Communication Interventions for Families of Pre-school Deaf Children in the UK

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Abstract

UK professionals use a range of intervention approaches to promote communication development in pre-school deaf children by influencing the family's' interaction style. This investigation surveyed the approaches used and explored how these translated into specific practices.

An online questionnaire was developed and reviewed by a panel of experts. Part 1 explored professional background and approaches used. Findings showed that the main approaches were: Auditory Verbal Therapy, Hanen, "Parent-Child Interaction Therapy" (PCIT) and guidance from the Monitoring Protocol for deaf babies and children (GMP). Of the 158 professionals who completed Part 1, 142 used a combination of these approaches, with each approach selected at least 93 times. When participants were asked which approach or combination of approaches influenced their practice most strongly, over 25% chose GMP (mainly teachers of the deaf) and over 25% chose Hanen and/or PCIT (mainly speech and language therapists).

Part 2, completed by 117 professionals, required participants to rate how frequently they suggested particular strategies to parents and how frequently they used particular methods to encourage parents to adopt those strategies. There was no evidence of an association between the approaches selected and methods used and very little evidence of an association between the approaches and strategies selected. Many professionals were recommending similar strategies and using similar methods but there was also some variation in practice.

The overall findings suggest that future research comparing named approaches may be of less value than studies that seek to explore the potential effectiveness of particular strategies and methods.

Key Words

Introduction

While appropriate amplification is undoubtedly important in enhancing deaf children's access to spoken language, active family involvement in intervention programmes (mainly through the parents) is also a key predictor of language outcomes (Moeller, 2000; Yoshinaga-Itano, 2003). Intervention with families of pre-school deaf children generally includes orientation to and maintenance of amplification devices, parent counselling and family administrative support, as well as interventions that directly address communication development through influencing interaction between parent and child. Effective communication between a parent and their deaf child, whatever the mode of communication, is vital to the child's emotional and language development (Meadow-Orlans et al., 2003). Although improvements in deaf children's language skills in the pre-school years has been found to be related to maternal sensitivity (Quittner et al., 2013) and parents' use of higher level facilitative language techniques (Cruz et al., 2013), there is a dearth of studies investigating the efficacy of different approaches to interventions that aim to improve parent-child interaction. In order to consider setting up efficacy studies for this kind of intervention, however, it is necessary to find out what approaches are being used and how these are translated into specific practices. The study reported below focused on investigating which broad approaches and specific practices are currently being used with families of pre-school deaf children in the UK.

The starting point of this study was to find out what approaches to intervention were being used by cochlear implant centres. To do this, a preliminary audit was sent to 15 cochlear implant centres in the UK. Replies indicated that the main approaches were Auditory Verbal Therapy (AVT) (AB Bell Academy for Listening and Spoken Language Knowledge Centre,

2007) Hanen (The Hanen Centre, 2011), "Parent-Child Interaction Therapy" and guidance from the Monitoring Protocol for deaf babies and children (GMP) (National Children's Bureau, 2006A)

Information on each of these four main approaches is available on websites and in publications and will be outlined below. All four approaches are described as family-centred approaches that aim to support families in fostering the communication development of their children. All involve encouraging parents to use strategies thought to be conducive to communication development that can be integrated into everyday situations. Most involve goal setting with parents/carers. Here we provide a brief description of each approach and any evidence for their effectiveness.

The general principles of AVT are described on the main website of the Alexander Graham Bell Association for the Deaf and Hard of Hearing (AG Bell Academy for Listening and Spoken Language Knowledge Centre, 2007) and the website for AVT practice in the UK: (Auditory Verbal UK, 2007). The principles include maximising the child's hearing as the primary sense for developing spoken language and so no special emphasis is placed on other sensory cues such as lipreading (Auditory Verbal UK, 2007). In the early stages parents are encouraged to help the child to listen before any visual cues are given and, in general, visual information is minimised to encourage listening (Auditory Verbal UK n.d. A). Whilst many strategies used in an AVT approach are similar to those used in other approaches, sometimes activities and strategies not outlined in the other approaches are recommended in the AVT literature. For example, Rhoades (2007) outlines the activities that could be used to help a child to build up a knowledge of "sound-object associations" (e.g. "Aaaaaah"-airplane, "ptptptptpt" – boat) before moving on to targeting spoken words. Most families on AVT programmes receive fortnightly one-hour sessions in blocks of three

terms per year and the programme typically lasts two to three years. (Auditory Verbal UK, n.d.B).

