Better communication research programme: 1st interim report

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EXECUTIVE SUMMARY

The Better Communication Research Programme (BCRP) is part of the Better Communication Action Plan, the government's response to the Bercow Review[1], published in 2008. The aims of the BCRP are to provide:

- An understanding of the cost-effectiveness of different interventions used to support children and young people with speech, language and communication needs (SLCN) and the factors that influence their efficiency including: locational issues (e.g. special school, integrated resource, mainstream); pedagogic issues (e.g. specific programmes for specific needs); organisational issues (e.g. nature and deployment of support services, use of data informed developments); and employer base interaction issues (e.g. use of consultancy model verses direct teaching/therapy).

- Identification of good practice and developing recommendations that can be incorporated into guidance, future policy and commissioning frameworks to improve services for children and young people with SLCN.

The BCRP focuses on children and young people with SLCN. This is the term used by the Department for Education to refer to pupils with *primary* language difficulties (as opposed to, for example, children with language difficulties associated with hearing impairment). However, the Bercow Review used this term in a broader, inclusive sense to cover children with all forms of speech, language and communication needs from whatever cause. This issue is addressed in the report.

This 1st Interim Report provides information on the work of the BCRP that mainly took place during the period January –July 2010, a period of just seven months of the total programme. During this time the emphasis was on projects that would form the basis for the overall programme but which would also provide some useful interim information. Each is therefore a work in progress. Furthermore, the BCRP is designed so that the different strands will provide complementary evidence wherever possible and that subsequent work will be determined by the emerging evidence. This integration of evidence across the programme is identified in this report.

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[1] Bercow, J. (2008) *A review of services for children and young people (0-19) with speech, language and communication needs.* Nottingham: DCSF

The report therefore provides a summary of the aims of each study, what was done and the results so far. In some cases work is ongoing, in others the Year 1 study forms a basis for a phase 2 development. As this report is published at the end of 2010, the Year 2 research is well underway.

1.   Intervention effectiveness

The first stage of this work stream comprises a review of the research literature and interviews with practitioners about their practice.

- The research literature of 26 systematic reviews comprising 797 individual papers was examined using eight analytic themes.
  - o Models of intervention
    - Universal, targeted and specialist
    - Direct and indirect
    - Mainstream v special school comparisons
    - International Classification of Functioning, Disability and Health (ICF) Framework
  - o Co-morbidity factors associated with SLCN
    - Socio-economic disadvantage
    - Behavioural, emotional and social difficulties

  - o There is emerging evidence in many areas but in most cases there is not sufficient evidence to justify promoting a method as the intervention of choice. There is also a need to address gaps in the evidence base, primarily:
    - Universal interventions in pre-school and early primary education (Foundation Stage)
    - Use of teaching assistants and paraprofessionals to implement interventions when given training and on-going support
    - Link between oral language interventions and later literacy.
    - Factors that influence children's responses to interventions.

- The complementary study explored practice with senior speech and language therapists and educational psychologists in 14 English local authorities and primary care trusts.

- o There were important differences in practice with SLTs tending to categorise SLCN by diagnosis or type of impairment whereas EPs focused on need.
- o A wide range of interventions were identified suggesting that both education and therapy services are responding creatively to the needs of their population
  - These were rarely exclusive to a particular subgroup of children, i.e. the same approach might be used for children within different diagnostic categories
  - Practitioners conceptualised interventions not only as specific programmes but as principles/approaches, training resources, models and targets.

Next steps
- To increase the practitioner evidence base by a national survey and to integrate these two evidence strands to provide an online resource for practitioners detailing interventions, their target outcomes and evidence based components.

2. Prevalence and academic progress of pupils with SLCN

This study comprised an analysis of the National Pupil Database and Pupil Level School Census for all pupils in England. Pupils with SLCN in these national statistics are those with *primary* language difficulties with a statement or at school action plus, where outside professionals are called upon by the school.

- Overall, there is a marked decrease in the prevalence of pupils identified with SLCN at school action plus or with a statement from nearly 3% of the age group at 7 years to 0.63% at 16 years.
- Prevalence of SLCN remains stable for pupils with statements across 7-16 years of age at about 0.5%; for those at school action plus prevalence dropped from over 2% to about 0.5% for 7 – 11 years and then levelled, dropping to about 0.25% at 16 years.
- Many pupils change their SLCN status as they age. There are 'switchers' into and out of SLCN status and this is masked by the overall decline in reported prevalence: e.g. around 1,500 pupils are identified as having SLCN only when they make the transition to secondary school; around 3000 students lose their SLCN status when they enter secondary school.
- Pupils with SLCN at school action and school action plus make similar progress to typically developing pupils, i.e. those without special educational needs, when we

take full account of their non-SLCN underlying characteristics (e.g. level of social disadvantage) and the characteristics of the school they attend.

Next steps
- To uncover causal relationships between SLCN status and pupils' academic progress and to link data on costs of SEN provision.

3.   Cost effectiveness of interventions

This study explored research literature, namely i) 1059 studies reducing to six for detailed analysis with evidence on cost effectiveness and ii) a study of the amount of intervention needed (dosage) drawing upon an analysis of 43 studies, where we examined effects of interventions relative to the amount (minutes), period (day) and intensity (total minutes over total days).

- There is a dearth of studies providing cost effectiveness data but parent focussed interventions appear to be very efficient in the early years if the uncosted contributions made by parents are excluded.
- There seems to be a large variation in what is considered by practitioners to be a sufficient intervention in terms of duration and intensity.
- There is also a large variation in mean effect sizes for interventions for different outcomes. These data suggest that certain interventions will provide greater change.
- There is an inconsistent relationship between amount, period and intensity with degree of improvement.
- More was not always better.
- The data will be included in the web dissemination

Next steps
- These analyses will be extended and there will be an application of economic criteria to intervention studies under development.

4.   Prospective longitudinal study

This study examines the differences and similarities of the needs of children and young people with specific language impairment (SLI) and those with autistic spectrum disorder

(ASD). This first phase comprised the selection of the sample of the children, working in collaboration with schools in five local authorities.

- There were significant differences between the SLI and ASD groups, as expected
  - The SLI group had lower language ability
  - The ASD group had higher levels of social communication difficulties.
- Also of interest was the degree of overlap between the two groups: those children with SLI having higher levels of social communication difficulties and children with ASD having lower structural language ability.
- The patterns of reading difficulties across the group varied
- Teachers have provided information on curriculum modification, differentiation and patterns of instruction

Next steps

More detailed assessments of the children are being carried out together with teacher reports, classroom observations, parental interviews and an analysis of costs of provision. Experimental tasks will also be administered. Together these will provide a comprehensive examination of the similarities and differences in the educational and social needs of the SLI and ASD groups and the ways their needs are currently being met. The costs will be used to examine cost effectiveness.

5.   Preferred outcomes

This study examines the preferred outcomes of a sample of 37 children with a range of SLCN and those of parents. Interviews explored views about the outcomes that participants value from both education and therapy interventions. Data have been collected through a series of school visits and focus groups in four areas of England.

- For parents, the main preferred outcomes that would occur as a result of improved communication for their children were social inclusion and independence.
- For children, issues were more immediate: having fun, feeling safe, being protected and receiving necessary help. Future goals were varied and individual but there was a notable sense of the children feeling a lack of control over events in their lives.

Next steps

This small scale, in-depth study will be supplemented by a national questionnaire study.

Emerging themes for policy and practice

As this is an early stage of the programme, we identify *emerging themes* for policy and practice:

- The reported prevalence of SLCN at school action plus (but not children with statements) shows a marked, steady overall decrease from age of 7 – 12: the overall decline in reported prevalence, therefore, does not occur at secondary school transfer.
- Many pupils change their SLCN status as they age. This movement into and out of SLCN status occurs both at the transition point into secondary school and at key stage 3 to 4.
- There is substantial variability in the reported prevalence of SLCN across schools but less across local authorities.
- Whereas educational categories and clinical criteria for SLCN diverge on key dimensions there is broad agreement about needs of the children. Language and social communication needs are best considered on a continuum, rather than categorically.
- Parents play a key role in the outcomes for their children and parental views form an important driver of the outcomes which should be addressed by education and speech and language therapy.
- Interventions need to focus on the strategies used to support outcomes, rather than named packages. This will allow practitioners and researchers to evaluate differential effectiveness in terms of outcomes.
- Our current analysis indicates that more is not always better and that both the nature of the child's difficulties and the nature of the intervention need to be considered in evaluating the outcomes from interventions.

1.   INTRODUCTION

The Better Communication Research Programme (BCRP) is part of the Better Communication Action Plan – a programme of activity designed for the period 2009-12. It is one of the responses of the previous government's Department for Children, Schools and Families (DCSF), now the Department for Education (DfE), to the recommendations of the Bercow Review of provision for children and young people with speech, language and communication needs SLCN[2]. The BCRP started in the autumn of 2009 with five initial research projects. This 1st Interim Report presents information on progress at August 2010. These projects include short term studies which will be built upon over the rest of the programme, together with a prospective longitudinal study designed to take place over the full term of the BCRP.

The BCRP is based in the Centre for Educational Development, Appraisal and Research (CEDAR) at the University of Warwick. It draws upon research leadership from five universities namely the Institute of Education London, University of Newcastle, University of the West of England, and the London School of Economics. Over the course of the Programme, other researchers will join the main team for specific projects. For a list of the research team and each project team during this first year see Appendix 1. The BCRP also benefits from a national Steering Group and two international consultants.

The BCRP is designed to undertake research which is rigorous and with a strong commitment to relevance to policy and practice. In addition to our own research, we are also liaising with other initiatives set up in response to recommendations made by the Bercow Review, so that our research can learn from, and build upon these developments.

1.1   Who has speech, language and communication needs?

The Bercow Review took a deliberate decision to use the term speech language and communication needs (SLCN) to refer to the *broad* range of children and young people who have developmental speech and language difficulties irrespective of causation and the specific nature of these needs. This is useful at a level of broad policy to ensure that the full

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[2] Bercow, J. (2008). *The Bercow Report: A review of services for children and young people (0-19) with speech, language and communication needs*. Nottingham: DCSF.

range of young people have their needs addressed. It does not, however, easily support the development of policy and practice for specific subgroups of children.

We present a typology of SLCN based on that set out by Lindsay et al (2008) in their report commissioned to inform the Bercow Review. The three that concern *developmental difficulties* are:

Types of speech language and communication needs

- A developmental difficulty relatively specific to the speech and/or language systems, a *primary* speech and/or language difficulty.
- Another primary developmental factor, such as a significant hearing impairment which detrimentally affects speech, language and communication development: in this case speech, language and communication difficulties are *secondary* to the primary difficulty (hearing impairment in the example).
- Reduced developmental opportunities limiting the child's learning of language, mainly linked to social disadvantage.

Source: Lindsay et al. (2008) p.16[3,4]

Children for whom English is an Additional Language (EAL): in this case the language system may be developing normally but the child has needs as a result of being in an environment where the home language is not spoken – the situation of many children immigrating into England. EAL, therefore, will not be considered as a form of SLCN during the BCRP; of course some children will have EAL needs *in addition to* their developmental difficulties as defined in the box above.

The BCRP as a whole will address the broad range of SLCN but individual projects may focus on specific subgroups or the broader range.

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[3] Lindsay, G., Desforges, M., Dockrell, J., Law, J., Peacey, N., & Beecham, J. (2008). *Effective and efficient use of resources in services for children and young people with speech, language and communication needs. DCSF-RW053.* Nottingham: DCSF. http://www.dcsf.gov.uk/research/data/uploadfiles/DCSF-RW053.pdf

[4] Lindsay, G., Dockrell, J.E., Desforges, M., Law, J., & Peacey, N. (2010). Meeting the needs of children with speech, language and communication difficulties. *International Journal of Language and Communication Disorders, 45,* 448-460.

1.2 Structure of the report

This report is organised in five sections to reflect the Year 1 projects. All are based in England but have relevance to policy and practice throughout the UK and internationally.

2.   BEST EVIDENCE ON INTERVENTIONS

1.2   Aims of the Study

Provision for children and young people with speech, language and communication needs (SLCN) is made at different levels by national government, by local authorities (LAs) and primary care trusts (PCTs) and finally by practitioners from education and health services. The aim of this study is to examine the evidence base for policy and practice, focussing on children and young people with *primary* speech and language difficulties.

The project had two parallel streams.

- A review of the research literature. The purpose of this stream was to identify the evidence available for interventions for children and young people with primary speech and language difficulties.

- A review of professional practice to explore intervention methods adopted by practitioners and the evidence base for these approaches.

This section reports on the evidence collected so far for each theme. During the next phase of the study the relationship between these two forms of evidence will be examined and checked with a larger number of practitioners. We will then integrate the findings from the two data sources of practice and research evidence, using an iterative method to check each against the other. The results of this further study will form the basis of advice to commissioners of services and practitioners.

