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Background and rationale

The nature of pragmatic and social communication needs

The nature of communication disorders in children continues to be an active area of research. Much is now understood about the origins and characteristics of developmental language impairments. The concept of 'specific language impairment' emerged over thirty years ago as a diagnostic category distinct from autism and 'mental retardation' (in the terminology of the day). More recently, researchers and clinicians have begun to investigate the relationship between autism and language impairment, particularly regarding the potential overlap between these two neurodevelopmental conditions. With respect to speech and language therapy practice, nothing has influenced this debate more than the advent of pragmatics as a linguistic discipline and its subsequent adoption by speech-language practitioners into the clinical sphere.

In this chapter, definitions of social communication and pragmatics and the relationship between them will be presented. The nature of Social Communication Disorder and Pragmatic Language Impairment will be outlined and the evidence base for speech and language therapy treatments discussed. Finally, the rationale for SCIP Intervention is given along with justification of its main therapeutic components.

The scope of social communication

Social communication has been defined in different ways and has multiple components. It is one of those elusive terms that is often used, but rarely concisely defined. Since there is little consensus or consistency in the literature, a way forward may be to list potential constituent parts of the broad concept of social communication. Some of these are shown in Figure 6, though the list could be much longer. Although social communication is, in the broadest sense, concerned with functional social performance in typical social situations, substantive cognitive and language skills contribute to that social performance. It is these underlying skills that SCIP Intervention is concerned with. These skills lie primarily in the domain of social and pragmatic knowledge and performance and the processing abilities that underpin language (both receptive and expressive).

Figure 6: Some of the constituents of social communication

socially acceptable communication	match language style to situation	use of non-verbal gestures
paralinguistic features such as tone or volume	appropriate use of speech acts (greetings and requests)	starting and maintaining conversation
interpretation of non-verbal signals	facial expressions	responding to the interlocutor

The phrase 'social communication' therefore remains an umbrella term for a broad range of communication components. It is a complex human undertaking that depends upon concerted actions using multiple systems. It also rests upon mastery of a series of subtle, often unconscious, skilled abilities in order to convey social intent and meaning in a culturally acceptable manner. An intervention that addresses all these facets of social communication would either have to be comprehensive enough to target each element separately or be aimed at a more functional holistic level. At the holistic therapeutic level, all social communication elements are practised in naturalistic social tasks and the quality of social communication is judged by its overall acceptability. Evidently, in such a minefield of definitions, it is necessary for an intervention to have a clear rationale and theoretical base.

Social communication and pragmatics

There is a trend for the terms 'social communication' and 'pragmatics' to be used interchangeably. This is inaccurate both in terms of scope and definition. Pragmatics is a domain of linguistics and is concerned with the use of a set of linguistic rules in verbal interactions. It has traditionally encompassed a range of linguistic features such as anaphora, implicature, speech acts and exchange structure (Grundy 2000) which serve to make language relevant and meaningful in context and appropriate to social interactions. Non-verbal communication is not typically considered to be within this domain, although it has a vital supplementary role and can greatly impact on meaning. The term 'social communication', in contrast, appears to have a functional rather than a formal definition.

Both the definitions and the scope of these terms are in a state of change and have been for two decades as more observational and empirical research has emerged. Pragmatics has had something of an identity crisis. What began as the narrow study of speech acts in conversation has blossomed into a field of study encompassing context-dependent comprehension as well as output. The increasing recognition of the convergence of language and cognitive competencies in communication, particularly in studies of verbal inference and mutual/shared knowledge, has transformed the field. It has been difficult for clinical pragmatics research to keep up. We will argue, however, that there is substantial value in keeping a separate notion of pragmatics and its constituent features clearly in mind in planning intervention. Social communication, we also argue, is a far broader concept than pragmatics and the two should not be used as alternate constructs.

Complex social communication needs: diagnostic issues

Social communication needs refer to a persistent requirement for support in developing language and non-verbal communication for social purposes. These communication needs are likely to be associated with other areas of development that require support for learning. This, in turn, implies a heavy demand for speech-language support services, both in terms of specialist intervention and general support for social and educational development.

