First Signs Evaluation

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for the Ministry of Education

FITZGERALD &ASSOCIATES
Social enterprise solutions

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1 Executive Summary

This evaluation identified the outcomes of Deaf Aotearoa's First Signs service through document analysis, a literature review, and views of families who are currently or ever part of First Signs service, Advisors on Deaf Children (AODCs), two leaders of the First Signs service, and then interviews with a sample of families.

113 families participated in an online and paper-based survey that asked what they thought of the outcomes for their child (28% response rate).

33 AODCs participated in an online survey that asked for their opinion of the outcomes for the children on their caseload (83% response rate).

This evaluation concluded that First Signs provides a valuable service that has significant social impact on its service users, for both child and the family. Overall, feedback from the survey and interviews suggest that the First Signs service has had substantial impact on the well-being, identity, and communication skills of deaf[1] children.

Outcomes

Aligned with the evaluation of three other similar international services, most families and AODCs agree that First Signs helps to:

- Teach families how to **communicate visually**, and helps with overall communication
- Teach deaf children to **communicate what they want to say**
- Teach families **how to sign** with their child
- Provide **greater awareness of deaf people's experiences and abilities**
- Make **families feel more confident** and able to support their child
- Make **families feel more positive about their child's future**
- Helps children **start school with age-appropriate language**, including spoken language
- Helps **develop strong self-esteem** in children.

Families found learning to sign was also helpful for children with aided hearing and good speech, particularly at times when hearing was difficult, safety was an issue, or the English word was not known.

Slightly more Māori whānau participants, in proportion to other ethnicities, joined First Signs so their child could start school with age-appropriate communication, learning about raising a deaf child, and learning about Deaf lives.

Outcomes are providing an avenue for children who are deaf and hard of hearing (deaf children) to learn language and be more connected to their family. By these means, First Signs is reducing language delays, poor educational outcomes, isolation of the deaf child from their family, parent distress, and development of mental ill health.

[1] Children who are deaf and hard of hearing are referred to in this evaluation as deaf children for reasons of simplicity.

Significant numbers of deaf children can now learn language and become educated at levels only dreamed of decades ago. This is not due to the First Signs service alone, but rather the combination of services focused on addressing the effects of deafness, including early identification, advanced technology support through cochlear implants and hearing aids, Advisers, as well as early access to sign language. Together, these mean that good educational options are now available for families.

In a Language Outcome Report provided by the Ministry of Education, nearly half (48%) of a sample of 100 deaf children at age four and a half to five, including some children who had received First Signs support, demonstrated language abilities at or above their current age level when compared with their same age peers. A further 18% did not have a significant language delay when compared with same age peers.

Together with Language Outcome Report data, developing NZSL assessments undertaken by First Signs facilitators will provide a systematic approach to measuring the linguistic progress of deaf children in the future.

Areas for improvement

Although First Signs provide a service much appreciated by a large majority of families and Advisers, some areas for improvement were identified that would further improve the service's outcomes:

- More service, greater frequency, and more service in preschool and school settings, and in more remote areas.
- More opportunities for time-poor families to meet.
- More training for some facilitators, to support family centred approaches including:
    - flexibility in the programme's goals, times, and curriculum to suit families' situations
    - increases in diplomacy for some facilitators to ensure parents do not have to defend their choices.

This training and support may also help to reduce staff turnover within First Signs.

While there is clearly considerable collaboration between the various services to deaf children, there is also some indication from families, AODCs and First Signs that there are areas to improve, particularly on transitions to preschool and school.

The numbers of families choosing First Signs have increased over time. Currently, roughly 17% of Adviser caseloads are accessing First Signs service, in comparison to studies that found roughly a third of local parents choose to incorporate sign language in their support packages. It may be that the numbers will continue to increase over time.

The findings of this review, based on data from families and Advisors on Deaf Children, validates the outcomes supported by First Signs. This evaluation concludes it is largely working very well and is much needed and valued by families and Advisers. It provides guidance for service improvement focused on family centred approaches and transition planning with AODCs.

2 Introduction

2.1 First Signs

Since 2014, the Ministry of Education has contracted Deaf Aotearoa Holdings Ltd (Deaf Aotearoa) to deliver the First Signs service. This service aims to increase the presence and participation of deaf and hard of hearing children (deaf children) in home and early learning services; enhance their wellbeing and learning achievements.

The Ministry of Education is committed to funding and service agreements that are well planned, managed and monitored. The Ministry of Education and Deaf Aotearoa are parties to an Outcome Agreement for the delivery of the First Signs service to deaf children under of 5 years of age.

The key outcomes sought from First Signs include:

Learning to sign

- Enable families to begin learning New Zealand Sign Language (NZSL)
- Support early language development for the families' child
- Enables the child to start school with age-appropriate language

Learning about what it means to be deaf

- Increases awareness of what it means to be deaf
- Opportunity to learn directly from deaf people about their own lives
- Networks: parent to parent, and with the Deaf[2] community

Feeling confident about our child's future

- Ensures families feel confident and equipped to support their child
- Supports the building of family resilience
- Inspires strong positive aspirations

[2] The capitalised term Deaf refers to a cultural and linguistic community

The First Signs service is primarily designed to assist families and whānau with deaf children under 5 years of age to develop language early in the home. It also aims to help deaf children to start school with age-appropriate language. First Signs encourages a network among families of deaf children and the wider Deaf community. The service works to strengthen deaf awareness, inspire strong positive aspirations for deaf children and support families to build resilience.

The project has aimed to evaluate the outcomes from the First Signs programme, with a particular focus on language, educational, social, community, and family participation and confidence in raising and communicating with a deaf child.

It may never be possible to conclusively attribute all outcomes to the First Signs programme, but this evaluation has accepted that that the opinions of families and AODCs on outcomes provide the best possible indication of what First Signs has achieved.

In addition, the first data set for language assessments undertaken by AODCs for children at 4.5-5 years old is now available. Kelston Deaf Education Centre has trained facilitators to undertake assessments of sign language and these will begin soon. Then it will be possible to compare these sign language assessments over time and in comparison to English assessments. The establishment of a baseline evaluation is sought so that the evaluation can be replicated at regular intervals to compare results.

This evaluation begins with an outline of how this evaluation was designed and undertaken. Response rates and an overview of participants is then given.

A brief literature review is provided on why the First Signs programme could meet some needs of families with deaf children, including some exploration of similar programmes. Local data available on the performance of a sample of First Signs children compared to the total population is revealed.

Next is the analysis of responses from families, a view from two First Signs leaders, and finally the views of Advisers. Direct quotes from participants are included in italics. A conclusion lastly summarises the findings, including that expansion of the service is highly desired by both families and Advisers.

3 Evaluation method

3.1 Perspective

Universal truth may be impossible to obtain. This evaluation accepts that everyday life involves interconnection and constant change, resulting in unique contexts for families raising deaf children. The evaluation is built on the premise that local people are experts in their own lives and are therefore deemed to be a good source of information on the nature of language development.

3.2 Mixed methods approach

A mixed methods evaluation approach was used to explore First Signs outcomes with families and professionals. Cause and effect relationships are often not clear in identifying outcomes from service delivery, when deaf children and their families have so many factors that might affect results (e.g. age of diagnosis and language acquisition, ethnicity and cultural norms, level of engagement of family, presence of other disabilities, and other contributing services and factors). No research method is likely to ever be perfect and be able to provide precise and definitive answers on First Signs' outcomes, but it can indicate their presence.

This evaluation used surveys and interviews to explore the perception of how the outcomes are perceived. As can be seen in section 3.4 below, it explored outcomes largely through the views of families, leaders of First Signs, and Advisers.

This evaluation aims to enable the Ministry of Education make best sense of outcomes achieved by the First Signs service, by questioning developmental progress of individual children (as perceived by their families) and all known children within First Signs (as perceived by Advisers) in addition to some aggregated assessment data. A mixed methods approach including both quantitative and qualitative data was seen as an appropriate way to explore emerging patterns.

This evaluation also aims to be longitudinal to gain a sense of impact over time. In particular, as more data on the language levels of children at 4.5 years of age becomes available, more definitive outcomes can be determined and the survey can be repeated at regular intervals in the future to see if there is any significant change.

Interviews are a highly subjective technique and because there is a risk of bias, questioning did not suggest that stories of either positive or negative experiences are being looked for, but rather sought to elicit their honest opinion. Purposeful and exploratory conversations in final interviews had some loose structure to allow participants to tell their stories freely and openly.

3.3 Evaluation process and data sources

1. The Ministry of Education literature was assessed on purpose of the First Signs programme. All available information was sought on First Signs outcomes to be achieved to identify the key criteria for the evaluation.

2. An international literature review looked at why this service is needed, and the effectiveness and impacts of similar early intervention signing programmes. It paid particular attention to the Colorado Home Intervention Program (CHIP), the Australian Longitudinal Outcomes of Children with Hearing Impairment (LOCHI) study, and Informed Choice from the UK. None of these studies provided comparable information but three similar programmes were identified. The Ski*Hi institute (USA), Counselling and Home Training Programme (CHTP, Canada), and Lifetrack Deaf Mentor Family programme (USA), were found to have all used Deaf mentors and had some evaluation undertaken.
3. The detailed design of the evaluation was completed, in consultation with Mark Douglas (Specialist Service Lead, Deaf and Hard of Hearing, Ministry of Education), Dr Rachel McKee (Associate Professor, School of Linguistics and Applied Language Studies, Victoria University of Wellington), Bridget Ferguson (General Manager – Services, Deaf Aotearoa), Natasha Cloete (Team Leader, First Signs) and Claire Raisin (Adviser, Ministry of Education). The design included identifying and agreeing criteria to be evaluated.
4. A communications strategy with key stakeholders was developed, informing the First Signs facilitators, Advisers, and Deaf community through Deaf Aotearoa, and the Ministry of Education. A notice was sent to AODCs and First Signs facilitators. An article in the Deaf Aotearoa weekly e-newsletter was developed, and a video in NZSL was posted in a few New Zealand-based Facebook groups. AODCs and First Signs facilitators encouraged family participation during visits. People whose first language was not English were offered help with the survey by First Signs facilitators, but some may have found it challenging to complete independently.
5. Identification of a relevant possible control group was sought but not found. Some completed aggregated AODCs data was obtained on a sample of 100 deaf children. Assessment results of language levels were explored on these four and a half to five-year-old deaf children, some of whom were in the First Signs programme. An accurate comparison was not possible because of the low numbers of children but this will provide future comparative data for children receiving First Signs and other services.
6. First Signs' data was examined to ensure surveys could be sent to participants without having to complete family information. A system was devised where the survey only took 5 minutes and additional information from First Signs (location, age, ethnicity, length of time in the service) was added to the survey responses through a conversion to an Excel spreadsheet. ID numbers have been used to ensure no one's privacy was breached.
7. The survey (attached as Appendix 2) was sent to all current families (180) and past families (221) - a total of 401 - to determine the perceived outcomes for each deaf child and their family.

   The survey was sent electronically to 320 participating families, 86 of whom primarily identify as Māori and received a targeted survey specifically for Māori. Online surveys often receive a low response rate from Māori, and so a targeted campaign using the same questions but with Māori terminology included was used.

   In addition, 81 people did not have an e-mail address and so were sent a survey by post with a reply-paid envelope.

Weekly reminders were sent electronically and the timeframe for answering was extended from three to five weeks for people who still wished to participate. For Deaf parents of deaf children, a NZSL version was developed and included with the electronic survey.