Two recent studies evaluated the use of AVT in the UK (Hogan et al., 2010, 2008). In the first study (Hogan et al., 2008), families of 37 deaf children began the AVT programme when the children were aged between 5 and 36 months and were assessed with the Pre-School Language Scale – 3 (UK) (Zimmerman et al., 1997). As the majority of families in this first study paid for their therapy, a second study (Hogan et al., 2010) focussed on 12 deaf children whose families had a joint household income of less than £30,000 and were offered free therapy. They began the programme when the children were aged between 5 and 28 months. These children were assessed with an updated version of the Pre-School Language Scales – 4 (UK (Zimmerman et al., 2008). In both studies the families opted in for the intervention rather than being randomly assigned to this intervention or a comparison group. They attended AVT twice a month for at least one year and positive effects were reported by measuring the ratio of language age to chronological age before and after intervention, i.e. comparing the actual rate of language development with the predicted rate. This kind of measure does indicate progress but has the drawback of assuming that the ratio would be stable in the absence of intervention, "an assumption that lacks empirical verification" (Hauser-Cram and Krauss, 1991).

The first Hanen programme (It Takes Two to Talk; (Manolson, 1992) aimed to empower parents of pre-school hearing children with language impairments to facilitate language development in naturalistic environments. The content of the programme was based on studies of parent-child interaction that identify language facilitation strategies to promote the development of communication in typically-developing children (Bruner, 1983; Cross, 1981). The strategies included following the child's lead and providing language that is contingent on the child's focus of attention. The second edition of the programme (Pepper and Weitzman, 2004) added the formation of communication goals set jointly by the parents and

therapist, and parents were trained to use focused stimulation (Ellis, Weismer et al., 2006) to make the goals salient in naturalistic interactions. The programme manual, "It Takes Two to Talk ® - The Hanen Program for Parents ®" outlines how the programme should be delivered and is only available to professionals who have completed the official course authorised by the Hanen Centre, based in Canada. Both the 2004 and the 2007 versions of this programme have been adapted for families of deaf children by a speech and language therapist working in the UK and have been approved by the Hanen Centre for use by this therapist and her colleagues. These unpublished programmes are named "Meeting in the Middle – Adapted from "It Takes Two to Talk ® - The Hanen Program for Parents ® Offered with permission from the Hanen Centre ®. (E. Mottram, personal communication, August 21st, 2013). The total time commitment that families need to make to these programmes is approximately 30 hours (Girolametto and Weitzman, 2006).

Although many studies have been conducted to examine the efficacy of the Hanen programmes, all of these are with hearing children and the majority were carried out in Canada by the developers of the programme (Girolametto, 1988; Girolametto et al., 1996; Tannock et al., 1992). In these studies, families with late-talking children were randomly assigned to experimental and delayed treatment groups. A randomized control study with the original version of the programme demonstrated that, following intervention, the parents in the experimental group were more responsive, less directive and maintained longer conversational exchanges and that their children were more verbal and used a more diverse vocabulary (Girolametto, 1988). A follow-up randomized control study (Tannock et al., 1992) also showed positive changes for the experimental group following intervention. For example, the parents used more language modelling strategies and these gains were maintained four months after the intervention period. As with the earlier study, although the children in the experimental group showed an increase in their use of vocal turn-taking, there was no unequivocal evidence of the acquisition of new linguistic structures or of a change in

Mean Length of Utterance (MLU).   However, a randomized control study using the second edition of the programme demonstrated that, after intervention, children had larger lexicons overall and used more multiword utterances and early morphemes (Girolametto et al., 1996). The latest versions of this programme have been recently adapted for deaf children and so there are as yet no published studies on their use. However these programmes have been delivered on five courses since 2004 in the UK and the parents taking part have reported positive benefits both in terms of the way they communicate with their child and progress in their children's language (E. Mottram, personal communication, August 21st, 2013).

In the US the term "Parent Child Interaction Therapy" (PCIT) is used to describe parent-training programmes for parents whose children have conduct problems (Travis and Brestan-Knight, 2013). In the UK the term is usually used to describe programmes that follow a selection of the principles from the Hanen programme. A key feature of the Hanen programmes shared by most PCIT programmes (Cummings and Hulme, 1997; Falkus et al., 2013; Kelman and Schneider, 1994) is the use of individual video feedback with parents in order to encourage self-reflection and provide opportunities to discuss the use of strategies thought to be conducive to child language development. "It Takes Two to Talk" includes a combination of group sessions and individual video feedback sessions, where the therapist and parent watch and discuss video recordings of the parent interacting with their child. They focus on instances where the parent successfully applied a strategy which led to a positive consequence for their child and also discuss lost opportunities to use strategies and any difficulties in applying them. This is followed by collaborative problem-solving about how to address this in the future (Girolametto and Weitzman, 2006). PCIT programmes developed by NHS trusts vary in length and intensity but tend to be shorter than the Hanen programmes, which may reflect an attempt to deal with limited resources and/or the time commitment needed by parents. For example, the programme described and evaluated by Falkus et al (2013) involved five hour-long sessions.   Although the cochlear implant teams