2.1   Analysis of the research literature

2.2.1   What we have done

This element in the "best evidence" project focussed on a desk based overview of the systematic reviews of intervention and related studies relevant to children with SLCN. We have identified eight themes which allow us to focus in on the reviews. All are of central importance to the provision of services to children with SLCN. The reviews had to address

these issues specifically through the main results or through sensitivity analyses[5]. The eight themes are:

1. *Models of intervention*

   These six themes examine different elements in interventions.

   a. *Universal, targeted and specialist interventions[6]*
      We are interested here is the extent to which intervention studies have been developed in these three critical areas identified in the Royal College of Speech and Language Therapists (RSCLT) policy document on children's services[7].

   b. *Direct versus indirect interventions*
      Here we are interested in the extent to which an intervention is delivered by a specialist practitioner or can equally well be delivered by an appropriately trained assistant or a parent.

   c. *Mainstream versus special school intervention*
      Here we are concerned with whether there has been any comparison of outcomes for children educated in specialist provision relative to those seen in mainstream schools.

   d. *International Classification of Functioning Disability and Health (ICF) framework*
      We are interested here in the extent to which the reviewers attempt to place their reviews within the ICF framework – focusing on body function, activity or participation.

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[5] Sensitivity analysis in a systematic review involves the testing of specific hypotheses by removing a specific set of studies, checking the results and seeing whether the results are consistent. So a review might report effect sizes for a set of interventions, then remove those which were clearly related to direct intervention to establish whether indirect intervention produced comparable results. So the initial analysis might not focus on such a question but the sensitivity analysis would.

[6] Universal, targeted and specialist interventions are terms which are derived from health systems but which are comparable to tiers 1, 2 and 3 within education. Universal refers to the whole population and the interventions are commonly regarded as preventative. Targeted interventions aim to eliminate identified difficulties, focussing on specific populations identified with a specific need. Specialist interventions again focus on an identified population, usually those with the most intransigent difficulties, and their aim is often to reduce the impact of established difficulties rather than eliminate the difficulties altogether. The terms have come to be associated with SLCN but can equally well be applied to other difficulties, for examples those associated with BESD or mental health.

[7] Subsequently referred to in the Bercow Review

e. *Dosage*

We are interested in the extent to which the reviews account for the amount of intervention of intervention whether in terms of amount, duration or intensity.

f. *Active ingredients*

We were interested in identifying authors' perceptions of "active ingredients" in intervention – the elements that make a therapy work or not.

2. *Co-morbidity*

These two themes examine factors associated with SLCN.

a. *Socio-economic disadvantage*

Given the demographic gradient for early speech and language skills we would anticipate that this would be relevant in many of the reviewed studies.

b. *Social emotional and behavioural difficulties.*

We are interested in the extent to which other behaviours are taken into consideration in the analysis of communication outcomes.

2.2.2 What we have found

In all, 26 systematic reviews were identified covering the full range of children with SLCN. These reviews drew on 797 individual papers (a small proportion of which overlapped across reviews). Three reviews had no studies in them and the largest single review had 132 studies (Law et al., 1998) covering screening, natural history intervention and prevalence data. All of the 26 reviews have been published in peer reviewed journals or have been peer reviewed as part of the inclusion process in a data base such as the Cochrane or Campbell databases. Most of them were well presented when tested against the PRISMA criteria designed to measure the quality of systematic reviews (Moher, Liberati, Tetzlaff, & Altman, 2009)

We have only included reviews that have addressed service delivery – intervention reviews, reviews of screening or early identification and reviews related to diagnosis. We have not included reviews of long term follow-up or prognostic studies and we have excluded more general reviews that have deal with related topics (for example, one on late talkers Desmarais et al., 2008), those that dealt with pharmacological interventions and those that

do not deal with children or young people. Most are specifically related to speech and language, others report data which are relevant but which is not necessarily the focus of the review. For example, reviews could have a primary aim of addressing core autism, fetal alcohol syndrome or hearing impairment but include a focus on communication (Ospina et al., 2008). In the final set 20 reviews covered intervention, 4 screening and 2 diagnosis. Of these, 10 addressed the needs of children with primary speech and/or language difficulties, developmental disability (2), stammering (2), autism (4), hearing impairment (2), apraxia (1), dysarthria (2), cleft palate (1), cerebral palsy (1) and fetal alcohol syndrome (1). The list of reviews is provided in Appendix 2.

Models of intervention

Universal, targeted and specialist interventions

Most of the papers included in these reviews are relatively small scale studies which deal with tightly constrained intervention questions. In the majority of cases they relate only to relatively short term targeted interventions, although it is important to acknowledge that the reviews, and indeed the studies, do not use this terminology. There are relatively few studies which could be classified as either "universal" or "specialist". Although the former are readily identifiable, the latter can be difficult to detect because of the definitions used and because such provision tends to be highly contextualised and differs across time and both within and across countries.

Universal relates to provision across whole populations. The most obvious examples of this come in the form of screening programmes. There is reasonable evidence in support of hearing screening programmes in so far as they contribute to the development of language in young children and because they help engage parents in their child's needs from an earlier stage in the child's development (Helfand et al., 2001, Nelson et al., 2008). There are two reviews of speech and language screening (Law et al. 1998; Nelson et al. 2006), both weighing up the considerable evidence in the field. There are no studies which specifically test the long term value of early language screening but in both cases the reviews concluded that the measures available were too variable in their performance to recommend universal screening. The closest example of a review that has specifically attempted to address intervention within a wider social context, which might be more relevant to the universal approach, is the Pickstone et al (2009) review of environmental modifications designed to improve children's speech and language skills. However, this review is more about the

background for universal interventions, rather than the interventions themselves, and hence is not considered in detail here.

Targeted interventions tend to take the form of 1:1 or group intervention carried out over very constrained time periods. There are a number of randomised trials of interventions for primary speech and language difficulties many showing moderate to high effect sizes (Law et al., 2003, Cirrin et al., 2008) and this number is increasing relatively rapidly. In the 2003 edition of the Law et al. review there were some 36 trials. In the current re-write there are 53 and there has been a distinct improvement in study quality. We know that there is reasonable evidence for the effectiveness of interventions for speech and for expressive language.

Speech:
- Techniques for intervention vary but behavioural techniques for improving phonological awareness, supplemented in many cases by parent support, have provided relatively consistent positive results.

Expressive language
- Modelling techniques targeted at the child's emerging skills have proved most effective with some promising indicators for psycholinguistic interventions. Intervention can be provided equally by properly trained assistants and parents. Again parental support especially for younger children has been shown to provide useful support for intervention. There is less evidence for this with older children.
- None of the computer based interventions now evaluated has been found to be particularly efficacious.

Receptive language
- With one or two exceptions, interventions for receptive language difficulties have not provided positive results. There is insufficient evidence to comment on the results of intervention studies focusing on pragmatic language skills.

Despite high levels of early heterogeneity there is now a relatively strong emerging evidence base in the field of stammering (Herder et al., 2007; Bothe et al., 2006). However, in many areas, for example learning disability (Millar et al.2006; Schlosser et al.2000) and autism (Diggle et al., 2002, Ospina et al., 2008, Seida et al., 2009, Spreckley et al., 2009) the focus has often been on single subject experimental designs which are useful from theoretical and

practice perspectives but do not readily translate into policy recommendations. There are also a number of reviews where the stringency of the review process meant that the reviews were empty, no studies being included in the final review. This was true for childhood apraxia (Morgan et al., 2008) and dysarthria (Morgan et al., 2008, Pennington et al., 2009).

By contrast, the closest example of **specialist** interventions are the evaluation of the application of Augmentative and Alternative Communication (AAC) approaches to working with children who find verbal communication very difficult (Millar et al. 2006), and specifically the Picture Exchange Communication System (PECS: Schlosser et al, 2007) used with children with severe and pervasive disorders, but even these tend to be measured over the short term - i.e. *as if* they were targeted.

Direct versus indirect interventions
The majority of studies in the reviews deal with direct therapy provided to individuals or small groups of children in what might be termed a "clinical" setting i.e. not in class. Yet we do see a number of reviews in which parent training is a major feature of the literature. For example, in a review of intervention for children with cerebral palsy, five of 12 studies addressed parent training or "conversation partners" rather than direct intervention (Pennington et al., 2003). In general the findings from parent training appear to be comparable to those from therapist intervention, potentially making the latter less expensive depending on the economic perspective adopted. We see fewer reviews addressing the involvement of teachers in the intervention process although this is a feature of the most recent review identified (Kisker, 2010) with regard to dialogic reading.

Mainstream versus special school intervention
There appear to be no data which directly compare these two models of service delivery, at least not at the level of the systematic review and we are forced to conclude that a decision to opt for one or another is one based more on prevailing policy rather than child outcome data. Nevertheless baseline comparability would be likely to present challenges in setting up such studies.

It is also relevant to compare provision in mainstream schooling to existing models of delivery. To date the evidence tends to favour the more clinical model of intervention perhaps because this is where most of the research has been carried out. Indeed even if it is carried out in school children are often withdrawn to receive intervention. Nevertheless there is evidence that educational interventions can be relevant to outcomes for children with primary language difficulties (Cirrin & Gillam, 2008) and fetal alcohol syndrome (Peadon et

al., 2009). Perhaps of more direct relevance to the aims of this overview, the What Works Clearing House[8] review of dialogic reading (Kisker, 2010) provides evidence of "potentially positive effects with no overriding contrary evidence" for this type of classroom intervention to promote communication skills for children with language learning difficulties.

International Classification of Functioning Disability and Health (ICF) Framework
The majority of studies reviewed address limitations to "body function" in ICF parlance – addressing specific behavioural responses to input – see for example review by Lee et al., (2006) of electro-palatography for children with cleft palate. Although we see reviews that have attempted to summarise the process by which children with SLCN are given disability diagnoses (Biddle et al.2002) Only one review explicitly addressed the issue of the application of ICF criteria (McCormack et al., 2009), identifying a series of limitations to activity and participation for children with speech difficulties and suggesting that outcome measures have to be carefully identified if interventions are to be meaningful. No reviews specifically addressed participation in their included studies although others have suggested that this would be an appropriate way to take the field forward (Pennington et al., 2009). No reviews have reported measures of participation in their outcomes.

Dosage
This issue is addressed in more detail in Section 4.3. One review of the primary speech and language intervention literature (Law et al., 2003) examined the difference between the provision of interventions for more or less than eight weeks, concluding that the longer time span gave better results. By contrast, in the earliest review in the field Nye et al., (1987) indicated that effects seemed to decline after 13 weeks, suggesting that there may be an upper and a lower bound on some interventions. Such a conclusion would need further careful corroboration. Although such results are tentative at this stage they could suggest that there is limited evidence for a "dose-response" effect – a medical term used to suggest that that the more that the child receives the better their outcome. And in some areas, at least, there may be support for the inoculation model of intervention, a short burst being sufficient to trigger development. In other cases where there may be more resistance to change requiring more sustained packages of support. Few of the other reviews considered this issue at all and there was no consideration in any review of the long term impact of intervention (although it is alluded to as a need in a number of reviews).

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[8] www.ies.ed.gov/ncee/wwch

Active ingredients

All Cochrane reviews are required to specify how they think the intervention that they are reviewing might work but this is not the same as being specific about what it is that makes an intervention work. Most reviews say relatively little about the mechanisms involved, some report results but do not comment on the factors which seem to be most promising in the intervention while others go a step further by indicating what they feel to be the active ingredients which distinguish interventions that work from those that do not. Although didactic instruction clearly plays a part the interactive element of intervention is key for many reviewers. Nye et al. (1987) for example concluded that modelling is a key ingredient in effective speech and language interventions and Bothe et al. (2006) identified "response contingent principles" as being the key element in the treatment of stammering. Both refer to the experienced adult, for example therapist, teacher or parent, being aware of the developmental level and the communication needs of the child with whom they are speaking, The adult listens closely to what the child is saying and provides examples of speech and language at the appropriate level for child. The timing and the context are very important if the child is to make sense of what they adult is saying.

Co-morbidity

Socio-economic disadvantage

On the one hand the majority of studies appear to make the implicit assumption that this is not a major issue in the field of SLCN either in terms of the demographic prevalence gradient or in terms of the social capital needed to engage with services supporting SLCN. On the other there is, of course, a substantial body of literature associated with Headstart and Early Headstart in the US. This literature has been reviewed extensively and has not been included here. Many studies recruit subjects from referred populations and it is difficult to ascertain to what extent using such population results in bias. For example, the children who are referred may be more likely to a) have problems which are severe and b) have parents who are highly motivated to do something about it. If so it is questionable whether such population reflect the general level of need in the population of children identified with SLCN in school (see Section 3).

