifically related to their children's communication” (Jensen de Lopez et al., 2021, p. 1740). This DfE report raised key issues regarding parent perspectives that include:

- Parents’ reports of the process of identification showed variability in the age and process of early identification.
- Although many parents were satisfied with provision for their children, there were marked discrepancies: parents of children with ASD reported that their children received higher levels of provision and reported higher levels of satisfaction than parents of children with LI.
- Lack of clarity about the use of the term SLCN was also identified as an issue that may impact upon provision.
- There were a number of parents who were not aware of the level of provision that their child was receiving.
- Parents valued outcomes related to the increasing independence and inclusion of their children and recognised the vital role that communication skills play in the achievement of these skills. The challenge is to identify the pathway from the underpinning communication skill to the functional outcome and the evidence-based interventions that achieve them (Roulstone and Lindsay, 2012, p. 4).

3.13. Medical Risks in Twin Pregnancies

Multiple birth pregnancies are at higher risk of medical complications, for both the mother and babies. Pharoah (2002) states that “it is recognized that multiple births, compared with singletons, are at increased risk of fetal and infant death and of serious morbidity” (p. 223). There is evidence to suggest these complications could potentially affect the development of the unborn fetus, or often their long-term development after birth, for example, with babies that have been born very prematurely:

The average length of singleton pregnancy is 39 weeks and 35 weeks for twins. Preterm delivery occurs in about one-half of twins and accounts for 10 – 12% of all preterm births...in singleton pregnancies the proportion is 1 – 2%. Such babies are more likely to suffer serious, lifelong health problems, such as cerebral palsy and disability (Rao et al. 2004, p. 567).

Prematurity and birth complications, are reported to be more frequent in identical twins, could also affect twins’ increased occurrences of language delay (Rice et al. 2014).

Significant medical risks in twin pregnancies include, placental abruption, cholestasis:

“pregnancy nausea and vomiting are seen in 50% of multiple pregnancies and the incidence of obstetric cholestasis in women genetically susceptible to intrahepatic cholestasis is nearly twice that of singleton pregnancies” (Rao et al. 2004, p. 566), prematurity, low birth weight, gestational diabetes, gestational hypertension, birth defects, twin to twin transfusion syndrome, increased chance of caesarian section, miscarriage and fetal loss; “the prevalence of death of one or both fetuses at early pregnancy scan (11 – 14 weeks) in twin pregnancy is 5%, compared with 2% in singleton pregnancies” (Rao et al. 2004, p. 562; Pandya et al. 1996; Sebire et a.1997). Twin babies must often spend time in neonatal intensive care units (NICU). Whilst this is not an exhaustive list, and whilst some of these medical problems could also affect mothers carrying a single child, it is acknowledged that these risks are higher in multiple pregnancies (Royal College of Obstetricians and Gynecologists (RCOG), 2019). Luke and Keith (1994) and Rao et al. (2004) suggest that “In general, twin pregnancies are at 10-fold risk of delivering growth-restricted babies when compared to singletons (p. 561).

3.14. Twins and Disabilities and/or Special Educational Needs

In addition to increased medical risks during pregnancy, it is also recognised that twin pairings have higher prevalence of disabilities and/or special educational needs (SEN), compared to their singleton peers (Oliver and Plomin, 2007; Pharoah, 2002). It is worth acknowledging that these conditions may cover a whole spectrum as to what is considered a minor issue to one that is severe (Norwich, 2000). Of course, they may also rank differently in importance to each family and have a different impact. For the purpose of this study, some conditions will be more significant when considering speech and language delay than others.

These disabilities or SEN include but are not limited to; speech and language delay, hearing impairments (such as deafness), neurological conditions (for example, cerebral palsy, muscular dystrophy and brain injury), learning disabilities (for example, Autism and Downs Syndrome), structural problems (such as cleft lip or cleft palate), behavioural disorders (for example, ADHD and ODD) and other disabilities such as visual impairments (such as prematurity of retinopathy and blindness). There is also an additional category of children who have previously suffered from extreme neglect or abuse (Norwich, 2000; Wilson 1998).

It is worth noting that in a previous study by Rice et al. (2014) exclusionary criteria were applied to their final sample. Patino and Ferreira (2018) defines exclusionary criteria as “features of the potential study participants who meet the inclusion criteria but present with additional characteristics that could interfere with the success of the study” (p. 44). The purpose of this was to restrict the sample to only include children who did not have any other relevant conditions or disabilities that would be likely to affect language acquisition, in effect just focusing on the theme of heritability. The exclusion criteria picked out:

Twins with exposure to languages other than English (52 twin pairs) or twin pairs in which at least one twin had hearing impairment, neurological disorders, or developmental disorders (14 twin pairs) were later excluded from the twin sample. Exclusionary conditions included Down Syndrome, Angelman syndrome, cerebral palsy, cleft lip and/or palate, agenesis of the corpus callosum, and global developmental delay (p. 920).

However, both factors are a part of this study. The number of pairs excluded for disability or disorder was fourteen, acknowledging that these disabilities or disorders have occurred in

children from twin pregnancies. This reinforces the statement that twin pairings have higher prevalence of disabilities and/or special educational needs (SEN), compared to their singleton peers. This also raises the question of speech and language delay being linked to being part of a twin pair, or whether other factors are relevant, and indeed whether these factors are increased due to being a twin.

Segal (2021) suggests that:

Twins are known to lag behind non-twins in language development, mostly attributed to (1) twins' constant companionship with one another that appears to limit their verbal interaction with others, and (2) reduced verbal experiences with their mothers who, by necessity, are more controlling of social situations involving both twins. (p. 91)

In a study of twin language acquisition, Wong (2020) agrees that “compared to singletons, twins have a unique life experience in relation to sharing and competing for resources from the beginning of life. Such competition often results in shared parental attention and reduced linguistic input from adults, thus delaying language development” (p. 1886).

However, Rice et al. (2014) argues that their findings in heritability of language development:

Disputes hypotheses that attribute delays in early language acquisition of twins to mothers whose attention is reduced due to the demands of caring for two toddlers...this should reassure busy parents who worry about giving sufficient individual attention to each child (p. 927).

A study from Rice et al., (2018) investigates, “the heritability of language, speech, and nonverbal cognitive development of twins at 4 and 6 years of age. Possible confounding effects of twinning and zygosity, evident at 2 years, were investigated among other possible predictors of outcomes” (p. 79). In addition to this, the following study, Rice et al. (2020) had the purpose of examining, “how twinning effects influence the identification of children with language impairments at 4 and 6 years of age, comparing children with specific language impairment (SLI) and nonspecific language impairment (NLI); the likelihood that affectedness will be shared within monozygotic versus dizygotic twin pairs; and estimated levels of heritability for SLI and NLI” (p. 793). This is relevant as it was based on the same premise that, “early language and speech acquisition can be delayed in twin children” (p. 793), with the expectation that this delay will reduce with age, as discussed in this research. Segal (2021) discusses twin like relationships and considers the questions and educational

issues these might raise for parents and teachers. They also review the research on birthweight and brain development on twinning and vocabulary knowledge, they concluded that “compared to their higher birth weight co-twin, lower birth weight twins showed reduced efficiency in limbic network connectivity. Lower birth weight male twins also had relatively fewer tracks connecting the right hippocampus (a part of the brain involved in learning and memory)” (p. 91). Whilst Segal & Knafo-Noam (2020), utilize the “The Twin Relationship Questionnaire” (p. 348). This used parental reports, via questionnaires and also explores how, “Twins’ relationships evoke critical dilemmas for parents and teachers regarding raising and educating their twins” (p. 348). They found five interlinking factors, “conflict, closeness, dependence, dominance, and rivalry” (p. 348), established from early years to approximately seven years old.

3.15. Early Intervention/Developmental Delay or SEN

Although many children go through the ‘typical’ stages of development for speech and language, some may develop through an ‘atypical’ route (Dodd and McEvoy, 1992; McNamara, 2016). Typical development shows common progress for a child, compared to peers of the same age (Bellman et al., 2013). Atypical development arises when a child appears to be ahead or lag behind peers of the same age. Problems or delays with speech and language may be classed as special or additional needs, however more commonly they are categorised as a developmental delay or disorder, and they are defined differently:

The term “language delay” is used when a child’s speech & language development is following the usual pattern and sequence but is slower than other children that age. This means that their talking sounds like that of a younger child. A “language disorder” or “disordered language” is used to describe language development which is not following the usual pattern or sequence. This means a child’s language may be developing in an unusual pattern or differently from other children. They will sound unusual and have real difficulty forming their words and sentences to talk to others (ICAN, 2017).

In the United Kingdom, research suggests that one in ten children are affected by speech and language delays and disorders that need long term support (ICAN, 2017), and that 1% of all children have ‘the most severe and complex’ speech, language, and communication needs. In comparison, research suggests that up to 30 percent of all twins have some form of speech and language delay or disorder (Twins UK, 2017). When a speech and language

delay or disorder has been established there are several different options for therapy available. These include NHS speech and language therapy, private therapy, group interventions within an education setting and one-to-one targets within a setting or at home. This study establishes parental perspectives on twins' speech and language delay. It explores factors that may have had an impact on this and the types and levels of support on offer. It makes contributions for support an early information/ intervention approach specifically for twin pairs aged under-five. Early information and intervention would be a specific support and education system for children with these developmental needs.

3.16. Chapter Summary

In this chapter, I have reviewed the literature in terms of, typical language development from birth to five years, theories of language development, receptive and expressive language, twin development from birth to five years with focus on language development and delay, Nature Vs Nurture, twin types and zygosity, data on parent perceptions of twin language, medical risks in twin pregnancies, twins, and disabilities and/or Special Educational needs and early intervention. Whilst there is not a significant amount of existing literature, particularly on parental perspectives on twin language development, or indeed twin language, it is clear that over the last five to ten years, interest and research into twin studies is quickly building momentum.

In the next Chapter I discuss Methodology, which includes consideration of the research topic and research questions, methodological framework, discussion of mixed methods research, paradigms and pragmatism, content analysis approach, ethical considerations, and the claim to knowledge.

Chapter 4: Methodology

4.1. Introduction

The purpose of this chapter is to outline the methodology of my thesis. Hammond and Wellington (2013) define methodology as, “the study of the methods, design and procedures used in research” (p. 171), whilst Braun and Clarke (2013) define it as the “theory of how research proceeds, including consideration of such things as Methods, Participants and the role of the researcher, Ethics and so forth” (p. 333). The term “methodology” is one that can be challenged, meaning different things to different people, and in research is linked to how a researcher designs their study, dependent on the type of study they are carrying out, for example, qualitative, quantitative, or mixed methods. This chapter includes discussions about the advantages and disadvantages of the data collection and analysis methods, which justify the theoretical approaches that suit the research project.

The first section of the chapter considers the rationale for choosing this research topic. It then sets out my research questions. After this I reflect on the methodological framework for the research and then focus on the mixed methods of research in the design. It then examines the research procedures and data analysis plan for the research. Finally, I outline the ethical considerations for this study.

4.2. The Research Topic

When embarking on my research, I wanted to explore a topic that was significant to me and discover new perspectives and information in the field in order to contribute to the area of knowledge as a whole. In this research, I used my narrative and positionality as a starting point for the study, paired with questionnaires to gain parental responses and perspectives. As well as my own narrative, I wanted to draw on the responses of the participants, taken from the questionnaires, to follow their journeys and to acknowledge them alongside my own.

Twin research is a long-standing area of interest, with articles linked to twin development dating back almost one hundred years (Merriman 1924; Theis 1924). It is an evolving area of

current fascination for researchers, exploring all aspects of twin life (Rice, 2020; Segal, 2021; Haughbrook, R. *et al.*, 2017). Twins are also an area of interest in popular culture. They are portrayed widely in the media and throughout books, television, movies and even computer games. This trend spans across all age groups and across a large time frame. First published in 1865, *Alice in Wonderland*, portrays the mischievous Tweedledee and Tweedledum and a current example includes the popular characters of Fred and George Weasley in the Harry Potter books and films. These are just two examples, but they are significant as they highlight the fascination with twins and extend enquiry into the field. Hammond and Wellington (2013), discuss how the concept of “culture” has been extended and reworked over the years, and now encompasses, “shared ways of behaving in everyday life (for example, ‘youth’ or ‘popular’ culture)” (p. 30).

Since the arrival of my own twins, ten years ago, I have developed a huge interest in twin studies and research. The relationship of my twins to each other is clearly intriguing, but also to that of their older sisters, both singletons. This link to each other and that of their siblings interested me regarding child development, especially language development and the influence your position in the family may or may not have. Likewise, I am interested to explore whether the development of children who are part of a multiple birth, could be significantly different to that of an only child or a large family of single birth children.

Research findings show that children of part of a twin pairing develop as expected against childhood norms, apart for language development (Rice *et al.*, 2014; Oliver and Plomin, 2007; Twins Trust, 2018). This area of development finds twins, on average, six months behind their peers and is more prolific in boys. My own twins, both boys, have a speech and language delay although only one met the threshold for speech therapy. This also raises the question of nature versus nurture. My own twin boys have different personalities, they make vastly different choices, and they have quite different preferences. In hand, they also grow, develop, and learn at different rates. However, they essentially have the same upbringing. They are treated on a level basis at home and have access to the same environment, care, and education; therefore, underlining the need to consider the nature versus nurture concept.

My research study endeavours to determine whether the parents of twins perceive their children to have a speech and language delay and any factors that may have contributed to

this; whether they received any form of speech and language therapy, support as a family or were offered an early intervention approach. I wanted to investigate the scale on which this is relevant and if significant, should a system therefore be developed for early intervention.

This research explored other contributing factors to the language acquisition of twins and that of twin language development. It also looks at the impact of Early Childhood Education on the children attending these settings, with regards to their language development.

Further to my own children, over the last seventeen years I have been working with children in my own private nursery setting, which has high numbers of twins. This is expected for us as the city where the nursery is based, St. Albans, has the highest number of twins in the UK. The twin children that have attended our setting have had varying levels of language and are from a varied collection of environments. This study is based in England. Using links with the 'Twins Club,' a twin parenting network and playgroup, with branches across the country, and groups on social media, meant the study was conducted with participants using an online questionnaire as the research tool over the internet, meaning theoretically, it could be accessed anywhere in the world.

4.3. Research Questions

When considering my research questions, I started by thinking about what I knew already in the field and what I wanted to find out. I looked at the ideas/themes or questions within the context of what I wanted to answer. I then produced a list of research focuses/potential questions to consider. These included:

- To look at to what extent twins develop a language delay compared to their singleton peers.
- Do environmental factors have a role to play in the level of development? i.e., older siblings, educational attainment of parents.
- Is twin language and development heritable or genetically linked?
- Is there a significant difference in development for children that have attended and ECE setting?
- Can there be such a thing as specialist twin intervention/provision?

This list of general themes and ideas was used as my starting point for research from journals, articles and relevant texts and planning for my literature review (Roulstone and

Lindsay, 2012; Rice et al., 2014; Silva et al., 2017; Segal, 2017), however I was aware that my research wouldn't be able to address all of these ideas.

Cohen et al., (2011) suggest that: "In considering the proposed research, a useful approach is to brainstorm the possible areas of the field, moving from a general set of purposes to a range of specific, concrete issues and areas to be addressed in the research" (p. 111).

Looking at my draft of potential questions, which I developed alongside my review of the literature, enabled me to move away from questions that would be unanswerable within the parameters of this research.

I therefore formed my ideas into a set of useful and relevant research questions. Having in-depth discussions with my doctoral supervisors and peers was extremely useful at this point. It helped me to focus on the ideas I wanted to explore and to narrow down what was needed to go into the questions. I also used the Goldilocks test and Russian Doll principles (Clough and Nutbrown, 2012) to test the strength and quality of my questions. The Goldilocks test gives thought to how suitable the research question or questions are for the topic. For example, a question that is "too hot," might be offensive or too sensitive, whilst a question that is "too cold," might not warrant enough depth in answers. The Russian Doll principal looks at unpacking and refining the questions, to make sure they are fit for purpose, in the way that you would unstack the dolls to find the right piece at the centre. These principles helped me to maintain a realistic idea of what I wanted to achieve from the research and enabled the relevant wording of the questions. It was also important to me that this research study could essentially have a level of flexibility that would fit around family life, work, study, and other commitments whilst also being able to be achieved in a reasonable period. This is echoed in a research study by Wilton and Ross (2017), surrounding balancing work and family in academia, identified the three dominant themes of flexibility, sacrifice, and insecurity, reporting that "in balancing family with an academic career, women tended to sacrifice more and experienced more stress and pressure stemming from both the academy and socially imposed norms around motherhood" (p. 66).

My research questions therefore became:

- To what extent do parents of twins feel their children have/had a speech and language delay?

- Are there any factors that parents feel may have/had impacted on their child's speech and language delay?
- How far do parents feel they have/had been supported with the speech and language delay?

This was a big shift, moving from flexible ideas and themes to a more solid and robust set of questions. It was important to me to create a study that would not only bring new knowledge and understanding to the field, particularly including parental perspectives set alongside my own narrative, but also have the potential to support and improve the outcomes for children as part of their learning and development. This research was designed to discover the perspectives of parents in relation to their child's speech and language needs and to establish whether or not these issues are individual or extend over a larger demographic.

4.4. Methodological Framework

Linking to the mixed method designs applied in this research, Hammond and Wellington (2013) suggest that "methodology generally refers to the rationale for the application of particular research methods" (p. 109), they continue by distinguishing the "dividing line" between methods and methodology, in that "the methodology provides the framework, and the methods provide the means to collect the data" (p. 109).

Social scientists have come to abandon the spurious choice between qualitative and quantitative data; they are concerned rather with that combination of both which makes use of the most valuable features of each. The problem becomes one of determining at which points he [sic] should adopt the one, and at which the other, approach (Merton & Kendall, 1946, p. 556-557).

This research adopts the perspective of pragmatism. Hammond and Wellington (2013) describe the everyday meaning of a pragmatic approach as, "one which take a practical orientation to a problem and finds a solution that is fit for a particular context. At its most basic, a pragmatic approach is one which takes a practical orientation to a problem and finds a solution that is fit for a particular context" (p. 125).

The foundations of pragmatism stem from the work of a school of American philosophers including, William James, George Mead, Charles Peirce, and John Dewey, during the late 1800s. Early pragmatists saw "practice and theory as entwined: theory emerged from

practice and could then be applied back to practice to create ‘intelligent practice’” (Hammond and Wellington, 2013, p. 125). More recently pragmatism has been reinterpreted in the works of Richard Rorty (1982) and Hilary Putnam (1992), offering a contemporary take and discussions of realism relevant to one’s own situation or events. The word “pragmatism” has been used to describe a variety of different things, meaning there has been a wider adoption of pragmatic approaches in research methodology. Dewey’s systematic approach to inquiry involves five steps, which can be summarized as follows:

1. Recognizing a situation as problematic.
2. Considering the difference it makes to define the problem one way rather than another.
3. Developing a possible line of action as a response to the problem.
4. Evaluating potential actions in terms of their likely consequences.
5. Taking actions that are felt to be likely to address the problematic situation (Morgan, 2013, p. 3).

Morgan (2014) describes this as a practical, rather than philosophical, approach to pragmatism. Dewey was a leader in the concept of pragmatism, favouring a natural approach that considered knowledge developing from the adaption of a person to their environment (Dewey, 1998). However, more recently, Mackenzie and Knipe (2006) explore a view of pragmatism that “describes a type of mixed-methods research, blending qualitative and quantitative work and focusing on the research question, rather than building an external theoretical framework first” (p. 6). Morgan (2014) found that “although advocates of mixed-methods research have proposed pragmatism as a paradigm for social research, nearly all of that work has emphasized the practical rather than the philosophical aspects of pragmatism” however, he argues that “pragmatism can serve as a philosophical program for social research, regardless of whether that research uses qualitative, quantitative, or mixed methods” (p. 10

45). He suggests that this is possible “as a new paradigm, pragmatism disrupts the assumptions of older approaches based on the philosophy of knowledge, while providing promising new directions for understanding the nature of social research.” (p. 1045).

Mackenzie and Knipe (2006) discuss that “the theoretical framework, as distinct from a theory, is sometimes referred to as the paradigm (Mertens, 2005; Bogdan & Biklen, 1998)

and influences the way knowledge is studied and interpreted” (p. 2). They add that “it is the choice of paradigm that sets down the intent, motivation and expectations for the research” (p. 2). The pragmatic paradigm is not aligned to any one reality or philosophy. Instead, researchers focus on the “what’ and ‘how’ of the research problem (Creswell, 2003, p. 11). Pragmatism is often seen as the paradigm mostly aligned with the mixed-methods research framework (Mertens, 2005; Mackenzie and Knipe, 2006). Creswell (2003), places “the research problem” as the centre of the pragmatic paradigm (p. 11). All approaches are then applied to understanding the problem, “with the research question ‘central,’ data collection and analysis methods are chosen as those most likely to provide insights into the question with no philosophical loyalty to any alternative paradigm” (Mackenzie and Knipe, 2006, p. 3). They go on to suggest that “as a new paradigm, it replaces the older philosophy of knowledge approach (e.g., Guba, 1990; Guba & Lincoln, 2005; Lincoln, 2010), which understands social research in terms of ontology, epistemology, and methodology” (p. 1). Alongside this they have developed a table of language associated with the major research paradigms, adapted from Mertens (2005) and Creswell (2003) which shows their specific features:

TABLE 1: PARADIGMS: LANGUAGE COMMONLY ASSOCIATED WITH MAJOR RESEARCH PARADIGMS

Positivist/ Postpositivist	Interpretivist/ Constructivist	Transformative	Pragmatic
Experimental	Naturalistic	Critical theory	Consequences of actions
Quasi-experimental	Phenomenological	Neo-marxist	Problem-centered
Correlational	Hermeneutic	Feminist	Pluralistic
Reductionism	Interpretivist	Critical Race Theory	Real-world practice oriented
Theory verification	Ethnographic	Freirean	Mixed models
Causal comparative	Multiple participant meanings	Participatory	
Determination	Social and historical construction	Emancipatory	
Normative		Advocacy	
		Grand Narrative	
		Empowerment issue	

	Theory generation Symbolic interaction	oriented Change-oriented Interventionist Queer theory Race specific Political	
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(Mackenzie and Knipe, 2006, p. 4).

It is suggested that pragmatism offers an opening for, “multiple methods, different world views, and different assumptions, as well as different forms of data collection and analysis in the mixed methods study” (Creswell, 2003, p. 12). The following table of methods and tools, shows how the paradigms link to these.

TABLE 2: PARADIGMS, METHODS, AND TOOLS

Paradigm	Methods (primarily)	Data collection tools (examples)
Positivist/ Postpositivist	Quantitative. "Although qualitative methods can be used within this paradigm, quantitative methods tend to be predominant . . ." (Mertens, 2005, p. 12)	Experiments Quasi-experiments Tests Scales
Interpretivist/ Constructivist	Qualitative methods predominate although quantitative methods may also be utilised.	Interviews Observations Document reviews Visual data analysis
Transformative	Qualitative methods with quantitative and mixed methods. <i>Contextual and historical factors described, especially as they relate to oppression</i> (Mertens, 2005, p. 9)	Diverse range of tools - particular need to avoid discrimination. E.g.: sexism, racism, and homophobia.

Pragmatic	Qualitative and/or quantitative methods may be employed. Methods are matched to the specific questions and purpose of the research.	May include tools from both positivist and interpretivist paradigms. E.g., Interviews, observations and testing and experiments.
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(Mackenzie and Knipe, 2006, p. 4).

This proposes that “it is the paradigm and research question, which should determine which research data collection and analysis methods (qualitative/quantitative or mixed methods) will be most appropriate for a study” (Mackenzie and Knipe, 2006, p. 4), and this is how I came to frame my study. With my design linking my own narrative with a large-scale study, that has both qualitative and quantitative elements, I decided this methodological framework would be effective. I did not want to become stuck or rigid in the idea that the research must “fit” into a particular methodological framework, to make me feel comfortable or because that is what research has told us previously, for it in turn to hinder the parameters of the project or create unnecessary barriers. In this way, my research should always keep moving forward.

4.5. Mixed Methods Research

This research utilizes a mixed method approach that combines qualitative and quantitative methods. Hammond & Wellington (2013) state that mixed methods are “a combination of quantitative and qualitative methods in order to provide complementary and perhaps contrasting perspectives on a phenomenon” (p. 171). For this research I decided that mixed methods would be appropriate to answer and challenge my research questions, as they could give both the breadth and depth of information needed to explore my questions. The main method of data collection for the study is questionnaires, however these require both quantitative data and qualitative narrative responses. This is also positioned against the personal and professional narrative of me as researcher. A convergent design (Fetters et al., 2013) is a style of mixed method research where both types of data can be collected at the same time. The two data sets can be analysed independently, and then compared or combined to build conclusions. This style is useful

when analysing statistics and qualitative data findings together as a way of better understanding the research problem or questions. Advantages of this design meant that I could get the best of both qualitative and quantitative methods and data. This allows the researcher to challenge a wider range of research questions. Through analysis of data, researchers can get strong evidence to support their findings and can also give the researcher complete understanding of their topic in the realms of their study (delvetool.com). Hammond and Wellington (2013) add that:

mixed methods research has clear benefits in that it provides confirming, complementary and contrasting sources of data, very often as part of a strategy of triangulation. Mixed methods can enable precise and in-depth report; words, pictures and narrative can be used to add meaning to numbers and vice versa (p. 108).

4.6. Method and Design

The purpose of the research was to determine the extent to which parents of twins feel that their children have/had a speech and language delay and the factors parents felt may have impacted on this. The factors I suggested included speech and language delay (simply because you are a twin) and/or whether twin development of speech and language is significantly different compared to their peers; twin zygosity; gestation; birth weight; gender; sibling relationship/place, education of parents, if there is a family trend of speech and language delay and uptake of places in early childhood education settings.

TABLE 3: TIMETABLE FOR RESEARCH

The following table is a summary illustration for the initial timetable and stages of the research.