in the initial audit for the current study reported using PCIT with families of deaf children, there is no published record of how the approach may be used with this group. Despite the growing use of PCIT programmes in the UK, there is very little published evidence of their effectiveness with hearing children and none with deaf children. A recent study by speech and language therapists evaluated a PCIT programme that used video feedback sessions with parents of 18 pre-school hearing children with delayed language (Falkus et al., 2013). Blind assessments were conducted twice before the programme to monitor change without therapy and once at the completion of the ten-week programme. Each parent and child attended four weekly therapy sessions each lasting an hour and a final session six weeks later when the parent had had an opportunity to practise and consolidate the new strategies they had adopted during the earlier weeks. Outcome measures were a parent rating scale, the children's mean length of utterance and the ratio of time of child to parent speech. No changes were detected prior to therapy but significant changes were found in each outcome measure after therapy.

The Monitoring Protocol for deaf babies and children (National Children's Bureau, 2006A) is not an approach to therapy per se but a way of recording progress made by a child in the first three years or so after deafness has been identified. The charts provided cover all areas of child development but focus on areas specifically affected by deafness, such as communication. For each area, behaviours observed in typical development are arranged in overlapping developmental stages. Professionals encourage parents to use the Protocol for their own records, to monitor progress and, where appropriate, to discuss with professionals ways in which children can be encouraged to move through developmental stages. Guidance for using the Protocol stresses that it should be used as a basis for the professional and parent to share ideas about which strategies could help the child to progress (National Children's Bureau, 2006A). 'Development cards' are an optional resource of suggested strategies that parents can use to target stages of development. For example, suggested strategies for stage 3 in the area of communication include commenting

on things that your child looks at, e.g. 'there's daddy' and making links between what you say and the topic of conversation by pointing (National Children's Bureau, 2006B).

This guidance has not been evaluated specifically, although the protocol is partly designed to evaluate wider interventions. To date the only research that has been carried out has investigated its role in inter-professional working and its value in empowering parents (Hunt, 2008).

From the available literature it is clear that all these approaches have similarities in terms of the strategies they suggest to parents. However, knowing about the main approaches does not inform us about the way the approaches are being put into practice, i.e. how the professionals are interpreting these approaches into specific strategies that they encourage parents to use and the methods that are used to encourage parents to adopt those strategies.

The aim of the study reported here was therefore to investigate the following questions:

1. Is the choice of approach/es used determined by an individual's current professional designation (e.g. auditory-verbal therapist, teacher of the deaf)?

2. Are professionals combining approaches to empower parents to develop their deaf child's communication skills and, if so, how are they combining them?

3. What specific practices are employed by professionals in terms of strategies they suggest to parents and ways in which they encourage parents to adopt them?

4. Are there links between the selected approaches to intervention and the specific practices employed?

Methods

Early discussions to plan the study and the initial audit were conducted by a steering group that included speech and language therapists specialising in deafness, academics and audiologists, one of whom was training to be an auditory verbal therapist.

A subgroup of the steering group designed a questionnaire to be sent to relevant professionals in order to explore the research questions identified. An archived version of the full questionnaire can be found on the website of the UCL Centre for Speech and Language Intervention Research (University College London, Centre for Speech and Language Intervention Research, n.d.).

Part 1 of the questionnaire included questions about current professional title, qualifications and experience and the family intervention approaches that informed professional practice. Participants were asked to select which of the four main approaches they used and to specify any additional approaches used. For each approach that they selected, participants were asked to code the approach using the following scale:

1. = This is my main approach/model
2. = I take many ideas from this approach/model
3. = I take some ideas from this approach/model
4. = I take few ideas from this approach/model

Part 2 of the questionnaire was designed to gather information about intervention practices in terms of strategies parents were encouraged to use and the methods by which they were encouraged to do so. In order to form a comprehensive list of the strategies and methods suggested by all four main approaches, relevant materials were surveyed. These included all the websites and resource materials referred to above.

Examples of strategies included were using naturally occurring situations *(e.g. bath time, mealtimes, shopping)* as opportunities for communication and drawing the child's attention to environmental sounds *(e.g. door bell ringing, cutlery drawer clattering when opened).*

For each strategy listed, participants were asked to rate them in the following way:

1: I would hardly ever / never encourage families to adopt this strategy (approximately 0-10% of the time) and/or would encourage no or very few families to adopt it (approximately 0-10% of families)

2: I may encourage families to adopt this strategy but generally would not (approximately 10-30% of the time) and/or I may encourage a few families to adopt it (approximately 10-30% of families)

3: I sometimes encourage families to adopt this strategy (approximately 30-60% of the time) and/or I may encourage some families to adopt it (approximately 30-60% of families)

4: I often encourage families to adopt this strategy (approximately 60-90% of the time) and/or encourage many families to adopt it (approximately 60-90% of families)

5: I always or nearly always encourage families to adopt this strategy (approximately 90-100% of the time) and/or would encourage most families to adopt it (approximately 90-100% of families).