8. A survey (see Appendix 3) was also sent to all 40 AODCs to ascertain their perspective of the general impact of First Signs. Three weekly reminders were provided through Mark Douglas.
9. Interviews were held with the First Signs Manager and one Team Leader.
10. Online interviews were held with 10 families who are currently or had been in the First Signs programme. These families were chosen as representative of the range of geographical areas (including urban and remote locations), ethnicities, genders, and satisfaction with the service.
11. Surveys were analysed using Excel pivot tables, comparing across key available characteristics, including age, area, ethnicity, gender, and current and past service users and thematic analysis of comments. Interviews were analysed, identifying key recurring themes.

3.4 Response rates and overview of survey participants

Table 1: Response rates and ethnicity

	Total population receiving survey	Responses received	Response rate (% of respondents)	Response rate (% of First Signs users)
Families				
Māori	86	16	14%	19%
Other ethnicities	315	97	86%	31%
Total	**401**	**113**	**28%**	**28%**
Advisers	40	33	83%	

The sample response rate was similar to the larger population in most respects. However, a larger proportion of survey responses came from service users who were currently active (68%) than the number of active service users in the total 401 First Signs population (47%). Families who had moved on from First Signs may have been more difficult to locate or less interested in completing the survey. Similarly, there were slightly more participants in the 0-5 age group in the sample (88%) than in the total First Signs population (78%).

There was a similar geographical distribution to the total population, although there were slightly higher representations from Otago and Wellington in the responding sample. There were 50% each of male and female children in the sample although in the total population only 45% were female.

In most homes, English was the primary language used in the home (83%), 7% used NZSL, and 4% te reo Māori. Seven used a variety of other languages as the main or secondary language (Afrikaans, French, Korean, Mandarin, Samoan, Māori and NZSL).

Table 2: Family survey participants by location and age

Location	0-5	6-15	Total
Auckland	19%	1%	20%
Bay of Plenty	7%	0%	7%
Canterbury	15%	4%	19%
Hawkes Bay	5%	1%	6%
Manawatu	4%	1%	4%
Nelson and Bays	3%	0%	3%
Northland	3%	0%	3%
Otago	6%	3%	9%
Southland	1%	0%	1%
Taranaki	3%	0%	3%
Waikato	8%	1%	9%
Wellington	15%	2%	17%
Total	**88%**	**12%**	**100%**

Table 3: Family survey participants by ethnicity and gender

Ethnicity and Gender	Female	Male	Grand Total
Asian	2%	1%	3%
Māori	9%	5%	14%
NZ European	24%	29%	53%
Pacific	2%	3%	4%
Other or not disclosed	13%	12%	26%
Grand Total	**50%**	**50%**	**100%**

Table 4: Primary Language used at home by family survey participants

English	English/Māori	English/NZSL	Māori	NZSL	Other	Total
83%	**2%**	**1%**	**2%**	**7%**	**6%**	**100%**

3.5 Ethical Issues

Conflict of interest

The evaluator has a background in working for the Deaf community but also has considerable experience in undertaking research where there are divided opinions. Committed to giving a voice to all participants impartially, there are no conflicts of interest for this evaluation.

Anonymity

Confidentiality was assured to participants. No individual children or Adviser has been identified in any report developed from this evaluation. If there is any chance of identification with small numbers of people, all characteristics that might enable identification (e.g. area, ethnicity, gender) will not be included.

For privacy reasons, no names of families or AODCs are available from the Ministry of Education. First Signs' service user lists were provided and amended into anonymous numbered data.

Informed consent

Each participant in the research was provided information on the proposed project, including their right not to be involved. Completion of the survey was considered equivalent to informed consent.

Accuracy of quotes

Quotes were taken from survey responses directly and are therefore considered to be accurate. The online interviews were taped, with participant consent, to ensure accuracy of any quotes taken.

Participant's access to findings

All participants were told they will receive a summary of the findings upon completion.

Harm to vulnerable populations

The population is a vulnerable one but there was no harm envisaged from a confidential survey. Face to face interviews were carefully managed to ensure families and AODCs know that all responses are considered valid and useful. No guidance on what responses were expected were given.

First Signs facilitators and AODCs encouraged all participants to engage with this survey, particularly Māori participants, and were available to listen to and refer concerns where needed to the evaluator. Participants were invited to contact the evaluator if needed, and many took that opportunity.

Security of information

All information will be retained on a computer with a password and will be destroyed after a period of five years.

Summary

Outcomes for this evaluation have sought the views of families and AODCs through online surveys and interviews, in addition to initial emerging data from spoken language assessments and interviews with First Signs leaders.

4 Literature Review

4.1 Challenges for deaf children

There is general agreement among researchers, professionals and families that childhood deafness poses significant challenges to language development, especially spoken and written language (Lederberg, Schick, & Spencer, 2013). The under-achievement of deaf students, with significant delays in educational outcomes, has been an enigma to professionals and parents for many decades (Colorado Deaf Education Reform Task Force, 2002; Geers, Tobey, Moog, & Brenner, 2008; Hendar, 2009).

Children identified as having a permanent hearing loss in childhood on average have lower language levels than hearing children (Mehta, Hilton, Baldwin, & Watkin, 2019). Even one recent study found that the mean receptive and expressive language scores of the entire cohort of deaf children were approximately 1 standard deviation or more below the mean of typically developing children (Cupples et al., 2018).

Not having a foundation language has long-term negative developmental effects for this group (Lederberg et al., 2013). Too many deaf children have left school functionally illiterate and therefore their employment, income, and social outcomes have been negatively affected. The negative outcomes for children who do not access communication with families can also result in language delays, poor educational outcomes, isolation of the deaf child from the family, parent distress, and higher rates of mental ill health (Greenberg, 1983; Humphries et al., 2019).

However, great achievement in many domains of deaf children of deaf parents has supported the conclusion that higher-level cognitive processes are not necessarily speech input dependent but *information* input dependent. Sign languages provide a means to provide this information.

Furthermore, language acquisition is the most powerful predictor for educational outcomes for deaf children (McKee & Smiler, 2017). Once one language is grasped, multilingualism also becomes possible. Among Māori, for example, oral language goals align with aspirations to maintain ethnic identity through knowledge of te reo Māori (McKee & Smiler, 2017).

4.2 Early identification

Language acquisition for a first language has a critical window. The introduction of Universal Newborn Hearing Screen (UNHS) programmes has changed the landscape of education for deaf children (Snoddon, 2008), maximising the potential for early intervention (Mehta et al., 2019).

Researchers have shown that neo-natal or early identification by six months have delivered dramatic improvements in language development for these children. Technological innovations (e.g. advanced hearing aids and cochlear implants) have contributed significantly to this positive impact. Because cochlear implants are used with children with severe and profound hearing loss, level of hearing no longer necessarily correlates linearly with spoken language outcomes.

A major study of children with hearing loss is taking place in Australia, the Longitudinal Outcomes of Children with Hearing Impairment (LOCHI). The LOCHI findings of children at 5 years revealed a significant effect of early cochlear implantation, showing that on average, 5-year language scores were 1.4 standard deviations higher for a child who received an implant at 6 months, compared to the child who received an implant at 24 months (Ching, Dillon, Leigh, & Cupples, 2018). In a similar vein, there was a significant effect of early hearing aid fitting. Language scores were 0.8 standard deviations higher in children who received hearing aids at 3 months, compared to children who received hearing aids at 24 months.

Significant numbers of deaf children can now learn language and become educated at levels only dreamed of a brief time ago. However, it remains uncertain whether current deaf children who receive early intervention, consistently develop language skills superior to those reported in earlier literature.

4.3 Responses to the challenge

Most researchers agree that no single method of communication will be appropriate for all deaf children. The rates and patterns of language development are as varied as the characteristics of the children, their family, ethnicity and their environments.

They will have many different routes to the same goal, through sign language, simultaneous speech and sign or spoken language or a combination of these. Ideally, the hearing loss will be identified as early as possible, and the strengths and needs of each child and their family will be sensitively matched with their communication choice and thereby impact language and education outcomes (Marschark, 2003; Mehta et al., 2019). A diversity of programmes is often needed to meet the varied needs of deaf children and their families (Gatty, 1995).

There remains, however, significant debate about whether spoken language is best gained with or away from sign language (Humphries et al., 2019; Marschark, 2003). For example, some parents stop using sign after initial attempts, sometimes on advice after cochlear implantation (McKee, 2006).

4.3.1 A speech focus

Some researchers claim that parents' perceptions of their child's disability may have significant influence on their choice of early intervention services (Bowen, 2016). For example, if the hearing loss is seen as a medical problem then a medical solution is more likely to be sought.

The families of about three-quarters of the LOCHI study participants used spoken language only, while the majority of the remaining families used a Total Communication approach, using Makaton signs (signs and symbols used with speech, in spoken word order).

Only 2 of 339 children (0.6%) in the LOCHI study used sign language in addition to their hearing aid or cochlear implant. A larger proportion (18%) used Makaton signs and speech. This is similar to the Hearing House in New Zealand, where only 3% of the children who had been implanted used NZSL, but 21% used a combination of Makaton sign and speech (Hearing House, 2018). This would suggest there is still a strong belief within cochlear implant services that the use of a simpler visual communication system than sign language is preferred.

In the LOCHI study, significantly better language outcomes were observed in children who used a spoken language-based communication mode. The LOCHI study found that better language outcomes were associated with less severe hearing loss, higher nonverbal cognitive ability, absence of additional disabilities, use of speech for communication, and higher maternal education (Ching et al., 2018).

The use of an oral-only communication mode was a significant predictor of receptive language measured by directly administered tests, but not by parent report. Cupples (2018) argues that this positive effect does not imply a causal relationship between the use of an oral mode of communication during early intervention and spoken language outcomes.

4.3.2 Using sign language to acquire a foundation language

Mehta et al. (2019) support many other studies (Greenberg, 1983; Humphries et al., 2019) that claim early access to sign language can help rather than hinder the development of spoken language. They advocate that bilingual programmes should monitor auditory skills, support parent development of sign language and encourage parent child interactions (Mehta et al., 2019). Eight studies are referred to that indicate children with hearing loss can develop bilingual skills in the home and community languages. These researchers maintain that sign language needs therefore to be firmly integrated into early education processes. This in turn is expected to promote written and spoken language (Snoddon, 2008).

Many researchers and Deaf communities also advocate the need to acquire both sign language and English to access both cultures of the Deaf community as well as those of individual families and general society. They argue that learning sign language, a language in its own right, provides a valid way to communicate (Lederberg et al., 2013).

McKee (2006) argues that connecting parents with the Deaf world is critical to 'migrate' successfully in the Deaf world, when deafness is perceived as a cultural linguistic model rather than an impairment or deficit. She urges professionals, Deaf people, and parents to forge connections to facilitate clearer paths for young deaf children.

In one UK study, 63% agreed that a parent with a shared experience of having a deaf child was the best person to offer advice after diagnosis (Mehta et al., 2019). Professionals also saw value in the programme and most wanted it to continue.

Deaf paraprofessionals have also been seen as an important cultural bridge between the prevailing school and family culture with the Deaf world (McKee & Smiler, 2017; Petersen & Gozali-Lee, 2016; Watkins, Pittman, & Walden, 1998).

4.3.3 Parent choice

The vast majority of deaf children are born to parents with normal hearing, and as a result, the family's natural mode of communication is typically a spoken language (Smith, Wolfe, & Ching, 2016). One local study found that only a third of parents of deaf children in mainstream schools choose sign language for their child (McKee, 2006). Similarly, in one Norwegian study, 27% of parents used sign language to communicate even though 63% stated that sign language was important (Lederberg et al., 2013).