October - December 2016	Identification of themes/topics of interest
January – April 2017	Initial Research Questions and draft thesis plan
September – November 2017	Draft Literature Review

February – March 2018	Draft Methodology
May 2018	Apply for Ethics Approval
September – November 2019	Draft Questionnaire and Pilot
March 2020	Mind map of Narrative
April 2020	Draft Narrative
May 2020	Questionnaire and Data Collection
Feb/March 2021	Analysis of Findings and Discussion
April 2021	Editing of Literature Review
May 2021	Editing of Methods/Methodology
June 2021	Discussion with tutors/Edits/Questions
July 2021	Proof reading of work so far and Abstract
September 2021	Conclusion
September 2021	Introduction
September/October 2021	Final proof reading and edits.
November 2021	Submission Deadline

This study is both a quantitative and qualitative study using online questionnaire methodology, in the form of tick boxes, multiple choice options and substantial free text comment boxes. The questionnaires were sent out to parents of twins of children aged two to seven years. I chose this age group as typically children at two years of age in the UK have a developmental check with the NHS Health Visitors team, which is an opportunity to discuss any initial concerns a parent might have. It is also not expected that before this age many speech and language queries or concerns would be picked up or considered fully as

children in this age group are still developing their typical language skills. At the age of seven children will be finishing key stage one in the UK schooling system. This is also the age that current studies suggest (see section 4.12, Q2 & Q12) that children who have had a delay typically start to catch up with their speech and language skills. The questionnaire was sent out via an online general call for participants, placing links via the Twins Club, social media groups and twin forums.

The study was conducted in England, although in some areas it has been prudent to extend this by drawing on international systems and conventions for comparison to the UK trends and system. I have decided on both the qualitative and quantitative approaches as this is needed to show the number and significance of the responses. Cohen et al., (2011) suggest that, as research often has more than one question/or parts to the question, these will: “require both quantitative and qualitative data to answer them” (p. 23). Clough and Nutbrown (2012) suggest that the important point, ‘is that we adopt research stances *as they are appropriate to our work*’ (p. 21). Both these approaches will be important to my research, I propose their use will enable me to strengthen my argument in the research and give additional value in numbers of opinions gathered throughout the project.

I examined the parent free text responses and through the lens of my own narrative compared and the information they provided with my own story to extend the study. I explored whether or not the families who chose to participate had had similar experiences to mine.

4.7. Questionnaires as a Research Method

Bartlett & Burton (2007) suggest that questionnaires are useful if, “carefully planned, for obtaining large numbers of responses relatively quickly and, as such, may be seen as providing quantitative data. It is more difficult to obtain in-depth personal responses by this method and so it is less useful for the qualitative researcher” (p. 41). They further this by considering the strengths and weaknesses of this method.

Strengths of questionnaires in data collection:

1. It is possible to gather large amounts of data relatively quickly.

2. The researcher can compare the responses to particular questions by individuals or between different groups of respondents.
3. The data can be expressed statistically. It is thus possible to make comparisons to other studies.
4. The research may enable overall statements concerning the population to be made, for example the percentage who left school at 16, the percentage who gained certain qualifications, the numbers who felt that they were bullied at school (Bartlett & Burton, 2007, p. 42).

Weaknesses of questionnaires:

1. Questions about complex issues are difficult to compose. Respondents may not find it easy to place their responses into specific categories.
2. The short responses required often fail to reflect the varying depth or complexity of people's feelings.
3. It is the researcher who sets the agenda of questionnaires not the respondent. The questions may create attitudes by asking the respondents to comment on things which they may not previously have considered. Alternatively, the questions may not give enough emphasis to areas which the respondents see as important.
4. The researcher may attempt to overcome the above problems by adding open ended questions. Answers to these need to be codified by the researcher which can lead to the very subjectivity which the questionnaire may well have been chosen to overcome (Bartlett & Burton, 2007, p. 42).

Munn and Drever (2004) give useful practical advice on questionnaire design. Milnes (1999) suggests that "the responses are gathered in a standardised way, so questionnaires are more objective" (p. 52). Although this is theoretically practical, it may not always be realistic, as respondents may answer with personal feelings or opinions, particularly when considering their own children. However, the answers would still be routinely laid out in comparison to the other questionnaire responses, allowing a logical order for analysis, and the research was also looking for data from the free text responses, considering parental perspectives.

The questionnaires were suitable for my research as they have the potential to collect information from a large group of people and to gain a breadth of information. The questionnaires were designed with most answers intended to be multiple choice/tick box questions, Likert scales (Likert, 1932) and with the option to leave further free form comments on several questions and at the end of the questionnaire. The questionnaires had thirty questions (see appendix 3). The majority of participants left some form of comment,

either on individual questions or at the end of the questionnaire. They were designed to be fact and opinion based, but my intention was that they are therefore straight forward and simple to complete, which helped to increase the return rate, getting one thousand responses from the questionnaire in four days (see section 4.6, table 4). For this design to be successful I needed to gain a large amount of data but appreciated that this may take a long time to collaborate, but that it also needed to constitute a significant impact to the field, for this reason I capped the responses to stop at one thousand entries. The extent to which the questionnaires would gain qualitative data had an unknown value until the responses had been returned, as each participant could have declined to answer the free comment aspects. I wrote a covering note and an information sheet that was attached to the beginning of the questionnaire (see appendix 1), along with the electronic consent, so that I could explain the aim and idea behind the project; to show my intentions of how the responses would be used and what their future purpose might be.

4.8. Narrative and the Researcher Voice

Narratives in research look at people's lives and stories, so I think that the notion of narratives is positioned well within this research (see sections 2.2 and 2.3 for my personal and professional narratives). Braun & Clarke (2013) define narrative as, "an account of events or more than one event, characterised by having some sort of structure, often temporal in western cultures, and other story-elements" (p. 333). This fits well as the narratives within this research cover a broad length of time and breadth of events. Hammond & Wellington (2013) add that, "though open to a range of meanings, a narrative has, at its core, an attempt to 'fit a story into a plot line' so that the narrative enquirer is seeking to understand the way participants make meaning of the events that shape the way in which they have lived their lives" (p. 110), whilst Ntinda (2019) suggests that, "narrative research aims to unravel consequential stories of people's lives as told by them in their own words and worlds. In the context of the health, social sciences, and education, narrative research is both a data gathering and interpretive or analytical framework" (p. 411).

Lenfesty et al., (2018) propose that there are seven major characteristics which are essential in narrative research:

1. Individual Experiences
2. Chronology of the Experiences
3. Collecting Individual Stories
4. Restorying
5. Coding for Themes
6. Context or Setting
7. Collaborating with Participants (p. 127).

Narrative research enables people to understand their lived experiences. It fits the field for social constructivism or the view that people's own stories can create understanding of their important experiences. Along with the researcher, this also fits with the notion of the importance of parental perspectives situated within this research and the experiences of their families. Further to this, "narrative not only conveys information but brings information to life" (Cohen, Manion & Morrison, 2011, p. 553), which is one of the aims of the narratives in this research (see sections 2.2 and 2.3 for my personal and professional narratives). Ntinda (2019) suggests that narrative research is important because it is these, "person-centred investigations which can impact the resulting body of knowledge" (p. 411). In education research, narrative studies do not have to be about a researcher's or participants' whole life, rather centred on a specific event or particular point in someone's life. Lenfesty et al., (2018) name this type of narrative as, "personal experience story" (p. 128). This type of narrative can be specifically relevant to education, depending on the voice, or who's telling the story, for example, teacher's classroom stories. "Narratives and biographies cannot record all events; rather a selective focus should be adopted, based on the criteria that the researcher wishes to use. These may include, for example: key decision points in the story or narrative, or key, critical (or meaningful to the participants) events" (Cohen, Manion & Morrison, 2011, p. 553).

Hammond & Wellington (2013) suggest several attributes of utilising narratives in research:

- May use a range of methods, including diary entries, blog posting and interviewing, and narratives may be triangulated against secondary data and/or documents that the participant him- or herself provides, for example, photographs, medical records, wage slips, passports and so on.
- Allows implicit or explicit commitment to working collaboratively with research participants.
- Sets out a specific focus and purposively select participants.
- Used to throw light on professional practice (p. 110).

Clandinin & Connelly (2000) suggest that simply, “narrative researchers use narrative in some way in their research” (p. 5). In this study, I have positioned my own narrative as the driver and inspiration for the research and respondents have opportunity to report their own narrative samples in response to the questionnaire, both of which are key to this research.

4.9. Research Participants

Throughout the research I engaged with parents of twins aged between two and seven years. The terms of the study initially looked at parental perspectives of early twin language and speech and language acquisition up to the age of seven or end of Key Stage 1 (KS1). This is because it is at this point, these children are proposed to have naturally caught up with or developed appropriate aged language to their peers. By including responses from a large cross-section of twin families with a national base I was able to assess and consider a variety of services for speech therapy and what this looks like to families across the country. I gained an understanding of the level and size of the issue and if/how the problem has developed or changed over time and used my own narrative as my positionality and as a basis to compare and explore the responses of the participants.

4.10. Sample

This project was intended to be a large-scale research project and the questionnaires were open until the number of responses reached one thousand (see section 4.6, table 4). Data collection was stopped at this point, to make the numbers seem more credible. The sample consisted of parents of twin children aged between two and seven years old and participants were initially based anywhere in England. There were no other restrictions or requirements for participants. This approach allowed for a large cross-section of participants to include a wide variety of factors such as age, gender, ethnicity and family make up. Informed consent was gained from all participants before they could undertake in the research (see section 4.16 on ethics and appendix 1 for ethics information sheets and consent forms).

4.11. Procedure

The primary method of research was online questionnaires. As a large-scale study, questionnaires were an efficient way of collecting large amounts of data, both quantitative and qualitative, from the one thousand participants. I considered the breadth of information and opinions from parents regarding their twin children's perceived level of speech and language delay. The questionnaires looked at varying factors considered when looking at twin language delay and twin language acquisition. To start the research, questionnaires and information sheets were made available online to participants. Questionnaires were hosted via the online platform, Survey Monkey, permission was sought for this in my application to the ethics committee for research approval (see section 4.16 on ethics and appendix 2 for ethics approval letter). Buchanan and Hvizdak (2009) discuss that online survey platforms such as Survey Monkey have:

Emerged over the last few years as highly convenient research tools. These tools enable researchers to create and deliver surveys to subjects/participants in a convenient, expeditious manner, and they produce results in synchronous time, so respondents and researchers can watch data results being compiled instantaneously (p. 37).

Links were sent as a general online call for the proposed participants and published via the Twins Club. Links to the survey were also made available via the pages of social media groups. The questionnaires were designed to include multiple choice tick-box questions and some free text box questions. The questionnaires were simply designed and straight forward to complete. They did not have a deadline for completion although the questionnaires automatically closed when one thousand responses were reached. The design was planned to allow participants to consider their responses, as needed, without feeling under pressure to answer or rush responses. The data was collected within five days of the questionnaires opening online. The layout of the questionnaires grouped the questions into basic categories to aid the analysis process.

4.12. Questionnaire Justification and Context

The following section gives some background information and context for each question, and justification for their use in the research.

Q1. Are your twins Identical or Fraternal (non-identical)?

There are two main types of twins – Identical (monozygotic) and Fraternal (dizygotic) (Oliver and Plomin, 2007). The term zygote refers to a fertilised egg cell that has been produced from the union of a female gamete (egg or ovum) and a male gamete (sperm). In twin studies, monozygotic refers to derivation from a single egg, and dizygotic from two separate eggs. McNamara et al. discuss that in traditional models of twinning, “it has been thought that dizygotic twins result from fertilization of 2 distinct ova by 2 separate spermatozoa, whereas monozygotic twins are the product of a single ovum and sperm that subsequently divide to form 2 embryos” (2016, p. 172). This is considered to be a widely accepted model of zygotic twinning (Hall, 2003; Weber et al. 2010; Kilby et al. 2006).

Q2. How old are your twins?

This questionnaire was designed for parents of twins aged two to seven years’ old. The idea of this was to include the range of ages where the language development would typically be starting to clearly develop, until the age of seven, which is the suggested age that delayed twin language would have naturally caught up with singleton children of the same age. This would also be the end of Key Stage one in schools in England. Current research by the Twins and Multiple Birth Association (TAMBA) (2015) shows that most twins grow and develop along roughly the same lines as their singleton peers with the exception of language development. Their figures suggest that on average, language development of pre-school twins can be around six months behind singletons of the same age and that children who have minor delays could catch up by the time they are approximately six to eight years old. However, it is shown that multiples can also suffer much more serious language delay than their peers (TAMBA, 2015; Myriantopoulos et al., 1976; Rice et al., 2014).

Q.3. What combination are your twins?

Twin studies have assumed, since a study by Bertillon (1874) that Fraternal twins were equally likely to be opposite sex, to the same extent they were to be single sex. He first hypothesized that “the number of dizygotic twins would equal twice the number of opposite-sex (OS) twins and that the remaining twins would be monozygotic” (Kanazawa et al., 2018, p. 930). This later became known as Weinberg’s Differential Rule. However, a study published in the Journal of Human Reproduction, by Kanazawa et al. (2018) found that, “In violation of Weinberg’s Differential Rule, there are significantly more single sex that

opposite sex pairs among dizygotic twins in nationally representative samples both in the UK and the USA” (p. 930). Identical (monozygotic) twins are always the same sex, boy/boy, or girl/girl, as they developed from the same zygote, which contains either male or female sex chromosomes. Fraternal (dizygotic) twins can be either same sex or opposite sex, boy/boy, girl/girl or boy/girl, as they have developed from two separate zygotes, which could each carry the same or different sex chromosomes.

Q.4. At what gestation were your twins born?

Giorgione et al., (2021) state that “twin gestation is a known risk factor for antenatal complications” (p. 1). The ONS (2019), break down preterm into three different classifications: “extremely preterm (under 28 weeks) very preterm (28 to 31 weeks) moderate preterm (32 to 36 weeks)” (p. 6). In twin pregnancies, full term is classed to be 38 weeks, compared to typically 40 weeks with singleton pregnancies. Premature birth in twin pregnancies is therefore considered to be when twins are delivered before 37 weeks and is the most common complication when pregnant with multiples. On average, twin deliveries occur around 35 to 36 weeks, meaning the majority of twin pregnancies would be delivered prematurely. Papiernik et al., (2010) note that, “premature birth is much more common among twins than singletons...while one in every 10 twin pairs is born before 32 weeks’ gestation, just one in 100 singletons is born this early” (p. 1035).

Q.5. What were the birth weights of each twin?

In the United Kingdom the average weight for a singleton baby is 7lbs 4 oz for girls and 7lbs 8oz for boys. However, the average birth weight for full term twins (37 weeks or later, rather than 39-40 weeks for singletons), is approximately 5lbs 7oz each, although one baby will often weigh less than the other.

Q.6. Do you have any other children?

Speech and language difficulties occur more often in twins and triplets because they are more likely to experience a combination of the factors that predispose all children to speech and language difficulties (such as prematurity or being part of a large family). The purpose of this question is to explore “siblings” as a contributing factor to twin speech and language development.

Q.7. If yes, what is their position and gender (for example, older girl). Please select the number of each.

Further to question six, this question explores correlates the number of siblings to their position in the family and their gender.

Q.8. In what county do you currently live?

Designed to establish where participants are living, which is relevant in exploring different services available across the country.

Q.9. Would you say that your twins have/had their own language, in which only they can understand/communicate with each other?

The notion of “twin language” has been the subject of debate in many twin studies. Thorpe (2006) proposes that “a commonly held belief is that twin children develop their own separate and exclusive communication. If true, this may explain language delay in twins because it may impede normal language development (p. 392). The Twins and Multiple Birth Association (TAMBA, 2015) discuss the idea of twin language between siblings, “multiples tend to talk quickly, loudly and in short sentences – presumably to increase their chances of being heard...If the children use many of these shared words, it may sound like a private language” (www.tamba.org.uk). This is proposed to be a short phase whilst children adapt to their own family’s language. Dodd and McEvoy (1992), suggests this is atypical language acquisition. It is argued whether it is a unique language or rather a part of the developmental delay. They further discuss that, ‘multiple birth children are prone to phonological disorder and consequently their speech is often unintelligible’ (p 273).

Q.10. Were you provided with information about twin language development before your twins turned two?

In England, there is much information available after the arrival of a new baby, with support and information packs available from several sources: the National Health Service (NHS), The National Childbirth Trust (NCT) and the Bounty new-born baby pack given out on Maternity Wards. Further to this families have access to support from the Health Visiting team, with childhood development checks up until your baby turns two and immunisation information. These two-year-old checks, which are often with support of a child’s educational setting if they attend, are designed as a health and development review. This review covers, “general development, including movement, speech, social skills and

behaviour, and hearing and vision” (www.nhs.uk, 2021). Families also have access to Children’s Centres, that are responsible for coordinating child health services, such as audiology and paediatrician appointments. However, I can find no evidence of twin specific support offered to families of multiples at either birth or throughout development until the age of two. Nevertheless, parents of multiples can themselves register with The Twins Trust (previously Twins and Multiple Birth Association) who in conjunction with Bliss (a premature baby charity), have developed a support guide for multiple birth families.

Q.11. Would you have liked to have been provided information on twin language development at an early stage? (Birth - two years of age).

To try and establish whether parents would have liked early information on twin language development and further to question 10.

Q.12. Do you consider either of your twins to have a speech and language delay?

Current research by The Twins and Multiple Birth Association (TAMBA) (2015) shows that most twins grow and develop along roughly the same lines as their singleton peers with the exception of language development. Their figures suggest that on average, language development of pre-school twins can be around six months behind singletons of the same age and that children who have minor delays could catch up by the time they are approximately six to eight years old. However, it is shown that multiples can also suffer much more serious language delay than their peers (TAMBA, 2015; Myriantopoulos et al., 1976; Rice et al., 2014).

At this point respondents were asked to carry on with the questionnaire questions 13 to 26 if they had answered that one of both children were considered to have a delay.

Respondents that answered neither were asked to skip straight to question 27.

Q.13. How old was your child when you noticed the speech and language delay?

Further to question 12, if parents had answered that there was a delay, there were next asked to consider the age they had noticed this delay. In a review of the literature, Rice et al., (2014) suggest that “although language emergence is generally apparent by 24 months of age, some children show late language emergence (LLE), defined as language below age and gender expectations in children without other disabilities” (p. 917). Whilst Trouton et al., (2002) found that “language problems even at 2 years of age are highly heritable,

significantly more heritable than individual differences in the normal range of language development” (p. 445).

Q.14. Does your child with the speech delay have any other medical need which may have affected their speech?

Further to the literature, it is recognised that multiple births are at higher risk of medical complications, prematurity, and birth complications. Prematurity and birth complications, are reported to be more frequent in identical twins, could also affect twins’ increased occurrences of language delay (Rice et al. 2014). In addition to increased medical risks during pregnancy, it is also recognised, that twin pairings have higher prevalence of disabilities and/or special educational needs (SEN), compared to their singleton peers. This question looks at the parents’ perspective of any medical need (diagnosed or otherwise) that may affect the delay.

Q.15. If your child/ren has a delay was this confirmed by a speech and language professional?

Further to the parental perspective of either one or both twins having a language delay, this question was to further identify whether this had been diagnosed or confirmed by a professional.

Q.16. If yes, did/do they receive speech and language therapy for this?

Keilmann et al., (2004) indicate that “Speech-language therapy is the most frequently applied intervention method for the treatment of developmental disorders” (p. 51). Further to question 15, of the children who had had their speech and language delay confirmed, whether this resulted in therapy.

Q.17. Who was this from (select all which apply)

In additional to question 16, the respondents went on to identify the sources of therapy.

Further to the research, Keilmann et al., (2004), also argue that “the involvement of parents in the delivery of treatment is increasingly sought by professionals” (p. 52).

Q.18. How did you access the speech therapy in your area?

Further to question 17, families were asked to identify how they accessed the speech and language therapy.

Q.19. Did you find the referral process straight forward?

Further to question 18, this question is to determine if participants thought the referral process to speech and language therapy was straight forward. This question design used a Likert scale to determine the responses. A Likert scale is “a tool used in questionnaires in which participants are asked to respond to statements on a scale ranging from “strongly agree” to “strongly disagree” (Oxford Dictionary, 2021), or in the case of this question, “very easy” to “very difficult”.

Q.20. How often did/does your child receive their speech therapy? Who is this from? Is it one to one or in a group? (For example, a child may see an NHS therapist once a term to set targets but may receive daily sessions at school). Please select frequency, who by and session type e.g., 1:1, for all that apply.

From the respondents whose twins were accessing speech therapy, this question is to further examine the type of intervention they have/who they are delivered by and the frequency of the sessions. Keilmann et al., (2004) suggest that:

Different styles of therapy may result from different needs of the patients with their specific problems. Personal experience of the therapists is also an important factor. Good cooperation between parents and therapists is of enormous importance as parents not only have to bring their children to therapy regularly, they often participate in the therapy doing exercises with their child at home and modify their everyday way of using language to optimize the circumstances for speech and language learning (p. 52).

Q.21. Were you satisfied with the timescale to be referred and seen by a professional?

For those families who were referred to and seen by a professional, this question uses a Likert Scale to establish whether they were satisfied with the timescale in which this happened.

Q.22. Do you feel your child is making good progress?

For those being seen by a professional, this is an opener for Enquiry into parental perspectives of their child’s progress.

Q.23. Are you satisfied with the speech therapy your child received?

Further to the research, in a study by Keilmann et al., (2004), they found “that the majority of the parents was very satisfied with the outcome of the speech-language therapy, the professional knowledge of the speech-language therapists and the type of therapy” (p. 51).

Q.24. Did anybody else in the family have a speech and language delay?

Establishing a possible to link to family history and queries of hereditary concerns.

Q.25. If there was a specific speech and language support program designed for twins, would you have involved your children in this?

When considering specific speech and language support designed specifically for twins, this question identified who would have chosen to be involved in a speech and language support programme.

Q.26. What services or support would you have liked to be available for your child?

From questions 27 onwards, all participants were invited to respond. Questions 27 – 32, were designed to obtain participant characteristics, useful when analysing the data.

Q.27. Is your family Bi-lingual? (Do you use two or more languages equally at home).

Considering background information that may be relevant and have effect on speech and language development.

Q.28. Which ethnicity would you describe yourself?

Categories for ethnicity were taken from the list of 18 ethnic groups recommended for use by the government when asking for someone's ethnicity (www.gov.uk).

Q.29. Who is completing this form?

Relationship of participant to child, relevant to analysis and parental perspectives.

Q.30. Which social class would you describe yourself?

Measures of social class are frequently used in the UK for academic research and official statistics and are an important variable in social research. Miller and Salkind (2002) state that, "the socioeconomic position of a person affects his or opportunities for education, income, occupation, marriage, health, and friends, and it even can affect life expectancy" (p. 455). Social class categories were self-selected by respondents, from a prepopulated list of categories generated by Survey Monkey. These categories were simple for participants to complete; however, this terminology was basic and categorising social class can be problematic. There is potential for a disparity of meaning for each person and class is also complex to quantify. The terminology could also have the potential to cause offence to

participants. I chose not to use more standardised categories, as I wanted to simplify the process and allow participants to be self-aware of their class categorisation, rather than to potentially feel discriminated or biased by it and to focus on the value and importance of each individual situation and parental perspective aspects of the research. Questions based on the participant demographic, allow further investigation and analysis of the data. For example, this type of data is necessary to identify inequalities in education.

Q.31. Please feel free to add any comments.

Further comments, add to the weight of qualitative data and information participants wanted to give. These responses are considered as part of the discussion.

Q.32. Consent for further contact.

This question invited participants to leave their contact details if they consented to being contacted further as part of the research.

4.13. Piloting of Questionnaire

Braun and Clarke (2013) state that the only way to find out if a Questionnaire 'works' is to pilot it. They add that there are two useful ways to pilot:

- 1) invite people to complete the survey and use their responses to establish whether you are getting the data you want.
- 2) invite people to complete the survey and ask them to comment on the clarity of the instructions, the wording and ordering of questions, and the design and layout (p. 141).

This is a useful way for researchers to refine their data collection plans. The questionnaires for my research were emailed to three people who fitted the demographic for the study in order to pilot their successfulness for the research design, before they were sent out to a wider audience. Responses were valuable and some small changes were needed. As well as the mixed style of questions, I added Likert rating scales to aid clarity. I also reordered the questions to give a more natural flow. A copy of the questionnaire is recorded in Appendix C.

4.14. Content Analysis Approach

Hammond and Wellington (2013) specify that, “content analysis generally refers to a systematic attempt to identify the frequency with which certain words, functions or concepts occur within a text and, at a more challenging level, to explore the context in which these words are positioned for rhetorical or other effect” (p. 34). They indicate that this can be generally used for any document or data that communicates meaning and is made up of words, images etc. Whilst Schreier (2012) summarises this approach as “a method for systematically describing the meaning of qualitative material... by classifying material as instances of the categories of a coding frame” (p. 1).

Content analysis is a type of research tool that can be used to identify whether particular words and themes are present within the qualitative data. This makes the qualitative data quantifiable, which then means researchers can analyse the data and look for specific meanings, trends, or themes.

When considering the differences between thematic analysis and content analysis, Wheeler (2022) suggests that content analysis “involves the systematic reading of a body of texts and the application of a consistent coding framework to capture and categorize manifest and latent content within these texts so as to infer meanings from them” (p. 4). They also suggest that this method has been applied more widely across the social sciences since the 1940s.

Content analysis can be applied to data that had been collected from various sources or methods of research, such as questionnaires, interviews, narrative, or policy documents, and can therefore be applied in a broad range of research designs. In discussion of nutritional educational Kondracki et al., (2002) state that “content analysis is a set of qualitative and quantitative methods for collecting and analyzing data from verbal, print, or electronic communication with numerous applications in nutrition education research” (p. 224). This sits well with the methodology of my research, as they further this by explaining that “textual information from interviews, focus groups, and open-ended survey questions can be evaluated using content analysis. Selection of method(s) depends on the type(s) and length of material to be analyzed, results desired, and researchers' preferences and technological capabilities” (p. 224).

Applied in health education research, a relevant field for this research, Duncan (1989) discusses that “content analysis is a technique which lies at the crossroads of qualitative and quantitative methods. This set of techniques involves quantifying the frequency with which certain qualities appear in a sample of documents” (p. 27).

When looking at content analysis applied to different fields, such as nursing and other caring professions, Downe-Wamboldt (1992) argues that “unlike strictly qualitative designs, content analysis has external validity as a goal. Because of its focus on human communication, content analysis offers practical applicability, promise, and relevance for research involving the practice and education of nurses and other helping professionals” (p. 313). This is particularly relevant to this research, when we consider the scope of different educators and professionals involved with the participants.

4.15. Data Analysis

Creswell (2009) describes data analysis as involving, “data transformation, exploring outliers, examining multiple levels or creating matrices combining quantitative results and qualitative findings” (p. 224). In content analysis, the text should be broken down and coded into manageable categories. Once coding has been established, these categories can be narrowed down further as appropriate. The research questions, methodological framework and literature review established the foundations for the data analysis and coding. For this content analysis, the findings were analysed using the constant comparative method (Glaser and Strauss, 1967). For the free text sections of the questionnaires, Ryan, and Bernard (2003) suggest four steps for text analysis, “discovering themes and sub-themes; reducing themes to a manageable number according to priority; building hierarchies or themes and linking themes into theoretical models” (p. 85). Taking a pragmatic approach helped with flexibility in combining quantitative and qualitative methods and data.