Examples of methods included were: using rating scale/checklist for family member to evaluate aspects of their interaction; pointing out positive strategies used by the family member and their effect on the child when watching a recording *(e.g. "When you waited for Ahmed to take a turn he responded by pointing to what he wanted and vocalising")*

For each method listed, participants were asked to rate them in the same way that they rated strategies. For example a rating of 1 referred to "I would hardly ever / never use this method (approximately 0-10% of the time) and/or would use this with no or very few families (approximately 0-10% of the time)"

Expert Review of the Questionnaire:

A first draft of the questionnaire was sent to a panel of experts for review. The panel included two auditory verbal therapists with a background in audiology, two speech and language therapists specialising in deafness, two speech and language therapists specialising in parent-child interaction programmes with hearing children, two teachers of the deaf and four academics with expertise in deafness. The experts included at least one professional involved in the development or use of each of the four main approaches. Feedback was generally positive. Minor suggested amendments to wording were constructive and led to revisions. Some reviewers suggested additional strategies and methods; these were added to Part 2 of the questionnaire, which finally listed 76 strategies and 20 methods.

The strategies and methods were divided into sections and after each group there was a blank box for optional comments.

The final version of the questionnaire was converted to an OPINIO online survey (ObjectPlanet Inc.,n.d.). Invitation letters were designed to be sent to potential participants providing information about the study, consent issues, how data would be anonymised (i.e. that each completed questionnaire would be assigned a numerical identifier), and included a link to the survey.

Ethical approval for the study was granted by the University Research Ethics Committee. Invitations to take part in the survey were sent to heads/representatives of relevant organisations/teams throughout the UK to forward to their members (and/or their mailing list) who may be engaged in working with families of pre-school deaf children. These organisations/teams included: The British Association of Teachers of the Deaf; All Cochlear Implant teams in the UK; Deaf Education Through Listening and Talking; The Ear Foundation; Local groups of the Ewing Foundation; The National Deaf Children's Society; National Sensory Impairment Partnership; Clinical Excellence Networks for speech and language therapists specialising in working with deaf people registered with the Royal College of Speech and Language Therapists.

Invitations were also sent to 32 individual professionals already known to be involved in this type of intervention, including 13 registered AVT therapists, 12 specialist speech and language therapists and seven teachers of the deaf.

Several of the organisations/teams had large numbers of professional members, and so it was not possible to predict how many were engaged in communication interventions with pre-school deaf children. Also, many professionals were members of more than one organisation/team. Therefore it was difficult to know precisely how many professionals received invitations but an approximate minimum figure of 1,000 was estimated.

Results

Completed questionnaires were received from 189 respondents. For 31 of these responses, Part 1 was not complete. Thus 158 responses were included in the analysis.

Intervention Approaches:

Part 1 of the questionnaire was completed by 158 professionals engaged in communication interventions. These were 2 auditory verbal therapists (AVT); 1 clinical psychologist (CP); 1

learning support assistant (LSA); 83 speech and language therapists (SALT) and 71 teachers of the deaf (TOD).

The vast majority of respondents selected several approaches that informed their practice. Only 16 professionals selected one approach. Table 1 shows the current professional titles of these 16 and the exclusive approach they selected (with no influence from other named approaches).

Insert Table 1 about here

The two respondents who chose "other" stated their approach as "Total Communication".

The remaining 142 respondents selected a combination of approaches that influenced their practice. Table 2 shows the numbers of times that an approach was selected in total (whether as a single approach or as part of a combination of approaches).

Insert Table 2 about here

From comments made by respondents, it was evident that, when combining approaches, a reference to "Hanen" implied using some of the principles of Hanen, rather than the prescribed programme in full. As use of selected Hanen principles overlaps with a PCIT approach, these two approaches were merged for further analyses.

When respondents were asked to rate the approaches in terms of the degree to which they informed their practice this was completed in different ways. Some selected 1 ('this is my main approach/model') for one or more approaches and then either did not rate the others at all or alternatively used lower numbers. Others did not use a rating of 1 for any approach but selected 2 ('I take many ideas from this approach/model') or 3 ('I take some ideas from this approach/model') for two or more approaches and then rated the others with lower

numbers. For the next analysis we focused on the approach/es that respondents had rated most highly in terms of influencing practice (either 1, 2 or 3). Table 3 lists the approach/es rated most highly and provides a breakdown of how many respondents from each profession gave these top ratings. The approaches or combinations rated as being the most influential on practice were: GMP (selected by 45), Hanen and/or PCIT (41) and GMP and Hanen and/or PCIT (27). Selections were influenced by profession. For example, 37 out of 45 selecting GMP were TODs and 34 out of 41 selecting Hanen and/or PCIT were SALTs.