Social emotional and behavioural difficulties

The majority of reviews do not comment on any associated social, emotional and behavioural difficulties that the children might experience although of course the overlap in any areas such as autism is self evident. The only one that has specifically address this issue with regard to SLCN is Law and Plunkett (2009) in their review of the impact of

language interventions for children's behaviour. While results are provisionally promising, the level of evidence is relatively weak, confined mainly to single subject experimental or quasi-experiment designs.

Key findings from the review are presented below

Table 2.1 - Key findings from the evidence review

Models of intervention	Universal, targeted and specialist interventions	The best quality studies focus on targeted interventions; Universal interventions have focussed on screening tests rather than intervention outcomes; Specialist interventions tend to be more descriptive in nature.
	Direct versus indirect interventions	Developing body of evidence here Well trained assistants and parents often have comparable outcomes to specialist direct work for language; Indirect work not appropriate for speech.
	Mainstream versus special school intervention	Although this has been of concern for many years there are few studies contrasting outcomes for comparable groups of children[9]
	International Classification of Functioning Disability and Health (ICF) Framework	Only recently coming to be accepted with regard to children and little explicit reference to it; Correspondingly outcomes tend to be about within child performance rather than impact on inclusion/participation
	Dosage	Intensity and duration reported but rationale unclear but very little systematic analysis of how

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[9] But see Lindsay, G. (2007) for a review of the effectiveness of inclusive education in general; however, there is a lack of evidence for SLCN specifically.

		much intervention is needed to obtain a given outcome
	Active ingredients	No studies have attempted to distil this type of information in experimental terms; Behavioural methods and specifically modelling continue to be the most widely used and well regarded but whether attributes such as reciprocity are necessary and sufficient remains unclear
Co-morbidity	Socio-economic disadvantage	Very clear association of early language delays and social disadvantage; Rarely taken into consideration as a mediator in intervention studies with children with primary speech or language impairments
	Behavioural, emotional and social difficulties.	Overlap between SLCN and BESD well established although unclear whether this holds as strongly in population samples as it does in clinical samples; Despite their importance BESD outcomes very rarely reported in intervention studies

2.2.3   Conclusions and next steps

In summary, we have emerging evidence in a number of areas but there is a need for more and better quality intervention studies. In most cases there is not clear evidence that one intervention is sufficiently better than another to warrant promoting it as "the" intervention of choice. One of the greatest challenges in summarising the evidence base in this way is reconciling what we know from the literature with what is carried out in practice whether by specialist teachers, teaching assistants, parents or speech and language therapists. This is addressed in section 4.1.

In addition we need to consider addressing gaps in the evidence base. Although it is possible to analyse this in several ways, a number of such gaps are apparent and we would identify the following as being of central importance. Thus we need to know:

- More about population level universal type interventions in the preschool and early in primary school and the potential that they have to prevent children from needing subsequent targeted interventions. Specifically it would be helpful to know more about communication environments and their implications in the home and in school.[10]

- More about direct work carried out by specialists and the extent to which teaching assistants and paraprofessional staff can be trained to use such techniques. At the heart of this question is the extent to which it is possible to manualise interventions for others to use or is there something distinct and "special" about the role of the expert practitioner that makes a discernible difference to the child outcomes.

- More about the oral language interventions and their relationship to literacy in older children. The majority of the interventions covered here deal with children up to eight years of age.

- More about the factors that influence why some children respond to intervention and others do not. For example, only very rarely do we have any sense of whether children in these studies are socially disadvantaged or whether they exhibit emotional and behavioural difficulties. Related to this it would be helpful to better understand the potential impact of improved communication skills on the child's broader well being and mental health.

2.3 Interventions and outcomes: an exploration of current practice

2.3.1 Aims of the project

The aim of this project was to collate good quality information about interventions relevant to children and young people with SLCN, leading to the production of a resource for use by commissioners and policymakers. This database will combine information gained from interviews with key personnel with the evidence from the literature reported in Section 2.2. The key deliverable is a conceptual map of the full range of interventions currently being offered to children with SLCN in England.

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[10] Hart and Risley (1992, 1995) have demonstrated that the amount and quality of vocabulary input is an important factor in supporting young children's language development.

2.3.2 What we have done

Key personnel from local authorities (LAs) and NHS trusts with responsibility for provision for children and young people with SLCN were approached regarding their participation in the study and their willingness to be interviewed about the interventions they offer for this group. Contacts were initially made through the pathfinder sites[11]. Some additional sites that were known through previous research programmes were also approached.

As the aim was to identify the range of types of intervention in use, (i.e., not to identify every intervention used), the sampling was purposive with the aim of accessing a range of services. The sample covered a total of 14 different areas: six shire counties, seven urban and one inner London local authorities (LAs) and included ten Educational Psychology Services (EPS) and 13 NHS Speech and Language Therapy services (SLT) of which ten are matching; in addition there was one integrated disability service. The EPS interviews often included one or more advisory teachers for SLCN from the same local authority. In one SLT interview, an advisory teacher for the local authority joined her NHS colleague.

Interviewing followed an iterative process, so that data collected were fed back into successive interviews. This allowed a progressive evolution of a database of interventions. Two broad phases of interviews took place: the first collected data around the range and nature of interventions in use and the second sought to confirm emergent themes and to pilot questions that could be used in a subsequent national survey tool.

The first stage interview was piloted with a range of local authority personnel and NHS SLT managers and team leaders in one Local Authority area. Following revisions, this interview began with asking respondents to talk about how they defined groups of children with SLCN and also how they defined the terms 'Universal', 'Targeted' and 'Specialist'. They were then asked to list the interventions they use with children with SLCN in categories dependent on whether the intervention was targeting communication skills, language skills or speech skills. They were then asked to identify one intervention from each list that was in frequent use in their area to describe in detail. When time allowed, respondents were also asked to talk through a series of case examples to illustrate how a child with a particular type of need might receive some of the interventions on offer. Interviewees were also asked to supply any policy and procedural documents relating to intervention and provision/prioritisation that might be relevant.

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[11] Sixteen 2-year commissioning pathfinder projects were set up in 2009 to improve commissioning for SLCN services. These were disbanded in 2010.

The second stage interviews used the lists of interventions acquired in the first stage. Respondents were asked to indicate which of the interventions they offered in their service. They were then asked to answer questions regarding the age of children who would be targeted with such an approach, what skill they would be targeting with this approach and what the intended outcomes would be. They were also asked if they evaluated the effectiveness of the intervention at a service level and whether the intervention was used at a universal, targeted or specialist level.

2.3.3 *What we have found*

The first stage interviews showed differences in how SLT and EP services categorise SLCN. Generally the EPs described SLCN as intrinsic to many types of special need and did not suggest categorisations of types of SLCN. There were some EP services who split SLCN into those where the problems were specific to SLCN and those whose problems were more general and also some services who highlighted children with autistic spectrum disorder (ASD) as a specific group.

In contrast, SLTs tended to categorise children with SLCN into their diagnosis or type of impairment (e.g. specific language impairment, cleft palate, voice problem, dyspraxia). One exception to this was an SLT service that categorised their children with SLCN into therapeutic need following the Care Aims model. Responses to the questions about Universal, Targeted and Specialist brought broadly similar answers, with the acknowledgement of a hierarchy of need and provision.

With regard to the types of intervention that each service listed, there was wide variation in the number and type. A total of **158 different interventions** were listed within the three categories of communication, language and speech suggesting that services are responding creatively to the identified needs of the individual child. Some that were initially included were types of provision (e.g. language groups or Early Bird) rather than interventions as such and so were excluded from the analysis of types of intervention. Across all three categories, eight broad groupings of interventions emerged:

- Published programmes
- Intervention activities
- Principles or approaches to intervention

- Service developed programmes
- Resources
- Training
- Models or theories of intervention
- Targets of intervention.

Rarely were interventions described as exclusively appropriate to one particular level (universal, targeted, specialist) or targeted exclusively at any particular level. As a corollary to this, interventions were rarely used exclusively with a particular subgroup or child although some are used in a more limited fashion. For example, the Picture Exchange System (PECS) seems to be used mostly with children on the autistic spectrum and with those with more severe and profound learning difficulties.

Appendix 5 lists the interventions within these groupings. Undoubtedly there will be some disagreement regarding where some interventions should be placed with room for re-allocating certain interventions if necessary. One key observation from the analysis is the variation in how respondents have interpreted the meaning of 'intervention'. Whilst programmes or specific activities are listed, resources and models/theories of intervention were also mentioned separately to how they would be used to intervene with an individual child. Targets of intervention were also suggested, seemingly in place of the activity – e.g. 'listening skills' rather than activities to promote better listening.

In order to focus exclusively on the intervention actually delivered to the child, these latter groups were excluded from the materials used in the second stage interviews. Similarly, those listed under training were also excluded as these are means by which others are training to deliver interventions rather than interventions per se. However, the means by which interventions are delivered is clearly crucial to our analysis of effectiveness. The work of Boyle and colleagues provides a useful example (Boyle et al, 2007). This is pursued within the systematic review project (section 2.2) one question addresses direct versus indirect delivery mechanisms.

Respondents frequently used generalities to describe the interventions, using phrases such as 'reducing distractions' or 'phonological awareness activities'. There were also responses which could have multiple meanings for example, 'visual approaches to support language' and 'creating a language rich environment'. The review of the evidence in support of interventions will no doubt provide detailed information on what was delivered to children in

the literature. It is important that assumptions are not made regarding the labelling of interventions in the literature and how these labels are used in practice. It is also important to note that these interviews were conducted with respondents in management and team leader roles. It is likely that practitioners who are delivering the interventions themselves would give a different level of detail again.

Many of the service developed programmes were considered in the section of the interview which focused on three interventions in detail. This information has proved useful in helping to identify suitable interventions which could be pursued later in the Programme.

2.3.4   Preliminary conclusions and next steps

A wide range of interventions that are currently in use with children with SLCN were identified from this purposive sample. Whilst respondents suggested that some have a narrow range of targets, few interventions were used exclusively with a particular group of SLCN, whether that be age, diagnostic category, level of need or service provision. However, it may be that other patterns will emerge from the planned national survey of interventions: with a larger sample, other combinations of usage might be discernible – see below. This is an important consideration when aligning current practice with the evidence basis, since interventions have often been trialled with a particular age group or diagnostic grouping in mind.

Descriptions of interventions vary widely in the level of specificity used varying from giving the name of a set of resources through the mentioning of particular principles and strategies through to the naming of an overarching programme or package, to the point where respondents may be describing the same intervention in completely different terms or using similar terms to refer to very different interventions. This reflects the position in the literature where it is also commonly noted that intervention evaluations lack detailed descriptions of the actual interventions under scrutiny. Although models are available, these are not in common use by practitioners. This state of affairs makes the prospect of benchmarking or comparison of interventions and their outcomes difficult. The different approaches used by health and education staff, regarding the ways in which children are described and grouped, complicates the position further. A useful next step therefore would be to develop a consensus position between health and education practitioners regarding the description of interventions: what are the components that should be included in the description of an intervention.

Next steps will include:

1. An online survey aimed at practitioners who are delivering interventions, to identify patterns in the targeting and evaluation of interventions in use with children with SLCN
2. Analysis of the concepts underpinning interventions currently in use with children with SLCN and development of a framework of interventions along the dimensions of intended outcomes and process of evaluation for use by commissioners and providers. This will comprise an analysis of each of the interventions listed in published programmes, intervention activities and principles or approaches to intervention (and any others that are added to these lists over time) on the following dimensions:

    - theoretical approach
    - theory of mechanism of change
    - focus of intervention (impairment, activity or participation)
    - level of training required to deliver intervention and method of assessment of training

Using this information and information from the survey we will develop a model of interventions based on outcomes and evaluation.

2.4   The integration of evidence from research literature and practice

Following the broadening of the evidence base for practitioner's use of interventions, the next stage of the process is to integrate the findings of the research reviews (Section 2.2) with the existing evidence concerning what the speech and language therapists say that they are doing in their therapy, and educationists report they are doing in their interventions. Where possible we will also explore parents' views of interventions that their children receive. A first stage of integrated evidence will be disseminated but will then be further developed over the course of the BCRP as new evidence is produced. We anticipate that this will be an iterative process, gradually drawing the evidence together, testing the published record for material against what is being carried out in practice.

At present, and this is an early stage in the analysis, it appears from the reviews that there is an existing evidence base for only some of the interventions provided by practitioners in England and that many interventions which have been evaluated are not commonly practised. Furthermore the intervention literature will not readily map on to the care or support packages available within the health and education systems.