In my previous research, entitled, “together or apart? A small-scale study into the whys and wherefores of separating twins for their education” (2014), the number of questionnaire responses was 130, a much smaller sample to analyse. This was the first study I had completed in the field of “twin studies” and gave me the basis for further enquiry into the area. In comparison the current research was designed to be large-scale with scope to

receive up to 1000 responses, upon when it would close automatically. The analysis for this was therefore planned to be structured differently and completed over a longer period of time. The online platform used to host the questionnaires has its own basic analysis system, however, this would not be the most efficient or successful way to consider the responses. It would be relatively quick, however it used preset options to break down responses and therefore was not useful to find relevant data or points of interest. It also had limited capability with cross referencing, for example, it searched for children aged four or children with a noted speech and language delay but would not be able to further search which of those children were in nursery education. However, I was able to export all the data into charts, graphs, and tables, and onto Excel spreadsheets, before completing the full analysis.

4.16. Coding and Findings

After collecting the full number of responses, I decided to organize the responses as follows. I initially sorted the responses into two groups. These were children who had no speech and language delay and children whose parents thought they did. I would later break these down further into confirmed and non-confirmed cases and further split the groups by age, to group the responses into manageable size clusters. I then analysed each group in turn. I used a combination of the online analysis system, and an excel spreadsheet where I exported the data and manually input the responses from the free text sections and created a coded system. For coding I highlighted key words and statements of the free text, a particular colour for each item. I was then able to clearly enter responses on the excel grid. This allowed me to pick out repeated key phrases and/or ideas. This manual approach allowed me to understand and get a firm grasp on the research data. However, these plans needed to be slightly flexible and changeable as they were not always practical due to the large number of respondents who completed the project. At times this could be time-consuming, and I was concerned that not being flexible or pragmatic could throw out the timetable of research and/or my ability to understand the data successfully. In this case I could adopt different computer software, such as SPSS, which would help to analyse the data.

Braun and Clarke (2013) describe coding as, “a process of identifying aspects of the data that relate to your research question” (p. 206). Questionnaire findings were examined manually and through Excel Spreadsheets. Quantitative and qualitative data were compared to establish validity. For the free text sections I used a line-by-line approach and highlighted initial frequently occurring concepts, key patterns, and theme development. Interesting or useful data was coded when identified. I was then able to look at the result and frequency of each answer and analyse the responses and work out the statistics accordingly. My starting point was the frequency of yes/no answers for twins that have/had a delay but then extended this to look at the contributing factors and free comment answers. This was an interactive process (Creswell, 2009).

Cohen et al., (2011) state that content analysis “involves reading and judgement” (p. 428). I applied consideration to the steps set of by Brenner et al., (1985) for content analysis of open-ended data, shown in Table 3 below. I also applied the “constant comparative method” for text analysis and to make sense of the data. Constant comparison involves three stages for analysis, open coding: axial coding and selective coding (Strauss and Corbin, 1990). I undertook the steps shown below in Table 3 for analysis of the free text questionnaire responses. Cohen et al., (2011) summarize that, “content analysis takes texts and analyses, reduces and interrogates them into summary form through the use of both pre-existing categories and emergent themes in order to generate a test or theory” (p. 564).

TABLE 4: STEPS IN UNDERTAKING CONTENT ANALYSIS (BRENNER ET AL., 1985)

	Stage	Description of the process
1	Briefing	Understanding the problem and his context in detail.
2	Sampling	Of people, including the types of samples sought.
3	Associating	With other work that has been done.
4	Hypothesis Development	
5	Hypothesis Testing	
6	Immersion	In the data collected, to pick up all the clues.

7	Categorising	In which the categories and their labels must: (a) reflect the purpose of the research; (b) be exhaustive; (c) be mutually exclusive.
8	Incubation	E.g., reflecting on data and developing interpretations and meanings.
9	Synthesis	Involving a review of the rationale for coding and identification of the emerging patterns and themes.
10	Culling	Condensing, excising and re-interpreting the data so that they can be written up intelligently.
11	Interpretation	Making meaning of the data.
12	Writing	Giving clear guidance on the incidence of occurrence; providing an indication of direction and intentionality of feelings; being aware of what is not said as well as what is said – silences; indicating salience to the reader and respondents.
13	Rethinking	

In terms of this research, following the steps from Brenner et al., (1985) I used this multi-stage approach to first read the responses, then categorized the findings into underlying themes and key words, and then extended to sub themes. I used tables to analyse the value/amount of each theme and sub theme and presented the findings in descending order.

4.17. Challenges

There were several potential difficulties that could have arisen when completing this research. These could be different for each participant but may have included asking parents to look retrospectively and gain accurate responses and reflections about their

child's development when they are drawing on information from the past. When planning a large-scale project, I questioned how hard it may also be to engage with the large number of participants needed for the research. When using social media, I also anticipated that gaining responses from England alone, could be problematic, as many of the social media networks share pages across the United Kingdom and also internationally. Primarily I was looking for data from England as this is where the systems for comparison are based. However, this could have proved limiting in the number of respondents, with little or very one-sided data. The research is also based on my understanding of the systems available to families living in England. This may also raise difficulties if needing to compare against the rest of the United Kingdom or when needing to consider international perspectives, as I have limited understanding of their systems. This is primarily why the respondents needed to be based in England as otherwise complications could arise across comparing and contrasting several countries, depending on responses. The number of respondents in this case could also grow to be too large and impractical to manage and analyze. With one thousand responses, this is a large-scale research project. This alone created its own difficulties including finding, and reaching the desired number of participants, successful collection and organization of data, and clear analysis of large numbers of responses.

4.18. Claim to Knowledge

This research has developed new knowledge which highlights parental perspectives on twin language delay. It explores the prevalence and significance of delayed speech and language acquisition to children in a twin pairing. It looks at impacting factors and levels of support. This highlights the clear implications from the effect of attending an early childhood education setting and the need for an early intervention approach in speech and language for twins to be developed. This research has discovered new findings to add to the body of knowledge already in the field.

4.19. Ethical Considerations of Online Questionnaires

Before I started the data collection phase of this research, I ensured that all ethical implications were considered, and that any adjustments that needed to take place were put

into place before the research began. As part of this research project, I followed The University of Sheffield's strict ethical procedures, starting with ethical approval before I began the project. I completed an ethical approval application and submitted this to the University's ethic committee (See appendix A). Once I received confirmation that I had gained ethical approval I then started my research. Information sheets were designed and provided to all participants, before the study, allowing them to fully understand the project before gaining their informed consent (See appendix B). Consideration was given to using the online approach and idea of access and intrusion into people's front rooms.

The British Educational Research Association (BERA) sets out ethical guidelines, which helped me to consider the ethical issues and approaches when tackling the research. My research involved a large number of participants, of whom I each have an ethical responsibility to. BERA states that:

Educational researchers should operate within an ethic of respect for any persons involved in the research they are undertaking. Individuals should be treated fairly, sensitively, with dignity, and within an ethic of respect and freedom from prejudice regardless of age, gender, sexuality, race, ethnicity, class, nationality, cultural identity, partnership status, faith, disability, political belief, or any other significant difference. This ethic of respect should apply to both the researchers themselves and any individuals participating in the research either directly or indirectly. Adherence to this ethic of respect implies the following responsibilities on the part of researchers (BERA, 2011, p. 5).

This notion of respect is relevant to everyone involved with any aspect of the research and the above statement sums up the importance of the responsibility of the researcher (Horsnall, 2014). This is particularly relevant to this research, where discussion of my own children, family, friends, and colleagues is included. This includes giving consent on behalf of a child who is too young to do so, and ensuring both parents are consulted where appropriate.

The online platform Survey Monkey hosted my research. As this research was internet based, I also looked at and applied further ethical considerations and guidance for Internet Mediated Research (IMR). 'IMR can be broadly defined as any research involving the remote acquisition of data from or about human participants using the internet and its associated technologies' (British Psychological Society, 2013, p. 3). This guidance from The British Psychological Society (BPS) 'highlights additional issues such as not being face-to-face with

your participant and appropriate consent' (Horsnall, 2014). Clough and Nutbrown (2012) discuss that, 'The internet provides its own specific ethical issues and dilemmas, with decisions to be made around informed consent, what is personal and what is public' (p. 171).

Survey Monkey also provides guidelines for the use of its system, thus giving consideration to participants and researchers on ethics. It further discusses the storing and security of information online and the importance and necessity of informed consent. 'Informed Voluntary Consent' is known as 'the condition in which participants understand and agree to their participation without any duress, prior to the research getting underway' (BERA, 2011, p. 5). Use of online platforms comes with additional considerations, including, handling, security, and storage of electronic data, and that the platform itself is fit for purpose. Buchanan and Hvizdak (2009) consider how the rise in popularity of this tool is, "is forcing researchers and research regulators to rethink and reevaluate such fundamental research ethics issues as privacy, informed consent, ownership, recruitment, public versus private spaces, and research and scientific integrity itself" (p. 37).

Informed consent was taken from each participant before they were able to access the online questionnaire. Participants were asked to agree to their understanding of information from the information sheet and participation, and to confirm that they are over eighteen, by way of a consent tick box. There will be no pressure to give consent or complete the research questionnaire. If they are unhappy or unsure regarding the research, then they did not have to proceed. Likewise, the participant was able to leave the questionnaire and/or withdraw their consent at any time, without having to give a reason. Details of how to do so were available on the information sheet. An additional consideration is the trust between both parties. Clough and Nutbrown (2012) discuss the relevance of informed consent:

Informed consent is not simply something that is obtained at the outset of a study. It is an issue which researchers must continually remain aware of. Participants have the right to withdraw at any point in the study, even if they have given their consent and regardless of the impact this might have on the study (p. 196).

The information sheet provided further information to the participants, regarding confidentiality, the consideration and use of responses and the storing of information.

4.20. Ethical Considerations of Using Narratives

When considering my own narrative, it was important to me to explore the ethical rights and implications for my children and family. It is important to acknowledge that there are key ethical differences between consent and assent. Research participants are asked to give “informed consent”. This is when a participant has full understanding of what is expected of them in terms of the research, and the consequences of being involved, and has made an informed decision to participate. Assent is for people who are not old enough, or able to consent for themselves. Where children are involved, they assent to be part of a study, but their parent or guardian would still need to consent to this.

Although my children are not mentioned by name, their lives are considered alongside my own, and I wanted to be respectful to this, including gaining their informed consent. I had several discussions with my children about my intended plans and research ideas and explained how they would be represented in this. My husband, their father, was also included in these conversations, having equal rights and say in how I represent our children, particularly as the youngest three were all under sixteen. Ultimately, they were given the right to refuse, but decided they were happy to be involved, and understood that I would represent them fairly and honestly throughout, whilst ensuring they remain protected and considering how it may translate in years to come. My family has read and listened to my narrative, and again were given the right to withdraw anything or everything they deemed necessary. I wanted this research to be able to age well, as not to cause embarrassment in years to come. They were considered as an ongoing and reflective part of my research, with my role as both parent and researcher. I had initially, with permission, planned to use two photographs, to highlight the relationship between my children, however in retrospect decided to remove these, because I could not guarantee their use in years to come.

Although I consider the use of narratives to fundamentally be an ethical approach to research, it is still prudent to acknowledge that this type of qualitative research approach can still raise several ethical challenges. This can be best explored when discussing

narratives and where a researcher writes about a theme of personal relevance and situates themselves and their experiences within the research.

Wyatt (2006), suggests two ethical principles that should be factored in. These are “how close we choose to position our readers” and consent. “In describing critical periods of our lives, it may be very difficult to ask the people involved in these narratives to give consent to their publication” (Mendez, 2013). Ellis and Bochner (2000) discuss that as, “a personal narrative is developed, the context and people interacting with the subject start to emerge in the reflexive practice. It is during this narrative that Miller and Bell (2002) suggest that this is when the problem of, “obtaining or not obtaining consent” should be considered. Whether or not it is decided that formal consent should or should not be obtained, Ellis (2007) and Wall (2008), infer that researchers may still have to deal with the feelings of guilt or causing harm towards the people concerned in the narratives. However, at its core, when considering an ethical approach to research, it is important to be honest about events and the people involved in them.

4.21. Summary of Chapter

In this Chapter I have reviewed Methodology by considering, the research topic and research questions; the methodological framework; paradigms, methods, and tools; mixed methods of research including questionnaires and narratives as research methods; advantages, limitations, and criticism; piloting of questionnaire; data analysis, coding, and content analysis; difficulties; claim to knowledge; ethical consideration and finally the timetable for research.

In the next Chapter I set out the data analysis and research findings.

Chapter 5: Findings & Analysis

5.1. Introduction

In this chapter, I outline the data and findings from the questionnaires, both quantitative and qualitative, in order to reflect and analyse the depth and breadth of information and emerging themes, to explore the research questions: to what extent do parents of twins feel their children have/had a speech and language delay; are there any factors that parents feel may have/had impacted on their child's speech and language delay; how far do parents feel they have/had been supported with the speech and language delay? I relate both sets of data and parental comments, with similar themes in my narrative and the literature, already discussed in Chapters two and three and introduce further literature where relevant. This analytical process aims to cement the findings in the existing literature and position them in the field of this research.

5.2. Participant Characteristics

One thousand participants took part in this research. The design was to collect the 1000 responses, from parents of twins, aged 2-7 years, based in England. This sample was decided for several reasons. First, I needed enough participants to justify the large-scale project, as these would be needed to show the weight and significance of the problem (if it showed that there was one), but also to consider that I would be carrying out the research project alone, so it also needed to be practical. To understand the responses and narrative that the participants had provided, I would be reading each questionnaire and its 32 responses individually, as I wanted to understand and appreciate the life-stories and the relevance they provided, so this was also key to the research. The location was limited to England, as this is where the educational system, frameworks and policies and structures for support were based, so participants needed to be accessing these. Extending to other countries, with different education systems and policies, would have been unmanageable in the parameters of this research, and would have complicated the study, however, this could be scope for extending the research in the future. Children needed to be between the ages of two to seven, to be between the stages of beginning their language development, and

approaching the end of key stage one, as this is the proposed age for when twins could have naturally improved their language skills in comparison to their peers.

Below is a table which summarises the participants' characteristics of those involved. This is designed to give the reader an insight into the number and type of participants involved in the study, it reports facts such as gender and information relevant to the study, such as the number of children the respondent has.

TABLE 5: PARTICIPANT CHARACTERISTICS

Characteristic	Number of Participants
Gender <ul style="list-style-type: none"> • Female • Male • Response not given. 	<ul style="list-style-type: none"> • 997 • 2 • 1
Relationship to children <ul style="list-style-type: none"> • Mother • Father • Grandmother • Response not given. 	<ul style="list-style-type: none"> • 995 • 2 • 2 • 1
Ethnicity <ul style="list-style-type: none"> • White British • Other White Background • White – Irish • Other Mixed Background • White & Asian • White & Black Caribbean • Black Caribbean • Other Ethnic Group • White & Black African • Other Black Background • Chinese • Response not given. 	<ul style="list-style-type: none"> • 893 • 38 • 12 • 10 • 8 • 7 • 4 • 3 • 2 • 1 • 1 • 21
Total Number of Children <ul style="list-style-type: none"> • Two • Three • Four • Five • Six 	<ul style="list-style-type: none"> • 496 • 329 • 117 • 29 • 17

<ul style="list-style-type: none"> • Seven or more • Response not given. 	<ul style="list-style-type: none"> • 11 • 1
Social Class <ul style="list-style-type: none"> • Lower Class • Working Class • Middle Class • Upper Class • Response not given. 	<ul style="list-style-type: none"> • 38 • 571 • 358 • 5 • 28
Bilingual <ul style="list-style-type: none"> • Yes • No • Response not given. 	<ul style="list-style-type: none"> • 47 • 892 • 61
<ul style="list-style-type: none"> • Location • Bedfordshire • Berkshire • Bristol • Buckinghamshire • Cambridgeshire • Cheshire • City of London • Cornwall • County Durham • Cumbria • Derbyshire • Devon • Dorset • East Riding of Yorkshire • East Sussex • Essex • Gloucestershire • Greater London • Greater Manchester • Hampshire • Herefordshire • Hertfordshire • Isle of Wight • Kent • Lancashire • Leicestershire • Lincolnshire • Merseyside • Norfolk 	<ul style="list-style-type: none"> • 20 • 12 • 14 • 10 • 9 • 40 • 14 • 5 • 31 • 12 • 14 • 21 • 12 • 13 • 12 • 69 • 10 • 26 • 30 • 29 • 4 • 92 • 5 • 45 • 28 • 22 • 20 • 19 • 17

• North Yorkshire	• 20
• Northamptonshire	• 19
• Northumberland	• 9
• Nottinghamshire	• 26
• Oxfordshire	• 11
• Rutland	• 0
• Shropshire	• 5
• Somerset	• 14
• South Yorkshire	• 31
• Staffordshire	• 23
• Suffolk	• 8
• Surrey	• 21
• Tyne and Wear	• 28
• Warwickshire	• 5
• West Midlands	• 31
• West Sussex	• 27
• West Yorkshire	• 41
• Wiltshire	• 3
• Worcestershire	• 13
• Response not given.	• 10

5.3. Parental Responses.

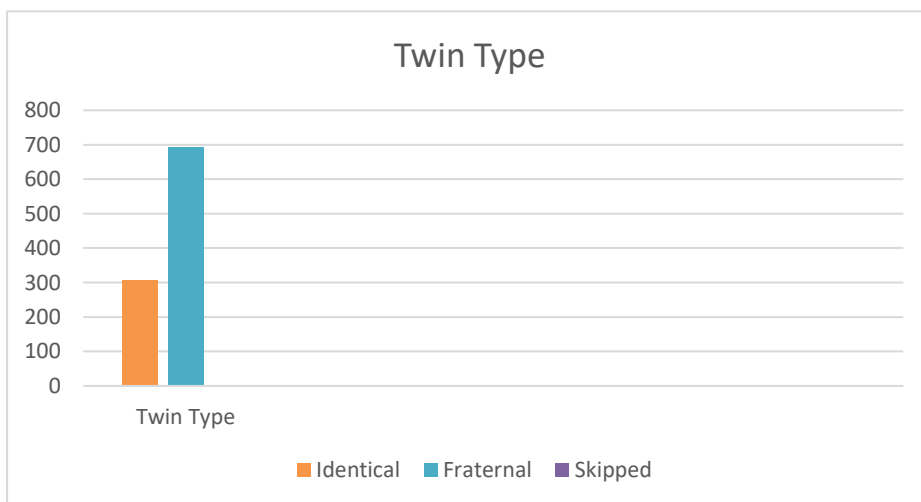
The parent participants were asked a series of 32 questions via the online questionnaire. The following is a summary of the data and findings, both quantitative and qualitative, and relevant discussion, from the 1000 responses obtained between 4th – 10th May 2020. It considers the breadth of information and opinions from parents regarding their twin children’s perceived level of speech and language delay. The questionnaires looked at varying factors considered when looking at twin language delay and twin language acquisition. To start the research, questionnaires and information sheets were made available online to participants. Questionnaires were hosted via the online platform, Survey Monkey. Links were sent as a general online call for the proposed participants and published via the Twins Club. Links to the survey were also made available via the pages of social media groups relevant to twins and parent networks. The questionnaires were designed to include multiple choice tick box questions, Likert scales, and some free text box questions.

The questionnaires were designed to be straight forward to complete and was planned to allow participants to consider their responses, as needed, without feeling under pressure to answer or rush responses. The layout of the questionnaires grouped the questions into basic categories to aid the analysis process. The questionnaire would run until one thousand responses were collected; this took a six-day period for the data to be collected, and the questionnaire then automatically closed. I think the speed and time across which the responses were submitted, already shows the significance of the issue and the enthusiasm of twin parents to participate in the research and contribute to the knowledge.

The research questions, methodological framework and literature review established the foundations for the data analysis and coding. The quantitative data was analysed via an online system where I was able to export all the data into charts, graphs, and tables, and onto Excel spreadsheets, before completing the full analysis. The qualitative findings were analysed using the constant comparative method through content analysis (Strauss and Corbin, 1990; Brenner et al., 1985).

Q1. Are your twins Identical or Fraternal (non-identical)?

FIGURE 1: THE FOLLOWING TABLE REPRESENTS THE ‘TYPE’ OF TWINS EACH RESPONDENT IS PARENT TO.

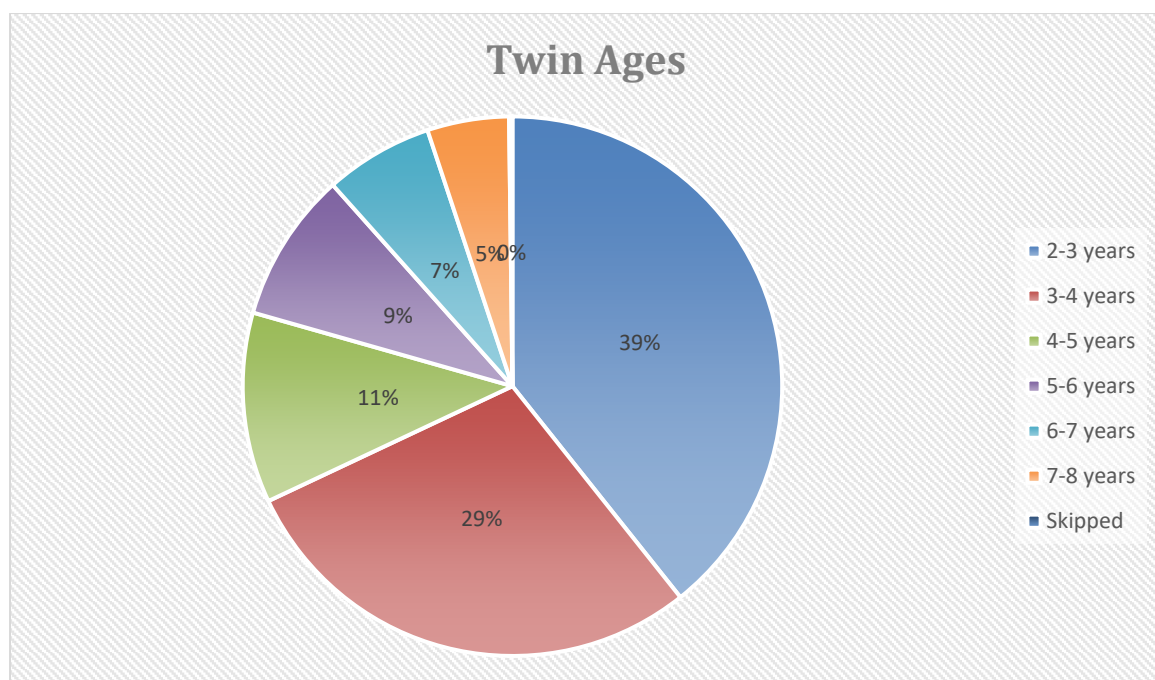


The data collected for this question is as follows: 307 responses were from a parent of identical twins, whilst 692 responses were from a parent of fraternal (non-identical) twins. Statistically this corresponds with the data from the Office of National Statistics (ONS) and birth statistics in that, Fraternal twins make up 2/3rds of all twins with Identical twins

making up the other 3rd (ONS, 2018). One parent did not answer this question. Most twins are Identical or Fraternal, but there are occasions where parents do not know the type of twin they have, or this could still be under investigation from a medical team. There are also further, much rarer categories of twin, which although fall under the above two categories, parents may have chosen to class them differently for their answer. These include half-identical, mirror image, mixed chromosome, superfetation, superfecundation, and conjoined twins.

Q2. How old are your twins?

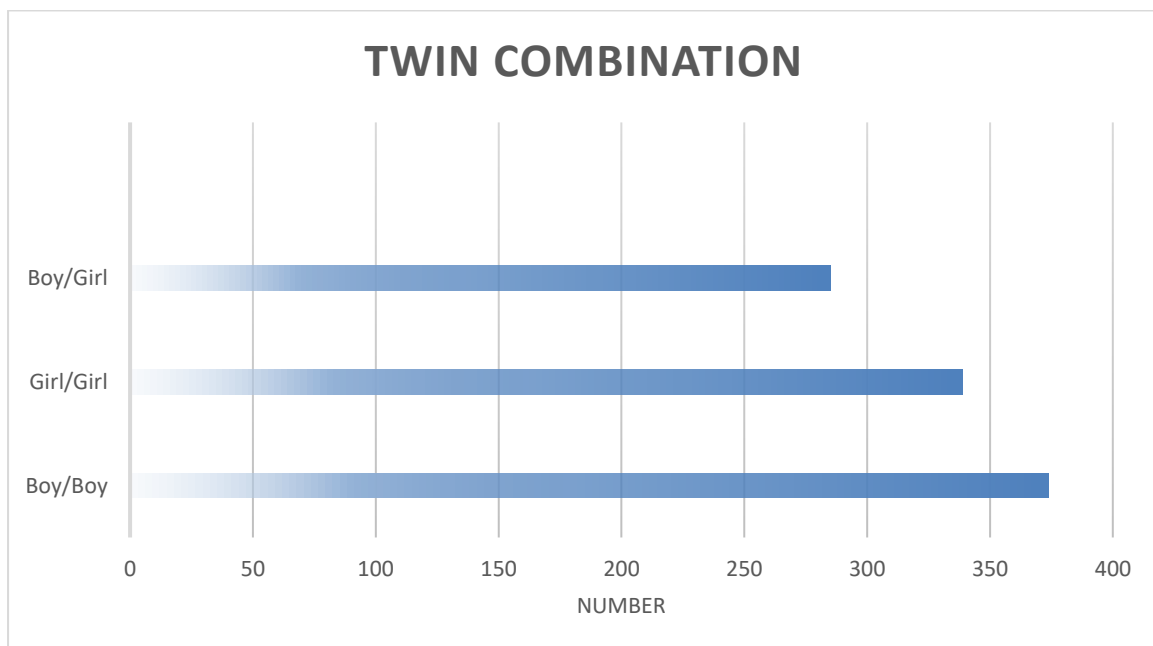
FIGURE 2: THE AGE FINDINGS OF THE RESPONSES ARE SUMMARISED IN THE FOLLOWING CHART.



From the 1000 responses, 998 participants answered this question. Two participants skipped this question, potentially suggesting that the age of their twins is outside of the parameters of the questionnaire. However, neither of these responses indicate that their twins had a speech and language delay.

Q.3. What combination are your twins?