Insert Table 3 about here

Strategies and Methods

Of the initial 158 respondents who completed Part 1 of the questionnaire, 117 continued and completed Part 2, providing information on strategies and methods.

Rating of Strategies

For almost half of the 76 strategies listed, the majority of respondents chose the same rating of either 1 or 5.

For 33% of the strategies, the majority of respondents chose 5, indicating that most agreed that they would always or nearly always encourage these strategies (see table 4).

Insert table 4 about here

For 11% of the strategies the majority of professionals chose 1, indicating that most agreed that they would hardly ever or never encourage these strategies (see table 5).

Insert table 5 about here

For the remaining 66% of strategies, fewer than 50% of respondents chose the most frequent rating, indicating that there was a wide spread of ratings across respondents,

showing variation in practice. Table 6 shows the strategies which showed the most marked variation in practice in that less than 30% of respondents chose the most frequent rating.

Insert table 6 about here

Rating of Methods

For 30% of the methods the majority of professionals chose 5 indicating that most agreed that they would always or nearly always use these methods (see table 7).

Insert table 7 about here

For 10% of the methods the majority of professionals chose 1 indicating that most agreed that they would hardly ever or never use these methods. These were: 'Ask the family member to video-record what they have done between sessions as a basis for discussion' (64%) and 'Record models of practitioner using strategies for the family member to take home and study' (61%).

For the remaining 60% of methods less than 50% of respondents chose the most frequent rating, indicating that there was a wide spread of ratings across respondents and indicating variation in practice. The following methods showed the most marked variation in practice in that less than 30% of respondents chose the most frequent rating: 'Provide family member with pre-set interaction goals from a programme (e.g. Monitoring Protocol)' (27% chose 3) and 'Prompt the family member during actual interactions with their child (*e.g. "Wait for Susie to take a turn and, when she does, respond")'* (26% chose 3).

Associations between approach and rating of strategies/methods

In order to investigate whether there was differential usage of the various strategies and methods as reported by different groups of respondents in the sample, cluster analyses

(Everitt et al., 2011) were used to identify homogenous sub-groups that reported similar levels of use of strategy or method as indicated by their ratings of frequency of use. These analyses also allowed us to investigate whether the adopted approach of respondents influenced their reported employment of strategies or methods.

The 76 strategies identified on the questionnaire had been presented in 7 sections with anything from 7 to 19 strategies in each section. The ratings made in each section constituted the data for the 7 cluster analyses performed for strategies. Typically the cluster analyses identified two sub-groups (clusters) of respondents, with one sub-group showing higher reported use on some or all of the strategies within the section than the other sub-group. These sub-group differences, however, could be slight, so a decision was taken to only consider a difference in the mean rating of a strategy of 1 rating point as a substantive difference between the sub-groups. Across all of the cluster analyses for strategies only 10 strategies substantially distinguished the sub-groups. None of these strategies differed between the sub-groups by more than 1.5 mean rating points.

These 10 strategies were inspected further to see if participants who selected a particular approach as having the most influence on their practice were more likely to choose the higher or lower rating. For four of these ten strategies, there was no evidence of this, as participants selecting the lower rating were in groups that represented all the main approaches.   However, for the remaining six, participants selecting AVT and/or GMP as their top or joint-top approach were more likely to encourage the strategy (i.e. the majority of those that had selected these approaches had chosen the higher rating). These strategies were: using "mini-songs" (a simple phrase repeated in a highly inflected, sing-songy voice *e.g. Adult: "Good MORning, Good MORning, Good MORning" when first greeting child in the day;* asking the child to repeat a longer utterance; providing positive feedback on the child's

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use of vocabulary or grammar *(e.g. Adult: "That's a good word", "What a good way to describe that!");* focusing specifically on encouraging the child to build up a wide range of sound-object associations *(e.g. brrr for car, ptpt for boat, mooo for cow, chch for train)* before the child understands or uses spoken words; conducting auditory training with selected sound-object associations. (e.g. adult produces sounds alongside objects as above and then gradually encourages child to distinguish sounds by identifying the correct object when listening without lipreading); instructing the child to repeat symbolic noises, animal sounds.

For all of the 20 methods included in the questionnaire, the difference in the mean usage rating between identified clusters were all less than 1 rating point, indicating that reported usage of methods did not differ substantively between respondents.

Conclusions and Implications

This investigation surveyed the range of approaches to communication intervention used by professionals in the UK with pre-school deaf children and their families, and explored how these approaches translated into practices.

