

RUNNING HEAD: Living with a childhood speech impairment

My speech problem, your listening problem, and my frustration:

The experience of living with childhood speech impairment

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Abstract

Purpose: To understand the experience of speech impairment (speech sound disorders) in everyday life as described by children with speech impairment and their communication partners.

Method: Thirty four interviews were undertaken with thirteen preschool children with speech impairment (mild to severe) and twenty one significant others (family members and teachers).

Results: A phenomenological analysis of the interview transcripts revealed two global themes regarding the experience of living with speech impairment for these children and their families. The first theme comprized the problems experienced by participants, namely: a) the child's inability to "speak properly", b) the communication partner's failure to "listen properly" and c) frustration caused by the speaking and listening problems. The second theme described the solutions participants used to overcome the problems. Solutions included: a) strategies to improve the child's speech accuracy (e.g., home practice, speech-language pathology), and b) strategies to improve the listener's understanding (e.g., using gestures, repetition). Both short term and long term solutions were identified.

Conclusion: Successful communication is dependant on the skills of speakers and listeners. Intervention with children who experience speech impairment needs to reflect this reciprocity by supporting both the speaker and the listener, and by addressing the frustration they experience.

Keywords: children, families, speech impairment, experience, qualitative research

Reaching an understanding in communicative interactions involves reciprocity between the speaker and the listener (Spilton & Lee, 1977). When the speaker and/or listener has difficulty performing their role, a misunderstanding or communication breakdown may ensue. This is not an uncommon scenario for listeners communicating with young children, but it is even more common if the young children have speech and language impairments (Yont, Hewitt, & Miccio, 2002). Previous research investigating communication breakdowns has typically focused on children's perceptions of the roles of speakers and listeners in communication and their attribution of blame when a breakdown in communication occurs (e.g., Donohue, 1997; McDevitt, Spivey, Sheehan, Lennon, & Story, 1990; Robinson & Robinson, 1981; 1983). Further research has investigated the strategies used by children and their communication partners to resolve communication breakdowns (e.g., Corsaro, 1976; Gallagher, 1977; Girbau, 2001; Levy, 1999; Spilton & Lee, 1977). However, little research has been conducted to describe the experiences of children and their communication partners when communication breaks down. Research with children who experience frequent communication breakdowns (i.e. children with speech impairments or speech sound disorders) and their communication partners is especially scarce. Thus, little is known about young children's perceptions of the experience of living with speech impairment and particularly, their experience of communication.

In recent years there has been a growing awareness of the need to consider the views of children in issues that affect them. For instance, the United Nations Convention on the Rights of the Child (article 12) recognizes the right of all children capable of forming their own views to express those views freely in all matters affecting the child (UNICEF, 1989). Other researchers have identified children as valid participants in research about themselves (Cremin & Slatter, 2004; Dockett & Perry, 2007; Marsh, Ellis, & Craven, 2002).

Owen, Hayett and Roulstone (2004) considered children's experiences and views to be invaluable to research about children with communication impairment. They interviewed a sample of children with communication impairments attending mainstream school in order to learn about their experience of communication and intervention. They found some children were aware of their specific communication difficulties and the way this affected other aspects of their life (e.g., friendships). However, only two children in the sample (both in year 5 at school) had speech impairment, and no further information about the type or severity of the impairment was provided. Owen et al. (2004) suggested future research investigating the experiences of younger children and those with more severe impairments would be valuable.

Markham and colleagues investigated the Quality of Life (QOL) of young people with communication impairment as perceived by those young people and significant others including families and speech-language pathologists (SLPs) (Markham & Dean, 2006; Markham, van Laar, Gibbard & Dean, 2008). Their research was conducted with participants aged 6-18 years who experienced a range of speech and language impairments. They found both the young people and their significant others acknowledged the importance of appropriately understanding and responding to communication needs in order to create a positive QOL. However, like the Owen et al. (2004) study, the participant sample interviewed by Markham et al. (2008) did not include preschool aged children, nor did it include those with severe impairments, due to the perceived difficulty these groups may have with participating. Markham et al. (2008) recognized this as a paradox facing researchers; that is, the individuals whose QOL may be most affected by their impairment are often those who are excluded from studies investigating their experience of the impairment. As a consequence, it is unclear whether individuals with more severe impairments perceive their communication experiences in the same way as those with milder impairments, and whether the

perceptions of young children are comparable to the perceptions of older children, and others, such as family members and SLPs.

There is a lack of research investigating the experiences of individuals who communicate with children with speech impairment. For the most part, research into the experiences of families of children with speech impairment has focused on access to and involvement in intervention (e.g., Band et al., 2002; Glogowska & Campbell, 2000; Paradice & Adewusi, 2002; Watts Pappas, McLeod, McAllister & McKinnon, 2008). However, one study by Barr, McLeod and Daniel (2008) examined the experiences of siblings of children with speech impairment, and described the way in which speech impairment impacted on their relationships with one another, with other family members and with people outside the family. They identified the important roles that siblings play in the lives of children with speech impairment, taking on the task of interpreting for children when others are unable to understand, and protecting the children from potential conflict with others (teasing, bullying etc). However, they also identified how the speech impairment could affect the sibling, for example, by causing them worry and concern. Barr et al. (2008) concluded SLPs should routinely include siblings in assessment and intervention.

Research investigating the experiences of teachers of children with speech impairment is limited to studies of their perceptions of children's academic and social skills (Overby, Carrell & Bernthal, 2007), and their perceptions of their own competence to teach these children (Marshall, Ralph & Palmer, 2002). Findings from this research indicate both parents and teachers recognize the need for professional (SLP) advice and intervention to improve the communication skills of children with speech impairment.

Traditionally, SLPs have diagnosed speech impairment on the basis of normative data obtained in atypical environmental contexts, such as whether children are

producing age-appropriate sounds on standardized assessments in a clinic setting (Gould, 2009; McLeod & Bleile, 2004; McLeod, 2006). Intervention, then, has traditionally targeted the elimination of communication breakdowns through improving children's speech accuracy (ability to produce age-appropriate sounds). This style of intervention may be considered to follow a medical model, which "views disability as a problem of the person...which requires medical care provided... by professionals" (World Health Organization, 2001, p. 20). It is unclear whether this model reflects the communication experience of children with speech impairment and their communication partners and adequately addresses their perceived needs.

The decision to seek and receive intervention for young children with speech impairment is made by parents or teachers on behalf of these children, as opposed to adults with communication impairment who make this decision of their own accord (Jordan & Bryan, 2001). As such, the "implied acceptance" that there is something wrong with their communication skills that exists for adults seeking intervention may not exist for children with speech impairment (Jordan & Bryan, 2001, p.456). As Corsaro (1976) asserted, "Adults and children do not always share the same world view" (p. 195). Children have not sought intervention and may not perceive anything wrong with their skills as a speaker. The ability to accurately self-evaluate speech performance is a metacognitive skill, and previous research has shown that accurate self-evaluation develops as children age (e.g., Butler, 1990; Kaderavek, Gillam, Ukrainetz, Justice & Eisenberg, 2004; Nicholls, 1979).

While young children lack the meta-cognitive skills to accurately critique their communication performance, they still provide a valid and valuable description of the experience of living with speech impairment. The aim of this study was to explore the different perceptions about speech impairment that may exist, and to understand the experience of living with speech impairment in childhood as described and understood

by children with speech impairment and significant others in their environment.