3. THE ACADEMIC PROGRESS OF PUPILS WITH SPEECH, LANGUAGE AND COMMUNICATION NEEDS

3.1 Aims of the study

This research assesses the academic progress of those students in the English education system that have been identified as having Speech, Language and Communication Needs (SLCN). The data for these analyses are derived from the DfE's national school databases, namely the School Census and the National Pupil Database. As we noted in the Introduction, it is important to appreciate that SLCN in this context is one of the 12 categories of *primary* need. In this section, therefore, SLCN will refer to this group.

The analysis does not strive to determine the effectiveness of any particular SLCN intervention or pedagogical approach to SLCN. Rather it provides a system wide assessment: we consider the average characteristics and achievement of pupils identified as having SLCN.

A system approach is necessary not only due to data limitations but also because we want to assess the system as a whole. Around one in five of the pupils in the English education system have been identified as having some kind of special educational need and around 3% of five year olds have been identified as having primary Speech, Language and Communication Needs. This equates to approximately 15,000 students at this age in the national database having been identified by schools. Investigating the progress made by this group of students is obviously an important aim in and of itself. Further, as additional resources are often allocated to pupils with SLCN, it is legitimate to ask whether and to what extent the system as a whole improves the progress of such pupils. In this study we seek to address some (but by no means all) of the key research problems raised by the *Bercow Review (2008[12])* and specifically, the substantial variation in identification, and provision of support and also the lack of analysis of the academic progress made by these young people.

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[12] Bercow J. (2008). *The Bercow Report: A review of services for children and young people (0-19) with speech, language and communication needs.* Nottingham: DCSF.

Our research questions are therefore:

- Which pupils are identified in the school system as having SLCN and at what age were they identified?

- How much variability in the prevalence of SLCN do we observe across the education system?

- How does the academic progress made by pupils with SLCN compare to the academic progress made by other similar students, including those with other special educational needs?

The analysis links to a primary aim of the project as a whole, namely to judge the cost effectiveness of SLCN provision. Here we focus on *effectiveness*; attempting to determine the relative progress of SLCN pupils[13].

3.2   What we have done

3.2.1   Data sources and methods

For this work, we rely on English administrative education data. This means that identification of pupils with SLCN is entirely based on whether a) the individual has been identified by the school as having these special educational needs and b) that the individual is recorded in the data as having an SLCN code. Clearly there may be pupils who have SLCN but who have not been formally identified. Equally, some pupils may have been identified as having SLCN but in fact have some other kind of primary special educational need. We cannot overcome this limitation and indeed the purpose of the analysis is to determine the relative achievement of those pupils who have been identified by the system as SLCN as one measure of system effectiveness.

The data come from two different sources. The National Pupil Database (NPD) provides information on pupils' records in standard Key Stage tests taken at ages 7 to 16; the Pupil Level School Census contains a number of pupil-level background characteristics. These data provide information on *all* children in state schools in England[14] and are longitudinal.

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[13] A full report of the analyses described here is available on the BCRP website: See Meschi & Vignoles (2010) *Technical Report: An investigation of pupils with Speech, Language and Communication Needs (SLCN).* http://www.warwick.ac.uk/go/bettercommunication

[14] We decided to focus on state schools only (that account for about 93 percent of all pupils) and exclude private schools, since they do not carry out all the Key Stage tests.

We also link in data on schools from EDUBASE, on local authorities from the "LEA and School Information Service" (LEASIS) and on neighbourhoods from the Income Deprivation Affecting Children Index, IDACI. We used PLASC 2009 to look at how the proportion of pupils identified as SLCN varies by age. We then analysed one cohort of pupils born between September 1992 and August 1993 for the econometric analysis of pupil progress.

In our analyses, we distinguish between *SEN without a statement* and *SEN with a statement.* In our models of attainment we exclude students who have a statement of SEN due to the difficulties of finding an adequate comparator group, and hence our analysis pertains to students classified either as "school action" or "school action plus".

The analysis investigates the differences in attainment between pupils with different types of SEN and specifically measures their academic achievement using their results in Key Stage tests (specifically key stage 2 at age 11, key stage 3 at age 14 and key stage 4 at age 16). For each Key Stage we create an average score across the different subjects taken. In order to make the results at different Key Stages comparable, we standardize all the scores so that they have mean 0 and standard deviation 1. This essentially implies that we are using a rank ordering of the pupils in the different Key Stages.

We use two econometric models. Firstly we model the factors associated with a child having different types of SEN (using a model called a multinomial logit). This model allows us to investigate what pupil characteristics are associated with a child having a higher probability of having a particular type of SEN, such as behavioural, emotional or social difficulties or speech, language or communication needs.

We use a second model to assess the relative progress of SLCN pupils. With this second model we attempt to determine whether pupils with SLCN make more or less academic progress over time, as compared to non SLCN pupils. The difficulty with doing this is that SLCN pupils may have characteristics that we do not observe in our data, such as confidence, that also influence their academic progress. These characteristics may cause SLCN pupils to have better (or worse) academic performance for reasons unrelated, in a direct sense, to their SLCN. We therefore need to ensure that we take account of these unobserved characteristics in our model when assessing the "impact" of having SLCN on academic progress. To take account of these unobserved characteristics, we use what we call a pupil fixed effect model. This approach essentially takes account of any pupil *fixed characteristics* that might influence academic attainment, such as underlying attitudes or confidence. The model does this by determining how the same pupil's test scores change

over time as the pupil changes their SLCN status. In other words, the model assesses the relative progress of SLCN pupils by comparing their academic attainment *before* and *after* the assignment of the SLCN label. This is better than comparing SLCN pupils with non-SLCN pupils as SLCN pupils may be different from non-SLCN pupils in ways that influence their attainment but that are not related to their SLCN status.

3.3   What we have found

As shown in Figure 3.1 below, the prevalence of pupils designated by schools as having SLCN shows a marked overall decrease with age, confirming early identification in many cases. Some SLCN pupils are reclassified as having an alternative primary need during the course of their schooling. This reclassification may be in response to different needs being identified as children progress through the school system and need to develop different cognitive and non-cognitive skills: it may also reflect differences in school and local authority policy. For some pupils therefore, SLCN is a transitory need that is either overcome or recedes (or at least is seen by schools to recede) as the child ages; in other cases a redesignation of the pupil may reflect another area of difficulty increasing and becoming seen by the school as the pupil's primary area of need. It is important to recognise, therefore, that the reduction over time cannot simply be interpreted as the children concerned no longer having speech, language and communication needs at all.

Figure 3.1: Prevalence of SLCN across ages, by SEN status
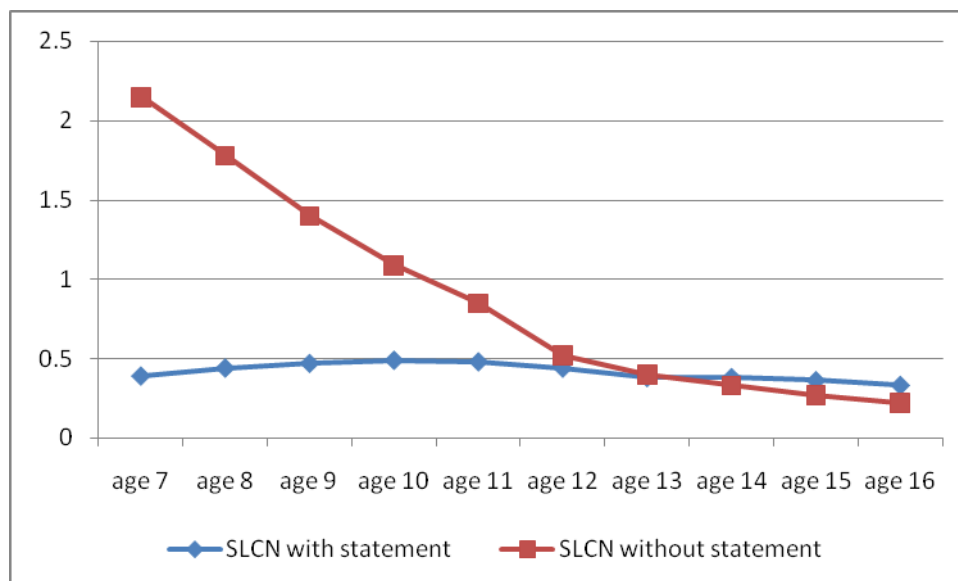
Some students are reclassified or lose their SEN status altogether when they change school, and in particular when they move from primary to secondary school. Table 3.1 below shows that movement into and out of the SLCN category is relatively high and we use this information to help us assess the academic progress made by SLCN children.

Table 3.1 Change in SLCN status (age 11 to age 16) KS2 to KS4

age 11/age 16	Non-SLCN	SLCN	Total
Non-SLCN	540,978	1,491	542,469
SLCN	3,007	1,493	4,500
Total	543,985	2,984	546,969

The next phase of our analysis identified the characteristics of students with and without SLCN. As is well known, students with special educational needs are more likely to be male and this is true of pupils with SLCN. If we take the non-statemented SLCN group only a third is female and of the statemented SLCN group only one quarter is female, illustrating the domination of males. We also found that pupils with SLCN are more likely to have English as an additional language. Whilst 8% of the non-SEN group has English as an Additional Language (EAL), 20% of pupils with (non- statemented) SLCN have EAL. Whilst fewer than one in ten of non-SEN students are eligible for Free School Meals, nearly a quarter of the non-statemented SLCN group are FSM eligible and 20% of the statemented SLCN group. Clearly poorer students are over-represented to a great extent in the SLCN group.

In the final stage of our analysis we investigated the academic progress made by pupils with SLCN, allowing for the fact that SLCN pupils have characteristics that differ from non-SLCN pupils. We also look specifically at the effect of school characteristics on achievement for pupils with different special education needs. It may be that certain school features are important in boosting achievement only for a particular group of pupils characterised by specific needs.

3.4   Preliminary conclusions

The prevalence of SLCN shows a *marked overall decrease with age.* At the age of 7 nearly 3% of the cohort have been identified has having some speech, language and

communication need as their primary special educational need. By the age of 16 this has fallen to just 0.63% of the cohort. There are several possible reasons for this. One is that the children improve and no longer have SLCN but others relate to issues of classification and practice.

Many pupils change their SLCN status as they age. This movement into and out of SLCN status occurs both at the transition point into secondary school and at key stage 3 to 4. Hence some of these changes in status are linked to a school change. The reasons for these changes require further exploration. For example, the reduction is not only due to secondary transition as this follows on from a relatively steady decline over the Key Stages 1-2 period, followed by a much flatter decline through Key Stages 3-4. Around 1,500 pupils are identified as having SLCN only when they make the transition to secondary school. This could suggest late identification of primary SLCN, an issue raised in the Bercow Review. Equally around 3000 students lose their SLCN status when they enter secondary school. This may reflect a real improvement in the children's speech, language and communication.

There is substantial variability in the prevalence of SLCN across schools but less across local authorities.

Factors associated with being identified as having SLCN are being male, socio-economically disadvantaged, having English as an additional language and being from certain minority ethnic groups. This finding suggests that some pupils with EAL are being designated as having SLCN. As having EAL is specifically *not* a special educational need (and is not a reason for having SLCN – see page 11) this may imply two actions at play: i) a difficulty in identifying SLCN in pupils when English is not the first language, and ii) an attribution of a designation of SLCN in order to access resources. The probability of being identified as SLCN varies by school characteristics. Being in a single sex school and attending a school with a higher proportion of non-white British students is associated with a higher probability of being SLCN. Pupils in schools with a higher proportion of pupils eligible for a free school meal are less likely to be SLCN.

If we simply compare children with SLCN with those who have no form of SEN they do considerably worse in terms of progress on key stage test scores. However, for a fair comparison we need to allow for differences in characteristics between SLCN and non-SEN pupils. Most strikingly of all, using our model of pupil progress, we found that pupils with SLCN make similar progress, as measured by key stage test scores, to otherwise identical

pupils who do not currently have SLCN status when we take full account of their underlying characteristics (see below).

We use a statistical model to make our comparator group as similar as possible: specifically we estimate a fixed effects model[15]. Hence ours is a model of change that takes account of any fixed and changing characteristics of pupils. The former include factors such as ethnicity and gender. Also included are unobserved fixed characteristics, which are derived from the model (as described above). Changing characteristics include factors such as Free School Meal status, which may vary with the family's economic circumstances, and whether the child has been identified as having English as an additional language (EAL), which may change as pupils progress in their language development. We are also able to include changing characteristics of the schools they attend, such as the proportion of children who have FSM status, pupil numbers and the proportion of students who have been identified as having statemented and non statemented SEN: these may all change from one year to another. As the model we use looks at changes in pupils' attainment from key stage 2 to key stage 4 it also allows for differences in pupils' prior attainment.