Our findings showed that the main approaches were: Auditory Verbal Therapy (AVT), Hanen, "Parent-Child Interaction Therapy" (PCIT) and guidance from the Monitoring Protocol for deaf babies and children.

Of the 158 professionals who completed Part 1 of the survey, only 16 stated that they exclusively used one approach. The remainder were using a combination of various

approaches. There was an association between profession and the approach selected that most strongly influenced practice. For example, 82% of teachers of the deaf selected GMP as their most highly rated approach and 83% of speech and language therapists selected Hanen and/or PCIT. This could be explained by differences in the training of the professional groups. Selection of approaches could also be explained by differing beliefs, even within one professional group. Brown and Paatsch (2010) conducted a small study with 28 practising teachers of the deaf and found a relationship between approaches and beliefs. For example five of the six teachers that chose "Auditory Verbal" as their approach believed that auditory skills should be specifically targeted rather than expecting that they would develop naturally from exposure.

Among the comments made by participants, 30 stated that they selected mixed approaches according to the needs of the families and four mentioned parental choice. Some participants noted that they had added aspects of approaches to their repertoire after they had discussed them with colleagues or attended a short course. Brown and Paatsch (2010) found that professional development influenced beliefs and practices of teachers of the deaf. As most professionals are using an eclectic approach, the value of a future study comparing the effectiveness of different approaches seems questionable.

Our study found no evidence of an association between approaches selected and methods used the most frequently. There was very little evidence of an association between the approaches selected and the strategies suggested most frequently. For six of the 76 strategies, there was some evidence that professionals were more likely to suggest the strategy to parents if they had selected AVT or GMP as an approach that influenced their practice most strongly. These included the use of "minisongs" and "sound-object associations", techniques described in AVT literature (e.g. Rhodes, 2007).

There could be several reasons for a lack of association between approaches and strategies and methods, including: interpreting the approaches differently; giving different weightings to the importance of the strategy or method; the same strategies and methods being used by more than one approach; adopting strategies suitable for particular children and their families.

As outlined in the introduction, there are similarities across approaches, particularly in terms of the strategies suggested to parents. When participants rated strategies, the majority of optional open comments referred to adopting strategies according to factors relating to parents and the children themselves, such as stage of language development reached and degree of hearing.

There were some strategies that were rated as 5 (most likely to be used) by at least 80% or participants and many of these corresponded to the following higher level facilitative language techniques that have been found to predict growth in expressive language in pre-school deaf children (Cruz et al., 2013): parallel talk (parent comments on what the child is directly doing, looking at or referencing), expansion (parent repeats child's utterance providing a more grammatical and complete model) and expatiation (same as expansion, but adding new information). Engaging in activities that encourage joint attention was another strategy rated as 5 by 84% of participants. For typically developing children between 9-18 months, research has indicated that lexical development is augmented by the child and parent being mutually engaged in an activity (see Hoff and Naigles (2002) for a review).

Some of the strategies that were given lower or variable ratings could be those whose effectiveness is dependent on the age and stage of development of the child, according to evidence-based studies. For example, when typically-developing children mature and become more competent at staying engaged, joint attention is less of an influence on

language development than the amount of language available, in terms of overall number of words, different word types and different syntactic structures (Hoff and Naigles, 2002). Therefore strategies involving talking about events that are <u>not</u> the child's focus of attention are likely to be more effective with the children at later stages of development. Several participants who gave these strategies a low rating commented that their use depended on the stage the child had reached. In total there were 11 comments on varying the use of strategies because of the child's stage of development.

For the majority of strategies (66%) there was variation in practice in that less than 50% of professionals gave the most frequent rating. This could partly be a reflection of variation in caseload in terms of individual factors relating to the children and parents. Also, for many of these strategies there is no evidence yet for their effectiveness in promoting language development in hearing or deaf children. Therefore participants could be relying on clinical experience or what they or colleagues have found to work in the past, which may account for variation in practice. Some of the comments did reveal a reluctance to use certain strategies, such as those involving asking children to repeat words or utterances. For example, one participant commented "The key to our approach is to encourage the development of natural language within the home environment rather than artificial repetition, which may have limited meaning for the child."

There was less agreement on ratings for methods used to encourage parents to adopt strategies. Only one method was rated as 5 by over 80% of participants: "Encourage strategies in everyday situations at home". There is very little research-based evidence for the use of specific methods in this kind of intervention. One method that is shared by Hanen programmes and most PCIT programmes (Cummings and Hulme, 1997; Falkus et al., 2013; Kelman and Schneider, 1994) is the use of individual video feedback with parents in order to encourage self-reflection and provide opportunities to discuss the use of strategies thought to be conducive to child language development. The only other method that over 60% of

participants rated as 5 was "Point out positive strategies used by the family member and their effect on the child when watching a recording".   Interestingly, seven of the 35 comments provided in this section related to limited use of resources and three of these commented on videoing:

> "Video not used extensively currently due to time restrictions and equipment difficulties. I would prefer to use it more"

> "Would like to video more but don't have adequate equipment!"