Children with these needs are referred to as having Social Communication Disorder (SCD)[1] or Pragmatic Language Impairment (PLI). They are likely to have a complex picture of disproportionate difficulty with pragmatics compared to the structural aspects of language such as grammar and vocabulary. This means that, as their use of words and sentence structure becomes more mature at around four to five years of age, marked difficulties with pragmatics and social communication become more noticeable. The term PLI implies that the only difficulty these children have is with pragmatics. This is not the case, as some children who have PLI have mild social interaction impairments of an autistic nature and may also have some structural language problems, similar to those seen in children with specific language impairment (SLI). However, the predominant clinical linguistic feature is one of difficulty with pragmatics. PLI is not a formal diagnostic category but a

[1] In the US literature, the term Social Communication Disorder (SCD) is used to describe a profile of communication impairment similar to that of PLI (which has been used more commonly in the UK)

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these are highly variable; few children will show all these features. Some may show more language impairment features; some may show relatively few language features but many pragmatic features. Some may show very few if any social features; some may show many and appear to be more like a child with HFA. This heterogeneity provides a clue to the complexity of planning intervention. ***It is unlikely that a single fixed 'programme' of intervention will be sufficiently flexible to suit the varied communication needs of this population.***

Table 1: Characteristics of communication and behaviour in children who have PLI/SCD

Pragmatic features	Language Impairment features	Social features related to ASD
Poor coherence / cohesion of events in discourse	Minor persistent errors with syntax	Stereotyped language
Tends to dominate discourse or conversation	Vocabulary may be delayed or precocious	Unusual or stereotyped intonation
Offers excess and/or inadequate information	Word-finding difficulties	Abnormalities of non-verbal communication
Can be unresponsive in conversation	Semantic errors, especially abstract words	Social interaction difficulties
Reference sometimes not adequate for listener	Non-literal language misinterpretations	Difficulty with peer relations
Topic management problems	Difficulty with verbal inference	Secondary behavioural difficulties
Turn-taking clashes	Misinterpretation of meanings in context	Anxiety and other co-morbid mental health problems
Verbosity/ Loquacity	Narrative disorganisation	Lack of flexibility

There are, of course, extended implications of growing up with PLI/SCD. If there are social interaction difficulties, this impacts on peer interactions, friendships (Botting & Conti-Ramsden 1999) and longer-term social well-being (Whitehouse, Watt, Line & Bishop 2009). Daily life for the family of a child with PLI/SCD can be disrupted (Baxendale, Lockton, Adams & Gaile 2013) due to lack of flexibility and social anxiety. These children are likely to show additional learning needs often associated with children with SLI, including difficulties with reading comprehension and accuracy (Freed, Adams & Lockton 2011). In addition, there is increasing evidence of a link between social communication difficulties in early life and later behavioural difficulties (St Pourcain et al 2011; Donno, Parker, Gilmour & Skuse 2010).

More information about the characteristics of children with PLI can be found in Bishop & Adams (1989), Botting & Conti-Ramsden (1999), Bishop (2000), Leinonen, Letts & Smith (2000). Relevant background reading for SCD can be found in Timler, Olswang & Coggins (2005a and b) and for communication needs in children who have HFA, Landa (2000) and Gerenser (2009).

The evidence base for pragmatic and social communication interventions

Current intervention practice for children who have pragmatic and social communication needs falls into four main categories:

- Social skills interventions
- Direct intervention for pragmatics and social communication
- Language intervention for conversation skills
- Indirect intervention in a school-based consultancy model

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In some cases, written programmes of intervention are provided, techniques may be modelled or general advice given on strategies for modifications to, say, language input, or all of these and more. There are many strong positive arguments for collaborative practice in provision of intervention to children (Gascoigne 2006). If the ultimate aim is improvement in real-life communication functioning, this is unlikely to be achieved solely in the clinic. This is especially the case for a socially oriented intervention. The provision of indirect intervention has been promoted by the progressive moves towards inclusion for all children who have special needs in the UK. This type of service provision is often referred to as a consultancy model.

Robust experimental studies of indirect intervention for children with persistent language impairments in a consultancy model in mainstream schools are beginning to emerge. In a comparative study of three modes of intervention delivery for children with language disorders (direct specialist intervention, intervention delivered by nursery staff, no intervention), Gallagher & Chiat (2009) found a dilution effect in passing on intervention to nursery staff from the speech-language practitioner and little difference between indirect intervention and no intervention (though the issue of low dosage in the indirect intervention condition was noted).