Larger schools are associated with less academic progress for pupils with SLCN. Schools with a *higher* pupil teacher ratio have pupils who progress more, though we must be careful about attributing causality here as pupils who are more educationally disadvantaged will tend to end up in schools with a lower pupil teacher ratio – giving a counter-intuitive relationship between pupil teacher ratio and academic progress. Single sex schools have pupils who progress less.

3.5   Future work

This study has provided a number of important of patterns regarding SLCN. It has also raised a number of intriguing questions regarding the reasons for these patterns. In the next phase we will be exploring these patterns in more detail to consider further the issue of causality, i.e. the impact of being identified as SLCN on pupil progress. Using econometric methods and multiple cohorts of data we propose to try to uncover a more causal relationship between SLCN status and pupils' academic progress. We will also incorporate data on costs of SEN provision. In this strand we will be linking with other projects in the

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[15] A fixed effect model takes account of any unchanging (fixed) characteristics of individuals that might impact on the pupil's achievement. It does this by comparing changes in key stage attainment within the same individuals, where the effect of SLCN is identified by pupils who move in and out of SLCN status. See also the BCRP website for the Technical Report: Meschi & Vignoles (2010). *An investigation of pupils with speech, language and communication needs (SLCN).* http://www.warwick.ac.uk/go/bettercommunication

BCRP including the prospective longitudinal study. This will enable us to progress further on evaluating the cost effectiveness of SLCN provision.

4.   ECONOMIC EFFECTIVENESS

4.1   Aims of the study

This project focuses on the costs associated with having SLCN. The aim of this work stream is twofold: to identify costs and then to examine the cost effectiveness of different approaches to meeting the needs of children and young people with speech, language and communication needs. In this section, SLCN refers mainly to those with primary SLCN.

This works builds upon that undertaken for the Bercow Review[16]. This showed that while it is possible to identify long term risks in terms of important societal outcomes, literacy, mental health and employment the costs to society of SLCN have not been reported. There have only been a small number of studies of economic effectiveness in the field and while helpful these use a variety of different methods and outcomes. The recommendation was to develop a framework for examining the costs of such outcomes and to include such analyses in studies being developed in the BCRP.

In the BCRP to date we have worked in five related areas:-

  i.   Identified a set of costing criteria to facilitate economic analysis, including a broad range of economic perspectives. We have considered the extent that this should include, for example, parental and a full service perspective or whether it should be confined to the costing of SEN or speech and language therapy services.

  ii.   Identified and reviewed the full set of cost effectiveness studies using Drummond's widely recognised criteria for judging the value of economic studies (Drummond et al., 1995). This process is currently being written up for publication and is explained in greater detail in 4.2 below.

  iii.   Started to explore the question of dosage. Clearly from an economic perspective it would be helpful to know how much intervention children commonly receive and whether the amount of intervention had a bearing on outcomes and to establish

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[16] Lindsay et al (2008) http://www.dcsf.gov.uk/research/data/uploadfiles/DCSF-RW053.pdf

whether it is possible to establish the concept of "enough" change. The detail is provided in 4.3 below.

iv.   Started to explore the notion of service use by combining national health and education datasets. This complements the work in Section 3 by integrating health (speech and Language therapy initial appointments) with the proportion of children with SLCN in each local authority in England. As part of this process we are also examining the relationship between service use and socio-economic status (SES) to help understand the extent to which service use in both health and education systems is driven by SES.

v.   We are currently working on identifying three of the more commonly researched types of intervention to make use of the dosage data to start to cost all the relevant elements of the activity using NHS and other reference costs.

4.2   Cost effectiveness

4.2.1   What we have done

A search of electronic databases to locate studies that examined the cost effectiveness of interventions for SLCN initially identified 1059 studies, of which six were appropriate to review in detail. Narrative reports were produced of the six included studies using eight areas namely target population, number of participants, comparison and perspective, effectiveness analysis, cost analysis, special costing circumstance, cost-effectiveness analysis and conclusion. The studies were then appraised against the 29 sub domains provided by Drummond et al. (2005) for cost effective analyses.

4.2.2   What we have found

There was evidence of the effectiveness of intervention studies in SLCN literature examined, so meeting the first requirement for cost effectiveness. Second, although the studies all calculate costs in some way, and two report cost-effectiveness data, this is inconsistent, making direct comparison across studies difficult. Third, parent focussed interventions look

to be very efficient *if* the costs to parents are excluded. A fuller account is provided in a separate paper (Law et al., in preparation)[17].

4.3. The relationship between effect size and dosage of intervention for children with primary speech and language impairment

4.3.1 What we have done

The amount of an intervention needed to obtain optimal effect is clearly of great importance for policy makers and commissioners, as well as practitioners. This section examines the key question: how much intervention is needed to make a significant change in speech and language skills following that intervention? It begins by outlining a methodology for addressing this issue.

There are various ways of addressing this question. In this case we have simply gone back to the 43 studies reported in the 2009 revision of the 2003 Cochrane review of speech and language provision for children with primary speech and language needs (Law et al., 2003 – revised 2009[18]). This allows us to compare the number of hours/minutes of intervention reported in a given study with the effect size of the study concerned. We have followed the reporting of the review itself in terms of the outcomes covered.

4.3.2 What we have found

We report four sets of data below. These are indicative at this stage and will be revised as the next version of the Cochrane review is completed (by November 2010) The first concerns the measures of duration and intensity, the second the application of those measures to seven outcome categories taken from the 2003 Cochrane Review of interventions for children with primary language impairment. The third reports the effect sizes for the six outcomes and the fourth the association between the measures of intensity and duration and the seven outcomes.

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[17] Law, J, Zeng, B., Lindsay, G., & Beecham J. (in preparation) A Review of Cost-effectiveness Analysis studies of services for children with Speech Language and Communication Needs (SLCN).
[18] Law J, Garrett Z, & Nye C. (2003). Speech and language therapy interventions for children with primary speech and language delay or disorder (Cochrane Review). In: *Reviews* 2003, Issue 3. Art. No.: CD004110. doi: 10.1002/14651858.CD004110.

The first group has three dosage variables namely **amount** (total minutes), **period** (day) and **intensity** (total minutes over total days). All period data are converted to the same metric from month (30 days per month) or week (7 days per week). The mean intensity is calculated from a sum of the amount of intervention divided by the period reported in each study. The mean figures for these three variables across the seven types of intervention outcomes in the 43 included studies are provided in Table 4.1 below. This figure will rise to 58 studies in the most recent version of the review.

Table 4.1 Mean amount, period and intensity across the seven intervention outcomes

	Amount (minute)	Period (day)	Intensity(minute/day)
Mean	1503.19	94.84	19.46
Standard deviation	2992.4	67	31
No. of studies	43	43	43

The key message from Table 4.1 is that, on the one hand, the relatively short nature of the intervention time – on average twenty five hours – and on the other the considerable variability across studies, suggesting a distinct lack of consensus about what is generally considered sufficient by practitioners. Interestingly this average figure is rather less than the 40 hours or so reported for the PACT trial for autistic children published in the Lancet in May 2010 in which children received 16 sessions supplemented by an average of less than ten hours support from different professionals during the course of the intervention again with approximately 25 hours in all (Green, Charman, McConachie, Aldred, Slonims et al., 2010).

Table 4.2 reports the amount, period and intensity (shown as both mean scores and standard deviations, except for hours where only the means are presented) for the six intervention outcome variables identified in Law et al. 2009. These are expressive phonology, phonological awareness, expressive syntax outcome, receptive syntax outcome, expressive vocabulary outcome, and receptive vocabulary outcome.

Table 4.2   Amount, period and intensity by outcome

Outcome	Amount		Period	Intensity	n. of studies
	Minutes	Hours			
Expressive phonology	476.56 (334)	7.9	102.33(71)	5.92 (4)	9
Phonological awareness	1005 (940)	16.75	45.43(18)	33.90 (44)	3
Expressive syntax	1907.10 (1699)	31.78	105.43(76)	27.54 (27)	10
Receptive syntax	2230.20 (2237)	37.16	101.26 (104)	39.90 (34)	5
Expressive vocabulary	2097.86 (1816)	34.96	83.19 (66)	33.46 (30)	7
Receptive vocabulary	2733.75 (2234)	45.56	83.08 (65)	46.86 (35)	4

We see considerable variability in the means for the different intervention areas with wide standard deviations. Of particular note is the relatively low time allocated to work on phonological outcomes relative to language outcomes. In Table 4.3 we then report the mean effect size[19] for the seven outcomes.

Table 4.3 Effect size by outcome

Outcome	Mean effect size	SD	N
Expressive phonology	0.55	0.49	9
Phonological awareness	0.71	0.65	3
Expressive syntax	0.57	0.92	10
Receptive syntax	0.09	0.54	5
Expressive vocabulary	0.80	0.68	7
Receptive vocabulary	0.43	0.95	4

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[19] Cohen's *d*: 0.2 = small, 0.5 = medium, 0.8 = large

The mean effect sizes vary considerably with the results for phonological awareness and expressive vocabulary being the highest and receptive syntax being the lowest. The key question then becomes, to what extent are the respective amount, period and intensity associated with the corresponding effect size. If they are correlated then it is reasonable to assume that the more intervention is provided the higher the potential response. If they do not appear to be associated it may be that other factors are in play, for example that we have outliers distorting the picture, that there is a threshold beyond which no further progress is likely to be made etc.

The correlations (Pearson's r) between the amount, period and intensity and the study effect size are reported in Table 4.4. It is stressed that with such small n values these correlations must be treated with great caution. Furthermore, statistical significance requires very strong correlations in such cases. These results are therefore presented as *indicative* only.

Table 4.4 The correlation of amount, intensity and intensity with intervention effect size for each of the seven outcomes

Outcome	Amount	Period	Intensity	n
Expressive phonology	0.67*	-0.10	0.61	9
Phonological awareness	-0.48	0.69	-0.61	3
Expressive syntax	0.05	0.49	-0.48	10
Receptive syntax	0.66	0.62	-0.28	5
Expressive vocabulary	-0.40	0.50	-0.93**	7
Receptive vocabulary	0.91	0.88	-0.29	4

The results suggest that there is a positive association in some areas but not others, with relatively few reaching statistical significance. In terms of the overall amount there are two negative correlations which rather suggests that in their cases "less is more" in the sense that the longer studies achieved lower levels of outcome and that there is a therapy threshold in some areas perhaps supporting the type of short intervention package currently on offer in many services. The association for expressive syntax is relatively low, perhaps surprisingly given the focus this has in intervention programmes and the fact that the overall effect size is relatively high in this area.

The expressive phonology outcome appears to be closely associated with dosage. The same type of association is found for receptive vocabulary even though the mean effect size in this area is relatively modest ($r(4) =0.91$, $p = 0.095$). Looking at the association between

the length of the period over which the intervention was delivered we see a positive correlation for all but the expressive phonology. It is particularly interesting that we even see this association for receptive syntax which has the lowest of all the effect sizes.

The interventions reported are captured by the outcomes used. It is not possible in the review to be precise about the nature of the intervention received – often because it was not clearly reported. So it is quite possible that there are some interventions that respond to different dosages whereas others do not. By combining data in this way we inevitably lose this level of detail.

And finally we should turn to the question of what is "enough"? These studies show that in some areas it is possible to demonstrate positive effects but this is not always the case. In those that do there is some evidence that the level of intervention does appear to be sufficient. Thus if the effect size is respectable and increases with intensity and the dosage is proportionate there is a reason to say that this is an appropriate dosage. The fact that the dose response relationship holds for receptive language outcomes which are relatively low suggests that considerably more intervention is warranted than the current figures suggest is current practice.

Great care has to be taken interpreting these data for a number of reasons. The number of studies is small and the heterogeneity within groups of studies tends to be quite marked – results vary considerably within a given category. Although a number of studies reported more than one outcome in a given area we have avoided double weighting a given study and only reported one outcome. For example, to measure expressive phonology Munro (1998) used two outcomes, production of the target sound and variability in production of the target sound. As reported in the original review there is considerable heterogeneity in the studies reported and for the most part they are relatively small and potentially "under powered". These findings can only be regarded as indicative and to generate hypotheses for further research.

4.3.3   Conclusions

Intensity is a relatively new area in this field (Warren, Fey & Yoder 2007) and there are questions as to how readily a medical approach can translate to behavioural interventions. Nonetheless it is an important area which warrants further attention. This is the first attempt even to report on the characteristic amounts of intervention reported in speech and language therapy research studies – it does not of course necessarily reflect practice. Yet while

relatively straightforward comparisons of amount, period and intensity tell us about input, a great deal depends on how this type of instruction is generalised through parent and teacher support. Nonetheless this does represent a first step to look at these associations in effectively the best quality intervention literature in the field.