> "We used to video all pre-school children regularly but increase in pre-school caseload, loss of technical support and new confidentiality rules and regulations have meant that we do not video so often. "

Although the majority of participants used an eclectic approach there was variation in the strategies they suggested to parents and the methods employed to encourage the use of these strategies. Individual differences in children and their families could account for some of this variation. However, a lack of evidence on the efficacy of strategies and methods could also contribute to variation. The strategies with a strong evidence base were those used most frequently and videoing, promoted by two of the approaches, was also used frequently. An eclectic approach may be more effective if it is informed by evidence. Eclectic approaches are used in other fields, such as intervention with children with autistic spectrum disorders, and can be beneficial if they are conceptually grounded, incorporate evidence-based practices and are well implemented (Odom et al., 2012).

When considering further research in this area, our findings suggest that there may be more value in determining the efficacy of the individual strategies and methods (the components of an approach) rather than comparing prescribed approaches, as is done for other disorders. In the field of parenting programmes for children with behavioural problems, for example, Kaminski, Valle, Fiene & Boyle (2008) promote the value of examining which individual components of a parenting programme promote the most change, rather than comparing the

programmes themselves.   These authors stress that, with limited resources, it is particularly important to know which strategies and methods produce the most change. They used meta-analytic techniques for a component analysis of 77 published evaluations of parent training. This allowed them to extract components of programme content and delivery that had the largest positive effects on the behaviour of the parents and children. These included increasing positive parent–child interactions and emotional communication skills, teaching parents to use 'time out' (temporarily separating a child from an environment in which an inappropriate behaviour has occurred) and the importance of parenting consistency.

However, examining programme components through a meta-analysis of published evaluation studies is a challenging task. Kaminski et al (2008) only included evaluations that had used a control or comparison group for programmes that were outlined in a manual. There is a dearth of such studies in the field of communication interventions for families of deaf children. This presents a genuine conundrum since most professionals in the UK seem to be using an eclectic approach, implying that future studies of prescribed programmes may be of limited value as it may not be possible to distinguish approaches that use the same components.

Determining components of communication intervention programmes with families of deaf children that are the most effective in terms of producing positive change should allow practitioners to deal more effectively with limited resources and to focus on fewer (and arguably more achievable) goals for the parents. Two of the participants in this study commented that it was better to focus on a small number of goals because parents find it difficult to make too many changes at the same time.

Another way forward is to continue to investigate parental behaviours that encourage language development in deaf children, such as the studies conducted by Cruz et al (2013)

and Quittner et al (2013).   In this regard, involving the parents of deaf children, especially those who are or have been involved in communication interventions, is of great value.

Consideration of users' views is increasingly becoming an important way of improving the quality of care (Ritchie and Levens, 2001). Comments from parents of deaf children can provide insight into the more effective components of a programme. Kovacs (2012) reflected on the coaching the author had received and stressed the value of strategies that do not require special games or toys but can be integrated into everyday activities. She also stressed the importance of professionals being sensitive to the learning style of the parents. The National Deaf Children's Society has already collected views on aspects of general parenting skills from parents and professionals through questionnaires, face-to-face interviews and parent focus groups. The value of face-to-face discussions is that the facilitator can demonstrate respect and value for views expressed which ensures users feel involved and so will express more (Ritchie and Levens, 2001).

Although the full questionnaire used in this study was completed by 117 practitioners, it is not clear how well this sample represents all the professionals that conduct communication interventions with families of pre-school deaf children. Whilst the remit of this study was specifically to investigate interventions used to influence parent-child interaction, these interventions are usually combined with orientation to and maintenance of amplification devices, parent counselling and family administrative support. The way in which all these aspects are successfully combined is likely to contribute to the success of programmes. Several participants commented that the ratings they provided were dependent on factors relating to the child and parent, which made interpretation of the results more difficult. Although participants were invited to make open comments, more valuable information may be gleaned from face-to-face discussions. However, the study did indicate clearly that the majority of participants were using an eclectic approach, that many were recommending

similar strategies and using similar methods and that there was some variation in the way that strategies and methods are used.

Findings from this study suggest that future research comparing different named approaches may be of less value than studies that seek to explore the potential effectiveness of particular strategies and methods. For example, James, Wadnerkar-Kamble & Lam-Cassettari (2013) recently reported on the success of using video interaction guidance with a series of single case studies of parents with deaf children. Alternative approaches might also include setting up focus groups with parents and professionals in addition to measuring child language outcomes. Sharing knowledge and experience amongst professionals, parents, and parent-focussed organisations can be a fruitful way of examining the effectiveness of programme components.