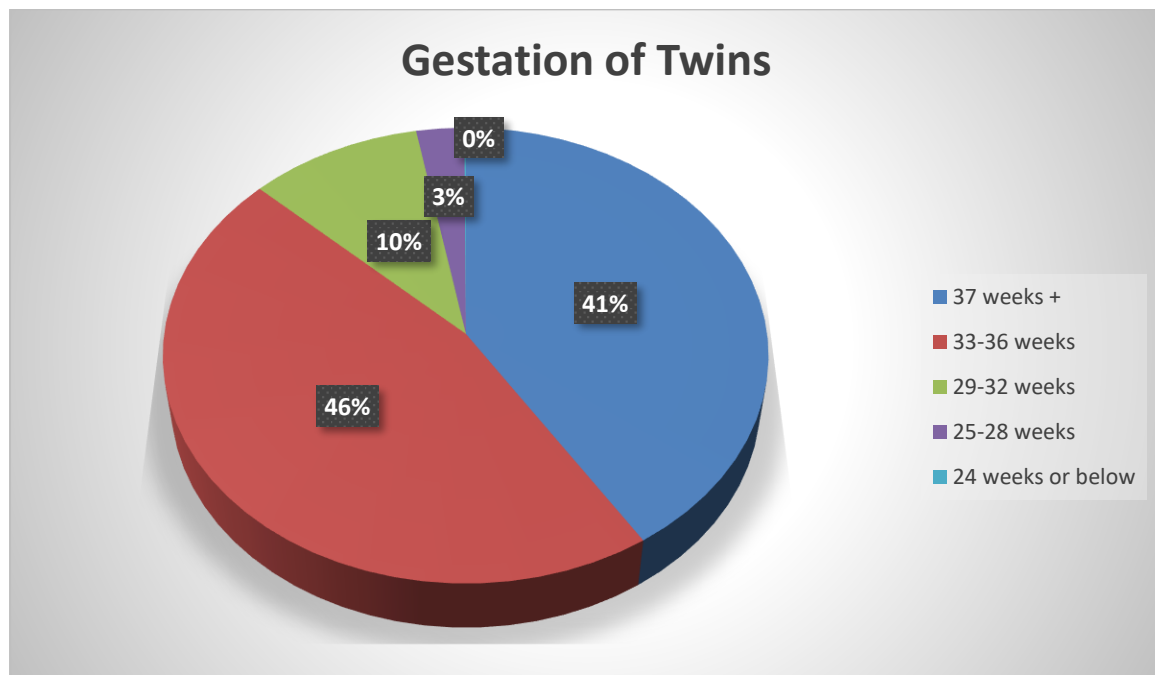
FIGURE 3: THE COMBINATION (SAME SEX/OPPOSITE SEX) FINDINGS OF THE RESPONSES ARE SUMMARISED IN THE FOLLOWING CHART.



There were 998 responses to this question and two participants skipped the answer. Neither of these participants answered that their twins were considered to have a Speech and Language delay. When looking at the combinations of twins, the questionnaire found that there was a higher number of boy/boy pairs, 374, followed by girl/girl responses of 339. The mixed pair of boy/girl twins had the lowest number of responses with 285 answers. Statistically, this fits with the suggestion that there is more same sex than opposite sex dizygotic twins. Both the responses from questions two and three are in line with previous research data and national trends, which highlights the validity of this research.

Q.4. At what gestation were your twins born?

FIGURE 4: THE GESTATION FINDINGS OF THE RESPONSES ARE SUMMARISED IN THE FOLLOWING CHART.



There were 1000 responses to this question with the following responses: 41% of our respondents gave birth at 37 weeks or above, meaning that 59% of the participants had twins that were premature to some level. Statistics from Tommy’s, a premature birth charity found that:

Having more than one baby is a risk factor for preterm birth. On average, most singleton pregnancies last 39 weeks, twin pregnancies 37 weeks and triplets 33 weeks.

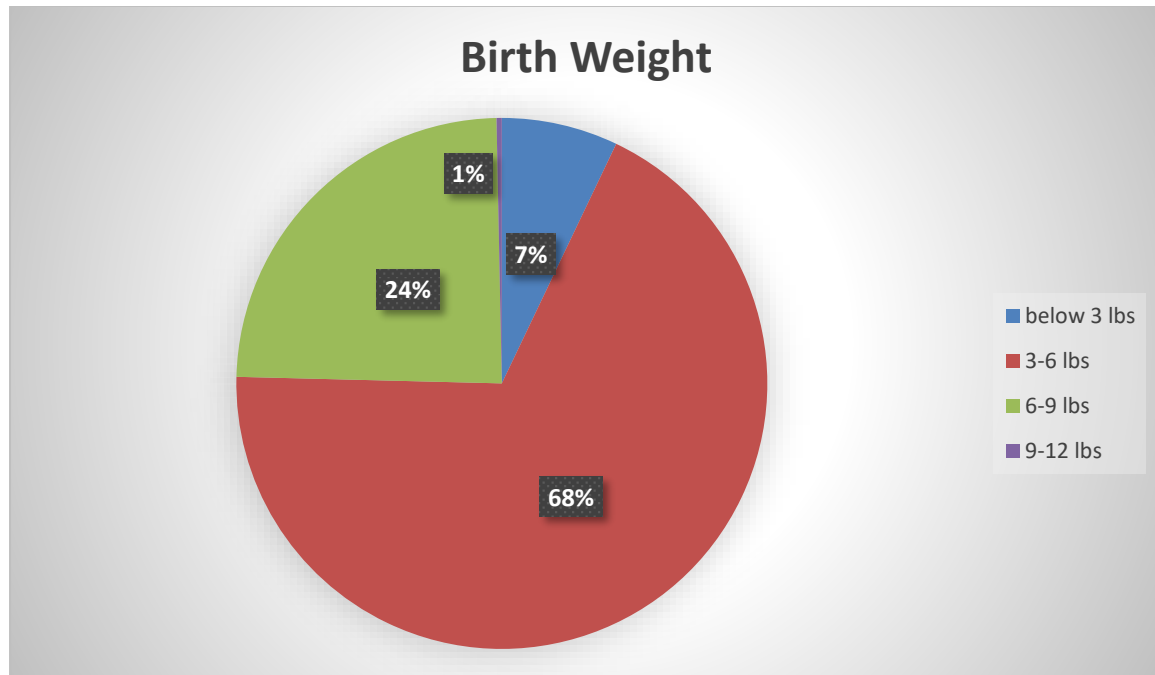
- Risk of prematurity with singleton pregnancy: 7%
- Risk of prematurity with multiple pregnancy: 57% (www.tommys.org, 2020).

Likewise, the ONS (2019) report that, “since 2010, the percentage of non-preterm live births has ranged between 92% and 93% and...the percentage of preterm live births has ranged between 7% and 8% (p. 6). Similarly, national statistics from the USA showed that “while the risks for twins are not as elevated as they are for higher-order multiples, twins are still more likely to be born early and weigh less. In the data, which was collected from births in the year 2017, 19.51% of twins were born early preterm, (which is defined as prior to 34 weeks), and more than half (59.43%) were born prior to 37 weeks gestation. By comparison, only 9.93% of singletons are born before 37 weeks and 2.76% were born before 34 weeks”

(National Vital Statistic report, 2018, p. 9). This fits with my findings with 59% of the participants delivering prematurely.

Q.5. What were the birth weights of each twin?

FIGURE 5: THE BIRTH WEIGHT FINDINGS OF THE RESPONSES ARE SUMMARISED IN THE FOLLOWING CHART.

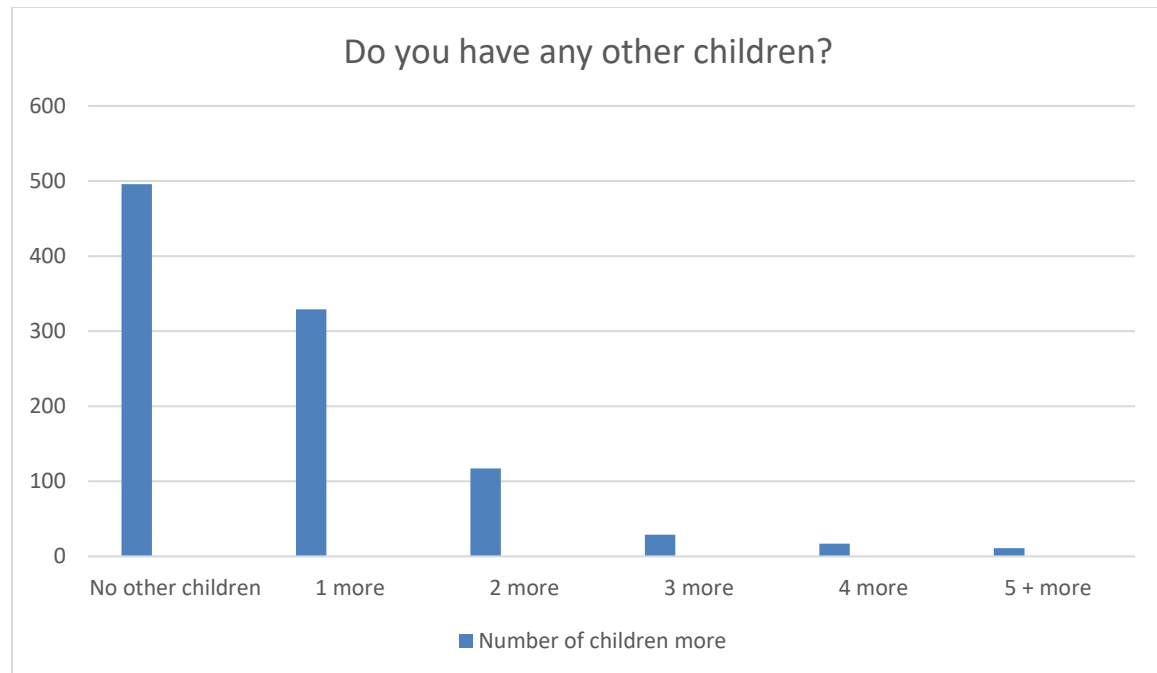


There were 942 responses to this question. The World Health Organisation (WHO) and Office for National Statistics (ONS, 2019) suggest that low birth weight is a good predictor of morbidity, infant mortality, and later risk of disease. The ONS state that in 2019, “6.8% of live births were classified as being of low birthweight” (p .6). Low birth weight is classified as babies weighing less than 2,500 grams or 5lbs 8oz (ONS, 2019). Very low birth weight is classified as weighing less than 1,500 grams or 3lbs 5 oz. However, this means that in comparison to singleton births, twins are born with below average birth weights as standard. According to the National Vital Statistics report (2018), over half of twins (55.39%) met the definition of low birth weight and 9.45% of twins born in 2017 were classified as very low birth weight. In comparison with my research, 7% of twins were born with very low birth weight and 68% with low birth rate.

Q.6. Do you have any other children?

There were 999 responses to this question. 496 respondents answered that they had no other children, 503 respondents have one or more other children and one unanswered.

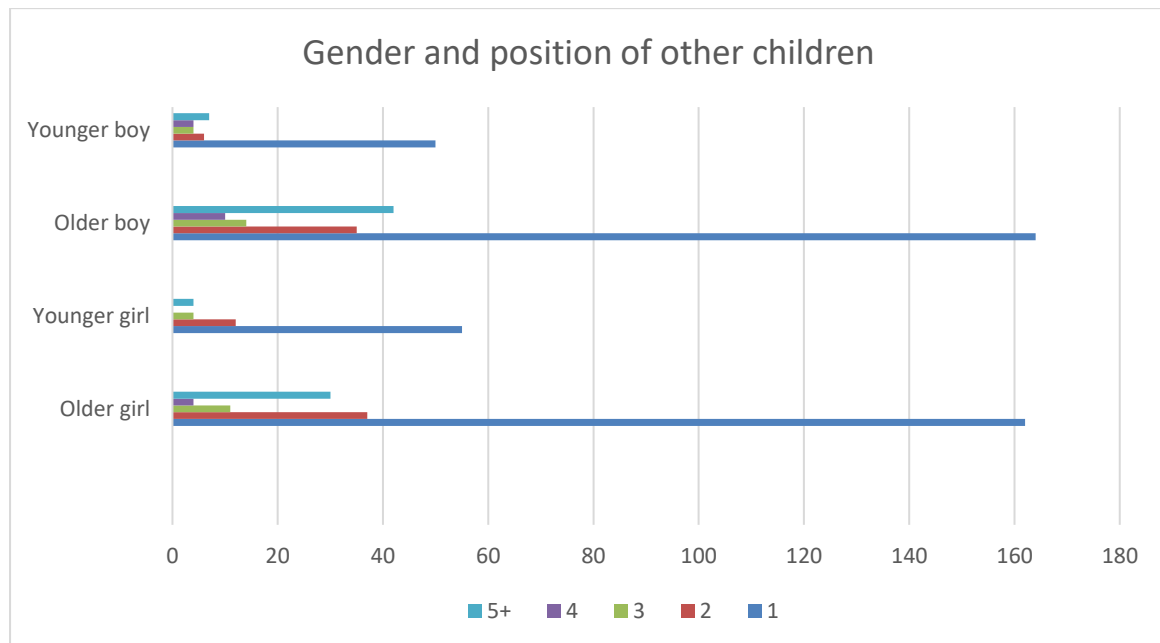
FIGURE 6: THE FINDINGS OF THE RESPONSES FOR NUMBER OF CHILDREN ARE SUMMARISED IN THE FOLLOWING GRAPH.



Q.7. If yes, what is their position and gender (for example, older girl). Please select the number of each.

Of the 503 respondents that answered that they had one or more other children, 497 went on to further answer this question of their gender and position in the family. One respondent answered that they did not understand the question so left it blank.

FIGURE 7: THE GENDER AND POSITION OF CHILDREN FINDINGS OF THE RESPONSES ARE SUMMARISED IN THE FOLLOWING GRAPH.

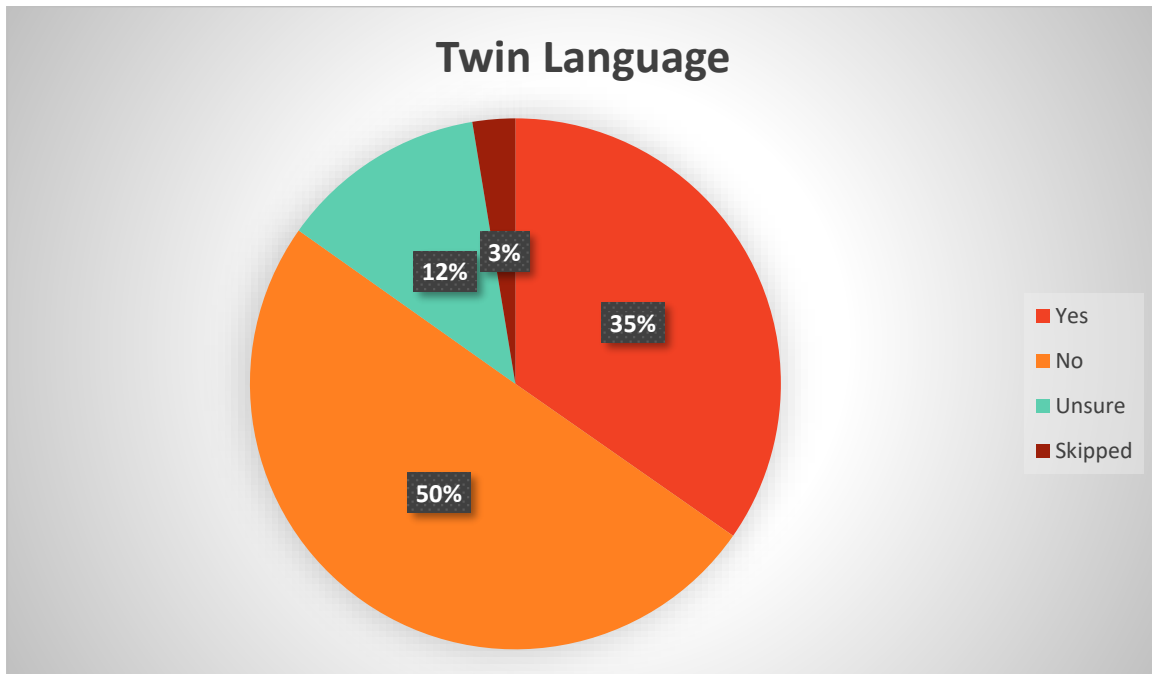


Q.8. In what County do you currently live?

There were 988 responses to this question. There is a wide spread of answers from across England. There was also a response from Wales, one from Northern Ireland and one from the USA. There were a higher number of responses from Hertfordshire, 92, as this is where I run my settings and have local links with the twin community.

Q.9. Would you say that your twins have/had their own language, in which only they can understand/communicate with each other?

FIGURE 8: THE TWIN LANGUAGE FINDINGS FROM THE RESPONSES ARE SUMMARISED IN THE FOLLOWING CHART.

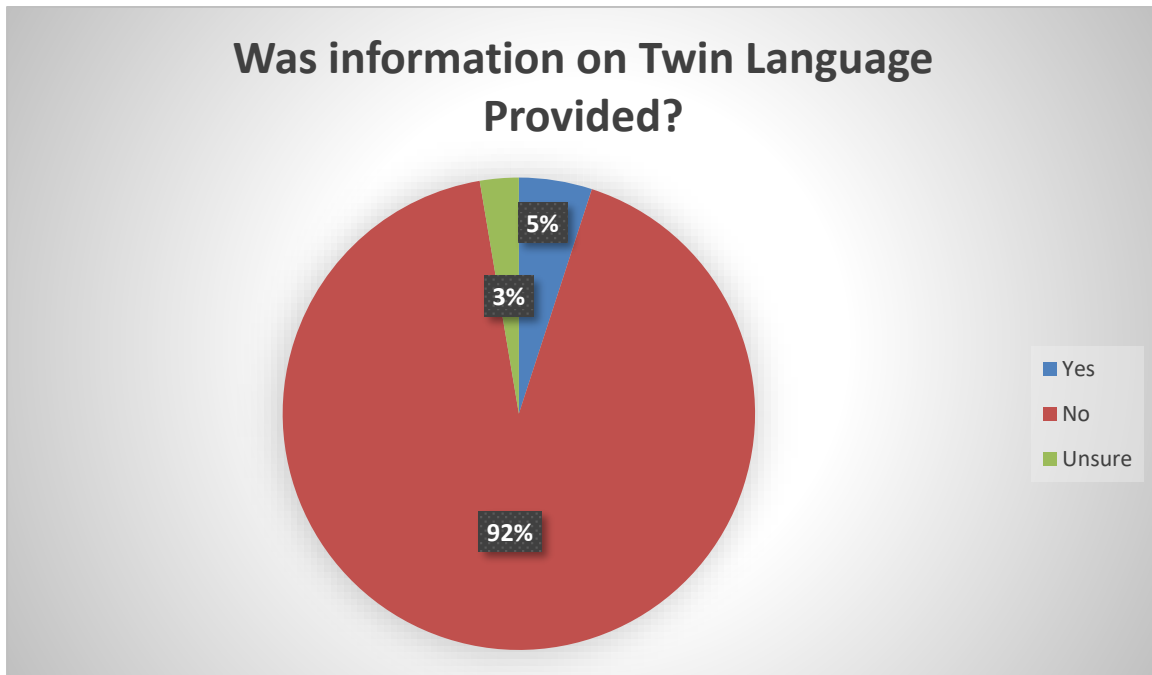


There were 974 responses to this question. Whilst 501 of the responses answered no, the results found that 347 (35%) of families considered their twins to have/had their own language and 126 (12%) responded that they were unsure, 3% skipped this question. In addition to this data, there were 115 free text comments for this question. Using content analysis, the main themes to come out of these responses were:

1. Understanding/ Understanding what the other is saying – 76 (38+29+9) responses.
2. Twin/own language (including body language) – 33 responses.
3. Speech/Speak/Talk - 28
4. Babble/made up/own words/nonsense/gibberish - 23.
5. Communication – 12
6. Twins translating for others -4

Q.10. Were you provided with information about twin language development before your twins turned two?

FIGURE 9: THE INFORMATION ON TWIN LANGUAGE FINDINGS FROM THE RESPONSES ARE SUMMARISED IN THE FOLLOWING CHART.

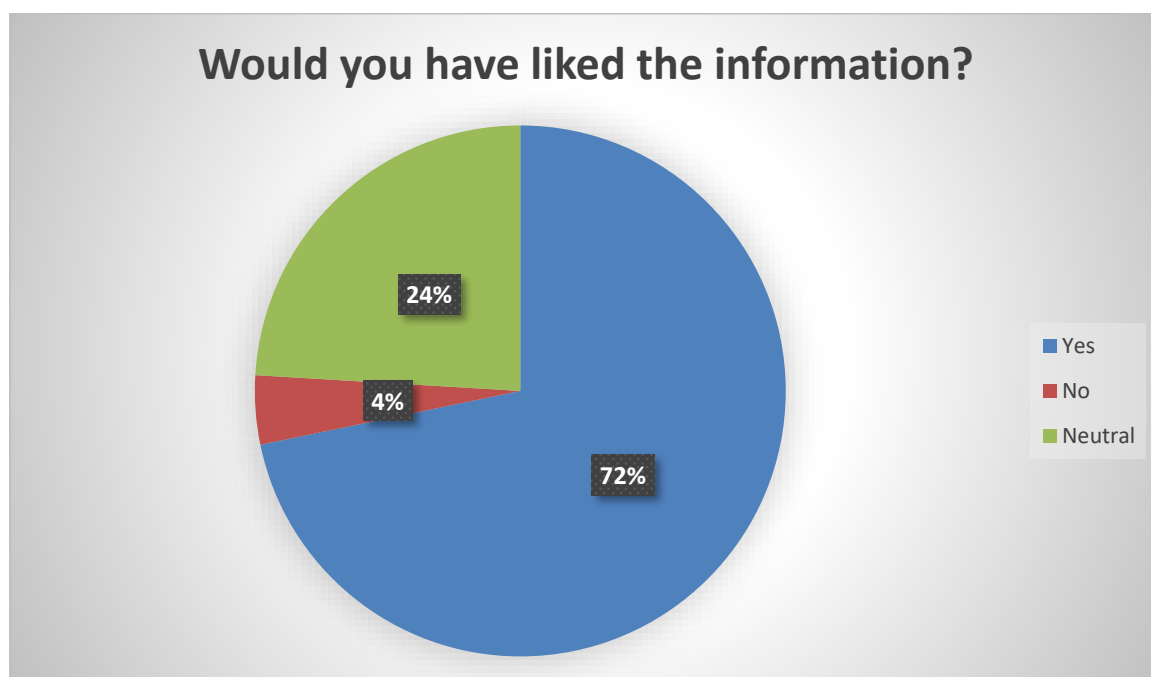


There were 979 answers to this question. Whilst 26 parents were unsure if they had been provided with any information regarding twin language development, 49 families had received information and the majority of responses, 904 parents had not.

Q.11. Would you have liked to have been provided information on twin language development at an early stage? (Birth - two years of age).

There were 977 responses to this question. 701 of the respondents answered that they would have liked to be provided with relevant information on twin language development, with only 41 respondents answering no. There were 235 respondents who felt neutrally about the question.

FIGURE 10: THE PREFERENCE FOR INFORMATION RESPONSES IS SUMMARISED IN THE FOLLOWING CHART.

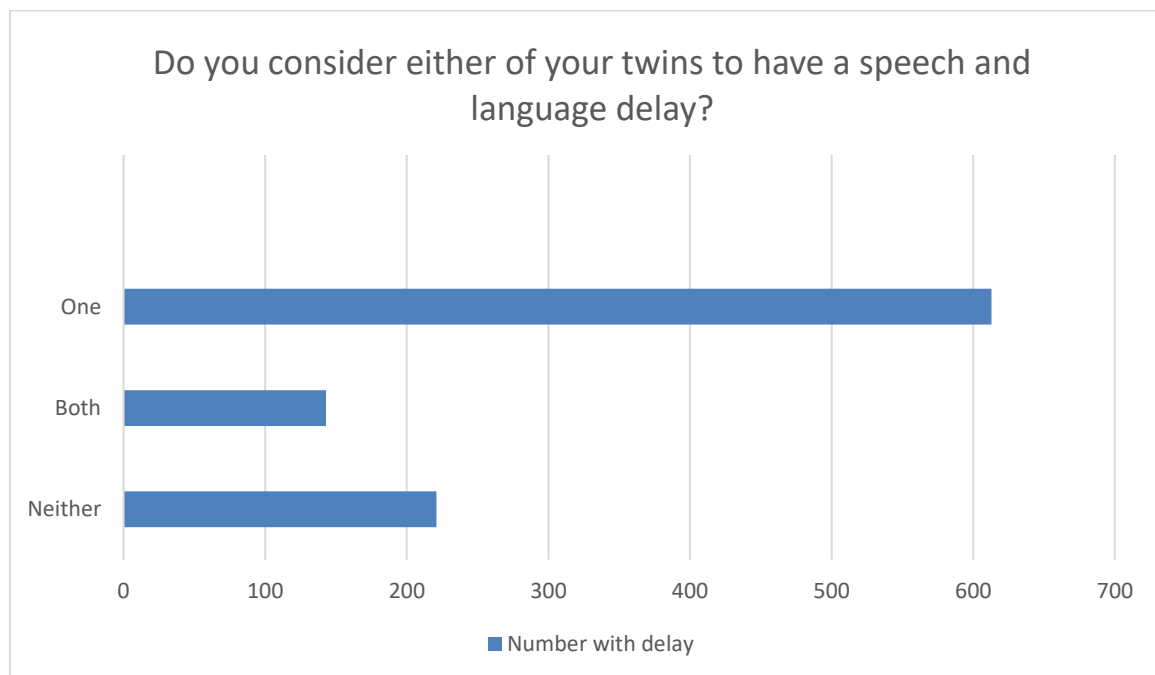


Of the 977 responses there were also 35 free text answers to this question. The analysis from the free text data found that, the overarching theme of wanting more information in the first years was significant, with the highest number of free text comment. The three other main emerging themes were:

Firstly, the need to do their own research when information was not available/provided, respondents commented that, "I was able to research it myself" and "I used resources from Twins Trust (then TAMBA)". Secondly that health and educational professionals were not aware of the problem or of any information, for example, "it might have been helpful for health or educational professionals to have been aware of the developmental differences between twins and singletons". Finally, for respondents that had answered no or neutrally to the need for information, was because they had known the information already due to working in the relevant field, for example, "My husband used to be a speech therapist so no need" and "I have worked in nurseries since I was 16 so I already had knowledge of language however if I had not got this knowledge I would have appreciated some support".