4.4   Next steps

The next phase of the cost effectiveness work stream will build upon the work so far, namely that reported above and also two preliminary exercises:

- To continue to analyse national data sets – specifically to address the issue of access to services and demographic factors
- To apply the economic criteria to intervention studies currently under development as a function of the second year of BCRP activity
- To update and refine the analysis of the dosage data
- To take forward to costing of published interventions to include a wider range of studies
- To extend the activity by costing the different elements of different types of current SLCN provision, most notably clinic, language unit and special needs provision using locality data
- To further integrate the economic work stream into the other BCRP projects

5.   PROSPECTIVE LONGITUDINAL STUDY

5.1   Aims of the study

A tension exists between clinical diagnosis and the identification of students' educational needs. Of particular concern for parents, practitioners and policy makers is the distinction between specific language impairment (SLI) and autism spectrum disorders (ASD; Dockrell, et al., 2006). This stream of the Better Communication Research Programme (BCRP) considers the different educational needs of pupils with SLI and ASD by:

- Examining the strategies and support mechanisms used to address the students' needs at student, class and school level,
    - how these might differ between pupils with SLI and ASD
    - whether they address the similar and different needs that these two groups of pupils share
- Contributing to the increasing theoretical interest in comparing the overlap and differences between these two groups (Loucas et al., 2008; Williams, Botting, & Boucher, 2008).

5.2   What we have done

Design: Four different age cohorts of pupils in mainstream schools were identified to capture overlapping phases of education (Year 1, 3, 5, and 7). We aimed to identify 200 children, 25 pupils with SLI and 25 pupils with ASD in each year group. This cross-sequential design will allow data collection over the years from pupils from Year 1 to Year 9, as shown in Table 5.1. This will result in pupils being tracked for the duration of the project.

Table 5.1   Design of the study

Screening and Time 1 (2009-2010)	Time 2 (2010-2011)	Time 3 (2011-2012)
Age 6	Age 7	Age 8
Age 8	Age 9	Age 10
Age 10	Age 11	Age 12
Age 12	Age 13	Age 14

Methods:

Year 1 of study:

- Potential children were identified through local authorities using the pupil level School Census information.
- These children were screened using standardised assessments to meet a specific set of criteria
- Detailed language and cognitive assessment of all child participants, and both parent and teacher interview/questionnaire completion have been undertaken.

We are reaching the final stage of the screening phase. Screening involved assessment of the pupils on a non-verbal measure (BAS-2 Matrices) and the completion of receptive and expressive language scales from the CELF-4. Teachers completed the Social Responsiveness Scale (SRS) which measures features of autism.

By the end of July, 314 children identified by their schools through liaison with local authorities and SLTs as having a statement or being on school action plus for either ASD or SLCN had been screened. Also, 277 teacher-completed SRSs had been received (i.e. for 88% of the pupils). As shown in Table 5.2, 163 students met the inclusionary criteria for the project and the sample is close to reaching recruitment targets in the different groups (N~25 for each cohort for each year group; 200 in total).

The emergence of a '3rd group' of children is interesting. These had all been identified as having significant ASD or speech, language and communication needs but do not meet our specific criteria for ASD or SLI. We have decided to include them in our research as a third group for comparative purposes. This is not simply an issue of methodology – it is important to explore the nature of these children's characteristics, needs and developmental trajectories also, given their level of needs previously identified.

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Table 5.2 Distribution of pupils according to screening criteria

	Y1	Y3	Y5	Y7	All
Speech and language					
Male	30	10	13	20	73
Female	11	14	6	5	36
Total	41	24	19	25	109
ASD					
Male	9	16	14	25	64
Female	0	4	2	5	11
Total	9	20	16	30	75
3rd group					
Male	27	31	22	25	105
Female	4	12	6	3	25
Total	31	43	28	28	130
Total	**81**	**87**	**63**	**83**	**314**

What we have found

There was broad agreement between the educational identification of SLCN and ASD and the research criteria – although as expected the overlap between the educational categories and clinical criteria for the study diverged on key dimensions. As shown in Table 5.3[20], mismatches primarily occurred around exclusionary criteria for non-verbal ability – 69% of the cases. This suggests that many children with speech, language and communication needs do not show the 'discrepancy profile' that is used to define SLI. In addition, some may have EAL needs – see Section 3.

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[20] This analysis was carried out at an earlier stage in data collection and so the N is lower than that shown in Table 5.1.

Table 5.3   Overlap between project criteria and need as specified by the schools

Information about type of need from school	Total screened	Excluded: nonverbal	Excluded: language	Included
Speech and language	167	40	28	99
ASD	85	21	n/a	64

There were significant differences between students identified with SLI and those with ASD on measures of expressive and receptive language, non- verbal ability and social communication. Large effects were evident for expressive language which was more impaired in the students with SLI while social communication was more impaired in the students with ASD. Results of the SRS data are shown in Figure 5.1. A T-score above 60 indicates deficiencies in social behaviour that are considered clinically significant[21].

Figure 5.1 Profile of Social Responsiveness Scale for the three cohorts
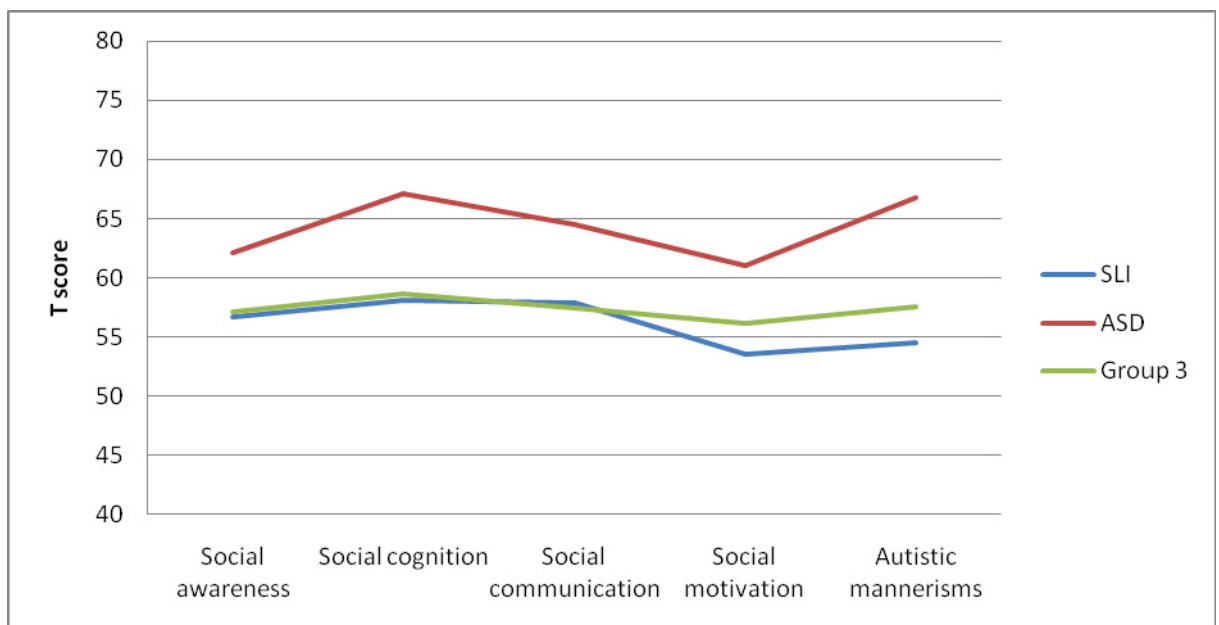
Note: Group 3 comprises children identified by schools as having SLCN but who do not meet the criteria for our SLI or ASD groups.

We have proposed a model to characterise this group of children which includes a dimension of structural language and one related to socio- pragmatics. Correlation coefficients indicated that there were significant overlaps between the groups in terms of

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[21] T-scores have a mean of 50 and standard deviation of 10.

individual positions on dimensions of structural language and socio- pragmatics. This supports current research examining the needs of children with SLI and has implications for "the identification of each child's difficulties on a case by case basis" (McLaughlin et al, 2006). The screening phase of the current study exemplifies how, while focussing on key language skills, educational identification systems of SLCN and ASD are broader than clinical diagnostic systems.

What we are doing next

As we have obtained parental consent we have been carrying out more detailed assessments with all participants, interviewing their parents and asking parents to complete questionnaires. These data will provide fuller insight into language, communication, attainment and well-being. Teachers are also completing questionnaires which address a range of issues including educational support and curriculum identification. By 30.7.2010 165 consent forms had been received and 124 children had completed the assessments. Further, 77 parental interviews had been conducted and questionnaires had been returned by 50 of these parents.

In further phases of the study we will examine the extent to which the differences identified among the three groups now included in the study impact on their functioning in educational contexts, and the nature of the provision of educational resources and specific interventions they receive. In Year 2 we will address four issues:

1. Using data from the DfE and the schools we will cost the resources provided to meet the children's educational needs

2. Using a measure derived from a study by Blatchford et al (2009), we will conduct systematic classroom observations to profile the support children receive and the tasks they complete within the literacy hour. This will also allow comparison both of the subgroups in our study and with data collected for pupils with BESD and MLD in the Blatchford et al. study.

3. Using a series of verbal and non-verbal experimental tasks we will examine the differential learning profiles of the children in the different subgroups

4. We will also examine transition plans for year 2 and 6 pupils.

6.   PREFERRED OUTCOMES

6.1   Aims of the study

The overall aim of this project is to develop a mechanism of evaluating outcomes valued by children with SLCN and their families, which can be used to evaluate a range of interventions and services. The project so far has focused on exploring the outcomes that children and parents value. To date, the work with children and parents has been conducted separately.

6.2   What we have done

Parents:

Four focus groups were held in Cambridge, Kidderminster, Huddersfield and Bristol. A total of 14 parents attended these groups. A member of the research team also attended an Afasic parents day in Kidderminster during which parents participated in a workshop activity based on similar questions to the focus groups, but using written responses. Participating parents reported that their children had a range of SLCN, including children with speech sound disorders, specific language impairment, semantic-pragmatic disorder and autism. Children attended mainstream schools, special schools and language resource bases and were aged between 4 and 18 years (mean age 12 years). Focus groups were run on standard lines with a facilitator and note taker. All groups were digitally recorded with parents' consent and fully transcribed. Analysis of emerging themes used NVivo software to support data management. Finally, a family workshop was held in a northern industrial city (a second was offered in the south but no participants came forward) at which the emergent themes were further tested. A further seven families attended this workshop.

Children

We have visited children in their schools (in Surrey, Warwickshire, Bristol and Nottingham) focusing on children within two broad age groups (8-11yrs and 12-15yrs) and within both mainstream and special settings (Table 6.1). Children participated in groups of 4-6 and used a range of creative, arts-based activities. The framework for the activities was based on Appreciative Inquiry (AI) and we explored three issues: what's good (about me); what would

I like to be better; hopes for the future. Workshops were run by two researchers, one who led the session with the second supporting the process and making notes; although we recorded all sessions we have not fully transcribed these sessions; instead, after each session, the tapes were used to support the writing of full field notes and annotate the materials, with key quotes identified taken from the recordings. Eight children between ages of 8 and 15 years attended the family workshop. They had a wider range of SLCN than previous workshops held in schools, including children with Downs Syndrome and hearing loss. As with parents, emergent themes were further tested with these children using arts-based activities.

Table 6.1   Children and young people

Workshop	Total direct contacts made	Children under 11 years	Young people over 11 years	Females	Males	Total participants
Bristol	8	6	0	3	3	6
Surrey 1	5	0	5	2	3	5
Surrey 2	5	0	4	0	4	4
Surrey 3	6	6	0	0	6	6
Nottingham 1	7	6	0	3	3	6
Nottingham 2	6	0	6	2	4	6
Warwickshire	7	4	0	1	3	4

Children and young people had a diverse range of SLCN, including Primary Language Impairment, Landau Kleffner Syndrome, Autistic Spectrum Disorder, hearing difficulties and verbal dyspraxia. Three children relied mainly on sign language.

6.3   What we have found

Parents

When parents talked about outcomes they linked success in communication to other life outcomes: success in developing communication skills, for parents, increases the likelihood

of successful outcomes in a number of other aspects of the child's life, stressing the functional result of improving the communication of their children.

Two overarching themes emerged from the main theme of success in developing communication skills to be included and to achieve independence; within each of these were a number of related subthemes. Figure 6.1 displays the two overarching themes with their related subthemes. The functional value of each component was stressed, for example, parents want their children to be numerate in so far as that facilitates aspects such as dealing with money, telling the time. In addition, parents wanted to see changes in the understanding of others in their context and the wider world about the nature of SLCN. This included family members, education professionals and, potentially, work colleagues.