Learning sign language for families has challenges of time and expertise. Learning a new language for adults is time consuming and even challenging emotionally as they get to grips with the language and the communication difference from their child (McKee, 2006). Family challenges with learning to sign (Hyde & Punch, 2011) can also be attributed in part to the limited opportunities available for practising with others (Napier, Leigh, & Nann, 2007; Scarinci, Gehrke, Ching, Marnane, & Button, 2018). However, several studies maintain that deaf children can surpass their parents' fluency in sign language without detriment.

Parents have described how certain environments or situations influenced whether their child was more inclined to sign, such as around water, or across long distances. Others described how their child would use sign in conjunction with oral communication to maximize their communication skills. It therefore appears that parents do not always feel the need to restrict their child's communication method or use of language to just one option. Parents have previously reported that they value the use of sign language alongside oral language which, alongside the findings of this evaluation, suggests that choices regarding a child's communication method or language should not be viewed as fixed or a lifelong commitment, by either parents or early intervention professionals (Scarinci et al., 2018). Nevertheless, parents tend to also want their deaf child to speak (McKee, 2006).

4.4 International comparisons

Three international comparisons were located that had undertaken some evaluation of the outcomes of the programme. These are described in more detail in Appendix 1. All three found positive outcomes from their formal evaluations of their service.

SKI*HI is a comprehensive, home-based model of support designed to be used with children and their families using inter-agency coordination in Utah, USA. Within the SKI*HI programme, the Deaf Mentor Experimental Project was conducted over 3 years and one thorough evaluation of its effectiveness was undertaken. This showed that children in the Deaf mentor programme made greater gains in language than a control group, including gains in grammar and syntax, and general communication abilities with larger vocabularies (Watkins et al., 1998). Parents used significantly more signs and perceptions of deafness were more aligned with the Deaf community (Watkins et al., 1998).

A similar study in Canada evaluated a Counselling and Home Training Programme (CHTP) in Canada that used Total Communication, positive linkages with Deaf role models, and training in sign language. The CTHP group showed, through a range of language and social assessments, more advanced social, communicative and preacademic skills than a comparative control group. (Greenberg, 1983).

Another American programme, Lifetrack's Deaf Mentor Family programme that teaches families sign language, helps them learn about Deaf culture, and find communication resources, was evaluated for process (satisfaction) and outcomes (sign language proficiency, family communication and awareness of Deaf culture and community) (Petersen & Gozali-Lee, 2016). Using an online survey of family opinion, 77% of families were 'very satisfied' with the programme and 23% 'satisfied'; most (85%) felt their quality of life had improved; 68% said their communication with their child had 'gotten much better' (Petersen & Gozali-Lee, 2016).

4.5 Sign language use in New Zealand

New Zealand Sign Language (NZSL) is an official language of New Zealand used by some 20,000 New Zealanders; approximately 4,000 of whom are Deaf people who use NZSL as their first or preferred language (Office for Disability Issues, 2017). However, Census statistics from 2003 - 2013 also show a 25% drop in the use of NZSL, with highest reductions in younger users, primarily as a result of the advancing technology described earlier. This has resulted in decreasing opportunities for peer socialisation for those who wish to use NZSL as their primary or significant other language.

Nevertheless, there are a number of pieces of legislation and regulation that support the right to communicate in NZSL.

- The New Zealand Sign Language Act 2006 recognises NZSL as an official language of New Zealand, alongside Māori as well as the dominant English language. It states that *government services and information* should *be made accessible to the deaf community through the use of appropriate means (including the use of New Zealand Sign Language)* (Section 9c).
- The most recent New Zealand Disability Strategy (Office for Disability Issues, 2017), impacting on all government departments, notes that education ideally supports our personal, academic and social development, both in and out of the formal schooling system. This includes making sure that people who use different languages (in particular NZSL) are accommodated.
- The UN Convention on the Rights of Persons with Disabilities (2007) requires signatories, including New Zealand, to ensure that Deaf people have access to government information and services, to allow the use of NZSL, and to ensure the provision of NZSL interpreters. It notes in Article 24 its support for inclusion in education but also specifies the need to facilitate the learning of sign language and the promotion of the linguistic identity of the Deaf community.
- The 2018 - 2023 NZSL Strategy from the NZSL Board confirms that the following is expected:
    - Deaf children and young people who use NZSL are learning and acquiring NZSL at age-appropriate levels throughout their education through full immersion with signing peers and adult NZSL models.
    - Families and whānau are able to learn NZSL throughout their child's education, enabling them to communicate more easily with their deaf child.
    - Professionals, working in educational contexts with deaf children and young people who are NZSL users, are proficient in NZSL to an appropriate level, supporting deaf children and young people to acquire NZSL at age-appropriate levels.

These laws, agreements, and guidelines further validate the Ministry of Education's decision to make NZSL available to families of young deaf children through this First Signs programme.

4.6 Local statistics

There were an average of just over 800 deaf children under the age of five in the Ministry of Education AODC service in each of the 2016 and 2017 years, as can be seen in Table 5 below. With an average of just under 140 students per year and 401 total students on the First Signs register since it started, this suggests around 17% of families have opted to use First Signs. This number is lower than the local and Norwegian studies mentioned in section 4.3.3, where roughly a third of parents choose to learn sign language (Lederberg et al., 2013; McKee, 2006). Numbers of families choosing First Signs have grown since the service began (see Table 5 below), and family choices can now be tracked to see if they continue to grow to reach similar levels.

Table 5: Numbers of notifications and total deaf children under Adviser

Year	2016	2017	2018
Number of deaf children under the age of five receiving Adviser's service	709	830	TBC
Number of deaf children under First Signs	86	152	177

Sources: Personal communication with Mark Douglas and Bridget Ferguson, 2019

Higher rates of deafness are evident among Māori and Asian populations. Of all 2014 - 2017 deaf notifications for ages 0 – 19, 47% identified as European (67% of the general population); 33% of the referrals identified as Māori (22% of the general population); 12% as Pasifika (12% of the general population) and 18% as Asian (12% of the general population) (Digby, 2018).

In a separate analysis to this evaluation, AODCs have started to collect language data for the Ministry of Education. The first sample has been aggregated for children who were between 4.5 and 5 years of age in 2017. These children receive support from a variety of sources, including First Signs, Cochlear Implant Programmes, AODCs on Deaf Children and Deaf Education Centres. This sample also included those with disabilities, late diagnosis and late access to services (Douglas, 2019).

Of the total 100 children assessed, 48% presented with language abilities that were at or above their current age, and a further 18% did not have a significant language delay when compared with same age peers by the age of 4 ½ to 5 years. This baseline data provides a great opportunity to measure language outcomes in future years. (Douglas, 2019).

Summary

The UNHS programme together with cochlear implant and hearing aid technology have made significant gains for many deaf children.

Accessing language early to realise educational outcomes is so important, that the method most suitable for the child is sought. Families have many different routes to the same goal, through sign language, simultaneous speech and sign, or spoken language, or a combination of these. Because sign language is so accessible for many of these children, it is now made available to families in New Zealand through the First Signs programme. Just under one fifth of current families are now choosing the First Signs service.

Three similar programmes have been found that undertook some form of evaluation and found high levels of parent satisfaction and higher language outcomes in comparison to those who did not participate in these programmes. Local data on language outcomes show that just under half of a sample of children aged between 4.5 and 5 years of age are achieving at above or equal to their hearing peers.

5 Analysis

5.1 Family responses

5.1.1 Reasons for joining First Signs service

When asked why they joined the First Signs service, participants answered as follows:

Table 6: Reasons for joining First Signs

Why did your family decide to join the First Signs service?	Responses	% of total
Support early language development for our deaf and hard of hearing child	102	90%
Help our family to learn New Zealand Sign Language (NZSL)	89	79%
Help our family feel confident and able to support our child	75	66%
So that our child can start school with good language or communication skills (like others at the same age)	54	48%
Feel hope for our child's future	49	43%
Learn more about raising a deaf child	45	40%
Network with other families of deaf children	40	35%
Support family relationships and connections.	35	31%
Network with deaf role models	34	30%
A chance to learn from deaf people about their lives	32	28%

Providing early language development for their deaf child is clearly the dominant driver for families. To achieve that, families need to know NZSL themselves and feel confident in their ability to support their child.

Less than half of participants joined First Signs for other reasons (starting school with age-appropriate communication, feeling hope for the future, learning about raising a deaf child, and networking with Deaf people and other families, etc.).

Māori participants comprised 14% of the sample, but when compared with other ethnicities, proportionately they were more likely to have joined First Signs so their child could start school with age-appropriate communication (20%), learning about raising a deaf child (18%), and learning about Deaf lives (19%). Although some caution should be used when assessing these results, it may be that tangata whenua are particularly sensitive to cultural approaches in working with deaf people, given their own experience of marginalisation.

Learning about deaf people and their lives was a bigger motivator in Auckland, Canterbury and Bay of Plenty than the sample's proportion of people in Nelson and Bays, Northland, Otago, and Southland. Networking with Deaf role models was similarly most motivating in Auckland, Canterbury, and Waikato, and less so in Northland, Otago, and Wellington. These latter areas might consider how the local Deaf population are perceived by families.

Other reasons for joining First Signs included:

- A chance to learn from proficient users of the language
- Giving a language that can be used all of the time or if hearing deteriorates
- Enable wider family and carers to interact with Deaf adults
- Encouraged by Ministry of Education's Adviser on Deaf Children

5.1.2 Connections

More than four in five (82%) families met with their First Signs facilitator either weekly or fortnightly, while 14% met monthly, and 3% said they met their facilitator 'hardly ever'.

Table 7: Frequency of meeting with First Signs facilitator

Weekly	Fortnightly	Monthly	Hardly ever	Not applicable	Total
26%	56%	14%	3%	2%	100%

Just over three quarters of families (77%) either hardly ever met with other deaf children or felt it was inapplicable in their case (see Table 8 below). Less than a quarter (23%) of families met with other deaf children monthly or more often. Parents of deaf children have many appointments connected with hearing, had busy lives and were often short of time. A few families mentioned that they were not ready or had very little time to be involved with the Deaf community.

Table 8: Frequency of meeting with other deaf children

Weekly	Fortnightly	Monthly	Hardly ever	Not applicable	Total
6%	2%	15%	41%	36%	100%

Similarly, 21% met monthly or more often with families of deaf children and 78% hardly ever did so or did not see it as applicable to them (see Table 9 below). If contact with other deaf children is considered important for communication or cultural reasons, ways of communicating and enabling this for families is needed.

Table 9: Frequency of meeting with other parents of deaf children

Weekly	Fortnightly	Monthly	Hardly ever	Not applicable	Total
4%	4%	15%	43%	35%	100%

A number of parents mentioned in interviews that they would like to see more opportunity to meet with other parents and children, but acknowledged that time and travel make this difficult and some wondered if more online opportunities were possible.

5.1.3 Outcomes

Table 10: Outcomes for families

Outcomes	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Not applicable	Total
First signs helped us be more aware of the ways of communicating with vision	50%	37%	6%	0%	2%	5%	100%
First Signs taught us how to sign with our child	52%	33%	6%	2%	3%	4%	100%
We gained more understanding of deaf people's experiences and abilities because of First Signs	44%	37%	10%	2%	3%	5%	100%
Our family feels more confident and able to support our child because of First Signs	37%	42%	12%	3%	3%	3%	100%
First Signs helped us feel more positive about our child's future	42%	34%	19%	2%	3%	0%	100%
First Signs helped our child to better communicate what s/he wants to say	37%	33%	16%	3%	3%	8%	100%
Our child is expected to start school with age appropriate communication skills	23%	36%	22%	8%	6%	6%	100%
Our child has stronger self-esteem because of First Signs	23%	35%	26%	4%	2%	10%	100%
First Signs helped our child connect with wider family (e.g., grandparents, cousins)	19%	24%	28%	10%	6%	12%	100%
First Signs helped our child to improve spoken language	19%	19%	31%	6%	5%	21%	100%

There were several significant outcomes that have been provided by the First Signs service, from the families' perspective, as can be seen in Table 10 above.