Q.12. Do you consider either of your twins to have a speech and language delay?

FIGURE 11: THE RESPONSES FOR THE NUMBER OF TWINS WITH SPEECH AND LANGUAGE DELAY ARE SUMMARISED IN THE FOLLOWING GRAPH.

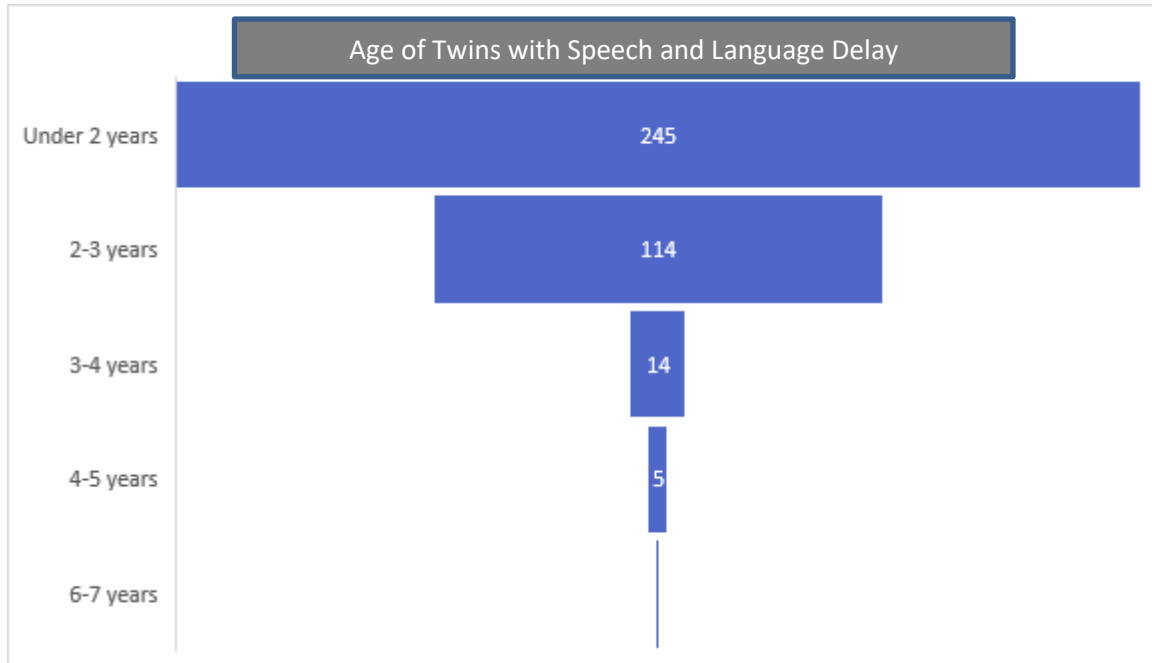


This question was designed to consider parental perspectives of the occurrence of speech and language delay. There were 977 responses to this question. 23 respondents skipped this question. This potentially could be that the children may be too young for this to be clear yet. Of the responses, 221 answered that they felt one twin had a delay, whilst 143 answered that both twins had a delay. This equates to a total of 507 children whose parents consider them to have a speech and language delay, 25.35% of the 2000 (1000 responses each with twins) children included in the responses from the survey. This means that of the 1000 respondents to the survey, 36.4% of families have a child considered to have a delay. This is equivalent to just over one third of all families with twins. If you look at this comparatively, against the incidence of multiple births in England, there were 9656 sets of twins born in 2019 (ONS, 2019), this will equate to 3515 families with either one or both children having a speech and language delay.

At this point respondents were asked to carry on with the questionnaire questions 13 to 26 if they had answered that one of both children were considered to have a delay. Respondents that answered neither were asked to skip straight to question 27.

Q.13. How old was your child when you noticed the speech and language delay?

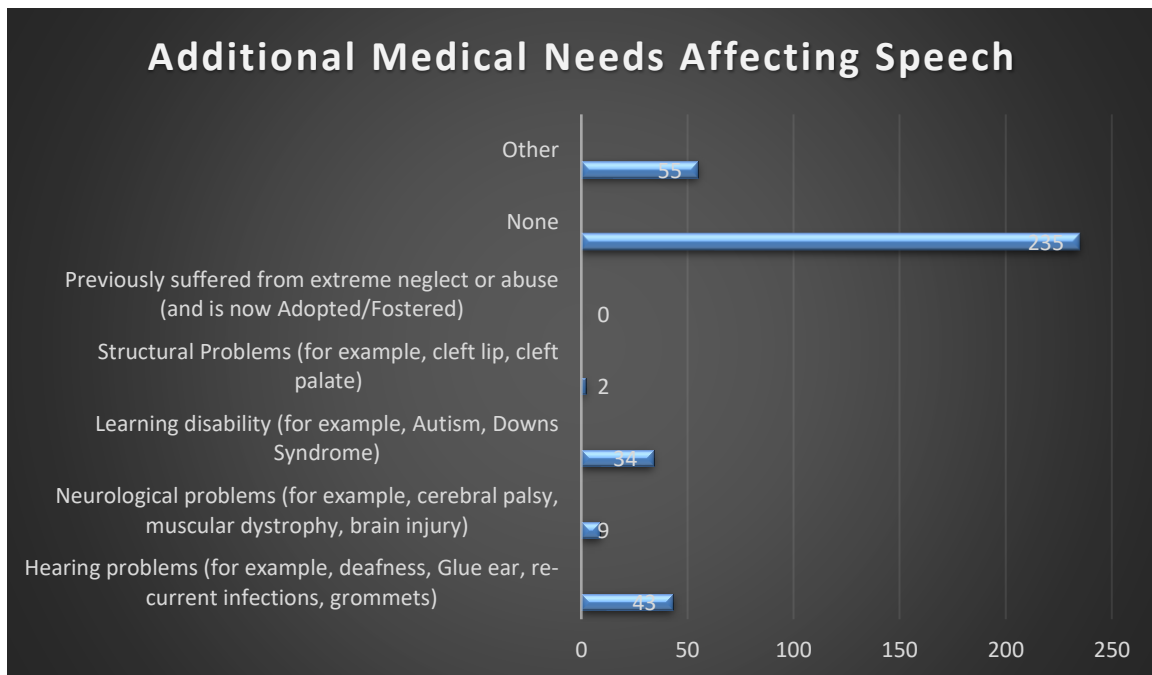
FIGURE 12: THE RESPONSES FOR THE AGE OF TWINS WITH SPEECH AND LANGUAGE DELAY ARE SUMMARISED IN THE FOLLOWING GRAPH.



379 respondents answered with the age they noticed their child/children had a delay. This suggests that more children than the 364 respondents from question 12 are considered to have a delay, however they had not responded to the previous question. 64.64% of respondents noticed their child had a delay before the age of two years. These figures are significantly higher than results found in a study by Rice et al., (2014). In a study of 473 sets of twins, followed since birth and compared to singleton children, they found that at 24 months old, 31 percent of fraternal twins had language delay, which rose to 47 percent in identical twins.

Q.14. Does your child with the speech delay have any other medical need which may have affected their speech?

FIGURE 13: THE RESPONSES FOR ADDITIONAL MEDICAL NEEDS ARE SUMMARISED IN THE FOLLOWING GRAPH.



364 respondents answered that their child/ren had a speech and language delay. This is over one third, 36.4%, of all families that responded, being affected by speech and language delay. 235 respondents answered that they considered there to be no additional reason attributed to the speech and language delay. 221 respondents answered that only one of their twin pair had a delay, whilst 143 respondents answered that both of their twin pair had a delay, therefore equalling 286 children. In total this equates to 507 children having a speech or language delay. This means that, over a quarter of all children included in the survey, 25.4%, are considered to have a speech and language delay. Of these, 129 respondents answered that, one or both twins have an additional medical need that could have contributed towards the Speech and Language delay. This equates to 143 children from the cohort. This again is equivalent to over a quarter of the group, with 28.2% of the children affected. Fifty-five respondents answered 'other' for this question. Coding analysis of the 'other' category brought forward new areas to be considered. These are summarised in the following table:

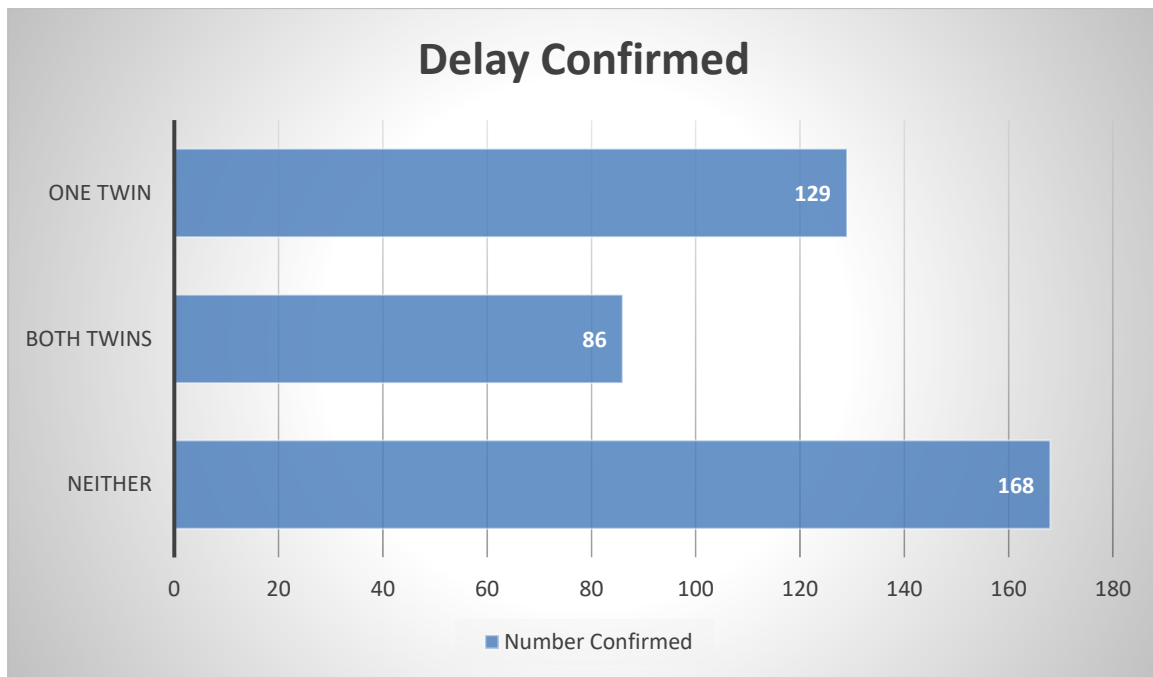
FIGURE 14: TABLE OF OTHER MEDICAL NEEDS

Other Medical Need	Total
Awaiting Autism diagnosis	16
Awaiting Hearing diagnosis	7
Global Developmental Delay	5
Sensory Processing Disorder	4
ADHD/ADD	3
Lung and Heart problems	3
Selective mutism	3
Hypertonia and Hypermobility	2
Visual impairment	2
Low muscle tone and Klinefelter syndrome	1
Apraxia of Speech	1
Under assessment for tripping and falling	1
Dysphagia and Gastroesophageal Reflux Disease (GERD) with vocal cord damage	1
Developmental Coordination Disorder (DCD)	1
Severe airway disorder	1
Auditory processing disorder and Dyslexia	1
Audio Neuropathy	1
Undiagnosed learning disability	1
Bosch-Boonstra-Schaaf optic atrophy syndrome	1
Chromosome disorder, 16p12.2 deletion	1
Benign essential tremors	1
Oesophageal atresia, and multiple throat surgeries	1
Underactive thyroid	1
Respiratory issues and recurrent viral infections. Suspected asthma, enlarged adenoids and tonsils removed via surgery last year, floppy larynx and sleep apnoea.	1
Feeding Issues	1

Underweight/possible hormone deficiency	1
Anxiety	1
Awaiting behavioural assessment	1

Q.15. If your child/ren has a delay was this confirmed by a speech and language professional?

FIGURE 15: THE RESPONSES FOR THE CONFIRMATION OF SPEECH AND LANGUAGE DELAY ARE SUMMARISED IN THE FOLLOWING GRAPH.

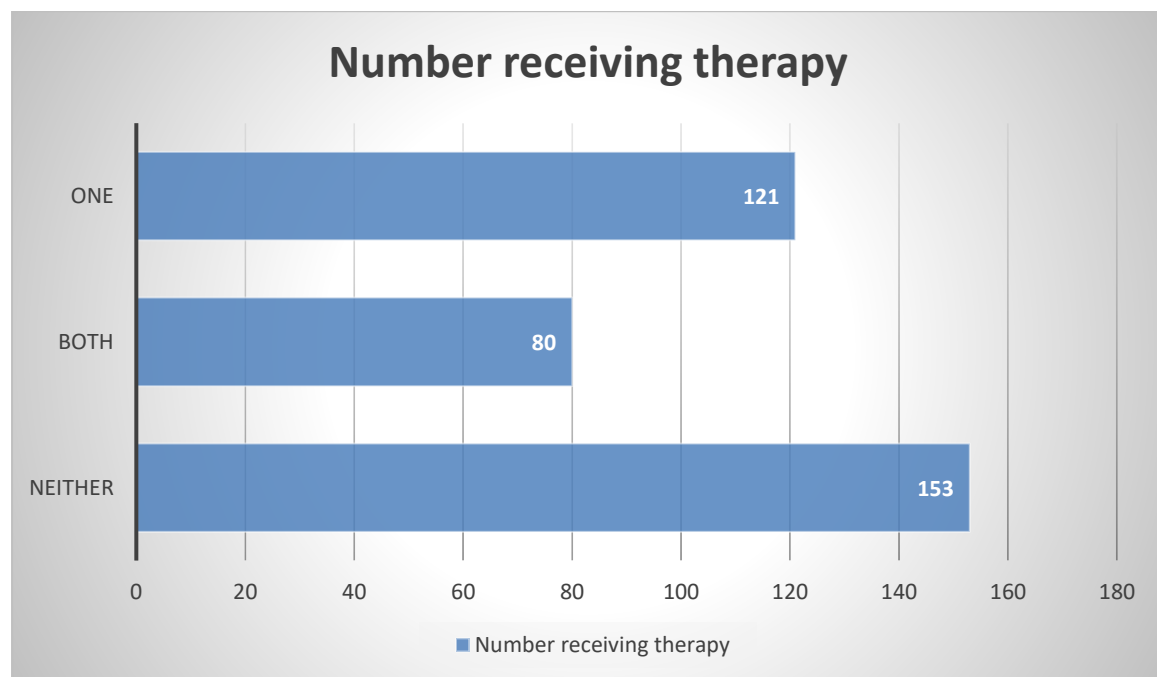


Of the 507 children, whose parents considered them to have a speech and language delay, (221 one twin delay, 143 both twins delayed), 301 children had their speech and language delay confirmed (129 one twin confirmed, 86 both twins confirmed). 168 parents had neither confirmed.

Q.16. If yes, did/do they receive speech and language therapy for this?

Further to question 15, of the children who had had their speech and language delay confirmed, nearly all of them went on to receive speech and language therapy. 121 out of 129 single twins confirmed and 80 out of 86 both twins confirmed. The children that had not had their delay confirmed also went on to receive no therapy, 153 out of 168 sets.

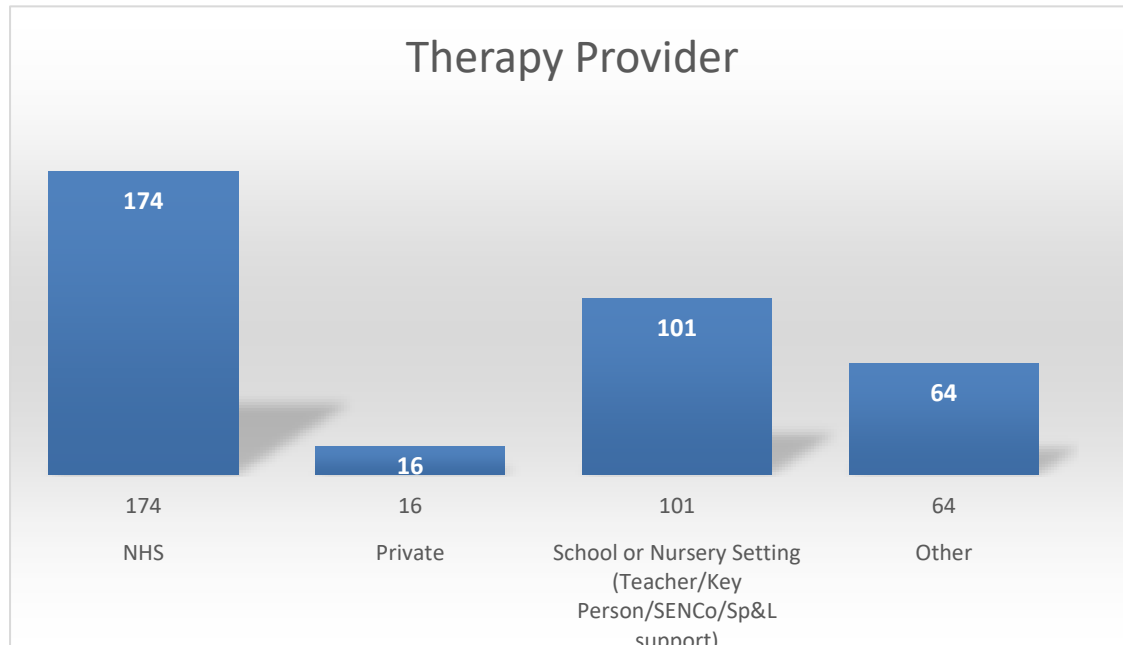
FIGURE 16: THE RESPONSES FOR THE NUMBER RECEIVING THERAPY ARE SUMMARISED IN THE FOLLOWING GRAPH.



Q.17. Who was this from (select all which apply)

The largest provider for this was the NHS speech and language therapy, accessed by 174 families, this is equivalent to 49% of the therapy provided. Second to this was therapy offered in an educational setting, with 101 responses equalling 28% of the provision, and 16 accessed private speech and language support, equal to 5% of the responses.

FIGURE 17: THE RESPONSES FOR THE THERAPY PROVIDER ARE SUMMARISED IN THE FOLLOWING GRAPH.



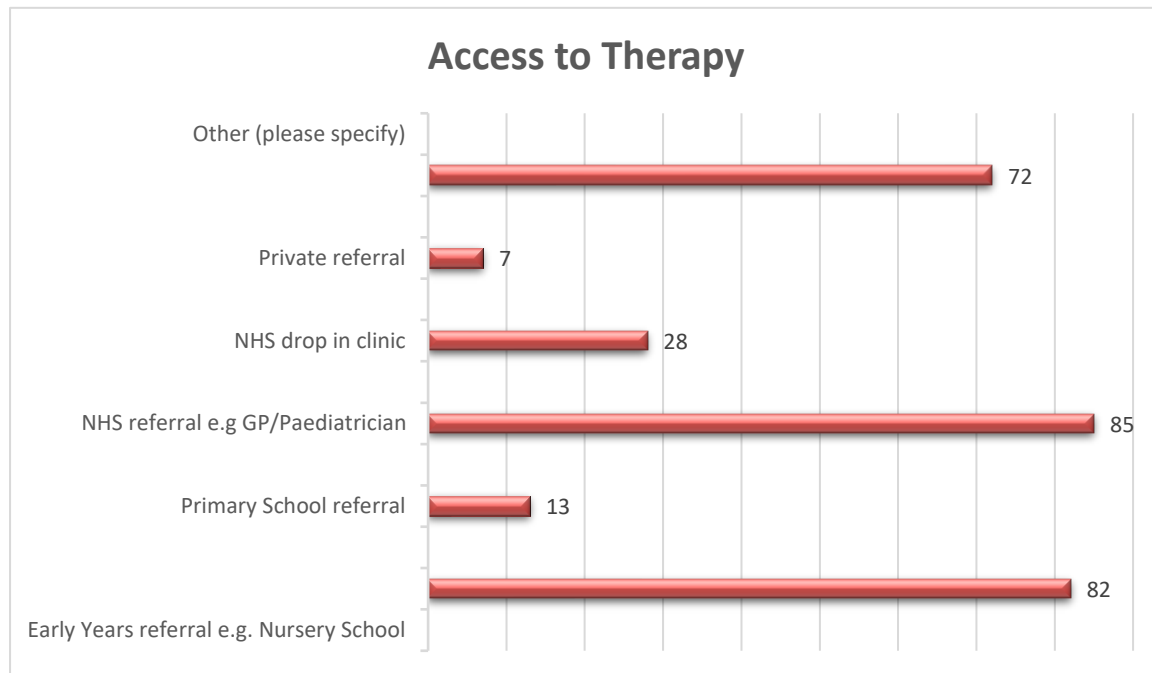
There were also 64 other responses, 18%, which represent additional provisions summarised below:

- Health Visitors
- Children's Centre
- Sure Start
- Facebook study
- Twin Facebook group
- Local Twins group
- Speech Pathologist (Free healthcare – respondent in Canada)
- Portage (home-visiting educational service)
- NHS – Video session
- Parents
- Specialist Inclusion Support Service
- Child Psychologist

Q.18. How did you access the speech therapy in your area?

The largest result was 85 responses from an NHS referral or paediatrician; second were referrals from an early years setting with 82 responses; 28 NHS drop-in clinic referrals; 13 primary school referrals and 7 private referrals. Further to this there were 72 other responses.

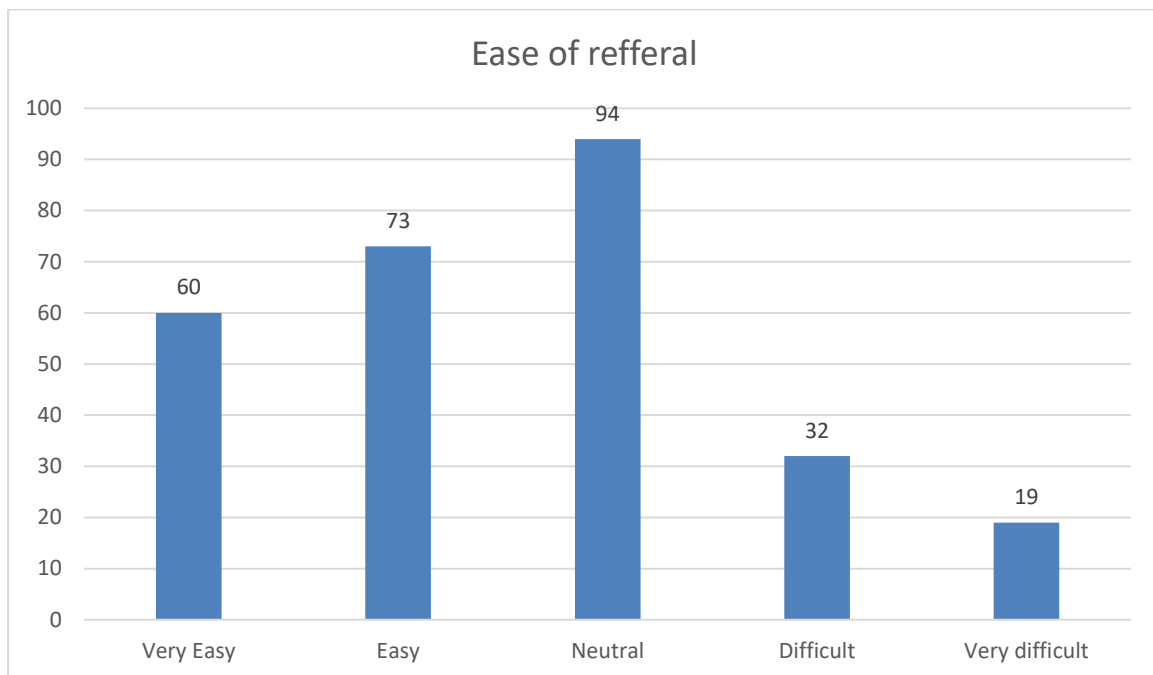
FIGURE 18: THE RESPONSES FOR THE THERAPY ACCESS ARE SUMMARISED IN THE FOLLOWING GRAPH.



The 72 other responses were analysed and coded, which identified that 24 families had not had a referral as they had not had the delay diagnosed, whilst an additional 15 families were waiting for referrals. Health Visitors were identified as making 20 referrals, followed by the Children’s Centre with 6 referrals. 3 families had made self-referrals, 2 referrals came from the National Portage Association, 2 families were carrying out their own approach at home, 1 parent commented that the NHS drop-in clinic made a referral for support and 1 referral came from a young person’s mental health charity. The role of Health Visitor and Children Centre referrals are clearly significant in accessing speech and language therapy, particularly at a younger age, as Health Visitor care is usually finished by the time a child starts primary school, “Health visitors lead the Healthy Child Programme (0-5 years) and are fundamental in ensuring every child has the best start in life” (www.nhs.uk, 2021).

Q.19. Did you find the referral process straight forward?

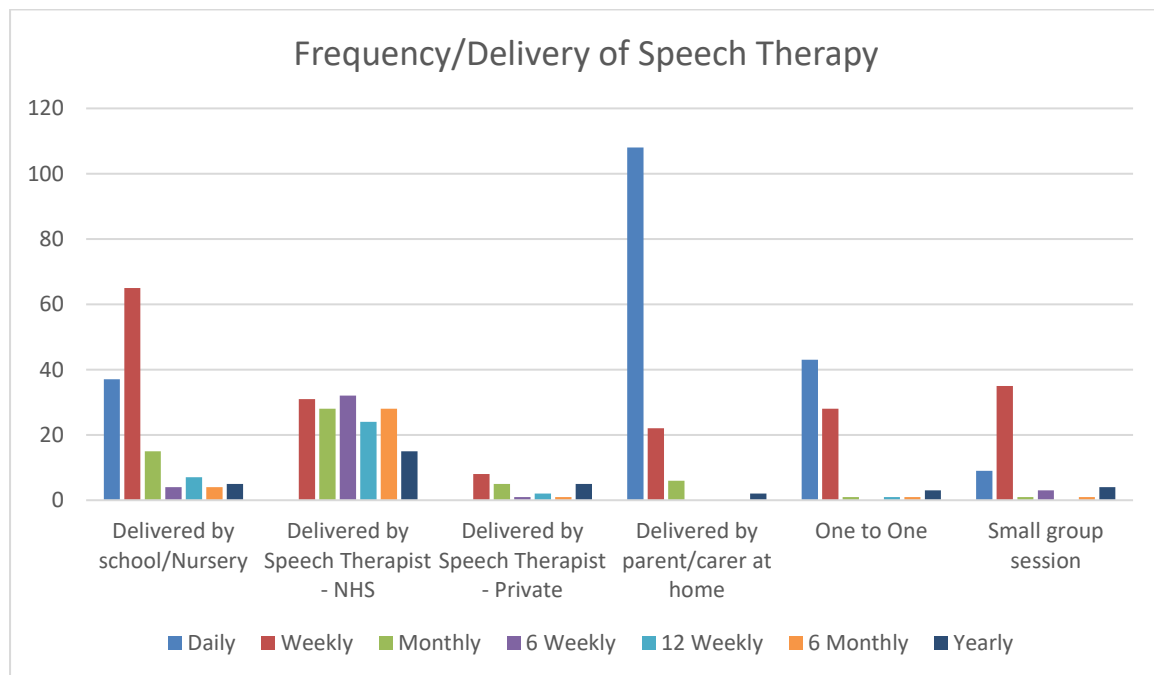
FIGURE 19: THE RESPONSES FOR EASE OF REFERRAL ARE SUMMARISED IN THE FOLLOWING GRAPH.