Figure 6.1 Parents' preferred outcomes for their child
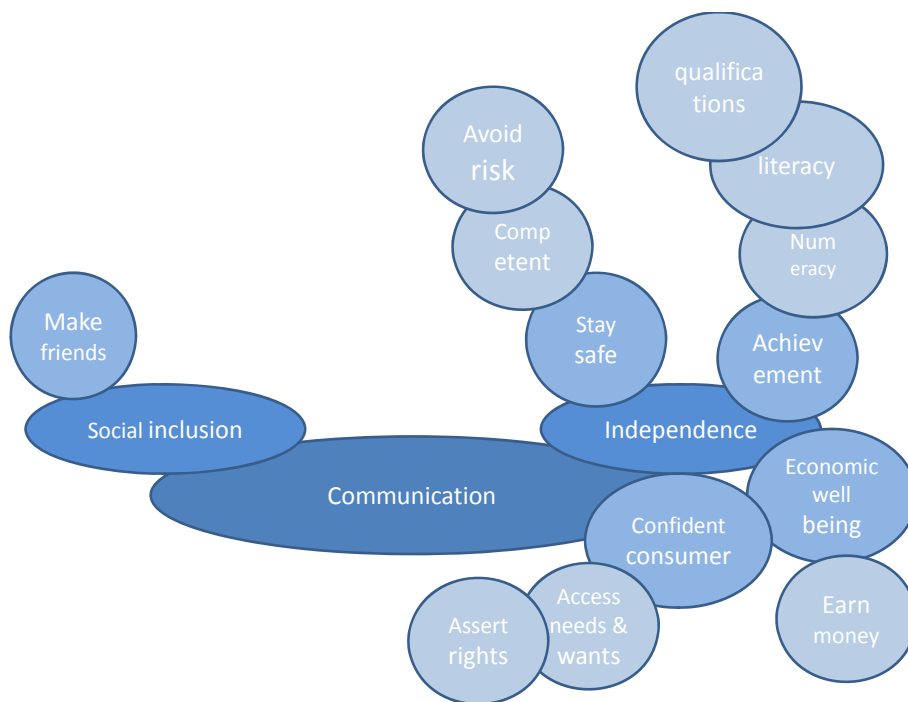
In addition parents talked about the changes that they would like to see in the behaviours of other people around them and their child. Figure 6.2 shows that parents were looking for changes in the behaviour of three key groups of people: friends and family, their child's peer group and the staff who worked with their child. Parents expressed a certain weariness at having to explain their child repeatedly to other people and were looking for a more informed public, so that all the people surrounding them and their child were knowledgeable, tolerant and supportive.

Figure 6.2 Parents' desires for other people's behaviour
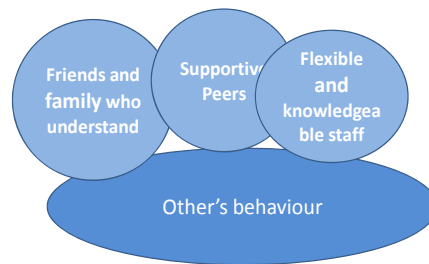
Children

The themes that emerged from the children's groups are grouped under the three underpinning questions from the AI framework, namely: what is good about me, what could be better and hopes for the future (Figure 6.3). The first of these generated discussions about the children's family, their friends, and activities they perceived themselves to be good at, and their favourite things; pets also figured as important within their lives. The importance of laughter and fun was clear as children talked about people with whom they shared jokes and silly times. Feeling safe, being protected and receiving help were also important to the children. In response to the activities about aspects of their lives that could be better, they talked about aspects of other people's behaviour that they would like to see change (interrupting, shouting and teasing were the most frequently mentioned). Interestingly they talked about their own feelings or emotions as well as their own abilities. Ways in which they wanted these things to improve were quite general – 'getting better' was a common concept - although they did have specific ideas about some things, like being able to talk faster.

Finally the groups focused on the children's hopes and aspirations for the future. As one might expect from children with language and learning difficulties, thinking about the future seemed difficult, particularly for the younger children. We did also discuss their school targets and although the children showed a general awareness of school targets, they showed little interest in discussing these. They had very individual aspirations, for example, to get better at the things they were interested in, or things that would help them achieve their ambitions. These included aspirations like joining a rugby team, being a singer, working in stables, being an architect. In the follow-up children's workshop, the aim was to understand if the children had priorities in their views of what is important. Fun and laughter was high amongst their priorities, as was getting help. However, there was a certain feeling of lack of agency or acceptance on the part of the children: for example, when talking about

other people shouting or not understanding one child commented: "*they say this all the time so I am used to it but it's not really that important cos I am used to it*".

Figure 6.3 Themes from children's groups

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┌──────────────────┐   ┌──────────────┐   ┌─────────────────────────────┐
│                  │   │  Who I am    │   │ Family, friends, things I'm  │
│ What's good about│   │              │   │   good at, my favourite      │
│       me         │   └──────────────┘   │         things                │
│                  │   ┌──────────────┐   └─────────────────────────────┐
└──────────────────┘   │ People around│   ┌─────────────────────────────┐
                       │      me      │   │ Laughter and fun, protection │
                       └──────────────┘   │  and support, help, rules    │
                                          │      and structures          │
                                          └─────────────────────────────┘

┌──────────────────┐   ┌──────────────┐   ┌─────────────────────────────┐
│                  │   │ Other people │   │ Interrupting, shouting,      │
│  What could be   │   └──────────────┘   │        teasing               │
│     better?      │   ┌──────────────┐   └─────────────────────────────┐
│                  │   │  My feelings │   ┌─────────────────────────────┐
└──────────────────┘   └──────────────┘   │  Anger, sad, boredom        │
                       ┌──────────────┐   └─────────────────────────────┘
                       │  My abilities│   ┌─────────────────────────────┐
                       └──────────────┘   │ Talking and listening, making│
                                          │  friends, school work, sports│
                                          └─────────────────────────────┘

                       ┌──────────────┐   ┌─────────────────────────────┐
                       │              │   │     Personal goals          │
                       │ Hopes for the│   └─────────────────────────────┘
                       │    future    │   ┌─────────────────────────────┐
                       │              │   │   Lack of agency or         │
                       └──────────────┘   │      resilience?            │
                                          └─────────────────────────────┘
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6.4   Conclusions and next steps:

This has been a relatively small scale in-depth study to explore the outcomes that are important to parents and children. The parents' perspective focused on the functional aspects of the children's communication in order to facilitate the achievement of independence and social inclusion. The children have a more immediate and concrete perspective and are looking for help and support, fun and laughter to help them achieve the things that are important to them as individuals. Both parents and children view other people's behaviour towards them as crucial, wanting friends, family and professionals who are more accepting and knowledgeable. Considering the preliminary implications of these findings suggests that evaluations of interventions should focus more on the functional outcomes for children. As noted above (section 2.2.2) typically the outcomes that are reported in intervention studies focus on the linguistic deficits of a child's impairment rather than their activity or participation. Furthermore, it suggests that, as we discuss interventions with families and children, we need to make explicit the links between particular linguistic impairment targets and their likely impact on a child's functional and life skills. This is not to argue against the importance of assessing language skills as outcome measures but rather

to broaden the range of outcomes and to develop more refined assessments of the interrelationships between language and functional and life skills.

There was a wide range of children and parents who participated in this study. However, with an in-depth study of this sort it is not possible to identify any patterns that are particular to any particular diagnostic group or age group of child. An initial pilot of questionnaires for children and parents was tested out at the family workshop and we plan to run that as a national survey during the autumn term. This will also identify any gaps in the existing framework as well as validating the framework with a wider group of participants.

The final write-up of the project will examine the links between the outcomes identified in this project with other outcome models and assessments. Although initially it was envisaged that a new tool might emerge from this strand of work, it is now more likely that this project will inform a number of other ongoing initiatives. For example, Achievement for All (DCSF, 2009) has developed a set of training tools for teachers to support the use of 'structured conversations' with parents and the development of provision to support the development of wider outcomes for children. Another example is a new outcome tool has recently been published for children under the age of 6 years that focuses on functional speech, language and communication outcomes (Thomas-Stonell et al., 2010).

Quotes from the focus groups and workshops and pictures from the children will be posted on the website. The outcomes identified in this study will be used to inform the development of the outcomes based model in project one.

7. PROJECTS 2010 – 2011

In this section we summarise briefly the projects that will take place during 2010-11. These include projects that are continuations or extensions or Year 1 projects and also some new research.

7.1 Development of Year 1 projects

7.1.1 Effectiveness of interventions (see Section 2)

A survey of practitioners will be conducted to widen the evidence of practitioners' use of interventions derived from interviews in Year 1 with speech and language therapy and educational psychology managers. The practitioner and research evidence will be integrated. A resource of information on evidence-based interventions will be developed. (See pages 13 and 16).

7.1.2 The academic progress of children with SLCN (see Section 3)

The causal relationship between SLCN status and pupils' academic progress will be examined using the national datasets (National Pupil Database and School Census). Data on costs of special educational needs provision will be incorporated to develop examination of the cost effectiveness of SLCN provision. This work stream will link with the prospective longitudinal study to examine the relationship between costs of provision and child progress for this sample of children in 5 LAs. (See page 22.)

7.1.3 Economic effectiveness (see Section 4)

Further analysis will be conducted using national datasets of access to and costs of services. Local level analyses of provision (e.g. language units, specialist resources in schools) will be costed. This work stream will also link with the prospective longitudinal study to examine the relationship between costs of provision and child progress and with 7.1.3. (See pages 27-8).

7.1.4 Prospective longitudinal study of children with specific language impairment and autistic spectrum disorder (see Section 5)

This project will continue until 2012. During 2010-11 the focus will be on completing screening in one LA to complete the sample; assessment of all children in the sample; completion of parent interviews; and a classroom observation study of each child during the literacy hour or equivalent. (See page 32.)

7.1.5 Preferred outcomes (see Section 6)

A national survey of parents will be undertaken to examine the preferred outcomes for their children, building upon the interviews undertaken in Year 1. The combined results will then be related to the findings of other projects, primarily the longitudinal study.

7.2 New projects

The following projects have been developed as a response to research issues identified during Year 1. In several cases we have teamed with other research groups.

7.2.1 Communication friendly schools

There is interest nationally in developing communication friendly schools. A number of different interventions have been created by practitioners in different LAs and PCTs and by ICAN, although the latter (*A Chance to Talk*) is a more extensive and complex initiative. The notion of communication friendly schools is essentially a *universal* (Wave 1) approach, aimed at improvements for all children. Although there is much interest and local development there is a lack of evaluation. This study will develop a measure drawing upon the research literature and then evaluates the evidence from schools implementing training and provision to become 'communication friendly'.

7.2.2 Children who stammer

Nationally there are innovative service models which provide the context for a number of interventions for children who stutter. In some services all therapists are trained to provide front-line services for these children under the supervision of a specialist; in others, all referrals of children who stutter are seen by a specialist; in still others there is no specialist

support at all. This study will establish a cohort study to track the treatment received and the outcomes for children, up to the age of seven years who present with a stutter. The study will also investigate risk levels at the outset relative to outcome and intervention received. This will provide only indirect attribution of the value of intervention but a strong design in the context of a relatively low incidence impairment and wide variability of services.

7.2.3 Language and literacy attainment

We are working with Professor Maggie Snowling and her colleagues at the University of York to fund a study that builds on existing evidence that they have collected. The sample comprises three cohorts of children entering 50 primary schools over a 3- year period. Results from the Early Years Foundation Stage Profile (EYFSP) (and its predecessor the Foundation Stage Profile, cohort 1) will be compared with the children's literacy and language abilities at age 7 years. The study will allow collection of further assessment data in the children and an analysis of the whole 3 cohort sample.

The future of the Foundation Stage and of the EYFSP is under discussion by the Department for Education at present, given a policy steer by the coalition government. This project will provide evidence that will inform the debate on early identification (screening) of young children to prevent or ameliorate later literacy difficulties.

7.2.4 The relationship between SLCN and behavioural, emotional and social difficulties (BESD)

Research has indicated that many children with SLCN have behavioural, emotional and/or social difficulties. Two small projects will be conducted working with other colleagues to analyse existing data on this issue.

7.2.4.1 Dr Vicky Joffe at City University will analyse data previously collected on secondary aged pupils with SLCN. There is a lack of information at this stage.

7.2.4.2 Professor Gillie Baird has made available data from a large cohort study of young children. This study is therefore complementary to that above in terms of age and also focus. Whereas the Joffe data are derived from all pupils in specific secondary schools, Baird's data are from young children with SLCN across an area.

7.2.5 Ofsted data

Data derived from inspectors of English schools will be analysed to explore the nature of good speech, language and communication provision at different stages of education. These data will also be used to inform the communication funding schools project (7.2.1).