Understanding the experiences of child speakers and their listeners is necessary in order to gain a more holistic perspective of the reciprocity involved in communicative interactions, and to ensure intervention reflects this reciprocity.

Method

Participants

The participants were 13 preschool children (4- to 5-years-old) and 21 significant others (parents, grandparents, siblings and teachers). The preschool children, their families and teachers were recruited as part of a larger sample for a project investigating the prevalence, severity, impact and service delivery for children with speech impairment in early childhood (McLeod, Harrison & McAllister, 2007-2009). The children were all identified by parents and/or teachers as having “difficulty talking and making speech sounds” and this was reported to be the primary area of difficulty (i.e. not secondary to language difficulties, structural difficulties, such as cleft palate, or functional difficulties such as developmental delay). As part of the larger project, children had participated in a comprehensive battery of communication assessments, during which the Diagnostic Evaluation of Articulation and Phonology (DEAP) (Dodd, Hua, Crosbie, Holm, & Ozanne, 2002) was administered to evaluate speech skills. The percentage of consonants correct (PCC) was calculated on the basis of responses to the DEAP items. The PCC produced by the 13 children in this study ranged from 18.6 to 78.4, which equated to a standard score of 3 for most (12 of the 13) children (Table 1). A standard score of less than 7 indicates skills outside the normal range. However, one child (Kara) was included in the sample despite obtaining a PCC standard score of 7 (within the normal range). She was included in the sample on the basis of her raw PCC (78.4%) which suggested some speech sound errors, and the DEAP phonological analysis which revealed persistent fronting. Furthermore, Kara’s mother and teacher had

both identified her as experiencing speech impairment and Kara had identified her own difficulty saying “k.” Broomfield and Dodd (2004) recommend the use of both standardized assessments and clinical judgments to identify individuals at risk of difficulty.

[Insert Table 1 about here]

The children and families were selected through purposive sampling. According to Patton (2002), purposive sampling occurs when “cases for study... are selected because they are ‘information rich’ and illuminative, that is they offer useful manifestations of the phenomenon of interest; sampling, then is aimed at insight about a phenomenon, not empirical generalisation from a sample to a population” (p. 40). In this research, the sample of children interviewed were considered to be “information rich” in that they represented both sexes and a range of ages, PCCs, involvement in speech-language pathology intervention, family characteristics, and living locations (see Table 1). Parents were asked to identify significant others to be interviewed. The number of significant others interviewed varied for each participant ($n = 1-4$), depending on the number of people listed by the parents as possible participants and the number of people available for interviews. Significant others included parents, grandparents, siblings and teachers. The inclusion of family members and teachers in the sample of significant others was intended to provide insights into the different everyday contexts in which the children communicate, their communicative experiences in those contexts and the experiences of their different communication partners. For seven of the 13 children, it was possible to gain data from both families and teachers (see Table 1); however, for five children, only the parents were interviewed and for one child, only the teacher.

All adult participants provided consent to participate and children gave assent, following a description of the task (Conroy & Harcourt; Harcourt & Conroy, 2005;

Hurley & Underwood, 2002). The children's parents also provided consent for them to participate. Each of the participants was given a pseudonym to protect their identity.

Procedure

The interviews were semi-structured and incorporated open-ended questions. This enabled participants to offer a range of responses regarding their experiences, and to expand on key aspects when prompted. This style of questioning also enabled interviews to be undertaken by more than one interviewer. Twelve of the 13 interviews with the focus children were conducted by the first author, a qualified SLP who had previously assessed the children's speech as part of the larger project. One was conducted by another researcher, a teacher with special education training, who was previously unknown to the child. All child interviews were conducted face-to-face in a familiar environment (child's home or preschool) and with a familiar adult nearby. Interviews with significant others were conducted face-to-face when possible. On one occasion, both parents were interviewed together, and 12 telephone interviews were necessary due to time and distance. The qualified SLP conducted interviews with 19 of the 21 significant others, while the teacher with special education training conducted the other two interviews. Attempts were made to conduct all interviews relating to a particular focus child within a 1 month timeframe. For one participant (Grace), this was not possible due to other family commitments. Interviews with Grace and her family were completed within a 3 month timeframe.

In the child interviews, questions were guided by the Speech Participation and Activity Assessment – Children (SPAA-C) (McLeod, 2004). Children were asked questions about their feelings when talking in different contexts, and were provided with visual prompts (e.g., faces showing happy, sad, in-the-middle expressions) to assist answering the questions. Children were asked to circle or color the face that showed the emotion corresponding to their response or to draw another face expressing a different

emotion. They were asked additional questions depending on their response. For instance, children were asked how they feel when talking to their friends or siblings, and then asked about the activities they enjoyed doing with them. Children were also asked how they feel when others don't understand them, and were then prompted to describe what they did when this occurred. In addition, children were requested to draw a picture of themselves "talking to somebody" as another way of enabling them to express their ideas and feelings. The use of drawings has been recommended previously as a way of enabling children, including those with communication disorders, to express themselves and to enable researchers to access children's perspectives (Einarsdottir, Dockett & Perry, 2009; Holliday, Harrison & McLeod, 2009).

Interviews with the adult participants followed a conversational style of questioning, in accordance with the established protocols for in-depth qualitative interviewing (Minichiello, Aroni & Hays, 2008). A fixed set of questions was not used, instead adults were asked open-ended questions regarding key topics, and the order of questions was flexible. The development of key topics was guided by the International Classification of Functioning, Disability and Health - Children and Youth (ICF-CY; World Health Organization, 2007). Topics included: Personal Factors (e.g., questions about the child's development, personality characteristics and interests), Body Functions (e.g., questions about the child's academic, motor, communicative and social skills), Activities and Participation (e.g., questions about the child's participation in life activities), and Environmental Factors (e.g., questions about the child's significant others, attitudes of significant others and their access to services). Interviews commenced with an open-ended question/statement such as, "Tell me about your child," but the structure and content of subsequent questions was influenced by the responses of the interviewees, and so the line of questioning developed as each interview progressed. The interviewers aimed to emphasize the experiences of participants rather than the

child's speech impairment when asking questions (cf. McLeod, 2004).

The duration of each interview varied from 10 to 50 minutes. The variation in the length of interviews was influenced by the number of participants being interviewed at one time (for example, both parents of one child were interviewed together), the attention and motivation of the participants, and their other commitments.

All interviews were audio recorded. The interviews were transcribed verbatim, and then checked for accuracy by the first author. The checked transcripts were sent to the participants for review. Adult participants were invited to make changes to their transcript (e.g., additions and deletions) to ensure the transcript accurately reflected their thoughts and experiences and to assure them they could not be identified in transcripts. In the case of children, parents were asked to check their child's transcript, as they were also present at the interview. Occasional modifications were requested to increase the clarity of the respondent's own comments, but no information was deleted.

Data Analysis

Transcripts from all of the interviews were analysed by the first author. Analysis was based on the phenomenological approach (see for example van Manen, 1990), which attempts to understand the essence of and give meaning to a phenomenon as described by individuals who experience that phenomenon. The phenomenon under investigation in this study was that of living with speech impairment, and the experience of this phenomenon was described by children with speech impairment and their communication partners. Thus, the analysis was oriented around the experience of being a child with speech impairment or of being the child's communication partner.

The analysis involved immersion in the data (Patton, 2002), that is, repeated readings of interview transcripts in order to identify key words and ideas which directly related to the phenomenon. These key words and ideas formed the initial codes, which were used to identify and sort content from the interview transcripts (see Table 2). The

coding process was undertaken using the data management computer program NVivo - Version 7.0 (QSR International, 2002), which enabled the large amount of coded text to be sorted and tracked.