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TABLE 1

APPROACHES USED EXCLUSIVELY BY DIFFERENT PROFESSIONALS

Approach/es used exclusively	Current Professional Title					
	AVT	CP	LSA	SLT	TOD	*Totals*
Auditory Verbal Therapy (AVT)	2				1	3
Guidance from the Monitoring Protocol (GMP)		1			7	8
Hanen (Han)				1		1
Parent Child Interaction Therapy (PCIT)				1	1	2
Other					2	2
Totals	2	1	0	2	11	16

TABLE 2

FREQUENCY OF SELECTION OF EACH APPROACH BY ALL RESPONDENTS

Approach	Number of times selected
AVT	106
GMP	138
Han	93
PCIT	101
Other	26

TABLE 3

APPROACHES RATED MOST HIGHLY BY PROFESSION

Approach/es rated as the highest in	Current Professional Title					
terms of influencing practice	AVT	CP	LSA	SLT	TOD	*Totals*
AVT	2			4	5	11
GMP		1		7	37	45
Hanen and/or PCIT			1	34	4	39
Other				4	3	7
All				7	5	12
AVT and GMP					3	3
AVT and Hanen and/or PCIT				5	3	8
GMP and Hanen and/or PCIT				21	6	27
GMP and Other					4	4
GMP and Hanen and/or PCIT and Other					1	1
PCIT and Other				1		1
Totals	2	1	1	83	71	158

TABLE 4

Strategies rated as 5 by at least 80% of respondents

Strategy	Percent of respondents rating this strategy as 5
Encourage ALL members of the family to interact with the deaf child	96%
Use naturally occurring situations *(e.g. bath time, mealtimes, shopping)* as opportunities for communication	93%
Respond positively to all the child's attempts to communicate (*e.g. pointing, gaze)*	88%
Extend a spoken/signed utterance from the child (*e.g. Child: "gone", Adult: "yes, the bee's gone"*)	86%
Engage in activities that encourage joint attention (*e.g. talking about pictures in books*)	84%
Use words and utterances alongside their referent/s to help child link words with meanings (*e.g. look at a bubble and say "a bubble!", pop it with your finger and say "pop", when the bubble bursts say "It's gone"*)	80%

TABLE 5

Strategies rated as 1 by the majority of respondents

Strategy	Percent respondents rating this strategy as 1
For families who have English as an additional language at home:	
Use someone to interpret when the parents speak very little English	87%
Use someone to interpret when the parents do not speak English	86%
Encourage the family to use English when interacting with their deaf child	74%
Use telegrammatic utterances that may be ungrammatical in order to reduce complexity (*e.g. "drink cold" vs "the drink's cold"*)	61%
Tell the child what to say/ask them to repeat what you say (*e.g. after holding up a choice of juice and milk and asking the child "Do you want juice or milk?" the child just looks or points at the juice, the adult says "Say juice"*) (Note: This does not include teaching social behaviours – e.g. telling the child to say "please" or "thank you")	58%
Ask the child to repeat a longer utterance	54%
Use unexpected remarks not linked to child's focus of attention *(e.g. child is looking at the slide and adult says "I'm hungry. I think I'll get out the biscuits")*	52%
Describe own activities done with the child (e.g. *Adult: "Where's*	51%

the sugar? Let's look for the sugar. There it is!")

TABLE 6

Strategies showing the most marked variation in practice

Strategy	Most frequent rating	Percent respondents choosing this rating
Accompany speech with signs when the child is having difficulty comprehending and then gradually reduce the use of signs as the child's spoken language develops	5	29%
Pause in familiar phrases or after a question and count to 10 to wait for a response and, if no response, repeat the question or part of phrase	5	29%
Target words (i.e. select **specific** words for parents to focus on) at ANY stage of language development (i.e. from "no spoken words"). This would involve parents choosing activities/situations that will allow for the repetition of selected words	4	28%
Use "mini-songs" (a simple phrase repeated in a highly inflected, sing-songy voice *e.g. Adult: "Good MORning, Good MORning, Good MORning" when first greeting child in the day*)	4	28%

TABLE 7

Methods rated as 5 by at least 80% of respondents

Method	Percent of respondents rating this method as 5
Encourage strategies in everyday situations at home	83%
Point out positive strategies used by the family member and their effect on the child when watching a recording (*e.g. "When you waited for Ahmed to take a turn he responded by pointing to what he wanted and vocalising*")	65%
Encourage family member to choose goals that work best for their individual child	60%
Ask the family member to use new strategy/ies as often as possible in everyday situations	58%
Encourage strategies during play sessions in clinic/centre	58%
Model a strategy for family member to comment on and/or copy	50%