McCartney et al (2011) undertook a study in which a group of children with language disorders received an indirect intervention (which had been previously delivered as an effective direct intervention in a clinical trial) via school staff instead of speech-language practitioners. There was no positive effect of indirect intervention on communication skills for this cohort; outcomes were similar to those made by control children in the trial. The principal explanation for this, according to McCartney et al, is likely to be that less language-directed therapy was done. They follow this up with a recommendation that indirect intervention in a consultancy model may require very close supervision to ensure compliance with therapy objectives and planned activity. They further conclude that, “more efficacious therapy is that delivered by speech and language therapists or speech and language therapy assistants to children individually or in groups” (p 81).

The evidence base for SCIP Intervention

A preliminary version of SCIP Intervention was tested in a case-series study of six children who had PLI (Adams, Lloyd, Aldred & Baxendale 2006). Positive effects were demonstrated on conversational skills and language test scores after intensive intervention delivered by a speech-language practitioner. Establishing this signal of change led to the motivation for a larger scale trial of effectiveness. In the next stage of enquiry, Adams et al (2012a) went on to carry out a randomised controlled trial of SCIP Intervention using a formal manual of intervention (an early version of the Intervention Resource). Eighty-six children with a diagnosis of PLI were randomly allocated to intervention and treatment as usual (control) conditions. Children in the intervention group received intensive therapy (drawn from the project intervention manual) from a specialist research speech and language therapist or a closely supervised therapy assistant who had been trained in SCIP Intervention methods. Therapy took place over one school term and consisted of a maximum of twenty direct intervention sessions. An individualised intervention plan for each child was drawn up using the principled framework of the manual so as to ensure that intervention choices were logical and principled. Considerable time was spent in liaison with support staff and teachers to plan for generalisation across the period of intervention. Control group children continued to receive attention from local speech-language therapy services in a consultancy model, in which training and support was offered to schools and programmes were provided for application by the child’s learning support assistant.

The results of the SCIP trial indicated that there was a likely effect of the intensive SCIP Intervention over the control condition. Evidence in favour of the intervention was found in measures of:

- carer-rated pragmatic competence
- masked observation of change in conversational skills
- carer opinion of changes in social communication and language skills
- teacher opinion of changes in classroom learning skills.

There was no evidence of an effect on standardised measures of language, although some children with low language functioning did show progress. An exploratory analysis of moderating factors showed that there was no evidence that specific factors such as non-verbal IQ or language comprehension were associated with outcome, although the sample size limited this analysis. The study met CONSORT standards for randomised controlled trials (www.consort-statement.org).

Summary of evidence

The majority of evidence regarding current intervention practice for children with PLI/SCD exists at the level of case report or case series. Whereas these provide important information for practitioners, they are not generally accepted as providing valid evidence of effectiveness. Case series and prospective case studies of conversational treatments have suggested potential efficacy of speech-language treatments. Group studies of SST show mixed findings with problems due to lack of individualisation and generalisation, but some evidence of effectiveness in improving general social behaviour. Evidence is emerging that indirect intervention, whilst containing valuable elements of collaborative working, is less effective for communication and language outcomes than direct therapy provided by specialist services.

Gerber et al's (2012) review suggests that there are limitations both in the level of evidence-based enquiry and in the quality of research in this field. In order to significantly influence policy and practice on a larger scale, the current view is that randomised controlled trials of intervention should be undertaken. In the first such trial, SCIP Intervention has been shown to have a significant effect on some aspects of social communication (Adams et al 2012a). This trial met high quality standards for methodology and was included in the most recent main systematic review in this field (Law et al's What Works in the Better Communication Project Report (Lindsay, Dockrell, Law & Roulstone 2012)). In that review, SCIP Intervention was rated as moderate evidence. It is unlikely that more definitive evidence will emerge in the near future. Trials are expensive to mount; usually more than one trial would be required to provide definitive evidence of a treatment effect. Questions regarding dosage, intensity, therapy content and provider of treatment remain unanswered. Nor is there any evidence as to which child will benefit from one approach more than the next child or which approaches have the best long-term outcomes. In the meantime, practitioners can only apply the best evidence that is currently available. Given that it presents the highest level of evidence for a treatment effect, the SCIP evaluation study is being disseminated via this book as well as in academic and practitioner journals. As a precursor to the description of the intervention, the theoretical reasoning behind SCIP Intervention will now be discussed.

The theoretical rationale for SCIP Intervention

The principal feature of communication in children who have PLI/SCD is children's distinctive pattern of language use in social contexts. This implies that pragmatics should be the primary focus of intervention. We strongly contend that this linear approach is limited and that a reductionist approach, in which PLI/SCD is viewed as the product of an atypical or disrupted route to learning language forms/content and communication conventions, should be adopted.