The content from each transcript was coded separately and resulting codes for each transcript were then compared with the original transcript to check the accuracy of the analysis. Codes were compared within and across interview transcripts using the process of constant comparative analysis (Patton, 2002). This ensured commonalities and differences in codes were understood. For instance, “frustration” was identified as a key word and used as a code to sort data. However, comparative analysis identified differences in the perceived cause of the frustration, so separate codes were used to discriminate between these (see Table 2). This constant re-checking of the coding system was conducted to enhance the robustness and applicability of the codes. Triangulation was also used to ensure rigor in data collection and analysis. The triangulation of data collection methods used in the children’s interviews enabled the researcher to perform a comparative analysis, to check the consistency of findings generated by children’s verbal and non-verbal (e.g., happy, sad and other faces; drawings) responses. The triangulation of data sources enabled the researchers to check the consistency of information collected with different participants (e.g., interviews with children and significant others) (Patton, 2002). In this research, interview data from different sources relating to a particular child were triangulated to ensure consistency of data for each participant. Interview data from participants sharing the same relationship to other children (e.g., all parents) were triangulated to ensure robustness of analyses across participant groups.

Following the initial sorting of interview data into codes, diagrams were developed to organize the identified codes and to determine the relationships between codes. The diagrams were refined through ongoing immersion in the data and constant

comparative analysis, and patterns were found to emerge in the data. The codes were collapsed into two larger overarching themes, each with three sub-themes (see Table 2, and Figure 1). Further testing of the analyses occurred through checking of understanding of the data with participants (participant validation) and illustrating data analysis using detailed extracts (i.e. thick description) in research reports to ensure authenticity (Patton, 2002).

The reliability of the analysis was determined by providing a sample of the transcripts and the identified codes and themes to the second and third authors. Each author independently checked that the codes accurately reflected the phenomenon as described by the sample of participants, and that the themes appropriately encompassed the codes.

[Insert Table 2 here]

Results

This research used a phenomenological framework to understand the phenomenon of living with speech impairment, as described by children with speech impairment and significant others. It was intended that this description would enable a “fuller and deeper” understanding of “the lived quality and significance of the experience” (van Manen, 1990, p. 10) than is possible through traditional clinical assessment, or through interviews only with the adult listeners. The phenomenological analysis saw the emergence of two themes related to the phenomenon of living with speech impairment. In the first theme, termed “The Problems,” participants recognized that to live with speech impairment (as a child with speech impairment, or the child’s communication partner) is to encounter difficulties, particularly with communication interactions (Figure 1). In the second theme, termed “The Solutions,” participants recognized that to live with speech impairment is to search for, and trial, ways to manage the difficulties they encounter.

[Insert Figure 1 about here]

Theme 1: The problems

Throughout the interviews, participants variously referred to “problems,” “difficulties,” “issues” or “troubles” in their experience of living with speech impairment. Further analysis revealed the problems they described could be separated into three distinct but related problems: (a) a “speech problem” based on the child’s unclear speech, (b) a “listening problem” based on the communication partner’s inability to “hear” (or understand) the child’s message and (c) a “frustration problem,” based on the children’s reactions to communication breakdowns, which occurred as a consequence of both the speaking and the listening problems. Adults discussed all three problems, the ways in which the problems were first identified, and their concerns about related problems that might arise in the future. However, the children were less likely to perceive the speech problem. In the following sections, the participants’ discussion of the problems is illustrated through interview excerpts. Unless otherwise specified, the terms “significant others” or “adults” is used to refer to both family members and teachers as similarities were found between the responses of both groups.

(a) The speech problem: “He just doesn’t say the word correctly”

Child and adult participants in this study recognized the existence of problems through experiencing or observing (in the case of adults) communication breakdowns. Their descriptions suggest that the speech problem (not saying the words “correctly”) lies within the speaker - that is, the child. The speech problem exists in isolation from contextual factors (e.g., conversational partner, environment) and is ongoing. Kara was the only child participant who identified *she* had a *speech* problem.

Interviewer: Sometimes when you’re talking is it a bit tricky for you to say the words?

Kara: Yep I can't say Tara. I say Tara when I'm saying my name.

Kara's awareness of her speech problem focussed on the functional impact - her inability to say her name. None of the other children mentioned a problem with their speech as a topic of conversation. When explicitly asked to color in a face in answer to the question "How do you feel about the way you talk?" most children indicated that they felt "happy" about their talking, except Jamie and Owen ("in the middle") and Patrick ("don't know"). None indicated that they felt "sad." Such positive responses suggest the children may not perceive a problem with their speech.

In contrast to the children's perspective, all the significant others identified a speech problem, except Kara's father. He reported that he "didn't notice" it, but knew that others (including his wife – Kara's mother) did. Parents described how comments or advice from professionals (e.g., teachers, child health nurses) contributed to their recognition of a problem with their child's speech. At times, this advice was the first time that the problem was identified, while sometimes it appeared to confirm the parent's own perception of a speech problem, as Grace's teacher explained:

Once I realized, once I thought that there was a problem for her [Grace], I spoke to her mom fairly soon. I think her mom was waiting, you know, was almost ready herself for someone to say something and they got onto it straight away at home.

Adults defined the child's speech problem in one of two ways. Some focused on the functional impact and described how the speech impairment restricted the child's participation at preschool. For example, Owen's teacher reported, "He can't express what he wants to, to the other children. And he can't ask the question and get them to understand it and give him the answer back that he's seeking." However, others provided a normative definition of the problem, describing the child's speech as not

being “correct” or “proper.” For instance, Patrick’s father reported “Probably the sounds in the words is the biggest problem, I think...like we see when he says “dog” or something, he doesn’t say the “d” properly sometimes...”

Adult participants identified variables that appeared to influence the clarity of the child’s speech, yet even these variables were child-related (e.g., the child’s mood, level of fatigue and their rate/volume of speech). They perceived the severity of the speech problem according to their own ability to understand the child, and consequently some parents perceived the problem as less severe than the teachers did. For instance, Wade’s mother reported, “Most of the time I can understand, but he just doesn’t say the word correctly.” In contrast, Wade’s teacher identified the extent of his speech errors made it difficult for extended family, peers and teachers to understand his message, and she expressed concern about his readiness for school the following year. Other parents, such as Lilah’s mother, also spoke of their concern about potential future problems (such as literacy difficulties) that may be experienced by their children with speech impairment.

Adults, such as Grace’s mother, recognized that their children did not share their awareness of the speech problem:

And she always enjoys news-time, which does surprise me because when they said they couldn’t understand her and there were all these children that she had to stand up in front of, I really thought that she would have indicated that she didn’t want to do it. But, no. Every week she gets something from home and gets up there and says her spiel. I remember that’s what fascinated me ... when you asked her did she think she had a problem with her speech, and she clearly said no. That shocked me. Because I really thought she would have said, you know “yes!”

Gus and Ewan’s teacher commented that rather than a lack of awareness of a speech

problem, children might just perceive a different problem to exist. She stated, “I think they just think ‘they’re not getting what I’m trying to say.’ And it’s not ‘I can’t ...say the words properly.’”

(b) The listening problem: “Mate, I can’t hear you”

Within the present study, both child and adult participants identified a listening problem (Figure 1). Their descriptions suggest the problem of understanding the child is a problem that lies with the listener - that is, the child’s conversational partner. It exists only in interactions with others and so cannot be separated from contextual factors.