There were 278 answers for this question. Whilst 133 participants rated the referral process very easy/easy, 94 were neutral about the process and 51 participants rated the process difficult/very difficult.

Q.20. How often did/does your child receive their speech therapy? Who is this from? Is it one to one or in a group? (For example, a child may see an NHS therapist once a term to set targets but may receive daily sessions at school). Please select frequency, who by and session type e.g., 1:1, for all that apply.

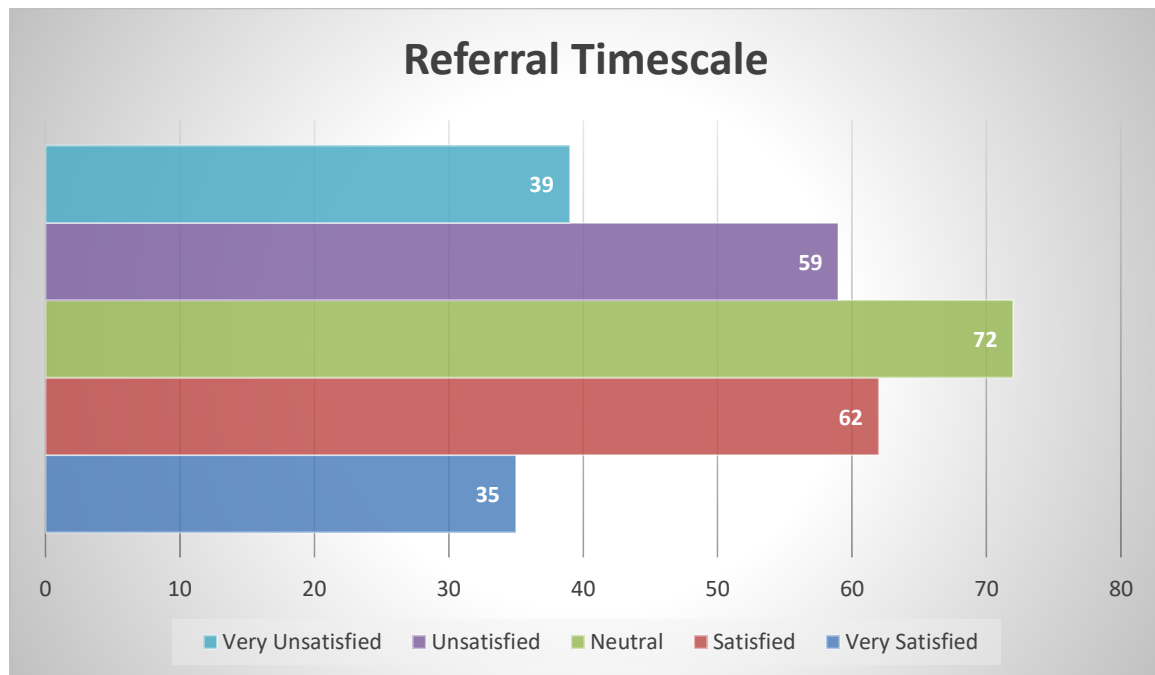
FIGURE 20: THE RESPONSES FOR FREQUENCY AND DELIVERY OF SPEECH THERAPY ARE SUMMARISED IN THE FOLLOWING GRAPH.



There were also 79 further free text comments to this question. When analysed and coded, showed that; 29 families were still waiting to find out about the type of intervention and the frequency it would be delivered, 14 had responded that the intervention was too short, 6 had put in place their own home approach, 5 were part of a mixed group, 4 responses were for specific 1:1 delivery, 3 were hearing impairment specific, and two were in school. Further to this, 8 respondents felt that the intervention they had received had made no difference, was not enough or was not acceptable, and left statements including, “group sessions were weekly for 6 weeks but there were more than 20 other children and their parents there” and “that the two courses they had already done were the wrong ones for the needs for the boys (speech disorder) so they were a total waste of time (hence we hired a private therapist)”. Another parent commented that, “Speech and language is not consistent and feel this has had a negative on her”.

Q.21. Were you satisfied with the timescale to be referred and seen by a professional?

FIGURE 21: THE RESPONSES FOR REFERRAL TIMESCALE ARE SUMMARISED IN THE FOLLOWING GRAPH.

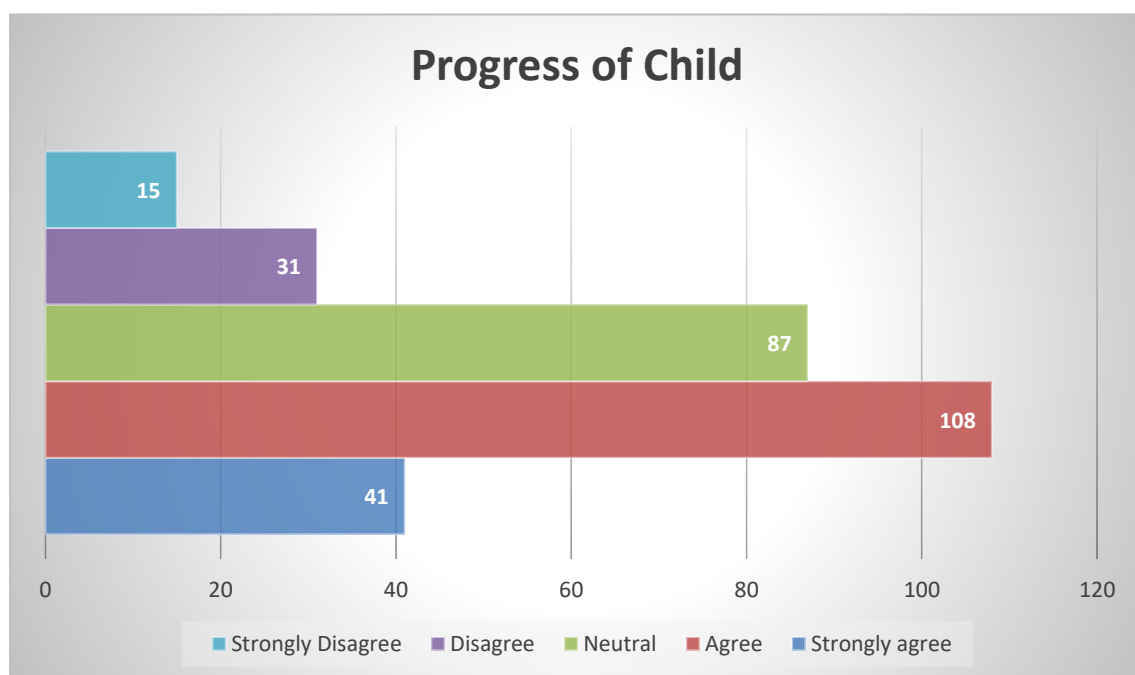


There were 267 responses to this question. 98 respondents answered that they were very unsatisfied or unsatisfied with the amount of time taken to be referred and seen by a professional. 72 respondents were neutral, whilst 97 respondents were satisfied or very satisfied.

Q.22. Do you feel your child is making good progress?

From the respondents who determined their child had a speech and language delay, both confirmed and not confirmed, there were 281 responses to this question. 46 respondents answered that they either strongly disagree or disagree that their child is making good progress with their speech and language development. 87 respondents were neutral. Further to this, a much higher proportion, 149 responses, agreed or strongly agreed that their child was making good progress.

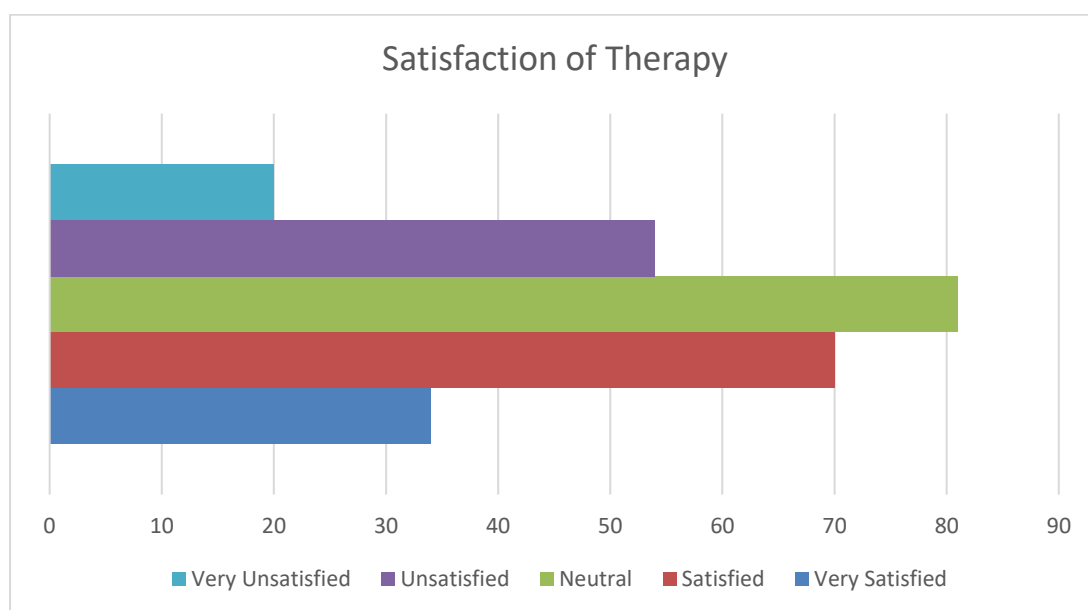
FIGURE 22: THE LIKERT SCALE RESPONSES FOR PROGRESS ARE SUMMARISED IN THE FOLLOWING GRAPH.



Q.23. Are you satisfied with the speech therapy your child received?

The results of this study found that, from the 259 respondents, 74 were very unsatisfied or unsatisfied, 81 were neutral, whilst 104 were satisfied or very satisfied.

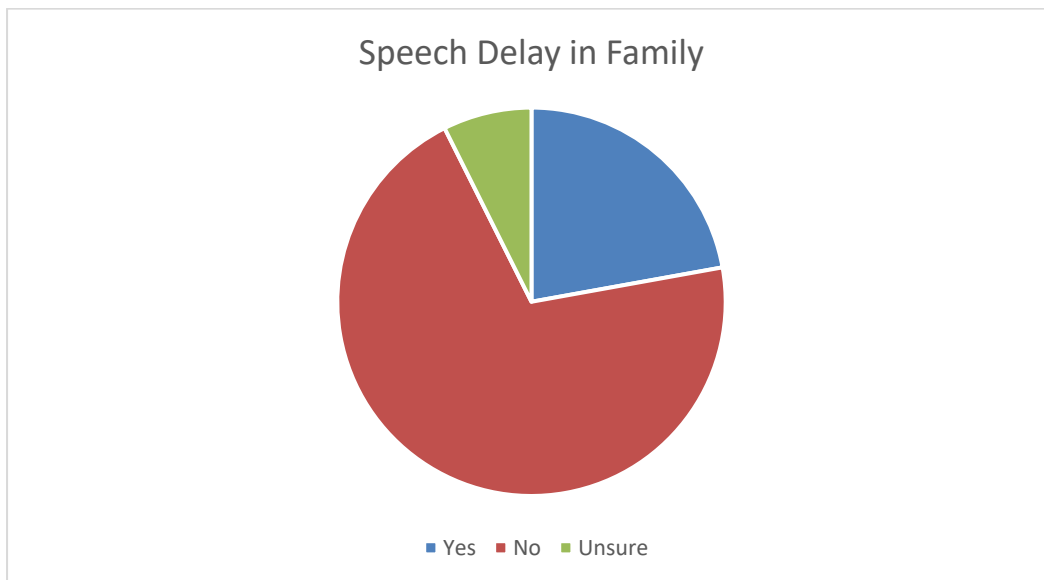
FIGURE 23: THE LIKERT SCALE RESPONSES FOR SATISFACTION ARE SUMMARISED IN THE FOLLOWING GRAPH.



Q.24. Did anybody else in the family have a speech and language delay?

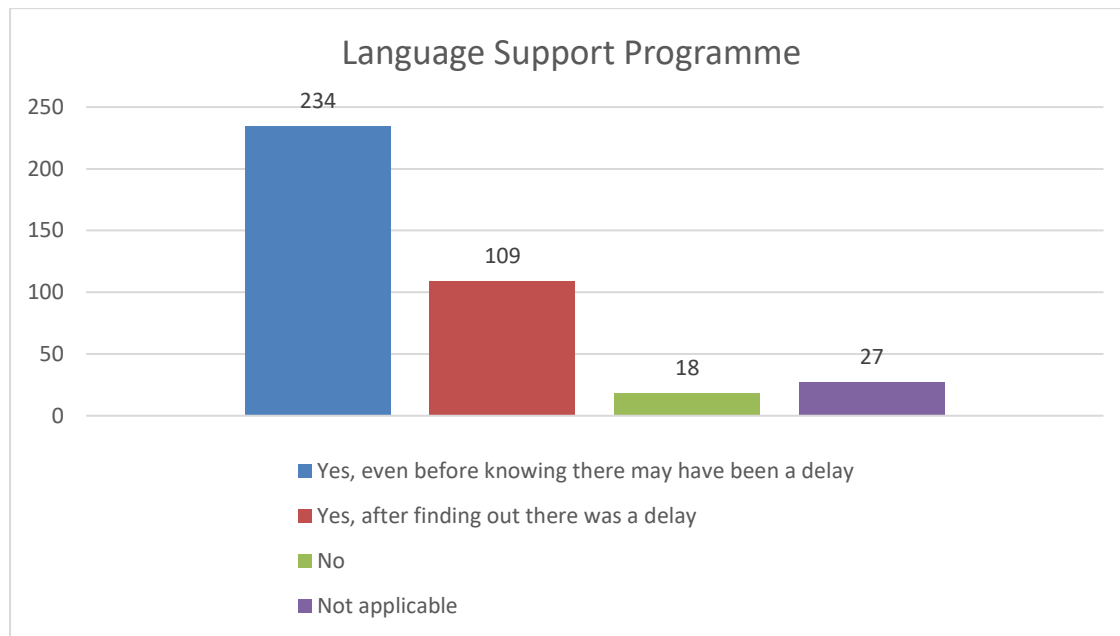
379 respondents answered as to whether there was any prevalence of speech and language delay in the family. Whilst 70.45% of respondents answered no, 7.39% were unsure and 22.16% answered yes. There were also 73 free text answers to this question which identified the family link further. From analysis these were classified as: 37 respondents had 1 or more siblings with a speech and language delay (3 of these were the other twin, whilst 34 were all singleton siblings); 12 Aunt or Uncle; 11 Mother; 11 Father; 3 grandparents; 3 cousins and 2 great aunt or uncle. 5 respondents also noted that they had more than one family member with a speech and language delay, also included in the above figures.

FIGURE 24: RESPONSES FOR FAMILY HISTORY OF SPEECH DELAY ARE SUMMARISED IN THE FOLLOWING GRAPH.



Q.25. If there was a specific speech and language support program designed for twins, would you have involved your children in this?

FIGURE 25: RESPONSES FOR INVOLVEMENT IN SPEECH AND LANGUAGE SUPPORT ARE SUMMARISED IN THE FOLLOWING GRAPH.



There were 388 responses for this question. 18 participants said they would not have chosen to be involved, whilst 27 answered that it was not applicable for them. Referring back to question 12, there were 365 participants who identified that they felt either one or both of their twins had a speech and language delay. Of these, 109 participants said they would choose to be part of a speech and language support programme, after they had found out there was a delay, whilst 234 participants indicated that they would choose to be involved, even before they knew there was a delay. A total of 343 out of 365, equivalent to 94% of participants suggesting they would uptake a relevant programme of support.

Q.26. What services or support would you have liked to be available for your child?

There were 214 free text responses for this question. The word cloud below is an illustration of the frequency of responses. Multicolor word clouds use both color and size to indicate the number of times a word or phrase was mentioned. This gives a clear visual representation of significant re-occurring, words, themes and trends that appear as part of the research data analysis.

FIGURE 26: WORD CLOUD ILLUSTRATION OF SUPPORT RESPONSES.

knowledge referral behind additional waiting
lists find now sooner assessment given years assessed
make one nursery see two boys son speech
language feel development referred sure
wait private speech
therapy told therapy home Early time acces
S appointments said people group parents
health
visitor received communication speech actu
al support Someone twins difficult help m
ultiples delay working sessions since good si
ster children often services available salt
months family school enough take did
not one development age following need None long due
start daughter nhs always understand Unsure informa
tion Quicker
speech delay hard really Extra twin
groups advice much went weeks never know speech
language therapy

Reading the free text comments, there were some extremely powerful responses. It was clear that this is a very emotive subject for parents of twins, with examples such as parental professional experience and instincts being ignored, and the substantial references to having to wait a long time. Using content analysis and coding, I identified the following key themes and the frequency of their occurrence, in answer to the question, what support would you like to have been available for your child:

1. Speech and Language Therapy/Sessions – 109
2. Help and Support – 92
3. Access to a service and/or to/from support group - 29
4. Health Visitor support (this was consistently described as poor) - 17.
5. Early assessment/intervention – 13
6. School support – 12

From questions 27 onwards, all participants were invited to respond.

Q.27. Is your family bilingual? (Do you use two or more languages equally at home)

47 respondents answered that they considered their family to be bilingual, using one or more languages equally at home. There were 31 other responses where participants identified a wide range of European and International languages spoken at home. Three participants identified that they use British Sign Language. There was also reference to different dialects spoken across the UK, and to being within hearing of a second language at home, whilst not speaking it yourself.

Q.28. Which ethnicity would you describe yourself?

There were 998 responses to this question, whilst 2 skipped it. Predominantly answers were from respondents who categorised themselves as White British, followed by white other. There was also a mix of other ethnicities.

Q.29. Who is completing this form?

999 respondents answered this question. Whilst 995 surveys were answered by mothers, 2 were answered by fathers and 2 by grandmothers, 1 respondent skipped the question.

Q.30. Which social class would you describe yourself?

There were 972 responses to this question. 38 respondents answered that they were lower class, 571 working class, 358 middle class and 5 upper class.

Q.31. Please feel free to add any comments

There were also 173 respondents who left further comments, adding to the weight of qualitative data and information participants wanted to give. These responses are considered as part of the discussion.

Q.32. Consent for further contact.

A high number of participants, 332, left their contact details for further contact if needed.

5.4. Summary of Chapter

In this chapter, I outline the qualitative and quantitative data and findings from the questionnaires. I have summarised the data analysis and research findings and explored emerging themes. This also includes summaries and thematic data taken from the free text responses. I explored the research questions and positioned the findings within the research, this also cements notions from previous research. I explored the characteristics of the participants and discuss the parental responses to each of the questionnaire questions.

In the final chapter I present a summary of the thesis and look at the discussions of findings, linked to each research question. It follows with the conclusion and limitations of the research. It considers the scope for future research and ends with the final thoughts, reflections, and contribution to knowledge.

Chapter 6: Discussion and Conclusion

6.1. Introduction

This chapter summarises the discussions offered throughout this thesis, its findings and contribution to knowledge in the field of twin studies and social science and offers closing thoughts. Secondly, it discusses the findings and analysis of the research positioned with the literature and finally it considers the way in which the study was undertaken, the limitations and possibilities for further research. This chapter concludes with my final thoughts and considerations of how this study will contribute new knowledge in the field of twin studies and social science.

6.2. Thesis Summary

In Chapter One I have summarised the content of the Chapters in this thesis. I also laid out the rationale and context for the study, which was to explore the following three research questions:

Research question 1

To what extent do parents of twins feel their children have/had a speech and language delay?

Research question 2

Are there any factors that parents feel may have/had impacted on their child's speech and language delay?

Research question 3

How far do parents feel they have/had been supported with the speech and language delay?

In chapter two I tell my own story: My children – my inspiration; as a way of expressing my positionality and explaining my approach to the research. My narrative is separate from the data in the study, setting the scene for further discussion. My narrative is presented across an approximate seven-year window of time in my life story. It introduces that I am a mum to

four children, two daughters and a set of twin boys, and I work in the field of early childhood education (ECE) as the manager of a nursery school in the southeast of England; and throughout my role, over the last seventeen years, that I have worked with numerous children who have had a speech and language delay, many of whom were part of a twin pair. Adding to this, it was apparent that from a young age my own twins had a speech and language delay, and it was this combination of my professional and personal situations, that directed my academic interest in the field of twin studies, which my story seeks to bring together. The narrative aims to establish the ideas and motivations that have developed my thinking and the importance of parental perspectives in relation to their children's learning and development, and in this case, speech, and language. In the story I showed my own perspective of my children's speech and language delay, and our life around this.

In chapter three I reviewed the literature in relation to the focus of the study and the following key areas; typical language development from birth to five-years, twin development from birth-five years with focus on language development and delay, parental perceptions of twin language and nature versus nature. There are also several interlinked subthemes which are discussed; theories of language development, receptive and expressive language, twin types and zygosity, medical risks in twin pregnancies and twins and disabilities and/or special educational needs and early intervention. These themes were believed to be relevant to the focus of the research about twin language and development and the parental perspectives of this.

The focus of the research was to explore the number of twins that have a considered speech and language delay, using parental perspectives and exploring the factors behind this. It looked at the number and types of interventions on offer and accessed by children, and how far the parents feel they have been supported with their child's speech and language delay. It also looks at several potential influencing factors which may affect speech and language acquisition, including premature birth, low birth weight, siblings close in age and being part of a large family, all of which are factors that are more common in multiple birth families. Other additional factors consider siblings as role models for speaking.

In the first of the four key areas, I reviewed the literature of what is known to be typical language development from birth to five years. Encompassing theories of language

development and receptive and expressive language, this was necessary to examine before I would go on to consider what constitutes atypical development.

In the second of the key areas, I looked at twin development from birth-five years with focus on language development and delay.

The third section discusses the literature on nature versus nurture and twin types and zygosity.

The final section is a review of the literature on parental perceptions of twin language, and includes the sub themes, a discussion of medical risks in twin pregnancies, disabilities and special educational needs and early intervention.

Chapter three concludes with a review of the literature that I have summarised in relation to the research focus. Within the existing research, I was looking for trends such as, occurrences of twins with speech and language delay being more frequent than that of their peers, background and birth factors, occurrences of speech and language delay of twins that are attending early years' provision compared with those that do not and uptake of speech and language therapy and progress through developmental outcomes. Further to this, taking into account parental perspectives of their own child's speech and language delay journey. These ideas did not appear in as much detail, or as frequently as I presumed, they would, in the existing literature. This, however, was a positive factor as it meant I was developing an original piece of research, with an original contribution to the field of twin studies and social science.

In chapter four I discuss the methodological framework, methods, and approaches to the study, and considers the research topic and questions, research procedure, the approach to data analysis and ethical considerations. After the introduction to the chapter, follows a discussion of the decision making for my research topic and the finalisation of my research questions. I considered both my professional role in early childhood education and the ideas and trends that I had become aware of through this, and my personal narrative, of a mother of twins with speech and language delay. I used my Narrative and positionality as a basis for the study, paired with questionnaires to gain parental responses and perspectives. As well as my own narrative, I wanted to draw on the responses of the participants, taken from the questionnaires, to follow their journeys and to acknowledge them alongside my own.

In the next section I discussed the methodological framework and approaches to the study. It proposes a “pragmatic” paradigm, to encompass the different world views of the participants and a mixed-method analysis of data. The next section follows with an exploration of questionnaires and narratives as methods for data collection. It follows with an explanation of the method and procedures for conducting the study, including identifying participants, samples and piloting the study. It then moves on to data analysis, coding, and thematic findings from the content analysis. I used content analysis, with a combination of the online analysis system, and an excel spreadsheet where I exported the data and manually input the responses from the free text sections and created a coded system. The chapter concludes with a discussion of ethical considerations for the research, the original claim to knowledge, and a summary of the chapter itself.

In chapter five, I present my data, findings, and interpretation to create meaning from the data.

The thesis finishes with chapter six, where I discuss my findings, conclusion, and final thoughts.

6.3. Discussion of Findings

This thesis has identified key areas and insights, positioned with and alongside parental perspectives, which has enabled me to address my three research questions.

Research Question 1

To what extent do parents of twins feel their children have/had a speech and language delay?

The findings for occurrences of speech and language delay in twin pairs were high, 34.6% of parents considered either one or both twins to have a speech and language delay, (221 one twin delay, 143 both twins delayed), over one third of the population of this study. To break this down further, 99 responses were for identical twins, 36 noted that one twin had the delay and 63 identical pairs both had the delay. In fraternal twins, 265 responses, 185 noted that one twin had the delay, whilst 80 pairs both had the delay. This relates with the general population of twins being one third identical and two thirds fraternal, in that just over two thirds of the twin population with the delay are fraternal, and one third with the delay, identical. This also means that percentage rate for the level of speech and language delay in twins is relatively consistent whether identical or fraternal; 38.29% of fraternal twins and 32.24% of identical twins. Thus, highlighting the notion of having a speech and language delay, simply because you are part of a twin pair, equally whether identical or fraternal. However, the difference that can be seen is in the breakdown of each. There were more single delay responses for fraternal twins, almost twice the amount of single to pairs, whilst in identical twins, the delay was seen more frequently in both pairs, almost twice the amount of pairs to single; thus, enhancing the argument of identical genes in these pairs. Compared to the occurrences of speech and language delay within children of primary school age, an estimated 10% (ICAN, 2021), this is significantly higher. Within these sets of twins, 28.2% had an additional medical or special educational need that the parents felt was a contributing factor. Of the children whose parents considered them to have a speech and language delay, 301 children had their speech and language delay confirmed by a professional (129 one twin confirmed, 86 both twins confirmed).