7.2.6 Collaborative data collection

A systemic deficiency revealed in the study commissioned to inform the Bercow Review (Lindsay et al 2008, 2010) was the lack of collaborative collection, sharing, analysis and use of data by LAs and PCTs. LAs have extensive data on all pupils, particularly attainment, there are also data available on specifically identified children with SLCN collected by speech and language therapists, educational psychologists and others. This study builds on one Year 1 project that explored practitioners' uses of interventions to identify a sample of partners who will engage in an action research study to develop local models of collaborative practice that can then serve as models for others. We are also likely to work with other LA/PCT pairs who have started or are keen to develop this work.

8.   CONCLUSIONS

It is evident from this summary that the BCRP comprises a range of interlocking projects, large and small. These include studies that build one upon the other with initial work being examined before further work is commissioned as well as smaller scale studies that are more specific and focused. Furthermore, in many cases the individual studies are also linking together. By this approach we are seeking to address a range of issues to address children and young people with different types of SLCN; to address issues that have research, policy and practice implications; and to produce a programme that has an overall cohesion while being planned in this sequential manner.

Dissemination will also be a major focus over the next period. As studies produce findings that can be disseminated we will ensure that this occurs. We will present information on our website [22] as well as by presentations at conferences and in research and professional journals. Also, as indicated above, we will extend the expertise of the core research team by collaborations with other researchers and with practitioners.

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[22] http://www.warwick.ac.uk/go/bettercommunication

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Hart, B., & Risley, T. (1995) *Meaningful differences in the everyday experience of young American children.* Baltimore, MD: Paul. H. Brookes.

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Appendix 1 Systematic reviews addressing service provision for children with SLCN

Table A.1   Intervention reviews

	Title of review	Focus
1	Bothe, A. K., J. H. Davidow, et al. (2006). Stuttering treatment research 1970-2005. I: Systematic review incorporating trial quality assessment of behavioral, cognitive, and related approaches. *American Journal of Speech Language Pathology* 15(4): 321-341.	stammering
2	Cirrin, F. M. and R. B. Gillam (2008). Language intervention practices for school-age children with spoken language disorders: a systematic review. *Language Speech and Hearing Services in Schools* 39(1): S110-S137.	speech and language difficulties
3	Diggle, T.J. & McConachie, H.R. (2002) Parent-mediated early intervention for young children with autism spectrum disorder *Cochrane Database of Systematic Reviews* 2002, Issue 2. Art. No.: CD003496. DOI: 10.1002/14651858.CD003496.	autism
4	Herder, C., Howard, C., Nye, C., & Vanryckeghem, M. (2006). Effectiveness of behavioral stuttering treatment: A systematic review and meta-analysis. *Contemporary Issues in Communication Sciences and Disorders, 33,* 61–73.	stammering
5	Kisker, E. (2010) Dialogic Reading WWC intervention reporthttp://ies.ed.gov/ncee/wwc/pdf/wwc_dialogic_reading_042710.pdf	language difficulties
6	Law, J., Garrett, Z. & Nye, C. (2003). Speech and language therapy interventions for children with primary speech and language delay or disorder. *Cochrane Database of Systematic Reviews*: Reviews Issue 3. DOI: 10.1002/14651858.CD004110	speech language difficulties
7	Law, J. and C. Plunkett (2009). *The interaction between behaviour and speech and language difficulties: does intervention for one affect outcomes in the other?* Technical report. Research Evidence in Education Library, London: EPPI-Centre, Social Science Research Unit, Institute of Education, University of London	language difficulties and behaviour
8	Lee A. S. Y., Law, J. & Fiona, G. E. (2009). Electropalatography for articulation disorders associated with cleft palate. *Cochrane Database of Systematic Reviews:* Reviews Issue 3. DOI:	cleft palate

10.1002/14651858.CD006854.pub2.

9   Millar, D. C., J. C. Light, et al. (2006). The impact of augmentative and   developme
     alternative communication intervention on the speech production of   ntal
     individuals with developmental disabilities: a research review. *Journal of*   disability
     Speech Language and Hearing Research 49(2): 248-264.

10   Morgan, A. T. & Vogel, A.P. (2008). Intervention for childhood apraxia of   apraxia
     speech. Cochrane Database of Systematic Reviews: Reviews Issue 3.
     DOI: 10.1002/14651858.CD006278.pub2

11   Morgan, A. T. & Vogel, A.P. (2008). Intervention for dysarthria   dysarthria
     associated with acquired brain injury in children and adolescents.
     Cochrane Database of Systematic Reviews: Reviews Issue 3. DOI:
     10.1002/14651858.CD006279.pub2.

12   Nye, C., Forster, S.H and Seaman D. (1987). Effectiveness of   language
     language intervention with the language/learning disabled. *Journal*
     of Speech and Hearing Disorders, 52, 348-357

13   Ospina, M. B., Seida, J.K., Clark, B., Karkhaneh, M., Hartling, L.,   autism
     Tjosvold, L., Vandermeer, B., Smith, V. (2008). Behavioural and
     developmental interventions for autism spectrum disorder: A clinical
     systematic review. PLoS ONE 3(11). DOI:
     10.1371/journal.pone.0003755

14   Peadon, E., Rhys-Jones, B., Bower, C., & Elliott, E. J. (2009).   fetal alcohol
     Systematic review of interventions for children with Fetal Alcohol   syndrome
     Spectrum Disorders. *BMC Pediatrics, 9.* DOI: 10.1186/1471-2431-
     9-35

15   Pennington, L., Goldbart, J. & Marshall, J. (2003). Speech and   cerebral
     language therapy to improve the communication skills of children   palsy
     with cerebral palsy. Cochrane Database of Systematic Reviews:
     Reviews Issue 3. DOI: 10.1002/14651858.CD003466.pub2.

16   Pennington, L., Miller, N & Robson, S. (2009). Speech therapy for   dysarthria
     children with dysarthria acquired before three years of age.
     Cochrane Database of Systematic Reviews: Reviews Issue 4. DOI:
     10.1002/14651858.CD006937.pub2.

17   Pickstone, C., J. Goldbart, et al. (2009). A systematic review of   language
     environmental interventions to improve child language outcomes for   difficulties
     children with or at risk of primary language impairment. *Journal of*
     Research in Special Educational Needs 9(2): 66-79.

18	Schlosser, R. W. and D. L. Lee. (2000). Promoting generalization and maintenance in augmentative and alternative communication: a meta-analysis of 20 years of effectiveness research. AAC: *Augmentative and Alternative Communication* 16(4): 208-226.	developmental disability
19	Seida, J. K. M., M. B. M. Ospina, et al. (2009). Systematic reviews of psychosocial interventions for autism: an umbrella review. *Developmental Medicine & Child Neurology* 51(2): 95-104	autism
20	Spreckley, M. and R. Boyd (2009). Efficacy of applied behavioral intervention in preschool children with autism for improving cognitive, language, and adaptive behavior: a systematic review and meta-analysis. *Journal of Pediatrics* 154(3): 338-344.	autism

Table A. 2   Screening reviews

21	Helfand, M., Thompson, D. C., Davis, R., McPhilips, H, Homer, C.J. & Lieu, T. L. (2001). Newborn hearing screening. Rockville, MD, USA: Agency for Healthcare Research and Quality. Systematic Evidence Review; 5.	hearing impairment
22	Law, J., J. Boyle, et al. (1998). Screening for speech and language delay: a systematic review of the literature. *Health Technology Assessment* 2(9): 1-184.	speech and language difficulties
23	Nelson, H. D., C. Bougatsos, et al. (2008). Universal newborn hearing screening: Systematic review to update the 2001 US preventive services task force recommendation. *Pediatrics* 122(1).	hearing impairment
24	Nelson, H. D., P. Nygren, et al. (2006). Screening for speech and language delay in preschool children: Systematic evidence review for the US preventive services task force. *Pediatrics* 117(2).	speech and language difficulties

Table A. 3   Diagnostic reviews

25	Biddle, A. K., Watson, L. R., Hopper, C.R., Lohr, K. N. & Sutton, S.F. (2002). *Criteria for determining disability in speech-language disorders. Rockville, MD, USA: Agency for Healthcare Research and Quality.* Evidence Report/Technology Assessment: 52.	speech and language difficulties
26	McCormack, J., S. McLeod, et al. (2009). A systematic review of the association between childhood speech impairment and participation across the lifespan. *International Journal of Speech-Language* Pathology 11(2): 155-170.	speech difficulties

Appendix 2 – Project 1 Mapping exercise: Interventions reported by interviewees

i)   Published Programmes

Signalong

PECS

Intensive Interaction

Comic Strip Conversations (Carole Grey)

Social Stories (Carole Grey)

Circle of Friends

Language for Thinking

Socially Speaking

Time to Talk

Talking Partners

Talk to your Bump

TEACCH

BLAST

Spirals

ABA

Social Use of Language Programme (SULP)

Teaching Talking

Living Language

Hanen

PEEPS (Parent programme)

Colourful Semantics

Derbyshire Language Scheme

Language Link

Language Land

Becky Shanks Narrative packs

Nuffield

POPAT (phonological awareness training programme)

Metaphon

Lidcombe

Cued Speech

Bobath

Swindon Dysfluency pack

Susan Myers Bumpy speech

Core Vocabulary

Speech Link

Makaton

Talkabout (Alex Kelly)

Visualise and Verbalise

ii)   Intervention Activities *(specific tasks which may or may not be included within some published programmes as well but which are used to target at the impairment level)*

Narrative therapy
Barrier games
Auditory memory activities
Auditory discrimination activities
Phonological awareness tasks
Minimal pair discrimination or production
Auditory bombardment
Rhyme awareness activities
Cued articulation
Traditional articulation activities

iii)   Principles or approaches to intervention *(not specific tasks but approaches that are used in interactions with children to target at the level of impairment, activity or participation)*

Signing	Extending
Visual timetables	Chunking
Visual approaches to support language	Repetition
Use of symbols	Differentiating the curriculum
Workstations	Forced alternatives
Use of British Sign Language	Reducing questions
Use of alternative and augmentative communication	Commenting
	Reducing distractions
Task management boards	Using key words
Parent child interaction (PCI)	Using objects of references
Total communication	Waiting for response
Creating a language rich environment	Increasing awareness of errors
Modelling	Providing feedback

iv) Service developed programmes *(i.e. packages of intervention developed by the service being interviewed)*

Transition packages

Devon Package for Secondaries

Communication Opportunity Groups -provision rather than intervention

Thompson- Chapman (SLT)

Worcester Listening Groups/Training Pack (SLT)

Surrey Phonological Awareness Programme

Communicative Aspects of Learning and Life – CALL (SLT)

Ready Steady Play groups (SLT) - ? provision more than intervention

LA DVD for training in teachers in SLCN

v) Resources *i.e. used to assist in delivery of intervention but not an intervention itself – some are published, some are types of resources, some are companies who provide resources*

Talking Mats

Communicate In Print

Talkabout (Alex Kelly)

Evaluation Wheel (Alex Kelly)

Black Sheep Press resources

Make Sense materials

Communication books

Communication passports

Baseline Communication Skills (Spring and Delamain)

Widgit resources

Picture Symbols

PIc toys

Rhodes to Language

Semantic Links

Language Step

Kidspiration

Board Maker

B-Squared

CASPA

Word walls/word webs

Mind Maps

Vocabulary planner

Good practice guidelines

Equals

LAMP screen

LARSP

Language builders

Anne Locke materials

STASS books

Story grids

Talking Semantics

Surrey Profile

Speech Language Resource File

Mr Tongue

Big Mouth

Swindon Resources for Fluency

Stammering Rating Scales

Jolly Phonics

Language Master

Warwickshire Speech and Language
       Resource File

vi) Training *i.e. training others to provide interventions*

Makaton training	Development
Behaviour Intervention training	SLCN IDP
ELKLAN ASD course	Early Years IDP
ELKLAN Let's Talk (under fives)	Online Inset
Listening training	Learning Together (Bristol)
Language for Learning	National Strategies Website
Communicating Matters	Support from advisory teacher service
Elective Mutism Training	Nursery Talk
Communication Friendly Environment	Let's Learn
Training (Warwickshire SLT)	Signing Workshop
Every Child a Talker (?a provision)	Talk for writing
Communication, Language and Literacy	Early Talk (ICAN)

vii) Models or theories of intervention *i.e. theories which underpin interventions but which are not interventions of themselves*

Metalinguistic theory

Language Chain

Language Pyramid

Demands/capacities model

Stackhouse and Wells Psycholinguistic Framework

Dodd's classification of speech impairment

Personal construct theory

Blank's levels of questions

viii) Targets of intervention *i.e. what is targeted, not what is used to more towards target*

Listening skills

Conversation skills

Sentence processing

Sequential memory

Auditory discrimination

Phonological awareness

Attention

December 2010