For some child participants, the perception of a listening problem was interpreted through their responses to the coloring faces task. For example, when explicitly asked to color in a face in response to the question “How do you feel when other people don’t understand you?” Owen, Zac and Ewan indicated that they felt “sad,” while Wade, Patrick, Matt and Jamie felt “in-the-middle.” This suggests they perceived a problem when they weren’t understood. Kara described the listening problem during the interview in terms of her message being misinterpreted:

Interviewer: Is it sometimes tricky for other people to understand what you are saying?

Kara: Yeah, I keep say, and they don’t know what’s my, they keep saying they think my name’s Tara.

Interviewer: And they think your name is Tara instead of Kara. I see.

Other children, such as Fenn, did not verbalize their awareness of this listening problem during the interviews, but it was evident in their interactions with the interviewer:

Fenn: This is Baden. He’s my friend.

Interviewer: Do you like talking to Baden?

Fenn: It’s not Baden it’s [unclear].

Interviewer: Oh... Braden is it?

Both Kara and Fenn identified the immediate and functional impact of the listening problem on themselves as communicators: the listener had failed to understand their message (and consequently was referring to a person by the wrong name).

Adults described the listening problem as not “working out” or “picking up on” the child’s message, but also not being able to “hear” or “listen clearly” as shown below:

Fenn’s mother: I can’t remember what he said when we were camping. He just kept saying, “can I have rah” and I’m there going, “mate, I can’t hear you, slow down, point to it.” You know? He was getting more frustrated, and he wouldn’t point at it.

Interviewer: Okay, right. So normally when you do have difficulty understanding, you would do things like that, like asking him to point to something, to try and work out what it was that he was saying?

Fenn’s mother: Yeah, or I’ll ask him, I’ll say “Can you say it slowly? Mom doesn’t understand.”

Similarly to the children, the significant others recognized a functional impact of the listening problem was that the child’s message may be misunderstood, lost or unknown:

Interviewer: And what happens when you don’t understand him, what do you do?

Patrick’s brother: I ask Mom and Dad to see what he says.

Interviewer: And do they know?

Patrick’s brother: Probably not.

Interviewer: So sometimes no-one knows.

Patrick's brother: [nods].

Adults also recognized the listening problem had a functional impact on them as communication partners, in that they were forced to make a greater effort in order to understand. Grace's grandmother explained, "When she gets going and she gets excited, then... well, you can virtually understand her so long as you're listening hard enough!" Wade's teacher acknowledged that other children sometimes chose not to make the effort and would "just run off and play." Some parents, such as Patrick's father, expressed concern about potential future problems at school (such as teasing) related to the inability of other children to understand the child's speech.

Adult participants identified a range of contextual variables that appeared to influence the ability of the listener to understand the child. These contextual variables included use of visual props, prior knowledge of topic, and familiarity with the child (as evident in the excerpt below). For instance, Wade's teacher reported:

I have heard extended family members say that they find him difficult to understand and they can't understand him. So, although mom and dad are understanding, not everybody else is in their family.

(c) The frustration problem: "He gets cranky"

Adults (particularly parents) discussed a third problem in their children's communication experience: child frustration. In contrast, children did not explicitly talk about the frustration they experienced, but frustration was evident in the non-verbal messages of some, such as Owen and Lilah. During the initial assessment when Owen was asked to draw a picture of showing him talking to someone, he drew a picture only of himself and reported that he didn't like talking to anyone (Figure 2a). During the interview with Owen, 7 weeks later, he was asked to draw another picture of himself talking to someone. He drew a picture of his mother. When asked where he was in the

picture, Owen drew an additional figure (see Figure 2b). He was noted to draw both figures in red and yellow markers and then scribble over both faces in black marker, possibly indicating underlying tension and frustration about talking.

[Insert Figure 2 about here]

Lilah's mother shared another, but similar, anecdote:

... Something unusual that she did - I can't remember how old she was – she would have only been about two maybe. I had all these photos, like duplicate photos that I wasn't putting in albums. She went through them all. She had a sheet of stickers and she put this little round sticker on top of the mouth of every face in all the photos. That was sort of around about the time we were first noticing that she was having frustration getting her thoughts across.

Lilah's mother suggested Lilah's frustration was possibly due to a mismatch between child and adult perceptions of the underlying cause of the problem:

But it's [Lilah's frustration] not happening so much anymore because she's getting a lot clearer with her sounds. But it certainly has been something [that has been a problem] as she was growing up. [She was] very, very frustrated... [When we were] asking her questions ... she couldn't understand why we didn't know.

Some parents, such as Zac's mother, perceived that frustration could arise as the child's reaction to the speech problem:

He's frustrated [when he's not understood]... disappointed with himself, as much as [frustrated about] you not understanding. So...he doesn't just think we can't understand. He knows that it's hard [for him] to explain.

However, other parents such as Fenn's mother, identified the frustration problem as part of the child's reaction to the listening problem:

Fenn's mother: There was one example, we went to a birthday party and a parent came up going, "I don't know what Fenn's trying to tell me." And he was getting frustrated.

Interviewer: Okay, because, that's sort of an environment that's supposed to be fun and exciting.

Fenn's mother: Yes, that was the problem. He was really happy and excited and he wanted something, but we couldn't understand him. I couldn't understand him.

Adults described different ways in which the child's frustration problem presented. One way was through externalising behavior problems such as the child becoming upset or angry. For instance, Fenn's mother stated, "Well if he's excited he gets ... you can't understand him. He gets cranky and frustrated and starts yellin' at you. Chucks a tantrum kind of thing." Another way in which the child's frustration problem presented was through internalising behavior problems such as the child becoming withdrawn. Zac's mother reported he doesn't get "wound up" when he isn't understood, but instead "he just probably shuts inside himself type of thing."

Parents felt that the manner in which frustration was expressed depended on contextual variables (e.g., different communication partners), and child characteristics (e.g., a persistent temperament). For instance, Fenn's mother reported that he reacted in a "totally different" way when teachers were unable to understand him, compared to when she was unable to understand. Instead of Fenn "chucking a tantrum" as he did with her, Fenn's mother reported that with teachers "he would just keep repeating himself until they heard."

Theme 2: The Solutions

Participants in this study described, and at times demonstrated, the ways in

which they attempted to solve the communication problems they experienced. Solutions were described in terms of strategies that were currently employed to solve the problems, and perceptions of eventual solutions to the problems (see Figure 1). These could be separated into solutions to (a) the child's speech problem, and (b) the other's listening problem (c) the frustration problem. Solutions could be further separated into the strategies that were employed by the child speakers and those that were employed by the adult listeners. In the following sections, the participants' discussion of the solutions is illustrated through interview excerpts.

(a) Solving the speech problems

The child's (speaker's) solution to the speech problem: "Just ask Mom."

As child participants were less inclined to perceive a speech problem, they did not explicitly discuss solutions to this problem. However, for one child (Owen) a potential solution could perhaps be inferred by his drawings and responses during the interview. Owen stated that he did not like talking to anyone (in Figure 2a) or playing with other children at preschool, but was happy when playing alone. It is possible that his happiness when engaged in solitary activities was because he didn't have to speak. Thus, avoiding situations where speech was required could be one way that children aim to solve the problem of unclear speech. Another solution may be to allow others to speak in their place. For Owen, a reliance on others to speak for him may explain his initial drawing of his mother when asked to draw a picture of himself talking (Figure 2b). Interviews with the adult participants supported the suggestion that "not talking" may be a solution employed by children. For instance, Kara's mother reported that she sometimes took on the role of interpreter at the request of her child:

Interviewer: So she doesn't just give up, she'll keep on trying to get that message across?