Teaching families how to communicate visually (87% agreed), signing (85%), gaining greater awareness of deaf people's experiences and abilities (81%), feeling more confident and able to support (79%), feeling more positive about their future (76%), and helping the child to communicate what she wanted to say (70%) were the greatest benefits of the service.

It is interesting to note that while only 43% of families joined First Signs to feel hope for their child's future (see Table 6 above), 76% acknowledged that First Signs helped them to do so. While only just over a quarter joined to learn about deaf lives, 87% did gain more understanding of deaf people's experiences and abilities because of First Signs, and comments showed this outcome was valued. A few families even asked for more Deaf culture to be included.

Over half (59%) expected their child to start school with age-appropriate communication skills, which was similar to the language results reported by Advisers. Over half (58%) felt that their child had stronger self-esteem because of First Signs.

Less than half agreed that First Signs helped their child to connect to wider whānau (44%) or helped to improve spoken language (37%). While many families noted that their wider family was involved, many others noted that wider whānau were geographically distant or not able to participate.

A difference between current and past service users was observed in these outcomes, as shown in Table 11 below. Current active service users were more likely to agree with these statements, which suggests the service has improved or people's appreciation of it has increased for some other reason (e.g. more public awareness and support for NZSL). For example, 81% of current users agreed that First Signs had helped feel more positive about their child's future, while only 66% of past inactive users agreed.

Table 11: Key differences between current and past service users

Strongly agreed or agreed with these statements	Active	Inactive
First Signs taught us how to sign with our child	92%	71%
First signs helped us be more aware of the ways of communicating with vision	90%	80%
We have a good relationship with our First Signs facilitator	89%	77%
First Signs helped us feel more positive about our child's future	81%	66%
First Signs helped our child to better communicate what s/he wants to say	74%	63%

Most families (83%) are using NZSL to communicate with their child, and over half of the children (51%) are using it in school, preschool, or kohanga reo. Several noted that other siblings and peers enjoyed learning sign language and that it was now seen as 'cool'.

The other kids (at school) love learning sign

Of 17 comments on what other areas where they use NZSL, seven commented that they and their child use NZSL all the time and in all situations.

All day every day, it's amazing

Other comments

Several noted they use NZSL in any noisy environments or when the hearing aids/cochlear implants were switched off.

Three noted they are using sign language less as their child's speech develops, but they noted that it was helpful before speech developed. Six commented that their child was not signing yet.

5.1.3.1 Key benefits

When asked what the most important benefits have been, emerging themes echoed the outcomes above and fell into four main categories:

Table 12: Key benefits for families

Benefits	Description
Communicating and signing with our child	Learning how to sign from someone fluent and opening up communication for the child and family, reducing frustration and isolation. *Being able to understand what our child wants and for him to tell us how he is feeling.*
Learning about Deaf culture	Connection with the Deaf world enabled greater understanding of the challenges facing people with hearing loss and how to overcome them. Deaf role models were important for giving children confidence in what they can do, normalising signing and giving a sense of belonging and identity. *Meeting other deaf people and understanding that we can overcome perceived limitations*
Providing options	Learning to sign was also helpful for children with aided hearing and good speech, particularly at times when hearing was difficult, safety was an issue, or the English word was not known.

	Trying to future proof for (our child's) communication. While her spoken language is on track for her age it's been wonderful to have sign as a back-up, there are lots of situations when she finds it difficult to hear
Creating confidence and positivity	The arrival of a deaf child in a family starts an emotional journey for most hearing parents. A number of parents spoke of their commitment to making sure their child can do everything they want to do, and that communication would not be a barrier. *Our expectations are the same as for a hearing child* Support from First Signs enabled many to build confidence in parenting a deaf child. *Your service is an incredible blessing to all families who feel lost in our situation I know because I was one of them, thank you so so much*
Mixing with other families	Many parents noted the need to mix with other families with deaf children. Many also noted that parents find it hard to find the time to do this. One mother said: *We want lifelong connections* A number of families do not live near to wider family members who want to be involved in the sign language training. Another mentioned that there are several families in their area but few of them sign. Several wanted to share the journey with people going through the same rather than feeling isolated. A small number of families mentioned they have worked on Skype with First Signs and some liked the idea of online family meetings for people in remote areas or simply with busy lives. *First Signs could do more to get families together*

5.1.3.2 Key areas for improvement

When asked what the most important things First Signs could have done better, the emerging themes also supported the outcomes above and fell into three main categories:

Table 13: Key areas for improvement for families

Areas for improvement	Description
More service	35 people said they just wanted more of the service, in terms of 1. **Frequency**. Weekly or fortnightly was sought rather than less often. If a session was cancelled, for example, due to illness of the facilitator or

family, over summer, during NZSL Week or with facilitator training, and valuable time was seen as lost.

Weekly would be better

One mentioned the need to have face to face sessions as some remote families use online media. Others said they would be happy with online sessions.

Duration. Many wanted the time allocated with First Signs to be extended beyond school age. The First Signs cut-off at age 5 was problematic for many families. At present the child must use NZSL as their primary language to get NZSL@School[3] support, even though most of the children use both sign and speech. One noted their Resource Teacher of the Deaf (RTD) was not Deaf and Deaf role models were needed.

You need a multi-pronged approach (to enable communication)

One mother mentioned that her child was removed from access to NZSL funding because she signed but not well enough in her view. She wondered how they were assessed and how that decision was made?

2. **Setting flexibility**. Some transitions to kindergarten or early preschool have been provided by First Signs but is not funded, and so have not been available to all children, and most families felt it was very important to continue the development in the child's natural setting. Some teachers have embraced the challenge and not only supported the transition but have gone onto NZSL classes to expand their knowledge.

   When First Signs started, they wanted the whole community to sign. Now they often just work in the home.

3. **More sign classes** were wanted.
4. **More opportunities to meet with other families**
5. **More reliable contact from First Signs.** Communication from the service was very hard for a small number of families, one of whom was in a remote area and could not get access to a facilitator easily. Another said they had not been contacted after a referral. All were very eager to learn NZSL, and felt hamstrung by the inability of the service to respond promptly.

One family uprooted to Christchurch from Palmerston North because they knew they would get better services there. Their daughter had responded so well to First Signs and the whole family was involved, including a grandmother. This family attend a Deaf Hub fortnightly and noted:

[3] The NZSL@School initiative, introduced in 2014, provides support for a very small number of deaf students who use NZSL as their primary face-to-face language for communication.

	We just need more of First Signs
More training for facilitators	20 people suggested there could be better ways to conduct the sessions, and this idea was reinforced in family interviews. **Flexible goals** The largest number of comments on improvements were focused on ensuring First Signs adapted its service depending on age, interest, and family focus. Many mentioned the need for more goal setting and monitoring with the family. Words taught should be negotiated with the family so they make most sense for the child within their context. Two families, for example, noted they had learned considerable sign but the lessons were very basic. One Deaf parent noted that kids got bored if the teaching of signs was below their capability while the youngest baby wasn't ready for them yet, which meant some lessons were very ineffective. Others said the learning was sometimes haphazard. *Make the lesson more applicable… e.g. like meal times, getting dressed, playing…(or) getting ready to leave the house* *It didn't feel targeted or well resourced. Without guidelines, we were floundering* *It was like I had to lead the session* *More advanced teaching skill is needed* Homework with the family could mean there is more practice between sessions. A few people suggested the need for more resources that could be left with the family. Several people noted they wanted more structure and one said they wanted less structure. **Flexible times** Some noted that facilitators would come in the weekends or evenings, while others wouldn't or couldn't be that flexible. Flexibility was highly prized by the families and greater consistency in service delivery options is needed. **Facilitator relationships and turnover** Most families noted that the relationship between the facilitator and family was critical for success, and as can be seen in Table 14, most families felt they had a very good relationship. One person noted that it was an untrained person that proved to be the most effective facilitator in their family. This facilitator was less rigid than previous two they had, and the child and parents relaxed easily with her. Facilitator turnover was a problem for several families, as sometimes they could not be easily replaced, and new relationships needed to be formed if they were.

	This impacted the family significantly as they had to get know a new person and their way of working. One noted their child was not given the chance to say goodbye to their facilitator, with whom he had developed a strong bond. **Diplomacy** A few families mentioned that facilitators need to be understanding and supportive of parent choices, e.g. for cochlear implantation. A small number noted that their facilitator was too outspoken about their views on cochlear implants and use of speech. One mother mentioned that her assigned facilitator would only talk to the child (rather than her) and she advocated for all facilitators to be encouraged to support holistic choices (sign and speech) and teach parents sign directly. One family in a remote area found the communication with First Signs and the facilitator very challenging when she didn't know what to expect. *There's a real difference in culture and I wonder if there should be someone who's a 'bridger' (through a letter or person at the beginning, so she would have been better prepared)*
Nothing	It says a lot about a service that the highest number of people (40) people said they could not think of anything that could be improved when asked, and that they loved the service. Families were extremely grateful for the service, especially when they found their facilitator flexible in the signs they taught families. *Our lovely tutor was a great access to Deaf culture.* One mentioned how creative the facilitator and service had been in developing a signed video of a book the child loved. *Having this service available to us fortnightly like we chose has given us the opportunity to learn with and alongside our child. It has opened up a new pathway for our child to communicate which is really important for us and for her. our child's future is brighter* Many families noted how well the facilitator worked with the children and themselves. *Our kids love her* Several families were unsure whether NZSL had an impact on spoken language but provided an alternative option when the technology was not working (e.g. swimming, bathing, noisy environments). Several others though thought it gave a foundation language and secondary understanding of concepts and that both speech and signing were important to maintain. *Signing helped with English*

	The learning is scaffolded *When she signs, she speaks it* *He needs both languages. When he's older he can decide* *When we started, he wasn't interested (in signing), now he's confident* Overall, feedback from the survey and interviews suggest that the First Signs service has had significant impact on the well-being, identity and communication skills of deaf children. *The service is essential* *He knows who he is* *He's much happier with First Signs* *There's much less frustration* *All families of deaf children should do this* *I am not worried about her not communicating (any more) – she has got a good future*

85% of families also agreed that they had a good relationship with their facilitator and many commented on how this made the learning easier for the child and family.

Table 14: Relationship with facilitator

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Not applicable	Total
We have a good relationship with our First Signs facilitator.	54%	31%	8%	2%	1%	4%	100%

More current active families agreed they had a good relationship with their facilitator (89%) than past service users (77%).

5.1.4 Family interviews

Like most survey participants, most families interviewed were very grateful for the First Signs service and their help to make the sign language communication option a reality for their family. Nevertheless, themes emerged from these interviews that were very similar to the responses in the survey, and so have been included in those sections. However, one new theme emerged that had not been discussed in the survey.

5.1.4.1 Accessing the system and service

Some families found it hard to navigate the system to find First Signs or NZSL classes, particularly but not only in smaller towns and rural areas. A few families noted their regret for the delays in diagnosis that sometimes occur. Several people interviewed also mentioned that it took a long time to access the First Signs service. One said that it took two months to find out about the service from another parent, and then another 10 weeks before the first visit occurred. This left the parent unsure if there were other things or services not known about. Families understand that time is of the essence in the early period.