When looking at the perceived occurrences of twin language throughout the participants, these were also high. 347 participants out of 974 responses, 35.62%, felt that their twins had their own language, in which only they could understand and communicate with each other. To analyse this further 129 (37.28%), were identical pairs and 217 (62.72%), fraternal pairs. Again, this is representative of the population with two thirds fraternal and one third identical. However, this also suggests that twin language has a higher chance of occurrence in identical twins, with 42% of the identical twin participants compared to 31.4% of fraternal twin participants, using a twin language. I will also acknowledge here that 126 participants answered that they were unsure if their twin were or had used a twin language, which will be picked up again under research question three.

When looking at both the occurrences of speech and language delay in twins, and the frequency of twin language together, 162 participants from the 364 (44.5%) with a speech and language delay, were also considered to use twin language. The development of a twin language could therefore potentially be an impacting factor in typical speech and language development.

From these two key areas, the data and responses highlight that, parent's feel their children were or are significantly affected by or have significant levels of speech and language delay.

Research Question 2

Are there any factors that parents feel may have/had impacted on their child's speech and language delay?

When considering factors that parents feel may have impacted on their child's speech and language, several key areas were identified throughout the literature, research data and thematic responses. As discussed above, there is not a significant amount of difference in the occurrences of speech and language delay between identical and fraternal twins, however incidences of twin language are slightly higher in identical twins. But how do other factors show impact? When looking at the combination of twins, the boy/boy pairings were reported to have more occurrences of speech and language delay with 150 (41.2%) responses. After this, both the girl/girl and boy/girl combination had 107 (29.4%) responses each.

When considering gestational age, the research data found that, the lower the gestational age the higher the prevalence of speech and language delay. Twin pairs that were born at 37 weeks or above, full term, had a rate of 33.25% occurrences of speech and language delay. Twins born between 33 and 36 weeks, the average delivery age for twins, concurred in the research with the most responses of twin pairs born in this age group, had a rate of 35.6%, just a small increase on full term deliveries. However, after this the rates of speech and language delay, significantly increase with lower gestational age. For premature twins born between 29-32 weeks, the rate increases to 48.5%; and at 25-28 weeks, very premature, this rises again to 50%. Furthermore, for twin pairs born at 24 weeks or below, the rate of speech and language delay rises to 100%. It is clear that gestation has a significant impact on the rates of speech and language delay.

Birth weight was also identified as showing relative impact. Twin pairs that were born above average birth weight, 9-12lbs, had no incidences of speech and language delay. Twin pairs of average birth weight, 6-9lbs, had 35.37% occurrences, which was comparative with the low birth rate group of 3-6lbs at 35.24%. Finally twin pairs of very low birth weights, under 3lb, the rate of speech and language delay increases to 48.48%. Therefore, twin pairs of average or low birth rate, showed a rate of delay in line with the overall statistics of 34.6% of twins having speech and language delay, whilst very low birth weight pairs had increased occurrences in almost half of their weight bracket.

Furthermore, comparing gestation and birth weight shows that children in “average” ranges, 36 weeks and above for gestation and 6-9lbs for weight, were not at increased risk of speech and language delay, falling in line with similar ranges to the average rate of speech and language delay in twins. However, when cross referencing the two categories together, it shows that twins who were born with a combination of low birth weight and premature gestation, have significantly higher rates of speech and language delay. Twins born in the 6-9lbs average weight bracket, within the average gestation range, 33 weeks or above, only showed 23.5% rate of speech and language delay. Twins born at average gestation at 33 weeks plus, but in the lower birth weight range of 3-6lbs, had an increased rate of 58.8%; and twins born in both the premature gestation bracket of 29 weeks and below, and in the low birth rate category of 3-6lbs, had a rate of 100% occurrences of

speech and language delay within the participants. Thus, showing that twins who have two influencing factors have a significantly higher rates of speech and language delay.

The next factor to be examined was the number of children in the family. The research data showed that twin pairs who had no siblings, were at no higher risk of speech and language delay. Children in this bracket had a rate of 32.7% in line with the average level of delay in twin pairs of 36.4%. This was also found to be similar for twin pairs with just one additional sibling at 36.5%. After this there is a small increase to the occurrences of speech and language delay, with additional siblings. In families with a further two children that rate increased to 44.4%; three additional children 51.7%; four additional children 47% and five or more additional children 54.5%. On average this shows that the impact of additional children is consistent when considering three or more additional children and does not increase exponentially higher with the addition of further children. However, the research data clearly shows that the number of children in the family does effect speech and language acquisition. Interestingly, I can define this further and look at the birth position of the children in the family, for example, are they younger or older than the twin pair, and does this make a difference. Twin pairs who had younger siblings, on average had a rate of 35.2% speech and language delay, in line with the overall average of speech and language delay in twins; whilst twin pairs with older siblings, had an increased rate of 43.9%. This reinforces the notion that having siblings and larger families, often common in multiple birth families, can influence speech and language acquisition. It also raises the discussion of older siblings not being effective role models for speaking and shared environmental influences.

Furthermore, extending this to look at the family history of speech and language delay, 21.9% of participants with speech and language delay recognised that there were other family members who also had a delay. The largest proportion of these were twin pairs with siblings making up 45% of the group. Next were mothers or fathers with 23.8% followed by 15% aunt or uncle, there were also a small number of responses for both grandparents and cousins, both at 3.8% of responses. Occurrences of speech and language delay therefore showing higher links with siblings of twin pairs. However, when comparing the percentage of siblings and twins with occurrences, this is a small fraction of the demographic, 9.9%, and therefore not a strong indicator for speech and language delay.

When looking at the location twins live, compared against the occurrences of speech and language delay, the attached table shows the percentage of speech and language delay in twins reported by County. See Appendix 4. The table shows the percentage of occurrence of delay in Counties, listed from smallest to largest. Whilst some counties had no participants with delay, Cornwall and Rutland, others had extremely high numbers of participants. It is unclear whether there is any direct correlation with location and occurrences of speech and language delay, however it is interesting to note that, that counties across the midlands, did have slightly higher levels of participants reporting speech and language delay. Although not addressed in this research, there could be scope to consider if there is any relation to different dialects across the country.

The literature and research data show that medical and special educational needs (SEN) are also seen by parents and professionals as influencing factors for their child's speech and language delay. It is also recognised that multiple births are at higher risk of these medical complications, prematurity, and birth complications. Of the 364 participants that responded their child had a speech and language delay, 235 children had no additional medical or SEN, whilst 129 participants listed a further 143 complications, with some pairs having more than one additional factor. These figures suggest that therefore, over one third of the participants, 35.4%, had an additional factor. The largest number of responses fell in the category for hearing problems, with 43 responses, followed by learning disabilities with 35 responses, 9 children were affected by neurological conditions, whilst 2 had structural problems of the mouth. Furthermore, participants left an additional 55 responses, when broken down and categorised, translated into a further 28 conditions. These are listed in Figure 18. After participants that are waiting for hearing or autism diagnoses, the next two highest were Global Developmental Delay and Sensory Processing Disorder.

To examine this further, 37 respondents with additional medical or SEN factors (25.9%) were identical twins, whilst 106 (74.1%) were fraternal pairs. Both identical and fraternal twins had a mix of the listed conditions, the only exception for this was structural problems of the mouth, which were only found in the fraternal respondents. Furthermore, twins of boy/boy pairing had double the amount of medical or SEN factors, 66, compared to girl/girl pairings at 33. Interestingly boy/girl pairings fell in the middle with 44 additional factors.

In addition, 21% of twins that were born prematurely, had additional medical or SEN factors, however, a significant number of low-birth-weight pairs, 68.5%, had occurrences of these factors.

The further factor to be considered with impact to parental perspectives of speech and language delay, is families that consider themselves to be bi-lingual, using one or more languages equally at home. Of the 970 responses to this questions, 47 families consider themselves to be bi-lingual. Of these 17 were families who had either one or both twins with speech and language delay, just 4.7% of the participants with a delay. The research data does therefore not show being part of a bi-lingual family as an impacting factor on speech and language delay.

When looking to see if ethnicity factors on having an impact on speech and language delay, there is no clear correlation. Of the 998 participants that answered this question, 893 categorised themselves as White British. Of these responses, 323 had a speech and language delay, 88.7% of the group with a speech and language delay. However, because the responses from other ethnicities are lower, 101 responses across all other ethnicity categories in total, the equating percentages of speech and language delay, would not be a high enough number to establish a true reflection of any need. The BMJ (2021) suggest that confidence in percentages cannot be clear, when looking at samples smaller than 30, which would apply to the numbers from each ethnicity category.

Finally, when reflecting on the class participants described themselves as, 0.2% of the overall participants with speech and language delay were from the Upper-Class category, 5.8% from the Lower-Class Category, 36.5% from the Middle-Class group and 57.5% from the Working-Class group, however that was down to significantly more respondents answering from these groups. Therefore, when this is examined further, looking at the percentages against the number of all initial respondents for each category (not just those with speech and language delay), the results varied. Whilst the percentage for Middle and Working class are comparable at 36.8% and 36.4%, and in line with the overall percentage of speech and language delay across all participants; the percentage in the Upper-Class category is higher at 20% and the percentage of all respondents who categorised themselves as Lower-Class with a speech and language delay is 55.3%, therefore showing a higher occurrence of speech and language delay for these families.

Research Question 3

How far do parents feel they have/had been supported with the speech and language delay?

When considering the support parents feel they have received, I reviewed the following factors; if information about twin language development was provided at an early age (before two years old), whether families had a formal diagnosis, if they received therapy, who this was provided by and how they accessed it, timescale for referrals, the frequency therapy was received, levels of progress and satisfaction of the system and provision available.

When considering whether information about twin language development was provided to families of twins, before the age of two, a very high number of families received no information. 904 families (92.34%) answered that they had been given no information, whilst a further 26 families were unsure if any had been provided. Out of the 979 respondents that answered this question, only 49 (5 %) answered that they had been given relevant information. This question is the first indicator that the overwhelming majority of parents, had no initial information or support regarding speech and language delay.

Further to this, participants were asked whether they would have liked to have been provided this information at an early stage, (between birth to two years). There were 977 responses to this question. Only 41 respondents (4.2%) answered that they would not have wanted any information, whilst 235 (24.05%) that they were neutral about whether or not they would have liked the information. However, there were 701 participants (71.75% of the group) who responded that they would have liked this information to be provided at an early age. When considering parental voice and perceptions, this is an extremely large group of people who felt they would have liked to have been provided with the information, indicating that the early support for speech and language delay was not available. Further to this, 35 participants left additional comments, which help to explore whether parents felt supported further.

Two of the parents that answered no left further comment; one did not want the information as they live in a bilingual household, so presumed their language development would always be different for this reason. The second responded that, they had experience and long history working in the field of early childhood education, so felt it was not needed

as they knew what to expect. However, they also added that if this had not been their profession, they felt they would have liked the information and support.

In addition, there were 12 responses left from the neutral group. Five of these found the information themselves, but also acknowledged that it would have been useful to have been given the information. A further two respondents again stated that they worked in the field so already had the information. In addition, two others answered that they would have liked the information to be given, but either when they started to have concerns, or when the time was right, so not to have information overload. All adding to the argument that parents did not feel supported with speech and language delay. Furthermore, another comment added that they felt, "it might have been helpful for health or educational professionals to have been aware of the developmental differences between twins and singletons". Of the remaining two responses, one participant noted that their children seemed to have particularly good language skills, so there had not been a need for the information, however interestingly in comparison, the final participant had never thought about the need for early information or support, although one of her twins did have a speech and language delay, which was confirmed by a professional and went on to receive therapy. Again, highlighting the importance of early information and support.

There were 19 comments from participants who would have liked further information. These responses highlighted further depth and important areas for families and poignant comments around parental concerns. These included parent's finding their own information; professional unaware of potential problem; professionals being disbelieving of parental concerns and parent's being told they were using it as an excuse, "I found nobody seemed to be aware of it in nursery and was made to believe I was using it as an excuse"; parental instinct and perseverance; lack of information and parent's unaware there could be a potential issue and an overwhelming need for the information and support. Again, reinforcing that parents felt there was little support available. The comments also raised topics for discussion that have previously been considered including disability, "one of my twins is deaf, I was told, "he's just a boy", I knew something was wrong"; siblings, "my boy twins language development is slow-definitely slower than both of his siblings"; boys versus girls, prematurity, "yes, due to them being premature and the fact twins can be delayed. I

had no idea their speech progress would be any different than my singleton”, and bilingual families.

Next, I considered whether families were able to get a formal diagnosis. Within the 364 families that recognised that their child/children had a delay, 215 of these had a formal diagnosis from a professional, of either one or both twins. This left 145 (40.4%) respondents that had not had a diagnosis, and four that skipped the question. Arguing that this is a significant number of parents that would therefore find it harder to or not be able to access the support needed, without a diagnosis. Further to this I looked at the number of families who were therefore able to access speech and language therapy. Of the 145 families without a diagnosis, 137 participants went on to answer whether or not they had been able to access speech and language therapy. Unsurprisingly, only seven respondents had managed to access therapy for one of their twins, whilst two participants had managed to get therapy for both of their twins. In huge contrast, 128 participants had been able to access no speech and language therapy at all.

In comparison, participants whose twins did receive a diagnosis, were in return much more successful in receiving speech and language therapy. Of the 215 participants who had received a diagnosis, 113 (52.56%) received therapy for one twin, whilst 78 (36.28%) received therapy for both twins, a total of 191 families (88.84%) of the group accessing support. Only 24 participants (11.16%) of this group have not had access to further support. When examining this further, looking at the individualised responses, this group had still been unable to access support, even with a diagnosis. Several had tried drop-in sessions which they deemed difficult to access or unsatisfactory. Whilst others suggested they were still trying to access the support, but were struggling to do so, with others suggesting the referral times and process were too long or difficult. Again, confirming that parents did not feel supported.

Continuing to look at how far parents felt they have/had been supported, for participants whose twins had received speech and language therapy (or had been advised to), the access to this, referral timescales, who it was provided by, and therapy frequency will also be discussed. Within the respondents, the NHS was the main provider of speech and language therapy, seeing 174 (63.5%) of the families. After this, 101 families (36.86%) received therapy via their school or nursery setting (for example, teacher, SENCo, key person),

followed by 16 families (5.84%) who accessed private provision. There were also 64 other responses (23.36%), which is mostly made up of families still waiting for the speech and language therapy. In addition, other examples were Health Visitors, Children's Centre, Child Psychologist, parents, and specialist inclusion support worker. It is also interesting to note that several families received speech and language therapy from more than one provider, accessing a "mixed methods" approach.

Furthermore, access to this therapy came from several different referral sources. The highest number of referrals, 85 (29.62%), were made through the NHS, for example, from a GP or Paediatrician. Following this, Early Years settings, such as nursery schools, were responsible for 82 referrals (28.57%), again highlighting the importance of early years providers and the successfulness of early interventions for children. A further 28 referrals (9.76%) were made after a parent had accessed an NHS drop-in clinic, whilst 13 were made by primary schools (4.53%). There were also seven private referrals (2.44%) of the group. In addition to this, 72 respondents (25.09%) had been referred by other sources. These consisted of, Health Visitor, Children's Centre, self-referral, Portage or via a charity. Several participants highlighted again that they were still waiting for their referrals. Exploring this comment section, also highlighted the number of participants that had a "mixed method" of referral, essentially having been referred by several of the categories, and the need to chase services to get referrals.

This leads on to the question of how straight forward it was to get a speech and language referral. From the 215 families who have had the delay confirmed, 117 families (54.93%) found the referral process easy or very easy, whilst 56 participants (26.29%) were neutral about the process. In comparison, a significantly lower 40 respondents (18.78%) found it difficult or very difficult. This suggests that parents felt better supported at this stage of the process. However, when looking at the satisfaction of referral times, the figures are more balanced. 86 respondents (40.76%) were either very satisfied or satisfied with the referral time, whilst 45 (21.33%) were neutral. In comparison, 80 participants (37.92%) were either unsatisfied or very unsatisfied. From this I could see that participants had a mix of experiences with referral times. Overall, indicating that similar amounts of participants would potentially have felt supported, whilst others unsupported.

Furthermore, the frequency of therapy can also be discussed. For example, parents of twins who received a one-off therapy session, are significantly more likely to feel less supported, than parents whose twins received a course of interventions, or indeed a mixed approach accessing several therapy options. Participants were asked to select the frequency of the therapy, for example weekly or monthly; who it was delivered by, for example a teacher or speech therapist; and the session type, for example one to one or in a group. In total, there were 585 speech therapy combinations selected, meaning that most children were receiving mixed methods of therapy delivered from more than one source, as there were only 201 participants who answered that their children had speech and language therapy.

To explore these further, most therapy sessions were delivered by an NHS speech and language therapist. Although no participants received daily speech therapy, there was an even spread across the other time frames, (weekly, monthly, 6 weekly/1/2 termly, 12 weekly/termly, 6 monthly and yearly), with 158 total responses for this.

Next was interventions delivered by a parent or carer. In contrast, respondents answered that these were mainly delivered daily. From 138 responses, 108 were daily and 22 were weekly, six more were monthly, whilst the remaining two answered that they tried therapy at home on a yearly basis.

Following this is therapy delivered by a school or nursery provision. Again, this had a more frequent spread of delivery, with the majority of sessions being delivered daily (37), weekly (65) and monthly (15). Other lower incidences were also recorded for half termly (4) and termly (7), with six monthly following with 4, and yearly 5.

Therapy delivered by a private therapist again had an equal spread, with no therapy delivered on a daily basis. 8 participants accessed weekly therapy for their twins, with a further 5 having monthly sessions. Furthermore, one participant has half termly therapy and two were termly. Six monthly sessions were also lower at one participant, whilst five accessed private therapy just once per year.

Of the total daily sessions that occurred, the overall majority of these, 43, were one to one sessions, whilst 9 were small group sessions. One participant discussed the process for their one-to-one sessions, "my boys did see their Speech Therapist once a week for so many blocks then would go on a break for 2-3 months then back again. Our Speech Therapist

would have therapy with both boys at the same time...Also gave us handouts of words and sound to work on". Feedback from participants for group sessions was mainly constructive, all with a similar process "Initially parent group session alternative with a children group session for 6 weeks. Then monthly individual sessions", "initially following referral we were invited to and attended group assessment and treatment sessions for 6 weeks, following this he has been seen once per term by NHS SALT in nursery" and "we were given 5 weeks of group sessions (5 children in the group) 1hr per week delivered by SALTs on the NHS". Weekly sessions had a more even spread with 28 one to one sessions and 35 small group interventions, followed by all other frequencies that were delivered equally between one to one and small group session.

There were a further 79 comments relating to this discussion. Again, the overarching theme of these of families who are still waiting to receive their speech and language therapy, with the coding highlighting 29 responses for families that were still waiting and an additional 13 that were yet to hear anything at all. Analysis also showed that 14 participants felt the therapy provided was too short an intervention and a further seven that felt any therapy carried out had made no difference at all, "just seen once and given some exercises to do", "have been seen once in four months and then one phone call" and "the sessions have ended with sure start (only last 6 weeks) but there is no difference at all". Six respondents discussed the strategies and challenges of delivering the speech and language therapy at home, further to this, five families highlighted the group approaches they were part of; four participants with one-to-one therapy and two with sessions delivered at school. Participants also discussed other support that had been provided by hearing services and the addition of sign language.

There were also several standout comments in this section. One family had lost their access to speech and language therapy as they had been moved with the armed forces, even though they were still in the country, and had to start the process again! Another family decided to access private therapy, after being referred for the wrong programme of therapy. They were only advised of this after they had completed the sessions, which set them back 12 months again in the system. The final family shared an insight into their group therapy session, "group sessions were weekly for 6 weeks but there were more than 20 other children and their parents there (plus my other two triplets)". It is clear that these

families experienced a lack of support with speech and language delay, however families that had a smooth referral process and were able to access the intervention, would have had the opposite with a feeling of being supported, these however, are fewer in between.

Finally, when looking at parental support, it is important to discuss the satisfaction of the speech and language therapy received and whether parents felt their child/children is making progress. When looking at satisfaction, 32 participants were very satisfied with the therapy provided and 64 were satisfied. A further 51 participants were neutral, whilst 42 were unsatisfied and 11 very unsatisfied. This would suggest that depending on the experience they had received, the level of support would feel very different, with the group almost equally split, half able to access the support, whilst half feeling left unsupported.

As to whether children were making progress, the findings were predominately positive for participants who had accessed speech and language therapy. 114 families (55%) agreed or strongly agreed that their child was making good progress, whilst 62 participants (31%) were neutral. There was a much lower number of participants, 28 (14%), dissatisfied or very dissatisfied with the speech and language therapy their child had received. Arguing that the majority of these families would have felt they received support for their child's speech and language delay.

When looking at the need for support, the research also explored, if there was a specific speech and language support program designed for twins, whether parents would have involved their children in this? Considering the 365 parents, who felt their children had a speech and language delay, 221 (62.61%) would have accessed a relevant speech and language programme, before even knowing whether their child/children had a delay. This is a significant number of participants prepared to access support, highlighting the potential need for a relevant service. A further 104 (29.46%) would have accessed once they knew their child/children had a delay, again strengthening the argument for parental support in this field. Only 15 participants (4.25%) answered that they would not be interested in this service and two commented that they were unsure and that it would depend on the type of programme on offer.

Further to this, participants were asked to consider, what services or support they would have liked to be available for their child? There were 195 responses for this. Exploring these

further picked out suggestions including; access to twin friendly groups (a problem that was highlighted in my own narrative), including groups run by professionals not just other mums; twin development advice and twin specific information; strategies to put in place at home; access to childcare support and/or additional funding for childcare places; additional therapies, for example, Makaton or British Sign Language; quicker referral and wait times; better knowledge and awareness from professionals; earlier speech therapy assessments for twins and early access to services/early interventions; clarity on the process to access help; consistency within services; increased levels of check-ups compared to singletons; support and teaching for parents to implement therapy; twin support groups; for service providers to listen to parents and to be taken seriously; drop in clinics; more discussion with parents and teachers when making a diagnosis; emotional support for delayed children as they often realise they are different; actual therapy sessions; one-to-one support; twin specialist Health Visitor/professional; online training videos and websites for use at home, and physiotherapy. This is an extensive list of suggestions that parents would have liked to be available, again strengthening the argument that parents felt they were not supported enough with their child's/children's speech and language delay.

When drawing these responses together, analysing the parental voice, there is a clear argument for early interventions and specific teaching to support the speech and language development of twins. Initially, this could be delivered by early years providers, supported by specialist therapists, and the continued with a robust program throughout school provision, until the child has made sufficient progress. Curriculum based assessment and planning, throughout the Early Years Foundation Stage (EYFS) and the National Curriculum for school age children, followed by a relevant scheme of work and support, could be established, so that there is a specific pedagogy of speech and language development for twins. This could be made available as part of standard educational practices and curriculum for all twin children, and furthered with additional support for these children, where assessment tools have shown it necessary, or where there are additional factors such as special educational needs (SEN), as discussed by many participants.

6.4. Conclusion

Above I have looked at the discussion in relation to the three research questions for this study and considered the data and free text from the questionnaire. To further explore the discussion, there were also 173 free text responses, which shows the significance of the weight the participants wanted to add to the argument. Interestingly, many of the comments were thank you messages for exploring, challenging, and looking into this field and area of research; there was also an acknowledgment that twin parents wanted to have more knowledge of twin development.

In conclusion, looking back to the research questions, high numbers of twin parents felt that either one or both of their twins had a speech and language delay, this was over one third of the population of this study. Occurrences were higher in fraternal twins, compared to those in identical twins, which does fall in line with average birth rates of these types of twins, fraternal twins making up two thirds of the twin population, compared to the one third of identical twins. When considering percentages, the rate of speech and language delay in twins is therefore relatively consistent, whether twins are identical or fraternal. These high numbers of speech and language delay, reported by parents, highlight that this is a significant issue for twins and their families. This also reinforces the idea that twins could potentially have a speech and language delay, simply because they are twins. Over one third of the participants, also reported that their twin's had their own twin language, in which only they could understand and communicate with each other, however interestingly, rates were higher in identical twins, compared to fraternal twins. Further analysis also showed that the development of twin language, could be a potentially be an impacting factor on the development of a speech and language delay, with almost half of the group with a speech and language delay, also using their own twin language.

Furthermore, there were many factors that parents felt may have contributed and impacted on the child's speech and language delay. These include, the combination of twins, with boy/boy pairings having higher occurrences of speech and language delay. Gestational age showed that the lower the gestational age, the higher the prevalence of speech and language delay. 50% of twins that were born prematurely, or very prematurely, developed a speech and language delay. This increased to 100% for twins born before 24 weeks. Birth weight was also significant, showing that low birth weight and very low birth rate pairs had

significantly higher occurrences of delay. Importantly, when combining any two or more of these factors together, occurrences of speech and language delay significantly increased. Looking at family structure, age, and place of siblings, also showed that children with two or more siblings, showed more occurrences of speech and language delay, this was also higher for twin pairs who had older siblings. Following this, family history or speech and language delay was also a factor. Twin's that had siblings with a speech and language delay, followed by a mother or father with a delay, showed increased occurrences of speech and language delay. When looking at location of participants within England, it was unclear whether there was any correlation with speech and language delay, however there were slightly higher rates across counties in the Midlands. Medical and Special Educational Needs (SEN) were also found to be an influencing factor. Again, over one third of the group with a speech and language delay had one or more medical or SEN. The largest number of these were hearing problems, again reflected in my own narrative, followed by learning disabilities. There were also a further 28 conditions, listed in Figure 18. Being part of a bi-lingual family was not shown to be an influencing factor, and figures were low for ethnicity, meaning there was not enough data to be able to explore this thoroughly. The class participants also described themselves as was discussed, generally showing an average level of speech and language delay across classes, apart from families who categorised themselves as lower class where the rates rose to over 50%.