Kara's mother: Yeah. Except for lately when she said "no, just ask

Mom.”

The adult’s (listener’s) solution to the speech problem: “I got her to hold her tongue and bob her head like an emu to say /g/.”

In contrast to the children’s solutions, adults spoke about solving the speech problem by giving “help” through methods such as modelling correct productions and attempting formal instruction and practice. For instance, Kara’s mother reported:

I’ve been trying with the finger on the tongue and she’s still getting the /t/ sound...I got her to hold her tongue and bob her head like an emu to say /g/. [An emu is an Australian flightless bird, similar to an ostrich].

To further help their children, adults also discussed receiving help in the form of professional (SLP) intervention. In Table 1, the children who were accessing intervention at the time of the interviews are identified, as are those who had previously received intervention, or were awaiting intervention. This solution was influenced by participant factors such as prior experience and/or expectations of successful intervention, and environmental factors such as advice or support from others. For instance, Matt’s mother reported seeking intervention with an SLP for Matt after observing a neighbour’s child speaking “better” after intervention.

For adult participants, eventual solutions to the speech problem were identified and referred to in terms of their “goals” or “hopes” for the future. For instance, they spoke of the child’s speech “getting better” or becoming “clearer.” The adults’ goal of overall speech improvement reflected their identification of the child’s speech being the underlying problem. They identified progress towards the solution by comparing their experiences “now” with what “used to” happen. Lilah’s teacher identified progress in Lilah’s ability to “participate and actually talk to you a lot more” (i.e., a functional improvement). However, Kara’s mother identified progress in terms of Kara becoming

“quite good with the ‘g’ sounds” (i.e., a normative improvement).

(b) Solving the listening problem

The child’s (speaker’s) solution to the listening problem: “I keep saying...”

For children, the perception that the listening problem belonged to the listener may have influenced their identification of a solution - repeating what they were saying because the listener wasn’t “listening.” For instance, when asked what they do when others don’t understand them, Gus reported he has to “Speak up a bit” and Evelyn reported she has to “Say it another time.” Kara, too, reported she had to “keep saying” her name and other children were observed to repeat their utterances in an attempt to make the listener hear (and understand). Adult participants also spoke of observing the child repeating their message. For instance, Patrick’s teacher stated “Some kids might use gestures or point or, you know, phrase it another way. But he [Patrick] just will keep saying the same thing again and again.”

In contrast to the repetition strategy used by most children, Ewan identified that he didn’t talk with others who didn’t understand him. However, he reported that he would recommence talking with them when they started to “talk” to him. It is possible that his use of “talk” refers to both speaking and listening:

Interviewer: If people don’t know what you’re saying, what do you do?

Ewan: Um, I don’t talk to them.

Interviewer: You don’t talk to them? No? You just talk to the people who do know what you’re saying. Yeah. I see.

Ewan: And then when they do talk to me, that when I will talk to them.

The adult’s (listener’s) solution to the listening problem: “We didn’t quite get all that, what was that about?”

Adult participants considered the listening problem as an immediate problem and therefore they wanted to improve the listener's ability to understand the child's speech while the speech problem was still being resolved. Like the children, adult participants also perceived the listening problem as being influenced by the listener. Consequently, one solution they employed was to rely on another listener (one more familiar with the child) for interpretation of the child's message. For instance, Grace's grandmother stated, "Often we'd say to [Grace's mother], 'we didn't quite get all that, what was that about?'" Both parents and siblings in the current study reported calling on each other, or being called upon by unfamiliar listeners, to act as interpreters for the child with the speech impairment. At times, they were noted to do this spontaneously:

Interviewer: Do you like playing with the other children at kinder?

Owen: Ah, no. I like playing with Declan [points to brother]

Interviewer: You like playing with Declan. Oh right. So is he your favorite person to play with?

Owen: [nods]

Interviewer: Why do you like playing with Declan?

Owen: He my ...[unintelligible]...world

Interviewer: Cause he...?

Declan [brother]: is my favorite friend in the world.

Another solution was employed by adult participants when other listeners were not around or when familiar listeners had not been able to interpret the child's message either. This solution involved asking the child to show the object or demonstrate their meaning by gesture:

Fenn's mother: Yes, like um, the other day, that's right, camping, he kept saying he wanted a "bitar." And we kept saying, what's a

bitar? What are you talking about?

Interviewer: And how did you eventually find out that that was what he was trying to say?

Fenn's mother: Well we just... I just said to him, okay we'll play a game, now tell me what does this "bitar" do? And he said, you go like this [gestured playing the guitar]...and that's when we clicked.

However, the success of these strategies was variable. For instance, Zac's mother noted that the use of gesture was not always adequate for expressing meaning, particularly when Zac was talking about things that couldn't be seen, such as "how he feels about something."

Owen's teacher identified his increased use of gesture as demonstrating progress towards solving the listening problem, but acknowledged the corresponding lack of progress in solving the speech problem:

As the year's progressed he started to use gesture more, point to things more. So it's almost like, he's thought "this is too hard, I'm just going to take people by the hand and show them what I want". I know that's good because he's getting across to us what he wants. But at the start of the year he actually used to try to tell us.

(c) Solving the frustration problem

Adults did not discuss ways in which they attempted to solve the frustration problem. It is possible that they did not have strategies for solving the frustration problem but focussed instead on solving the speaking and listening problem to prevent the frustration problem from occurring. However, Fenn's mother identified her lack of strategies for solving her son's frustration - wondering how to "calm this kid down" following a communication breakdown. She identified a solution to Fenn's frustration

as being a goal for the future, stating “I’d like him to...learn to not panic [when he isn’t understood].” Fenn’s mother recognized that solving Fenn’s frustration problem would enable him to cope more effectively with communication breakdowns that may arise from speaking and listening problems.

Discussion

This study aimed to describe the experience of living with speech impairment as perceived and understood by children with speech impairment and their communication partners. The participants in this research described two major problems that they encountered in their experience: a speech problem and a listening problem, which resulted in a third problem of frustration (see Figure 1). They also described the strategies that they used to solve these problems.

The speech problem

Only one of the 13 children identified a speech problem (Kara, who had difficulty saying her name); the others did not explicitly discuss their speech as being a problem. In contrast, all the significant others (except Kara’s father) identified the child’s speech problem, and it is possible that he never “noticed” the speech problem, due to never having experienced a problem listening to (and understanding his daughter). Therefore, the difference in perceptions held by most children and adults in this study about the nature of the problems may be a function of the children’s age, specifically in relation to self-concept and the development of meta-cognitive skills. Researchers have suggested that young children may “blur the boundaries” between their actual competence and their wish to be competent (Harter & Pike, 1984; Stipek, 1981). Therefore, young children may not initially recognise or believe that there is a problem with their speech. As they get older, children’s capacity for metacognitive thinking develops, which in combination with environmental factors, such as response/feedback from others, may assist them develop a more realistic self-concept

(Chapman & Tunmer, 1995; Marsh, Craven, & Debus, 1998). For instance, in this study, Kara's mother conducted formal home-practice to assist her daughter produce sounds ("k" and "g") correctly. This may have influenced Kara's awareness of a speech problem; however formal intervention with SLPs did not appear to influence the awareness of other children receiving intervention. It may be that Kara's awareness was also linked to the particular sounds and words (e.g., her name) with which she had difficulty and was practicing with her mother, and the significance of those words in her life. Information about the intervention received by the other children (e.g., the words targeted in intervention and the inclusion of meta-cognitive strategies) was not provided.