Evidence from the typical and atypical developmental literature indicates that pragmatics is the product of an interaction in a developing system of social, cognitive and language capacities (Prutting & Kirchner 1987, Brinton & Fujiki 1999). Pragmatics has been described as an 'epiphenomenon'

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early communication learning has passed and we are not always witness to the difficulties that the child has experienced in that period. It is probable that school age children with PLI/SCD have a relatively 'recovered' picture of language impairment in which structural language skills have undergone a period of rapid catch-up and compensatory development. The implication is that a developmental perspective on the relationship between social communication and language development in critical periods should be adopted in planning intervention.

The scope of structural language skills has not always been well defined in research studies of PLI/SCD and it is possible that certain types of language impairment have greater impact on pragmatic skills than others. Language impairment has tended to be defined narrowly as a limitation of grammar and morphology - the classic definition of SLI that was predominant in language impairment research from the 1970's onwards (Leonard 2000). It is certainly possible to anticipate that limitations in expressive language ability contribute to weak use of language, i.e., that pragmatic deficits in children with SLI are secondary to the linguistic deficit. Demands for complex expressive language place stress on an impaired system during development. Thus the child may be able to carry out simple expressive language tasks such as sentence construction and grammar, but a relatively weak underlying language base can break down when asked to construct a complex narrative or retell an event with appropriate coherence and cohesion.

Contemporary views of language impairment have additionally recognised the role of comprehension in the development of pragmatic impairments. The contribution of limited/slow development of receptive language over time can lead to the adoption of a set of compensatory strategies in interaction. For example, deliberate changes of topic in verbal interactions may flout pragmatic rules of relevance and co-operation and appear 'odd' or 'bizarre' if frequent in nature. This behaviour may, however, serve as a learned strategy to avoid answering questions that cannot be comprehended. Other compensatory strategies in reaction to non-comprehension may be guessing or not responding at all. Such compensatory strategies become entrenched in the child's interaction style and serve a purpose for the child at the interpersonal level (Adams 2001, Perkins 2007). There is evidence for persistent comprehension problems in children with PLI/SCD even when measures of structural language are within normal limits (Norbury 2005). Children's language competence can therefore have a significant and diffuse impact on pragmatic ability and the profile is compounded by increasing demands as the child gets older.

It is probable that pragmatic deficits in children result from an interaction between impaired social and language problems in development (Norbury 2005, Gibson, Adams, Lockton & Green 2013). Interactions between degrees of social and language impairments in individuals could account for the heterogeneity in this population. The way in which individual children respond to the verbal and social environment by adoption of compensatory strategies may also be a factor in variation of clinical features.

Conceptualisation of SCIP Intervention

The body of research presented above underlies the rationale for SCIP Intervention. The implications from our current understanding of the nature of PLI/SCD are that there are obvious limitations on the potential for changing underlying social cognition. But equally there are opportunities for a well-directed communication intervention to:

- Develop, adopt and practise communication strategies which are less disruptive to social interactions
- Strengthen some aspects of language processing by structured practice and building confidence and fluency in language tasks
- Modify the language environment to support interpretation of language in social interactions

- Learn pragmatic conventions using metacognitive methods appropriate for school-age children
- Incorporate individual social needs/situations into language and pragmatic therapy

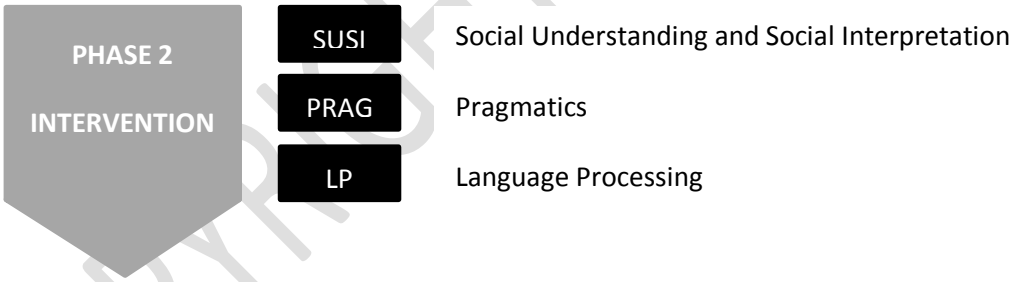
These opportunities form the basis for SCIP Intervention. This intervention was originally developed from Adams' model of needs for children with pragmatic language impairment (Adams 2001 and 2005). The team that developed the final version of SCIP Intervention had interdisciplinary experience across language impairment and autism interventions. We were further influenced by contemporary work on collaborative education practices (Paul & Norbury 2012), child-centred approaches to language delay (Fey 1986) and the seminal work of Brinton and Fujiki on conversational interventions (Brinton & Fujiki 1995).