It wasn't easy to find avenues (to sign language)

Some areas not only lack facilitators but also interpreters and in some areas, it was hard to find Deaf community members to mix with.

There are systemic barriers too in some of the provincial areas. One noted that their provincial city had few resources, and even though a nearby city could meet the need, they were not permitted to do so because they were out of the educational area.

A parent noted that some agencies serving deaf children appeared to be fighting each other, which was very challenging for them. Others noted how supportive their Adviser, RTD, or kindergarten were, so there are clearly cooperative approaches in place in some areas.

5.2 A First Signs view

There are 20 Deaf Aotearoa facilitators working in the First Signs service, some of whom also work in the others services provided by Deaf Aotearoa (Hauora, Employment, Youth). First Signs facilitators aim to teach basic NZSL in the home domain, and get families to relax, adjusting to visual communication.

First Signs' primary aim is to deliver language and cultural outcomes for children, regardless of which service provides it. While many families come to First Signs from a medical model of disability, the service encourages broader thinking and to approach deafness as a cultural linguistic group. Understanding more of Deaf people's experiences and skills is very important for the leaders interviewed from the First Signs service, because of family's lack of knowledge of the Deaf community.

One parent asked if deaf people can drive!

The initial meetings with the family are attended by the First Signs facilitator and a NZSL interpreter. In some areas the Adviser will also attend. The following visits are conducted by the facilitator and sessions can be weekly, fortnightly or monthly.

Some parents can feel overwhelmed in the early stages of learning sign language, Consequently, First Signs supports families to go at their own pace. First Signs works with a holistic approach to language development and it is often the small things that make a difference for families, such as tips on how to get and maintain the deaf child's attention, or communication strategies at the dinner table.

Deaf Aotearoa is keenly aware that if there is a good relationship between the family and the facilitator, there is likely to be more language learned. Training these paraprofessionals has therefore been a priority and has occurred at least twice a year. Facilitators have undertaken the Deaf Studies course at Victoria University, which is made up of 6 papers sat over two years. Ten facilitators have attended training from the Deaf Education Centres to become qualified to conduct assessment of NZSL using the 'Assessing NZSL Development toolkit'. More training is seen as needed to continue improving the service.

Deaf Aotearoa leaders noted that some facilitators are ready to work with families when they start their employment, while others need more support. It is difficult for them to find a workforce with exactly the right skills. However, Deaf Aotearoa encourages facilitators to be flexible with times and approaches with families. All service users are expected to have an individualised plan with the goals set by the family and the facilitator. These goals and plans are expected to be reviewed at least every six months and be family-centred.

First Signs has run a number of face-to-face family gatherings but attendance can be poor in some areas. It has also tried to use online or phone applications to work with families in some circumstances, with variable success for the families. Making connections possible for parents may require further innovations such as more online group or family discussions for people in all parts of the country so people can join at a time best for them.

Deaf Aotearoa is acutely aware of the high demand for its First Signs services and shortage of resources to respond, particularly around transitions to preschool.

School transitions are coordinated by AODCs and/or the Deaf Education Centres, and the First Signs service is not funded to provide professional development in any educational setting. However, a trial of a 10-week professional development package with a small number of preschools has been underway and has been gauged a success by Deaf Aotearoa and those parents involved.

NZSL@School is an education programme provided by the Deaf Education Centres that allocates resources and funding to enable deaf students to participate and learn in all school activities. Further clarity of how this service fits with and relates to First Signs is needed. Ideally, First Signs would like service users' access increased until the child is 8 years old, and be better connected with the NZSL@School programme. Preschools and schools do not always seem clear on the role of the facilitator or how best to use them.

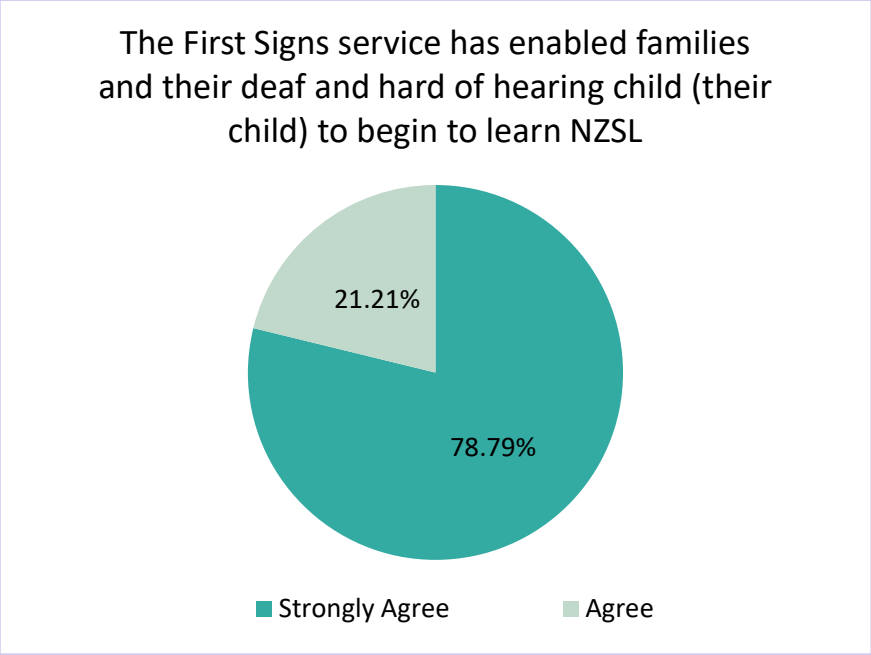
First Signs leaders would like to identify a reasonable caseload capacity for facilitators for the entire service with the Ministry of Education.

5.3 Advisor on Deaf Children responses

There was unanimous agreement among AODCs that First Signs has taught families to sign, although some more remote areas of the country have received less service. One Adviser noted, echoing what several families said:

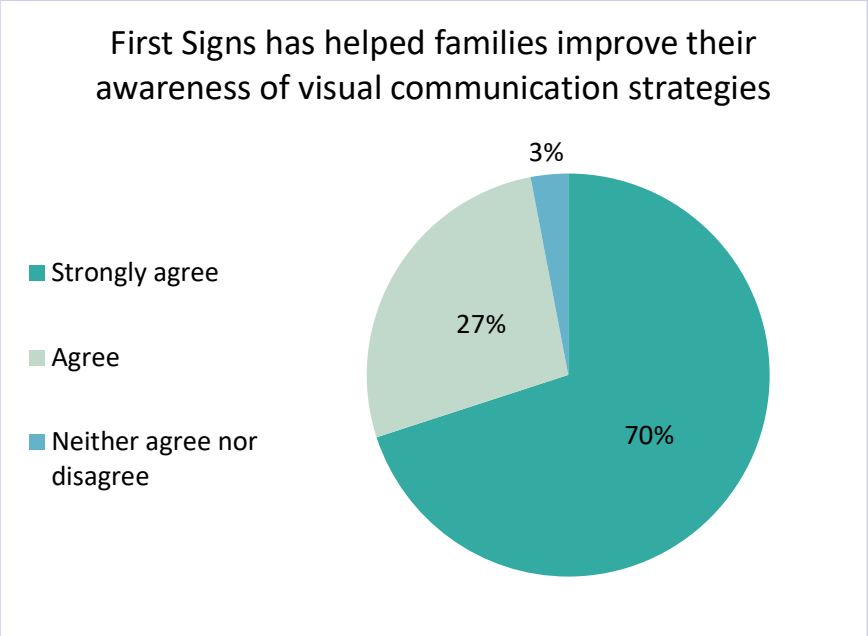
The service introduces NZSL to whānau. More support is needed to extend families' use and development of NZSL beyond the very basic signs. There is a big focus on teaching colours, animals and the alphabet. This is not always relevant for children under 2 years old, and yet families describe these areas as being the ongoing programme focus.

Table 15: Learning NZSL



There was also strong agreement (97%) that First Signs has delivered families more awareness and options in visual communication overall. Nevertheless, one area noted that they no longer had anyone from First Signs working with local families and one other noted that while facilitators modelled visual communication strategies, they could be more intentionally taught.

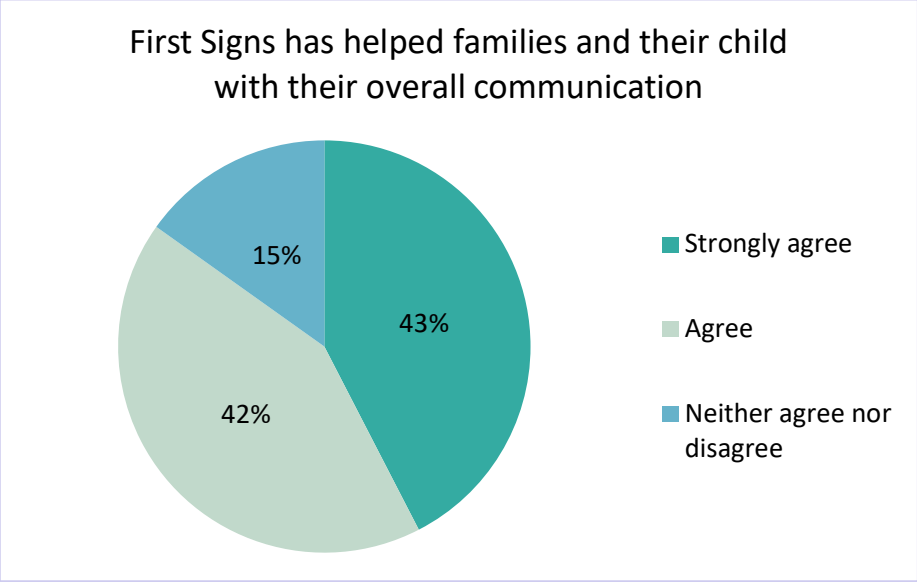
Table 16: Improving visual communication



There is widespread agreement (84%) that First Signs has helped families with overall communication, although 15% did not agree or disagree with this. First Signs offers families another mode of communication, supplementing speech. One noted that even getting eye contact established for some children can show increased engagement and a foundation for communication.

There was one comment that fortnightly sessions were not enough for some families, echoing family comments. Another mentioned that the facilitators can be so blunt about the need for NZSL that some families feel they have to choose between signed and oral language.

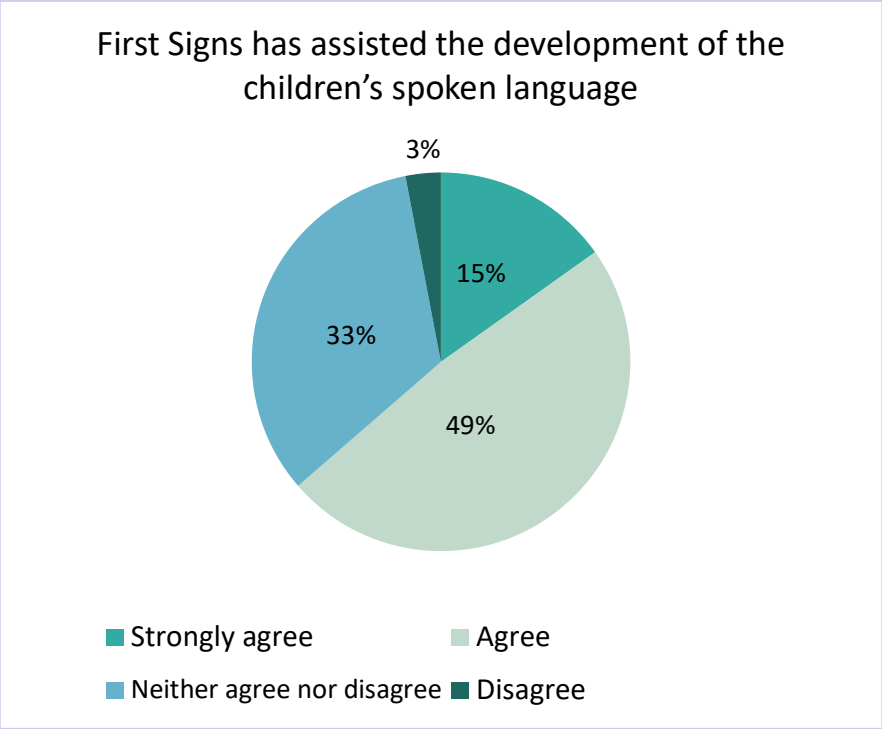
Table 17: Helping with overall communication



AODCs were somewhat more divided about whether sign language also enhanced spoken language. While nearly two thirds of AODCs (63%) agreed that First Signs assisted spoken language development, some thought it was very difficult to measure or had not seen evidence that this was true. Two AODCs reflected that teaching sign language usually involved having the voice turned off. Another specifically noted they did not think signing impaired spoken language, and two AODCs remarked that developing one foundational language supports a second.