When considering how far parents felt they had been supported with their child's speech and language delay, many factors came into account, in general concluding that families had not felt supported. This study is based on responses from 1000 participants. A staggering 930 respondents had been provided with no initial information or support regarding speech and language delay, highlighting a lack of knowledge and support in this area. Further to this, the majority of participants answered that they would have liked to have been provided with this information at an early age. Discussion also arose that some families worked in the relevant field or had decided to do the research themselves. The lack of awareness and knowledge of professional was also highlighted as an area of concern. There was also the notion that professionals were disbelieving of parental instinct and concern. When trying to get a formal diagnosis for speech and language delay, under two thirds of the group were able to get the delay diagnosed, meaning that the remaining 40% without a

diagnosis, would have limited or no access to support, unless they instigated it privately. Only seven families from the group without a diagnosis were able to get further support, whilst 128 did not. Participants whose twins did receive a diagnosis, were much more successful in receiving speech and language therapy. However, this support was often deemed difficult to access or unsatisfactory. There was a large mix of speech and language therapy providers discussed, the main sources including the NHS, school or nursery providers, Health Visitors, and private providers. This also highlighted that many families were on waiting lists for services and that several families were using a mixed method combination of providers for their therapy. The research found that the majority of referrals came from the NHS, such as GP or Paediatrician, followed by Early Years settings. Several other routes were also identified. Parents again highlighted the lack of support whilst waiting for referrals, and the need to continuously chase services. Whilst in general participants felt the referral process was straight forward, referral times included a mix of experiences. However, when looking at the satisfaction of the frequency of therapy that was being provided, participants felt that there should be more sessions and a more structured approach. A range of therapy was accessed, and some were deemed more successful than others. There was a mix of one-to-one and group sessions, each having their place in the therapy, and each having their pros and cons. For example, one-to-one session was good but too long a wait, and not enough sessions available. Some participants felt their group sessions were useful, however, numbers in groups ranged from five to 20 children (plus adults) which was not considered as useful or supportive by the family. Again, the overarching theme from this discussion was parents who were still waiting for their child to receive speech and language therapy, or indeed waiting to hear anything at all. Finally, when looking at support it was important to consider the satisfaction of the therapy received and whether the child/children was making progress. When considering the satisfaction of the therapy, depending on the experience of the participants, there was a mix of families who felt supported and unsupported. Likewise, when looking at progress, families that had accessed therapy were generally satisfied that their child was progressing, with a lower number of exceptions to this.

Lastly the research considers whether participants would have involved their children in a twin specific speech and language programme. Overwhelmingly, nearly all of the

participants with a child with speech and language delay (bar 15) agreed that they would have accessed this service, the majority of which before even knowing there was a delay. This is a solid argument for parents wanting support with twin development. Additionally, participants were asked to consider what services or support they would have liked to be available for their child. This identified an extensive list of suggestions, including increased knowledge in professionals, twin specialists, and accessible services for twin families, concretizing the argument for support with speech and language delay in twins. This also highlights the gap in knowledge and the need for information in this field, acknowledging this research in its position as an original contribution to the field of twin studies and social sciences.

6.5. Limitations and Future Research

With a large-scale research project of 1000 responses, it is prudent to acknowledge the limitations of the research. It is also important to note that these are potential issues that could have arisen, however, it will not be possible to confirm for all examples if they actually did. The first example from this questionnaire, is skipped or unanswered questions. This can be complex as some participants will have needed to answer some questions, whilst others would not, meaning there is potential for human error. This structure of the questionnaire also meant that participants could ignore a question if they did not want to answer it. This leads on to participant honesty. Participants could purposely choose the wrong answers to mislead the research, or to represent themselves differently in the research. However, participants are reassured of their anonymity, which hopefully supports not to need to do this. It can also be argued that participants are choosing to join in with the questionnaire as they want to be part of the research and have an interest in its outcome. There is also potential for respondents to have a hidden agenda, seeing the focus of the response as either positive or negative. In the instance of this research, respondents were invited to join in, whether they determined their twins to have a problem or not, hopefully easing this aspect. As with any information, there can be a difference in its understanding and interpretation, both as researcher and respondent. Will all respondents understand the question in the same way? Results may therefore be subjective. Unconscious responses could also occur, with no real way of knowing how thoroughly the respondent has understood the question, or their impulses to quickly answer a question. The piloting of the survey highlighted any potential issues with the questions, their flow and understanding. The nature of questionnaires can also mean that it is hard to convey and understand emotions and feelings. The addition of the free text responses to many questions, should be a useful support to overcome this. This element of the design should also help to overcome the potential lack of personalisation. This questionnaire produced a lot of data, and responses were sometimes hard to analyse. Whilst tick boxes and multiple-choice responses could be exported and analysed, free text responses took a great deal of time to read, analyse and code, and then furthermore to link back to their quantitative counterpart. Other potential issues include accessibility. Questionnaires via internet platforms can be far reaching, presuming everyone has access to the internet and the platform where they are shared. This alone would mean some potential respondents would not have seen it. For the

ones who did, it is important to acknowledge that the respondent's literacy abilities would play a role, likewise potential influencing impairments such as sight loss. Finally, the length of the questionnaire is important, too short and there would not be enough scope for the relevant data collection, but too long and respondents risk rushing or becoming fed up and not completing the survey. Again, the piloting of the questionnaire helped to ensure it was a suitable length, did not take too long to complete, and flowed well.

As with many research designs, there could potentially be several limitations for this study, further to the responsibilities of the participants. Questionnaires can be time consuming both in collecting and analysing data, and impractical for large numbers of participants, or have low response rates. Open questions can lack detail as they take longer to answer or may gain insufficient quality of answers. If responses are fixed, for example with tick boxes, they can lack detail, and questions could be missed. Data analysis of questionnaires can take longer, as the researcher has to read, understand, analyse, categorise, and code responses to utilise them as meaningful data.

There are also limitations of using narratives in research. The researcher must be clearly invested, with strong understanding of the themes or subject matter of the research. This may also need to include good understanding of the participants life experiences in order to be able to represent them clearly. Limitations of analysing narratives could include lack of substantial evidence or data, or narrow data sets. There is also discussion of the importance or relevance of people's stories to the research, and if they can truly be considered as data, or whether they are a true narrative.

Limitations of qualitative research include samples that are not always representative, researcher bias, the researchers influence on the emerging data and larger scope for variables. There are also limitations to be considered in quantitative research. As in this study, large sample sizes are needed, otherwise findings become harder to apply to extended populations, and smaller samples are generally less reliable because of the smaller amount of data to consider. The pursuit of numbers for statistics can also lead to wider trends and themes being overlooked. Large quantitative studies, need vast levels of analysis, which can significantly impact the researcher.

This research has highlighted the gap in the field and the original contribution that this research represents. This research identifies that there is a significant level of speech and language delay within twin pairs, it examines the impacting factors of this, and levels of support parents were able to access for this. This research argues that being a twin means there is a higher chance of having a speech and language delay. I would like to extend this research to explore the links between the impacting factors that arose, when more than one factor is evident in the family. I would like to further examine the relevance to the link of a family history of speech and language delay, and to consider the differences of development of boys versus girls, particularly as boy/boy twins had more occurrences of speech and language delay. To look further into the qualitative data and participants life stories, a cross section of participants could be selected for interview, to further challenge and explore the research questions. Continuing to further this research, I would like to consider, how information and support for both parents of twins and practitioners could be beneficial, and what this information and support might look like. I would like to explore the role and types /rates of early interventions and approaches for twin language development support. It would also be interesting to further explore the current provisions already available, including referral times, access, and frequency, and to therefore develop a twin specific speech and language approach for families. I would also like to further investigate the role of early years providers as playing a crucial role in early childhood development, and to establish whether twin children who accessed this early care and education, are less likely to have occurrences of speech and language delay. I would like to continue to build on the suggestions from the parent voices in the research, to develop a wider, robust, service that has clarity and consistency for families.

Final thoughts, Reflections and Contribution to Knowledge

This study arose and was planned against my own narratives, as a parent of twins with speech and language delay and as a professional in early years education. It aimed to establish, whether as I suspected, from my role as mother and links with twin groups, and my professional role in early childhood education, there was an issue for larger numbers of twins, with speech and language delay. Positioned alongside my own narratives, it was important for me to consider and explore the parental perspectives of my participants, especially as they are the key educators and carers for their children. This study has highlighted and established that there is an increased number of twins with speech and language delay, compared to their singleton peers. This study was both quantitative, in order to ascertain the potential significance of the issue, and qualitative, to be able to give serious consideration to the participants voices throughout the research. This study compliments the literature, which had limited reference to this field, but that over the last five to ten years has undoubtedly started to increase in momentum. This research has identified a significant problem, looked at contributing factors, and challenged levels of support. I believe it has also given weight to the importance of parental voice. I consider this research to contribute new knowledge in the field of twin studies and social sciences. The findings of this work could offer useful insights into the development for twin specific resources, support, and programmes of work, likewise providing information for parents and professionals, and looking forward to the introduction of early information and support for twin families. This study now provides a significant basis to be extended for future work in this field. It has the potential to inform educational policy, practices and curriculum and will inform service providers for supporting and teaching children, for example, how and where children will access speech and language therapy, and early interventions for twin children. I intend for publication of this research to distribute the knowledge and have impact on the field. For the first time, parental perspective, of twin parents, have been considered in relation to the field of twin language development, and their voices and perspectives have informed the research. There has not been specific research on twin language development considering parental perspectives, or highlighting parent's experiences with speech and language therapy, which is the gap in the field this fills with its original contribution to knowledge.

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Appendix 1

Questionnaire Consent Form and Information Sheet

1. **Research Project Title:**

The secret life of twins: we'd tell you if we could! – The early language acquisition of twins and twin language study.

2. **Invitation paragraph**

You are being invited to take part in a research project. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part. Thank you for reading this.

3. **What is the project's purpose?**

The purpose of the study will be to investigate adults' perceptions and experiences of whether or not their twins have developed a speech and language delay and what services were available to them. This is a current interest of mine due to having twins in an Early Years Foundation stage unit and also the high frequency of twins at my own setting and town. The duration of the project will last for up to 12 months 1st February 18 – 31st January 2019.

4. **Why have I been chosen?**

You have been invited to participate as you are a parent of twins. You may have been chosen as a family attending my nursery school setting, a parent of the local infant school or a member of my local or national twins club, or part of an online twin's forum.

5. Do I have to take part?

It is up to you to decide whether or not to take part. If you do decide to take part, you will be given an online copy of this information sheet to keep alongside the questionnaire. Completion of the questionnaire will be taken as your consent to participate. You can withdraw at any time without it affecting any benefits that you are entitled to in any way. You do not have to give a reason.

6. What will happen to me if I take part?

Your participation in the research will be by form of online questionnaire or interview. Questionnaires should take approximately five-ten minutes to complete. You will only need to complete one questionnaire and your answers will be automatically recorded. As a participant you can chose to complete by clicking the link to the online questionnaire. The survey will open when posted online and will close at 1000 responses. In the case of interview these will be arranged via phone or email and will be scheduled to take place at a time convenient to you, either in person, on the phone or via skype/facetime. You will be required to answer all questions where possible and to give honest answers. You may decline to answer any question if you feel it necessary.

You will be asked if you wish to participate in a follow-up interview. I will then randomly Select a sample of people who volunteered and if you are selected, I will contact you at that point to inform you about that process. If you are not selected, I will let you know. Thank you for considering this.

7. What do I have to do?

There are no lifestyle restrictions as a result of participating.

8. What are the possible disadvantages and risks of taking part?

There are no disadvantages or risks in taking part in this current research. If any unexpected discomforts or disadvantages were to arise, they will be brought immediately to the participant's attention. You can withdraw from the survey at any point, to no detriment to yourself.

9. What are the possible benefits of taking part?

Whilst there are no immediate benefits for those people participating in the project, it is hoped that this work will create better understanding of current opinions surrounding education and the early speech and language development of twins and interventions going forward. It will also help to develop my interest and personal development in this area.

10. What happens if the research study stops earlier than expected?

If the research stops earlier than expected, then the reasons why will be explained to the participant.

11. What if something goes wrong?

If you feel you need to make a complaint about the research you may first raise this with me in my capacity as the student researcher or with my research supervisor, Professor Jackie Marsh: j.a.marsh@sheffield.ac.uk. Thereafter you may contact Professor Dan Goodley who is the Chair of the School of Education ethics committee: d.goodley@sheffield.ac.uk. If you consider your complaint has not been dealt with to your satisfaction then you can contact the University's Registrar and Secretary, Dr Philip Harvey, Email: registrar@sheffield.ac.uk You may complain in writing via email and all complaints will be responded to in a timely manner. Complaints from participants regarding their treatment by researchers will be

handled separately to something serious occurring during or following their participation in the project (e.g., a reportable serious adverse event).

12. Will my taking part in this project be kept confidential?

Any information that I collect about you during the course of the research will be kept strictly confidential. You will not be able to be identified in any reports or publications, all of your responses will be anonymous. However, the safeguarding and protection of children overrides the research and if issues come to light that suggest the safety of a child/ren is being or is likely to be compromised, then I have a duty to pass the information on to the appropriate designated authorities and comply accordingly which may result in the need to identify those involved in the project.

13. What will happen to the results of the research project?

The results of this research will be collaborated with the responses of all participants to form the research project. You will not be identified in any report or publication. The report is likely to be available at the beginning of September 2018, after it has been submitted through the University grading system. The data collected during the course of the project might be used for additional or subsequent research.

The data will be destroyed 2 years on completion of the project.

14. Who is organising and funding the research?

I am a student on the EdD in ECE programme and I am funding this project myself in order to fulfil the requirement to conduct a research study.

15. Who has ethically reviewed the project?

This project has been ethically approved via Sheffield University, School of Education's department's ethics review procedure. The University's Research Ethics Committee monitors the application and delivery of the University's Ethics Review Procedure across the University.

16. Contact for further information

Mrs Victoria Horsnall. Email: vahorsnall1@sheffield.ac.uk. Tel: 07789916294

All participants will have access to a copy of the information sheet attached to the online questionnaire.

I would like to take this opportunity to thank you for your participation in my research project.

Information Sheet B - Interviews

1. Research Project Title:

The secret life of twins: we'd tell you if we could! – The early language acquisition of twins and twin language study.

2. Invitation paragraph

You are being invited to take part in a research project. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part. Thank you for reading this.

3. What is the project's purpose?

The purpose of the study will be to investigate adults' perceptions and experiences of whether or not their twins have developed a speech and language delay and what services were available to them. This is a current interest of mine due to having twins in an Early Years Foundation stage unit and also the high frequency of twins at my own setting and town. The duration of the project will last for up to 12 months 1st February 18 – 31st January 2019.

4. Why have I been chosen?

You have been invited to participate as you are a parent of twins, and you indicated your willingness to be interviewed on the online survey you completed as part of this project. I then randomly selected a cross section of participants to take part.

5. Do I have to take part?

It is up to you to decide whether or not to take part. If you do decide to take part, you will be given a hard or online copy of this information sheet to keep. You will be asked to sign a consent form if you decide to participate. You can withdraw at any time without it affecting any benefits that you are entitled to in any way. You do not have to give a reason.

6. What will happen to me if I take part?

Your participation in the research will be by form of an interview. This will be arranged via phone or email and will be scheduled to take place at a time convenient to you, either in person, on the phone or via skype/facetime. You will be required to answer all questions where possible and to give honest answers. You may decline to answer any question if you feel it necessary. The interviews will be recorded using a digital voice recorder.

7. What do I have to do?

There are no lifestyle restrictions as a result of participating.

8. What are the possible disadvantages and risks of taking part?

There are no disadvantages or risks in taking part in this current research. If any unexpected discomforts or disadvantages were to arise, they will be brought immediately to the participant's attention and the interview could be terminated if you so wished.

9. What are the possible benefits of taking part?

Whilst there are no immediate benefits for those people participating in the project, it is hoped that this work will create better understanding of current opinions surrounding education and the early speech and language development of twins and interventions going forward. It will also help to develop my interest and personal development in this area.

10. What happens if the research study stops earlier than expected?

If the research stops earlier than expected, then the reasons why will be explained to the participant.

11. What if something goes wrong?

If you feel you need to make a complaint about the research you may first raise this with me in my capacity as the student researcher or with my research supervisor, Professor Jackie Marsh: j.a.marsh@sheffield.ac.uk. Thereafter you may contact Professor Dan Goodley who is the Chair of the School of Education ethics committee: d.goodley@sheffield.ac.uk. If you consider your complaint has not been dealt with to your satisfaction then you can contact the University's Registrar and Secretary, Dr Philip Harvey, Email: registrar@sheffield.ac.uk. You may complain in writing via email and all complaints will be responded to in a timely manner. Complaints from participants regarding their treatment by researchers will be handled separately to something serious occurring during or following their participation in the project (e.g., a reportable serious adverse event).

12. Will my taking part in this project be kept confidential?

Any information that I collect about you during the course of the research will be kept strictly confidential. You will not be able to be identified in any reports or publications, all of your responses will be anonymous. However, the safeguarding and protection of children overrides the research and if issues come to light that suggest the safety of a child/ren is being or is likely to be compromised, then I have a duty to pass the information on to the appropriate designated authorities and comply accordingly which may result in the need to identify those involved in the project.

13. What will happen to the results of the research project?

The results of this research will be collaborated with the responses of all participants to form the research project. You will not be identified in any report or publication. The report is likely to be available at the beginning of September 2018, after it has been submitted through the University grading system. The data collected during the course of the project might be used for additional or subsequent research.

14. Who is organising and funding the research?

I am a student on the EdD in ECE programme and I am funding this project myself in order to fulfil the requirement to conduct a research study.

15. Who has ethically reviewed the project?

This project has been ethically approved via Sheffield University, School of Educations department's ethics review procedure. The University's Research Ethics Committee monitors the application and delivery of the University's Ethics Review Procedure across the University.

16. Contact for further information

Mrs Victoria Horsnall. Email: vahorsnall1@sheffield.ac.uk. Tel: 07789916294

All participants will have access to a copy of the information sheet.

I would like to take this opportunity to thank you for your participation in my research project.

Consent Form

Title of Project: The secret life of twins: we'd tell you if we could! – The early language acquisition of twins and twin language study.

Name of Researcher: Victoria Horsnall

Participant Identification Number for this project:

Please initial box

1. I confirm that I have read and understand the information sheet/letter (delete as applicable) dated *[insert date]* for the above project and have had the opportunity to ask questions.
2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason. *Insert contact number here of lead researcher/member of research team (as appropriate).*
3. I understand that my responses will be anonymised before analysis. I give permission for members of the research team to have access to my anonymised responses.
4. I agree to take part in the above research project.

Name of Participant
(Or legal representative)

Date

Signature

Name of person taking consent
(If different from lead researcher)

Date

Signature

To be signed and dated in presence of the participant

Lead Researcher

Date

Signature

To be signed and dated in presence of the participant

Copies:

Once this has been signed by all parties the participant should receive a copy of the signed and dated participant consent form, the letter/pre-written script/information sheet and any other written information provided to the participants. A copy for the signed and dated consent form should be placed in the project's main record (e.g., a site file), which must be kept in a secure location.

Appendix 2

Ethical Approval Letter



Downloaded: 18/05/2021
Approved: 21/05/2018

Victoria Horsnall
Registration number: 140108129
School of Education
Programme: Doctorate in Education

Dear Victoria

PROJECT TITLE: The secret life of twins: wed tell you if we could! The early language acquisition of twins and twin language study.

APPLICATION: Reference Number 018398

On behalf of the University ethics reviewers who reviewed your project, I am pleased to inform you that on 21/05/2018 the above-named project was **approved** on ethics grounds, on the basis that you will adhere to the following documentation that you submitted for ethics review:

- University research ethics application form 018398 (form submission date: 15/05/2018); (expected project end date: 28/02/2019).
- Participant information sheet 1041261 version 2 (15/05/2018).
- Participant consent form 1041262 version 2 (15/05/2018).

If during the course of the project you need to [deviate significantly from the above-approved documentation](#) please inform me since written approval will be required.

Your responsibilities in delivering this research project are set out at the end of this letter.

Yours sincerely

David Hyatt
Ethics Administrator
School of Education

Please note the following responsibilities of the researcher in delivering the research project:

- The project must abide by the University's Research Ethics Policy: <https://www.sheffield.ac.uk/rs/ethicsandintegrity/ethicspolicy/approval-procedure>
- The project must abide by the University's Good Research & Innovation Practices Policy: https://www.sheffield.ac.uk/polopoly_fs/1.671066/file/GRIPPpolicy.pdf
- The researcher must inform their supervisor (in the case of a student) or Ethics Administrator (in the case of a member of staff) of any significant changes to the project or the approved documentation.
- The researcher must comply with the requirements of the law and relevant guidelines relating to security and confidentiality of personal data.
- The researcher is responsible for effectively managing the data collected both during and after the end of the project in line with best practice, and any relevant legislative, regulatory or contractual requirements.

Appendix 3 - Copy of Questionnaire

Twin Language Development (children aged 2-7 years)

This survey is being undertaken as part of my EdD Doctorate on Twin Language development. This aims to establish whether twins aged 2-7 years develop a speech and language delay, more so than their peers and parental perspectives on this. In this project I am looking to see whether parents think that their children have delayed speech and language more than that of their peers of this age.

This is for all parents of twins aged 2-7 years old, based in England (please complete even if your child has no speech problems).

The information provided by you in this questionnaire will be used for research purposes. It will not be used in a manner which would allow identification of individual responses. This survey will take 5-10 minutes to complete.

This survey will be anonymous unless you choose to leave your details. All data will be confidential and anonymised, stored securely and later destroyed after 2 years in line with my ethical review.

Thank you for agreeing to take part in this survey.

1. Are your twins

- Identical
 Fraternal (non-Identical)

2. How old are your twins?

- 2-3 years 5-6 years
 3-4 years 6-7 years
 4-5 years 7-8 years

3. What combination are your twins?

- Boy/Boy
 Girl/Girl
 Boy/Girl

4. At what gestation were your twins born?

- 37 weeks or above 25-28 weeks
 33-36 weeks 24 weeks or below
 29-32 weeks

5. What were the birth weights of each twin?

- 12 lbs and above 3-6 lbs
 9-12 lbs below 3 lbs
 6-9 lbs

Please add weight in comments if children fall into different weight brackets.

6. Do you have any other children?

7. If yes, what is their position and gender (for example, older girl). Please select the number of each.

	1	2	3	4	5+
Older girl	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Younger girl	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Older boy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Younger boy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. In what County do you currently live?

9. Would you say that your twins have/had their own language, in which only they can understand/communicate with each other?

- Yes
 No
 Unsure

Please feel free to comment:

10. Were you provided with information about twin language development, before your twins turned two?

- Yes
- No
- Unsure

11. Would you have liked to have been provided information on twin language development at an early stage? (birth - 2 years of age).

- Yes
- No
- Neutral

Comment:

12. Do you consider either of your twins to have a speech and language delay?

- One
- Both
- Neither (if you answer Neither, please skip to question 27)

13. How old was your child when did you noticed the speech and language delay?

- Under 2 years
- 2-3 years
- 3-4 years
- 4-5 years
- 6-7 years
- 7-8 years

14. Does your child with the speech delay have any other medical need which may have affected their speech?

- Hearing problems (for example, deafness, Glue ear, recurrent infections, grommets)
- Neurological problems (for example, cerebral palsy, muscular dystrophy, brain injury)
- Learning disability (for example, Autism, Downs Syndrome)
- Other (for example, Apraxia of speech, selective mutism, Auditory processing disorder) please specify...
- Structural Problems (for example, cleft lip, cleft palate)
- Previously suffered from extreme neglect or abuse (and is now Adopted/Fostered)
- None

15. If your child/ren has a delay was this confirmed by a speech and language professional?

- One twin
- Both twins
- Neither

3

16. If yes, did/do they receive speech and language therapy for this?

- One
 Both
 Neither

17. Was this from (select all which apply)

- NHS School or Nursery Setting (Teacher/Key Person/SENCo/Sp&L support)
 Private
 Other (please specify)

18. How did you access the speech therapy in your area?

- Early Years referral e.g. Nursery School NHS drop in clinic
 Primary School referral Private referral
 NHS referral e.g. GP/Paediatrician
 Other (please specify)

19. Did you find the referral process straight forward?

Very Easy	Easy	Neutral	Difficult	Very Difficult
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

20. How often did/does your child receive their speech therapy? Who is this from? Is it one to one or in a group? (For example, a child may see an NHS therapist once a term to set targets, but may receive daily sessions at school). Please select: frequency, who by and session type e.g. 1:1, for all that apply.

	Daily	Weekly	Monthly	6 Weekly (every half term)	12 weekly (every term)	6 monthly	Yearly
Delivered by school/Nursery	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Delivered by Speech Therapist - NHS	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Delivered by Speech Therapist - Private	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Delivered by parent/carer at home	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
One to One	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Small group session	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify)

21. Were you satisfied with the timescale to be referred and seen by a professional?

Very satisfied Satisfied Neutral Unsatisfied Very Unsatisfied

22. Do you feel your child is making good progress?

Strongly Agree Agree Neutral Disagree Strongly Disagree

23. Are you satisfied with the speech therapy your child received?

Very Satisfied Satisfied Neutral Unsatisfied Very Unsatisfied

24. Did anybody else in the family have a speech and language delay?

Yes Unsure

No

If yes please specify which family member.

25. If there was a specific speech and language support program designed for twins, would you have involved your children in this?

Yes, even before knowing there may have been a delay. No

Yes, after finding out there was a delay. Not applicable

Other (please specify)

26. What services or support would you have liked to be available for your child?

27. Is your family Bi-lingual? (do you use two or more languages equally at home)

Yes

No

If Yes, please let us know which languages you speak?

28. Which ethnicity would you describe yourself?

29. Who is completing this form?

30. Which social class would you describe yourself?

- Lower class
- Working class
- Middle Class
- Upper Class

31. Please feel free to add any comments - Thank you for completing this survey.

32. If you consent to being contacted further for possible telephone interview, please leave your name and contact number or email address. Only a small sample will be selected.

Name

Email Address

Phone Number

Appendix 4

Figure 32: Table of Twin Rates of Speech and Language Delay by County

County	% Of Delay
Cornwall	0
Rutland	0
Northumberland	11.10%
Bedfordshire	20%
Gloucestershire	20%
Warwickshire	20%
Norfolk	23.50%
Kent	24.44%
West Midlands	25.80%
Oxfordshire	27.27%
Cheshire	27.50%
South Yorkshire	29%
West Sussex	29.60%
Buckinghamshire	30%
Dorset	30%
North Yorkshire	30%
Hertfordshire	30.40%
East Riding of Yorkshire	30.70%
Greater London	30.76%
Leicestershire	31.81%
Cambridgeshire	33%
Berkshire	33.30%
East Sussex	33.30%
Surrey	33.33%
Wiltshire	33.33%

Somerset	35.71%
West Yorkshire	34.10%
Lancashire	35.71%
Northamptonshire	36.84%
Worcestershire	38.50%
Staffordshire	39.10%
Isle of Wight	40%
Cumbria	41.60%
Bristol	42%
Merseyside	42%
City of London	42.80%
Devon	42.80%
Hampshire	44.80%
Essex	44.90%
Durham	45.10%
Greater Manchester	46.15%
Nottinghamshire	46.20%
Tyne & Wear	46.40%
Derbyshire	50%
Suffolk	50%
Lincolnshire	55%
Shropshire	60%
Herefordshire	75%