Children's awareness of a speech problem has been reported in other studies with older children. For instance, in the study reported by Owen et al. (2004) that investigated the communication experiences of school-aged children, one child with a speech impairment perceived the problem was that he didn't "speak properly" (p. 65). The difference in perceptions about the nature of the problems held by the young children and significant others in this study may also reflect the different ways in which they identify and define the speech problem. In the present study, adults described the children as not speaking properly. This suggests older children and adults must have a perception of what "speaking properly" means (i.e., a benchmark for comparison). Their benchmark may be based on adult production of targets, and when sounds or words are not produced in accordance with these targets, the speaker is considered to have a problem. Researchers have suggested that young children are unfamiliar with comparing themselves to others or to a benchmark, and this may contribute to their inaccurate self-evaluation skills (Butler, 1990; Ruble, Boggiano, Feldman & Loebel, 1980). In this study, the child participants may not have developed a perception of "speaking properly" or "correct" speech. The lack of a benchmark for evaluating their

own skills may have resulted in the children identifying problems in their communication experiences only when communication breaks down (and listeners don't understand). Further investigation of the different perceptions held by children and adults regarding the identification of speech impairments, and the role of metacognition and social comparison in identification would be beneficial.

Solutions to the speech problem: Perceptions of child speakers and adult listeners

The mother of Kara, the child who identified the speech problem, reported that Kara told listeners who misunderstood her speech to "Just ask Mom." The teacher of Owen, the little boy who drew his mother when asked to draw himself talking, reported that he no longer tries to "tell them" what he wants but relies on "showing them" instead. It is possible these children had developed a more realistic self-concept and an increased awareness of a speech problem as a result of others' responses to their communication attempts (e.g., parents, teachers or SLPs). Researchers have suggested that an explicit statement of misunderstanding or explicit request for clarification shows the speaker that the listener is confused and that that they are "expected to take responsibility for solving the problem of noncomprehension" (Robinson and Robinson, 1983, p. 318). Therefore, SLPs often incorporate such strategies into their intervention to increase children's awareness of speech errors (i.e., develop their metacognitive skills) and to motivate them to elaborate or recode the message (Bowen & Cupples, 1998; Dean & Howell, 1986; Gozzard, Baker & McCabe, 2008; Weiner & Ostrowski, 1979). However, even when child speakers are aware of a speech problem, they may have difficulty solving the problem. For instance, it's possible that Kara and Owen have begun to rely on others or on non-verbal methods to communicate because they feel unable to solve the problem of their own unclear speech.

The young children in this study did not identify SLP intervention as being a solution to the speech problem. This may contrast with the perception of older children,

such as the school-aged participant in the Owen et al study (2004, p. 63), who recognized the purpose of therapy targeting his speech skills was to “help” him “talk better.” Similarly, the adults in this study perceived intervention (in SLP clinics and/or at home) as providing children with “help” to solve the speech problem. Intervention with SLPs is common for many young children with speech impairment (Broomfield & Dodd, 2004; Joffe & Pring, 2008; McLeod & Baker, 2004) to address the speech problem.

The listening problem

Both child speakers and adult listeners in this study identified the listening problem that was experienced in communication interactions. It is possible that the children’s identification of the listening problem was influenced by their perceptions of the role of the communication partners. Robinson and Robinson (1981) and McDevitt et al. (1990) found younger children perceived good listening as orienting behaviorally (e.g., not interrupting, doing as told) while older children perceived good listening as attending (careful listening and concentrating). They found children often attributed blame for communication breakdowns to the listener, even when the speaker’s message was unclear or ambiguous. It may be that some of the child speakers in this study attributed blame for communication breakdown to the listener’s inability to understand and act on their message or to “do as they’re told” (outcome), rather than to the intelligibility of their own message (cause). Adult listeners often appeared to accept blame for being unable to “hear” their child’s message, perceiving it as a failure on their part for not “working it out.”

Solutions to the listening problem: Perceptions of child speakers and adult listeners

Children and adults in this study reported that child speakers frequently repeated their communication attempt or “kept saying” their message as a way of solving the problem of listeners’ understanding. It is possible that the child’s choice of strategy may

have been influenced by the listener's response. For instance, the use of repetition is reportedly a common response by children to non-specific requests for clarification (e.g., what?) (Tomasello, Conti-Ramsden & Ewert, 1990). Corsaro (1976) suggested that adults often use clarification requests to signify that an utterance was not heard, and so children, such as the participants in this study, may believe repetition is an appropriate repair strategy.

Fagan (2008) suggested that child speakers can influence the behavior of adult listeners in that if they persist in their communication attempt, then adults persist in attempting to understand (offer solutions). In this study, Kara reported that she would "keep saying" her name, and that her listeners would "keep saying" what they thought she meant. It may be that child factors such as having a persistent temperament (cf. Hauner, Shriberg, Kwiatkowski, & Allen, 2005; Harrison & McLeod, 2009), and environmental factors such as the listener's responsiveness, influence the decision of children to repeat their message in order to solve the listening problem. Further investigation of factors that influence child and adult responses to communication breakdowns would be valuable.

Adult listeners, particularly grandparents and teachers, identified their reliance on other, more familiar listeners, such as parents or siblings, to improve their ability to "hear" what the child was saying. The need for family members to take on the role of interpreter has been reported previously in studies of parents (Goldbart & Marshall, 2004) and siblings (Barr, McLeod, & Daniel, 2008) of individuals with communication impairment. It is likely that others rely on parents and siblings who know more about their child and their child's communication, and so can guess the meaning. However, as Patrick's brother recognized, sometimes no-one is able to interpret the child's spoken message. At such times, adult listeners identified the use of non-verbal strategies as a

way of solving the listening problem.

No participants in this study identified intervention with SLPs as a way in which they attempted to solve the listening problem, and SLPs have not traditionally targeted the problem of communication partners being able to hear and understand the child. Instead, it is expected the listening problem will be solved by solving the child's speech problem. In this study, both child and adult participants recognized the listening problem as a significant and immediate concern. Future research investigating the possibility of addressing the listening problem as an explicit goal in intervention would be valuable.

The frustration problem

Adults identified the frustration problem as a consequence of the speaking and listening problems. It is possible that it also results from the different perceptions held by the speakers and listeners in this study about their roles in the communication problems they experienced, and consequently, their perceived roles in solving the problems. The significance of the frustration problem was particularly evident for one mother who identified her main goal (solution) for herself and her child (Fenn), was that he would learn "to not panic." Despite the frustration problem being experienced by most of these children with speech impairment, and despite the significance of this problem for many of their communication partners, it is not a problem that SLPs have traditionally targeted. Instead, an elimination or reduction in frustration is generally an anticipated outcome of intervention targeting the speech problem. Future research investigating the possibility of targeting frustration as an explicit goal would be valuable.

Clinical Implications

The participants in this research highlighted two key problems: speaking properly and listening properly. Adult participants identified that intervention with SLPs was one way in which they attempted to solve the child's speech problem, and traditional

speech-language pathology practice does focus on “correcting” speech skills (Van Riper & Erickson, 1996). However, young children who perceive that the problem does not lie so much within themselves, as within the listener, may be reluctant to participate in speech-language pathology intervention focussed on themselves as the speaker.