Yes, in that some children have no concept of communication until they get access to sign language and then once they have that knowledge, that helps to scaffold their learning of spoken language.

Table 18: Assisting spoken language development



As seen in Table 19 below, 52% of AODCs agreed that First Signs helped children start school with age-appropriate language but 45% were unsure. Several noted that it all depends on the family, the effectiveness of technology, and many other factors, not just sign language, and that it was difficult to measure. Several couldn't comment because they had not seen enough of the impact of the service. Others noted that it had helped some children but that some still started school with a language delay. One noted that discontinuation after the age of five did not provide sufficient support and another noted that most mainstream educators did not actively support signing.

Table 19: Helping to start school with age-appropriate language

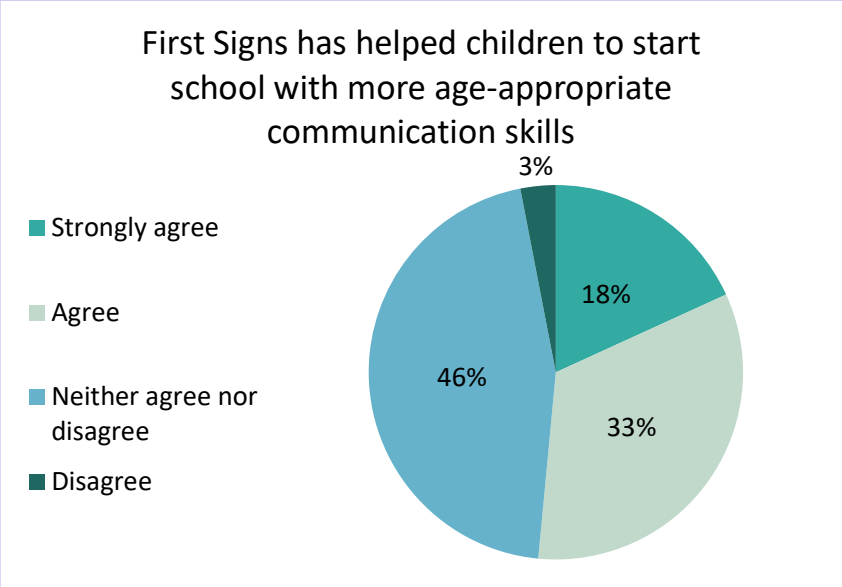
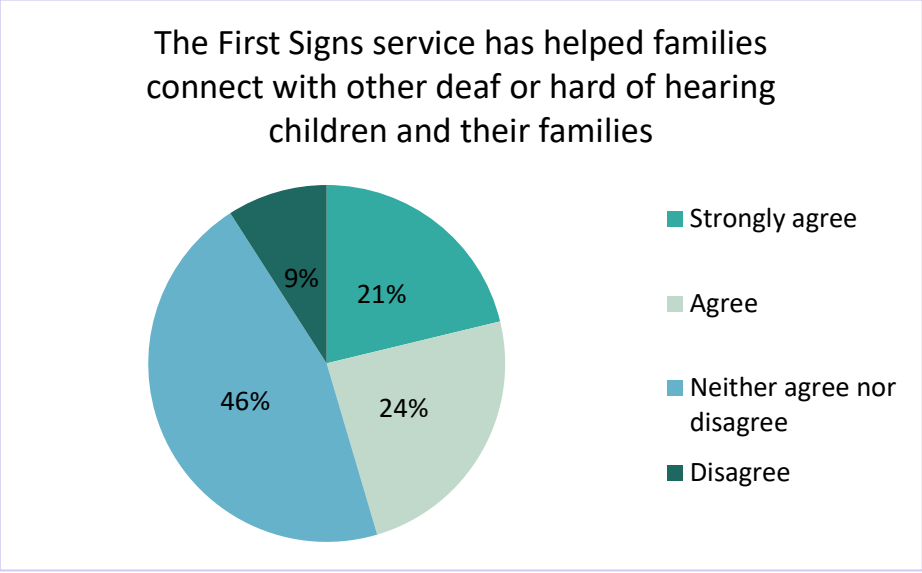


Table 20 below shows that there were varied responses to whether the First Signs service was connecting families with other deaf people and other families. While 45% said First Signs was connecting and enabling wider whānau to sign and several said the family gatherings were good to have, some agreed that families could be too busy to attend. Others noted that Deaf Children NZ (formerly the Federation of Parents with Deaf Children) or AODCs were enabling connections and that some more remote service users did not have access to the First Signs service. One said privacy issues could restrict access for families to each other.

Table 20: Connecting with other deaf children and families



Most AODCs (85%) thought that First Signs was generating more understanding around deafness and the skills and experiences of deaf people (see Table 21 below). Several commented that families were responding well to their facilitators.

It's really valuable for families to be able to ask questions of the First Signs tutor

One commented that the service was not long enough and another felt that the facilitator in their area was putting families in a difficult position because of their strength of belief in NZSL, which encouraged the family to choose between oral and signing approaches.

Table 21: Helping understand deaf people's experiences and abilities

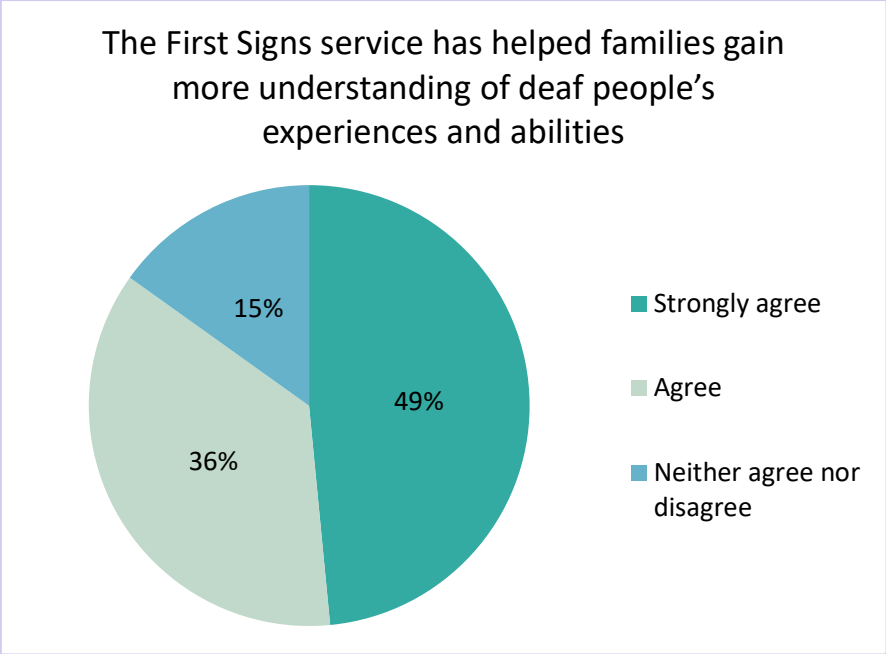
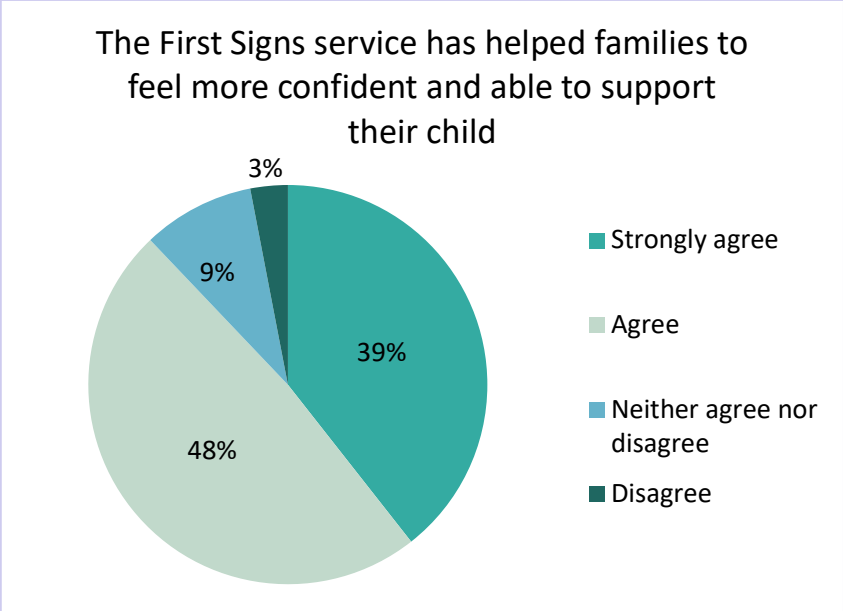


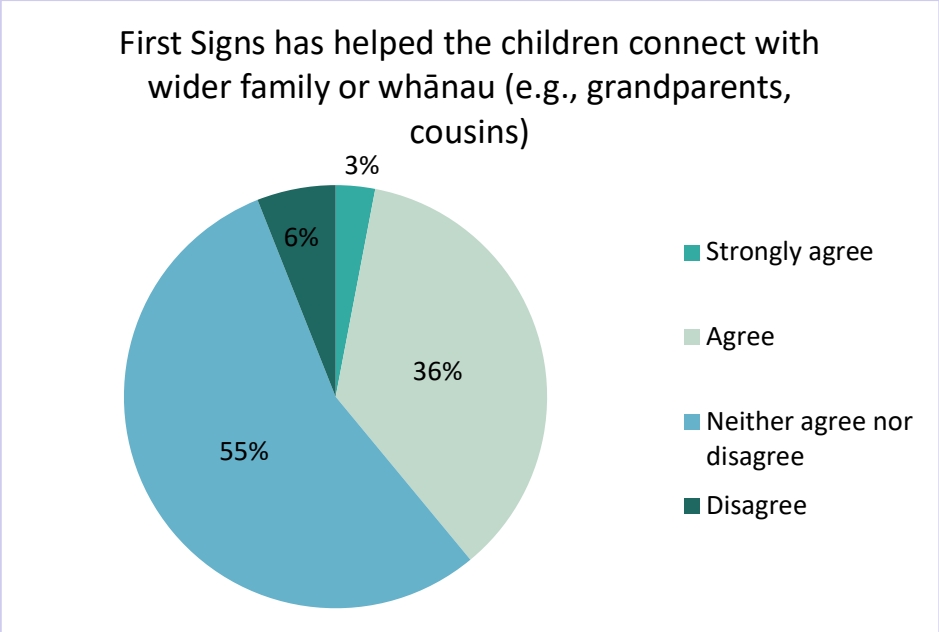
Table 22 below shows that most AODCs (88%) thought the service helped families to feel more confident and able to support their child. Comments included noting the importance of having facilitators who can positively engage, and that it depends on the family and their needs as to how they respond.

Table 22: Helping to feel more confident and able to support



Just over a third (39%) of AODCs agree that First Signs has helped families connect with wider whānau, with over half being ambivalent about this. While most comments noted that facilitators try to include and accommodate wider whānau members participation, and this was positive but others noted that some cannot due to time constraints or don't want to. Some AODCs had not seen enough evidence or discussed with families to answer this. One noted that sign language provision was only part of a big picture of deaf services to their child for busy families.

Table 23: Connecting with wider family or whānau

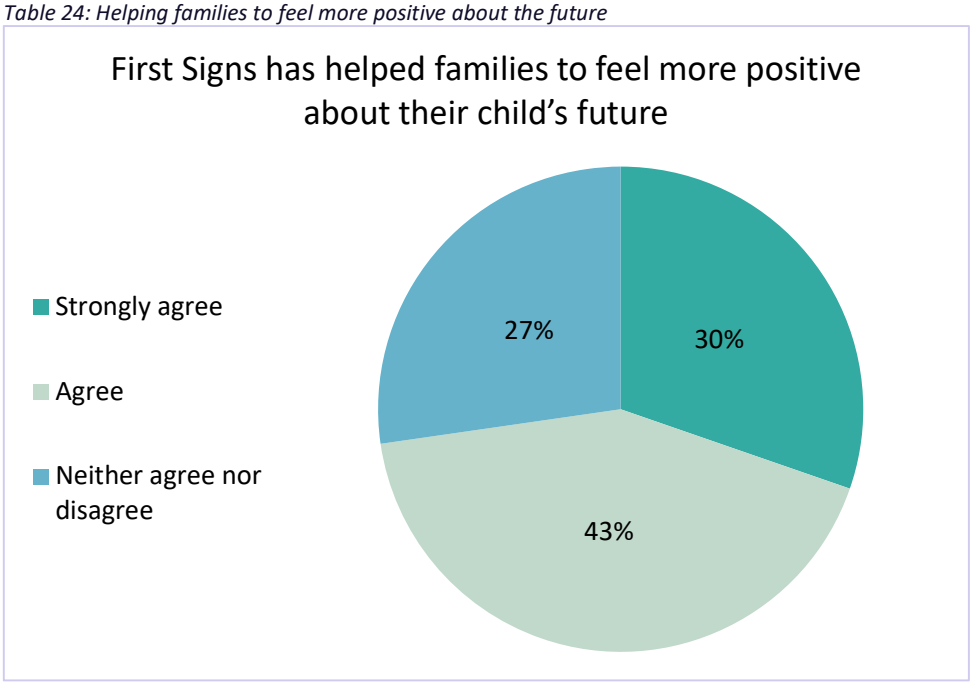


Nearly three quarters (73%) of AODCs thought First Signs had helped families feel more positive about their child's future. Over a quarter could not comment either way.

Comments suggested much was up to the family and the skill of the facilitator, and that this question really could only be answered by whānau themselves.

One comment noted that many parents were concerned about the age cut off of 5 for First Signs support, and limited NZSL@School funds, and that this conveyed that when you are bilingual, you have to make a choice of one language.

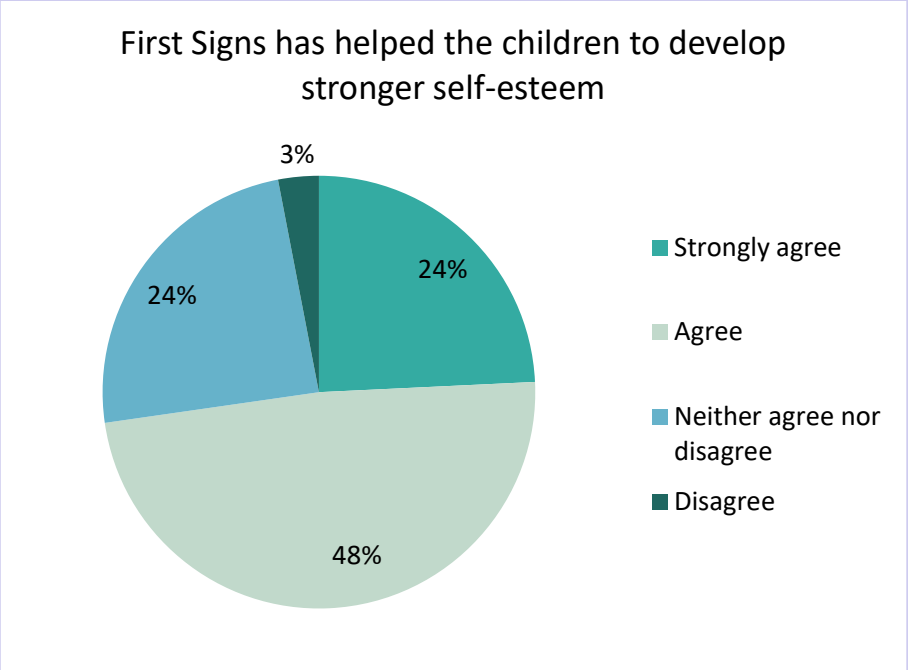
Table 24: Helping families to feel more positive about the future



Nearly three quarters (72%) of AODCs thought First Signs did enable stronger self-esteem (see Table 25 below), and nearly a quarter were not sure of this. While some commented that the children blossom with First Signs facilitators coming into the home, others could not measure whether this was happening.

(it's) hard to measure pre-schoolers self-esteem, but they all seem to like their facilitators and do sign with their parents

Table 25: Helping children to develop stronger self esteem



All AODCs thought there were positive benefits to the First Signs service. The most important benefits of the First Signs programme were:

- Learning sign language and visual communication skills early with family in a fun and interesting way
- Learning two languages that support each other and provide options for the child
- Increased understanding that there are many options for deaf children
- Positive Deaf role models and the increased respectful understanding of the Deaf community and culture
- Increased empowerment, confidence, hope and capability of families. Reduction of anxiety in families and frustration in children.
- Positive links exist with Advisers.

The language gains both signing and speaking, the hearing culture realizing there is a Deaf culture and the respect this engenders, the enthusiasm of the facilitators for their students who have hearing loss is shared with the whānau.

While several AODCs mentioned that the service was fantastic and there was little to improve, nearly all AODCs had suggestions for improvements. The biggest improvements to increase outcomes focused were around the provision of resources, similar to families' feedback.

Table 26: AODCs views on improvements in First Signs

Areas for improvement	Description
More service is needed	• Some families need weekly sessions for longer. • Preschool and kindergarten staff need to receive sessions as well (not either/or), especially if they are in full-time care. • Continuing the sessions for as long as needed. Continue at least up to 6 years old or continue onto school through the NZSL@School programme. • Interpreters are needed in Early Childhood Education (ECE) and school services and for first initial sessions with First Signs facilitators. • More opportunities for families to meet. • More facilitators to cope with growing demand. • More Pasifika facilitators.
More training for facilitators	• Early language development, early childhood development, and assessment. • More flexible teaching strategies and curriculum. A few AODCs mentioned there was sometimes some rigidity around the curriculum when learning the alphabet, colours or animals was not what the child or family needed. • Maintaining professional boundaries and accepting multiple views. • Resource development. • More working with families on shared goals. • One Adviser consistently noted that greater sensitivity toward family options was needed from their facilitator.
More flexibility	Flexibility in timing of sessions, with evening and weekend sessions often essential for full-time working parents. First Signs should be able to go to ECE services even if the parent is not there.
More sector collaboration	• Bilingualism needs to be supported at school, rather than families having to choose one language. • More opportunity for AODCs to provide summary of progress in sign and oral approaches at introductory meeting. • More time and improved communication with other professionals involved with the family, including NZSL in schools (for transitions), early childhood, Resource Teachers of the Deaf, and Advisers, so they know what is being worked on and how the child is progressing.

Summary

Most AODCs are overwhelmingly positive about the service. The problem is not that the service does not work, but rather that more service is required. One frustrated Adviser who disagreed that positive outcomes are being achieved, felt this way because they do not have a facilitator in their area and wants one.

Some noted improvements have been made, e.g. processes (such as the enrolment process) have been simplified for families.

It's a great service that has grown in popularity as the service develops. The personality of the First Signs tutor is important in terms of engaging with children and families

Nevertheless, some improvements could be made with more training for facilitators.

Some facilitators are better than others

6 Conclusion

First Signs provides a valuable service that has significant social impact on its service users, both child and family. Overall, feedback from the survey and interviews suggest that the First Signs service has had substantial impact on the well-being, identity, and communication skills of deaf children.

Aligned with the evaluation of three other similar international services, most families and AODCs agree that First Signs helps to:

- Teach families how to communicate visually, and helps with overall communication
- Teach deaf children to communicate what they want to say
- Teach families how to sign with their child
- Provide greater awareness of deaf people's experiences and abilities
- Make families feel more confident and able to support their child
- Make families feel more positive about their child's future
- Helps children start with age-appropriate language, including spoken language
- Helps develop strong self-esteem in children.

Outcomes are providing an avenue for deaf children to learn language and be more connected to their family. By these means, First Signs is reducing language delays, poor educational outcomes, isolation of the deaf child from their family, parent distress, and development of mental ill health.

Learning to sign was also found to be helpful for children with aided hearing and good speech, particularly at times when hearing was difficult, safety was an issue, or the English word was not known.

Significant numbers of deaf children can now learn language and become educated at levels only dreamed of decades ago. This is not due to the First Signs service alone, but rather the combination of services focused on addressing the effects of deafness, including early identification, advanced technology support through cochlear implants and hearing aids, Advisers, as well as early access to sign language, which means that real options are now available for families.

In a Language Outcome Report provided by the Ministry of Education, nearly half (48%) of a sample of 100 deaf children at age four and a half to five, including some children who had received First Signs support, demonstrated language abilities at or above their current age level when compared with their same age peers. A further 18% did not have a significant language delay when compared with same age peers.

Together with Language Outcome Report data, developing NZSL assessments undertaken by First Signs facilitators, will provide a systematic approach to measuring the linguistic progress of deaf children in the future.

This baseline data provides an excellent opportunity to measure language outcomes in future years. Together with developing NZSL assessments undertaken by facilitators, these language assessments will provide a trustworthy means to measure the linguistic progress of deaf children through the future. As the service continues, the number of families choosing First Signs may increase from the current 17% of AODC caseloads to closer to the third observed in local and some international experience.

Although First Signs provide a service much loved by most families and Advisers, some areas for improvement were identified that would further improve the service's outcomes.

- More service, more frequency, and more in preschool and school settings and in more remote areas.
- More opportunities for time-poor families to meet.
- More training for some facilitators, including around flexibility in the programme's goals, times, and curriculum to suit family's situations. Increases in diplomacy are needed with a small number of facilitators to ensure parents do not have to defend their choices. Further training and support may also help to reduce staff turnover.

This evaluation concludes the First Signs service is largely working very well and is much needed and appreciated by families and Advisers. There is demand for expansion from families and Advisers, and investment is seen as needed in further professionalising the facilitator workforce.

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Appendix 1: Three international programmes

1. SKI*HI, USA

One of the few similar programmes to First Signs in the world, the SKI*HI programme is a comprehensive, home-based model of support designed to be used with children and their families through inter-agency coordination in Utah, USA. A range of goals are set with families, including audiology and education.