Increasing children’s awareness of the speech problem through metacognitive strategies may be one way to increase their motivation to participate in intervention. However, making children aware of the speech problem does not address the other, more immediate problem of listeners needing to understand the child’s message and the frustration arising when listeners don’t understand. These problems were identified by child speakers and adult listeners when describing their experience of communication, yet have not typically been the focus of intervention.

The findings of this research suggest the strategies and advice SLPs provide to children with speech impairment and their families need to go beyond changing children’s speech production and incorporate ways to enhance listeners’ understanding and ways to address the frustration experienced by both communication partners. That is, there needs to be a more holistic approach to the assessment and management of childhood speech impairment.

During the assessment phase, a holistic approach may incorporate a visit by the SLP to other environments in which the child communicates, an analysis of communicative demands in those environments, an investigation of situations when communication breaks down to determine what children / listeners do, and the effectiveness of these strategies (Most, 2002; Pretty, 1995). A holistic approach should also incorporate interviews with children, parents, siblings and significant others who can provide expert knowledge regarding their experiences (Barr et al., 2008; Goldbart & Marshall, 2004) and their perceptions of the problems. Such interviews would enable SLPs to learn more about the children with the speech impairment, their communication

partners, and the nature of the communication problems that are experienced as described by those who experience them. In turn, this should enable a better understanding of the perceived solutions to these problems, to ensure clinicians are targeting the desired goals.

During the intervention phase, a holistic approach may incorporate teaching others (adults, siblings, and peers) ways to better understand the child's communicative intent (e.g., creating and using available cues such as a diary to share knowledge of events, or a list of child's typical productions of words), and teaching the speaker and the listeners ways to recognize communication breakdowns and strategies to repair these breakdowns (Most, 2002; Pretty, 1995).

SLPs working with children with speech impairments could learn from the experiences of colleagues working with people with aphasia and their families (Byng & Duchan, 2005; Jordan & Bryan, 2001; Worrall, 2006). Researchers in the field of aphasia have previously suggested that SLPs should be aware of possible differences between the perspectives of those experiencing the impairment and others (including SLPs) in terms of the impairment and intervention targets. They recommended an approach based on the social model as a more holistic way of assisting clients and their families. Worrall (2006, p. 322) reminded SLPs working with adults with aphasia that "talking better" is only one part of successful therapy.

Limitations

As this was the first study of its kind to describe the experience of speech impairment in young children and significant others in their environment, a qualitative approach using a small, purposefully selected sample was considered most appropriate to develop a detailed understanding. Further research with a larger sample size would be useful to determine whether the themes that emerged from this study can be generalized to other young children with speech impairment, their families and teachers.

As the child participants in this study were preschool children, it is acknowledged that their metacognitive skills are still developing, and so their perceptions of their communication skills are also developing. However, the purpose of this study was to describe the experience of living with speech impairment for these children and their communication partners at this time in their lives. Therefore, the perceptions of both children and adults were considered valid and important in order to understand their experience. Further research with different age groups would be useful to determine how children's perceptions of their communication skills and their description of living with speech impairment changes over time.

Conclusion

This research aimed to develop an understanding of the experience of speech impairment as described by preschool children with speech impairment and their significant others. No other study has explored this issue. Interviews with children and others revealed two global themes. In the first theme, participants identified the problems they encounter in their experience of living with speech impairment. For the child speakers, the main problem was the inability of others to understand their message (a listening problem). For listeners (families and teachers), there was an underlying problem of the child's speech being unclear (a speech problem), and an immediate problem of being unable to work out what the child was saying (a listening problem). Adult participants spoke about the frustration that often resulted from these two problems, and identified potential future problems. In the second theme, participants described solutions to the communication problems in terms of the child's speech getting better, and listeners being able to understand. They identified the strategies that were being used to reach those solutions such as participating in intervention with SLPs to address the speech problem and using a range of informal strategies to address the

listening problem. There appeared to be a link between perceptions about the nature of the problem and possible solutions, but this varied between participants, particularly between adults and children. The children with speech impairment who participated in this research were 4- to 5-years-old, and so the researchers interpreted their perceptions through their verbal responses to interview questions, their observed responses to communication breakdowns, their drawings and other non-verbal behaviors. The findings from this research illustrate the valuable information that children can provide and support the inclusion of children in research about them. The findings also support the use of a range of methods to understand children's views, when verbal communication may be difficult (e.g., severe speech impairments).

The themes that were uncovered in the current research indicate that difficulty producing speech sounds is only one of the problems encountered by young children and their families in their experience of living with speech impairment. Consequently, "speaking properly" is only one part of the solution. In keeping with the biopsychosocial framework recommended for considering health and wellbeing (WHO, 2001; 2007), SLPs working in the field of childhood speech impairment may need to consider expanding their role and modifying their practice to reflect the experiences of their clients and achieve a more holistic solution that also involves intervention for "listening properly."

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Table 1

Participant Characteristics of Children with Speech Impairment

Name	Sex	Age (years; months)	Percentage Consonants Correct (PCC)	PCC Standard Score*	Family history of speech/language difficulties	Location**	Currently attends speech-language pathology intervention	Siblings (approx. ages)	Significant others who were interviewed
Wade	M	4;1	42.1%	3	Yes	Large regional	Awaiting intervention	1 brother, 6;0 Mother pregnant	Mother Teacher
Grace	F	4;3	53.2%	3	Yes	Small regional	Yes	1 brother, 7;0	Mother Grandmother Teacher
Patrick	M	4;3	34.8%	3	Yes	Small regional	Yes	1 brother, 9;0 1 sister, 7;0	Father Sister Brother Teacher
Gus	M	4;3	47.3%	3	Yes	Metropolitan	Awaiting intervention	1 brother, 17;0 1 twin brother, 4;3	Mother Teacher
Ewan	M	4;3	38.8%	3	Yes	Metropolitan	Awaiting intervention	1 brother, 17;0 1 twin brother, 4;3	Mother Teacher
Kara	F	4;4	78.4%	7	Yes	Metropolitan	No	1 sister, 3;6 1 brother, 1;6	Mother and Father (together)
Owen	M	4;6	18.6%	3	Yes	Metropolitan	Yes	1 sister, 7;0 1 twin brother, 4;6	Teacher
Matt	M	4;6	50.7%	3	No	Metropolitan	Awaiting intervention	2 sisters, 6;6, 2;0	Mother
Zac	M	4;9	67.1%	3	No	Metropolitan	No	3 sisters, 10;0, 7;0, 0;8	Mother

(Yes Reading)									
Fenn	M	4;11	55.8%	3	Yes	Rural	Awaiting intervention	1 sister, 3;6	Mother Teacher
Evelyn	F	4;11	56.8%	3	No	Metropolitan	No (previously has attended)	1 sister, 2;0	Mother
Jamie	M	5;0	74.1%	3	No	Metropolitan	No (previously has attended)	1 brother, 6;6	Mother
Lilah	F	5;9	54.5%	3	No	Large regional	Yes	1 brother, 2;0	Mother Teacher

* On the DEAP assessment, the lowest possible standard score is 3. Children receive a standard score of 3 for PCC scores below 69 (4;0 – 4;5 years), 72 (4;6 – 4;11 years), 83 (5;0 – 5;5) or 84 (5;6 – 5;11). Therefore, most children in this sample received the same standard score, despite variable PCC raw scores.