Beginning in 1972, this outreach model was adopted by 250 agencies in the US and Canada. It involves a parent AODC working with families to develop holistic goals and a range of methods and language systems of achieving these. Within the SKI*HI programme, the Deaf Mentor Experimental Project was conducted over 3 years and one evaluation of its effectiveness was undertaken in the late 1990's.

The programme was built on the assumption that early development of sign language enables later learning of English as a second language (Watkins et al., 1998). Two matched groups (age, level of hearing loss, amount of SKI*HI input) were studied, one with access to Deaf mentors and one without. Eighteen children were in each group.

Similar to First Signs, the Deaf mentor programme focused on 3 areas: teaching the family sign language; interacting with the child using sign language and teaching the family about Deaf culture and connecting them with the local Deaf community. The role model of the Deaf mentor was expected to increase a positive sense of identity, self-esteem and pride in being a deaf person.

The evaluation looked at whether the first bilingual group resulted in better language and communication skills; the impact on communication in the family and whether the programme impacted perceptions of deafness within the family. Measures used to answer these questions included grammatical analysis (GAEL – P), syntax (PEST), a language development scale, communication data sheet from parents, and a deafness perception survey. The children were tested every six months and videoed every 3 months (Watkins et al., 1998).

Children in the Deaf mentor programme made greater gains in both receptive and expressive language than the control group, including gains in grammar and syntax, and general communication abilities with larger vocabularies (Watkins et al., 1998). Parents used significantly more signs and perceptions of deafness were more aligned with the Deaf community (Watkins et al., 1998).

2. Counselling and Home Training Programme (CHTP), Canada

A similar study in Canada evaluated a Counselling and Home Training Programme (CHTP) in Canada that used Total Communication, positive linkages with Deaf role models, and training in sign language. It compared two groups of 12 deaf children and their families, the first having been in the CHTP programme for at least a year and had entered prior to two years of age. The control group did not have access to a holistic programme (although they did receive various services) but were of similar hearing loss, age and intelligence levels. The CTHP group showed more advanced social, communicative and preacademic skills than the control group. The study recommended more focus on oral and aural skills, counselling for families and more support for fathers within CHTP. The importance and challenge of measuring long term effects was noted (Greenberg, 1983).

3. Lifetrack Deaf Mentor Family programme, USA

Another American programme, Lifetrack's Deaf Mentor Family programme that aimed to teach families sign language, help them learn about Deaf culture and find communication resources, was evaluated for process (satisfaction) and outcomes (sign language proficiency, family communication and awareness of Deaf culture and community) (Petersen & Gozali-Lee, 2016).

The evaluation was undertaken through an online survey showed that 77% of families were 'very satisfied' with the programme and 23% 'satisfied'. Most (85%) felt their quality of life had improved and 68% said their communication with their child had 'gotten much better'. Most families thought their level of sign language was at an intermediate level. 76% found the information on the Deaf community to be helpful. Language levels were hard to determine as only a small number of assessments were undertaken. (Petersen & Gozali-Lee, 2016).

The evaluation recommended prioritisation of Deaf mentor training, particularly around their skill and capacity to administer assessments.

Appendix 2: Family survey

First Signs evaluation

He rōpū manaaki, he rōpū whakarongo, he rōpū ako mātou
We are respectful, we listen, we learn

Warm greetings to you all,

Your family is receiving this letter because you are in or were in First Signs services. We would love to learn from your experience.

The Ministry of Education wants to know whether First Signs is working for you and your family or not. We hope you can take just 5-10 minutes to fill in this survey to tell us how it has been for you, so we can better understand and improve the service.

All responses are welcomed (both positive and negative) on the outcomes of First Signs for you.

Important things to know:

- Participation is voluntary but we would like to hear from as many families as possible.
- The survey is confidential. You will not be identified in any report coming from this evaluation.
- If you complete this survey, we will send you a summary of the results by early September.
- Your information will be kept in a secure location on a protected computer and all records will be destroyed after 5 years.
- An independent company, Fitzgerald & Associates, is completing the survey on behalf of the Ministry of Education.

If you have any questions or concerns, please telephone the researcher, Tricia Fitzgerald, on 0275 846 846 or e-mail her at tricia@fitzgerald.org.nz

Questions

1. Why did your family decide to join the First Signs service? (You can tick as many boxes as you'd like)
   - ☐ Help our family to learn New Zealand Sign Language (NZSL)
   - ☐ Support early language development for our deaf and hard of hearing child
   - ☐ So that our child can start school with good language or communication skills (like others at the same age)
   - ☐ Learn more about raising a deaf child
   - ☐ A chance to learn from deaf people about their lives
   - ☐ Network with deaf role models
   - ☐ Network with other families of deaf children
   - ☐ Help our family feel confident and able to support our child
   - ☐ Feel hope for our child's future
   - ☐ Support family relationships and connections.
   - ☐ Other: _____

How often we met

2. While in the First Signs service, we **met with our First Signs facilitator** usually
   - ☐ Weekly
   - ☐ Fortnightly
   - ☐ Monthly
   - ☐ Hardly ever
   - ☐ Not applicable

3. We met with **other deaf children** usually
   - ☐ Weekly
   - ☐ Fortnightly
   - ☐ Monthly
   - ☐ Hardly ever
   - ☐ Not applicable

4. We met with **other parents of deaf children** usually
   - ☐ Weekly
   - ☐ Fortnightly
   - ☐ Monthly
   - ☐ Hardly ever
   - ☐ Not applicable

5. **Support from First Signs**

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	N/A
a. First Signs taught us how to sign with our child						
b. First signs helped us be more aware of the ways of communicating with vision						
c. First Signs helped our child to better communicate what s/he wants to say						
d. First Signs helped our child to improve spoken language						
e. We gained more understanding of deaf people's experiences and abilities because of First Signs						
f. First Signs helped our child connect with wider family (e.g., grandparents, cousins)						
g. We have a good relationship with our First Signs facilitator.						

Language use

6. **We** use NZSL to communicate with our child (select as many answers as required)
   - ☐ Within the close or extended family
   - ☐ in school or preschool
   - ☐ N/A
   - ☐ Other (please tell us):
     _____
     _____

7. **Our child** uses NZSL (select as many answers as required)
   - ☐ Within the close or extended family
   - ☐ in school or preschool
   - ☐ N/A
   - ☐ Other (please tell us):
     _____
     _____

8. The main language used in our home is
   a. English
   b. Māori
   c. NZSL
   d. Other (please tell us): _____

9. Our child is expected to start school with age-appropriate communication skills
   - ☐ Strongly agree
   - ☐ Agree
   - ☐ Neither agree nor disagree
   - ☐ Disagree
   - ☐ Strongly Disagree
   - ☐ N/A

What the future looks like for our child

10. First Signs helped us feel more positive about our child's future
    - ☐ Strongly agree
    - ☐ Agree
    - ☐ Neither agree nor disagree
    - ☐ Disagree
    - ☐ Strongly Disagree
    - ☐ N/A

11. Our family feels more confident and able to support our child because of First Signs
    - ☐ Strongly agree
    - ☐ Agree
    - ☐ Neither agree nor disagree
    - ☐ Disagree
    - ☐ Strongly Disagree
    - ☐ N/A

12. Our child has stronger self -esteem because of First Signs
    - ☐ Strongly agree
    - ☐ Agree
    - ☐ Neither agree nor disagree
    - ☐ Disagree
    - ☐ Strongly Disagree
    - ☐ N/A

First Signs overall

13. The most important benefits of First Signs for us have been: _____
    _____
    _____
    _____

14. The two most important things that First Signs service could have done better for our family:
    _____
    _____
    _____
    _____

15. Please feel free to add any comments on the First Signs service.
    _____
    _____

16. We would love to interview a sample of families in greater depth (30 – 60 minutes). If you are willing to be personally interviewed further, please tick the yes box below
    - ☐ Yes
    - ☐ No

If you said yes, please tell us the best way to contact you: (e.g. phone number, email address, text number) _____

Thank you so much for filling in this questionnaire on First Signs and helping it improve. We will be back in touch with you when we have the results available.

Appendix 3: Adviser on Deaf Children survey

First Signs evaluation – for Advisors on Deaf Children

Kia ora,

Please find attached a brief survey on the outcomes of the First Signs service.

The Ministry of Education wants to know whether First Signs is delivering the outcomes it aimed to achieve. We hope you will take 10 minutes to complete this brief independent survey.

All responses are welcomed (both positive and negative) on the outcomes of First Signs from your perspective.

- The survey is confidential. No individual children or AODCs will be identified in any report coming from this evaluation.
- All people who complete a survey will receive a summary of the results on completion.
- Participation is voluntary but we hope as many people as possible will complete the survey.
- All information will be kept in a secure location on a private computer and all records will be destroyed after 5 years.
- An independent company, Fitzgerald & Associates is completing the survey.

If you have any questions or concerns, please do not hesitate to telephone the researcher on 0275 846 846 or e-mail her at tricia@fitzgerald.org.nz

1. **Please give us your name, and where you work:**
   Name:
   Region of work:

2. **The First Signs service has enabled families and their deaf and hard of hearing child (their child) to begin to learn NZSL**.
   - Strongly agree
   - Agree
   - Neither agree nor disagree
   - Disagree
   - Strongly Disagree

Comment:_____
_____

3. **First Signs has helped families improve their awareness of visual communication strategies.**
   - Strongly agree
   - Agree
   - Neither agree nor disagree
   - Disagree
   - Strongly Disagree

   Comment:_____
   _____

4. **First Signs has helped families and their child with their overall communication.**
   - Strongly agree
   - Agree
   - Neither agree nor disagree
   - Disagree
   - Strongly Disagree

   Comment:_____
   _____

5. **First Signs has assisted the development of the children's spoken language.**
   - Strongly agree
   - Agree
   - Neither agree nor disagree
   - Disagree
   - Strongly Disagree

   Comment:_____
   _____

6. **First Signs has helped children to start school with more age-appropriate communication skills.**
   - Strongly agree
   - Agree
   - Neither agree nor disagree
   - Disagree
   - Strongly Disagree

   Comment:_____
   _____

7. **The First Signs service has helped families connect with other deaf or hard of hearing children and their families.**
   - Strongly agree
   - Agree
   - Neither agree nor disagree

- Disagree
- Strongly Disagree

Comment:_____
_____

8. **The First Signs service has helped families gain more understanding of deaf people's experiences and abilities.**
   - Strongly agree
   - Agree
   - Neither agree nor disagree
   - Disagree
   - Strongly Disagree

   Comment:_____
   _____

9. **The First Signs service has helped families to feel more confident and able to support their child.**
   - Strongly agree
   - Agree
   - Neither agree nor disagree
   - Disagree
   - Strongly Disagree

   Comment:_____
   _____

10. **First Signs has helped the children connect with wider family or whānau (e.g. grandparents, cousins).**
    - Strongly agree
    - Agree
    - Neither agree nor disagree
    - Disagree
    - Strongly Disagree

    Comment:_____
    _____

11. **First Signs has helped families to feel more positive about their child's future.**
    - Strongly agree
    - Agree
    - Neither agree nor disagree
    - Disagree
    - Strongly Disagree

    Comment:_____
    _____

12. **First Signs has helped the children to develop stronger self-esteem.**
    - Strongly agree

- Agree
- Neither agree nor disagree
- Disagree
- Strongly Disagree

Comment:_____
_____

13. The most important benefits of First Signs are:

_____
_____
_____
_____

14. The three most important things that could improve the outcomes of the First Signs service are:

_____
_____
_____
_____

15. Please feel free to add any final comments on the First Signs service:

_____
_____
_____
_____