** Locations were defined according to population size - rural – under 5,000, small regional – 5-40,000, large regional – 40-100, 000, metropolitan – capital city (over 1 million). Locations also varied in level or remoteness and distance to local health services.

Table 2

Themes, Subthemes and Codes Generated from Analysis of the Interview Transcripts

Themes	PROBLEMS (Trouble, difficulty, concern, struggle)			SOLUTIONS (Fix, help, get better, work on, improve)		
Sub-themes	<u>Speech problem</u> Speech / sounds / words – incorrect	<u>Listening problem</u> Hearing / listening / understanding – effort, inability	<u>Frustration problem</u> With self (child) /speech With others/listening	<u>Solving speech problem</u> Speech-language pathology / practice	<u>Solving listening problem</u> Repeating Gestures Interpreting / translating	<u>Solving frustration problem</u> Calming down, learning to not panic
Codes	Nature of the current problem Identifying the problem (Advice, knowledge, child awareness) Potential future problems (Relationships, literacy)			Nature of the solution Current progress and future needs (Getting better, needing help) Future solutions (Goals, expectations, hopes)		
Variables	Child characteristics (confidence, persistence) Environmental characteristics (familiarity/relationship, access, prior experience, advice)					

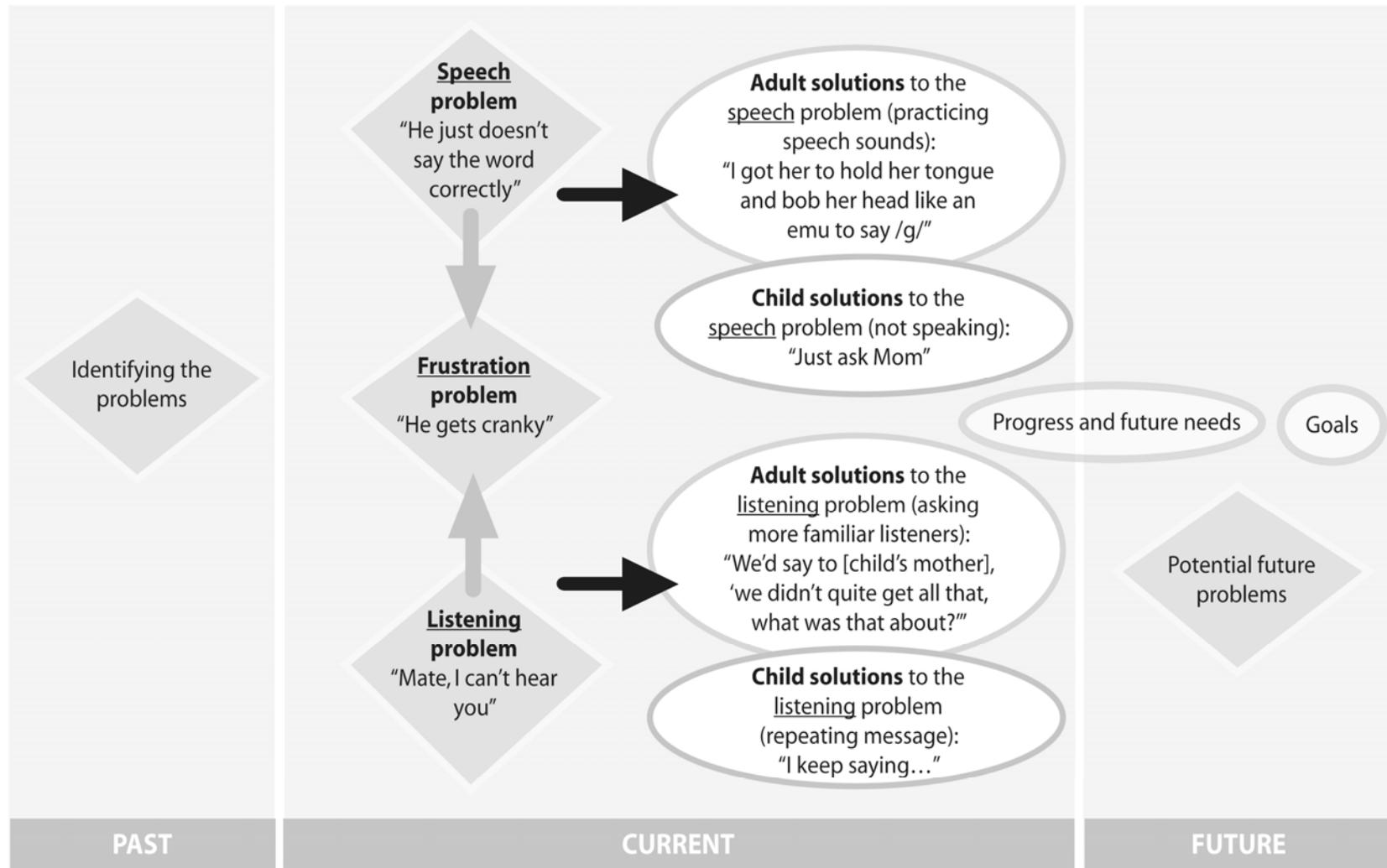


Figure 1. The link between the problems experienced by children with speech impairment and their communication partners (theme 1), and their solutions to the problems (theme 2).

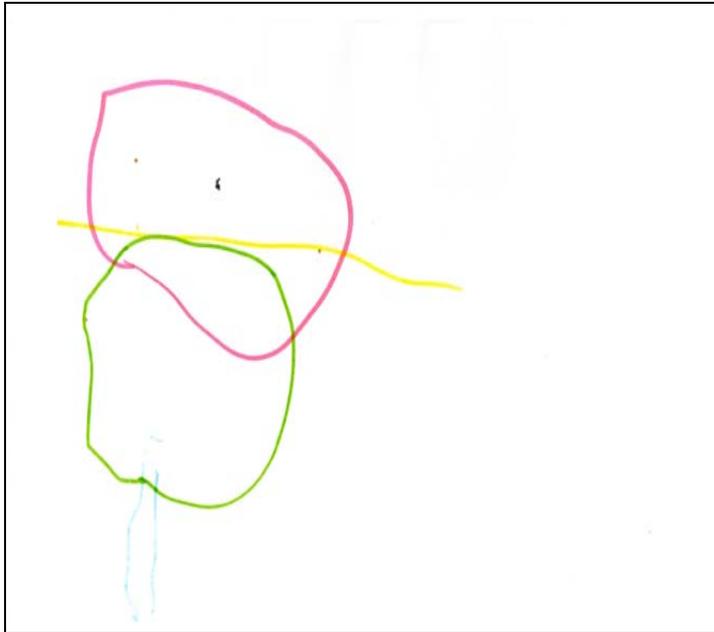


Figure 2a



Figure 2b

Figure 2a (left) and 2b (right). Owen's drawings of himself talking. The first drawing (Figure 2a) was collected during Owen's speech assessment and he did not draw a conversational partner. When asked who he liked talking to, he responded "no-one." Owen's second drawing was collected during the speech interview, approximately 7 weeks after the assessment (Figure 2b). Initially he only drew his mother. Then he drew himself (left) "talking" to his mother. Owen drew their faces, bodies and legs in red and yellow, then scribbled over their faces with black. Owen produced 18.6 percent of consonants correct on the DEAP (Dodd et al., 2002) and his teacher reported "As the year's progressed, he started to use gesture more."