The main components of intervention were derived from the developmental model of social communication as the product of an interaction amongst social understanding and social interpretation, pragmatics and language processing. We used this framework to build a phased model of SCIP Intervention in which skills underlying these three components are first targeted in therapy separately then integrated to meet personalised social communication needs. In the following section we describe those three components of SCIP Intervention and the justification for their inclusion.

The three main components of SCIP Intervention

Three major contributory components in pragmatic and social communication needs were identified in SCIP Intervention (see Figure 7). In the assessment/ planning phases of SCIP Intervention and in the main intervention phase, the three components are dealt with separately. However, for most communicative tasks it is impossible to differentiate social, pragmatic and linguistic ingredients as all three must function as a coordinated whole. It follows that SCIP Intervention will, in later phases of therapy, aim to promote a synergistic competence in which all components are combined.

Figure 7: The three main components of intervention in SCIP Intervention (Phase 2)



Component 1: Social understanding and social interpretation (SUSI)

This component of SCIP Intervention aims to develop awareness, understanding, observation and insight into the meaning of social cues in social situations and reciprocal interactions using language support. These skills will initially be approached in direct intervention by providing examples of social cues and signals and their interpretation. Observational and descriptive skills are built up in intervention and practised using sabotage and problem-solving strategies. This part of the intervention also focuses on friendship skills as one of the most common social contexts for elementary school-aged children.

The primary justification for the inclusion of SUSI is the obvious limitations in social understanding of children with PLI/SCD. However, it has already been noted that there are limitations on potential changes to social cognition. The crucial feature in SCIP is to use language to support observations and interpretations. This skilled scaffolding of language input and expectations for appropriate output are hypothesised to support social learning in these children. The second crucial feature is to introduce material which is meaningful to the child and which is personalised to his environment.

Measuring outcomes of SCIP Intervention

Measuring outcomes of intervention at an individual level represents a different process to measuring outcomes in a group trial. In the SCIP trial, a relatively large and heterogeneous group of participants received individualised routes through SCIP Intervention. However, the requirements of control over bias and validity required us to employ a primary outcome measure and some secondary measures.

The primary outcome measure was the Core Language Standard Score (includes receptive and expressive elements) of the CELF-4 (UK) (Semel et al 2006). Some children, at the individual level, did show improvements over and above what might have been expected by simple practice, familiarity or maturation on this test. However, these findings were neither sufficiently strong nor universal to show a group effect. There are two reasons for this: a) children who had CELF scores within the normal range at baseline had needs in areas other than those measured by the test. They still needed SCIP Intervention, but CELF did not measure the aspects of intervention (especially the pragmatic intervention) required; and b) children's needs were simply too diverse to capture a single direction of travel in terms of language change.

Secondary outcomes are described in detail in Adams et al (2012a). These were (with one exception) carer or teacher report instruments of functional communication. In the SCIP trial, Adams et al extracted information about carers' rating of pragmatic and autistic-communication behaviours from the Children's Communication Checklist-2 (Bishop 2003a) completed before and after intervention. As predicted the 'pragmatic' checklist showed a between groups difference (showed an intervention effect) whereas the autistic communication items did not show a group difference. The implication of this is that it will be important to measure (even if only by report) aspects of functional pragmatic and social communication as perceived by people in the child's environment. (For more information on the teacher outcomes see the Case Study in Chapter 8).

The other major secondary outcome in the SCIP trial was a conversational task with a simple checklist of ratings of pragmatic behaviours (TOPICC, Adams et al 2011). We did not eventually use the ratings of conversation, as we did not have sufficient reliability of coding data for this to be completed. However, blind opinion of changes for the better in overall conversational skills using TOPICC did show an intervention effect and this was supported by carer views.

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The main recommendations to come out of the SCIP trial in terms of developing outcomes are:

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Summary

In this chapter, we have presented a brief theoretical rationale for SCIP Intervention showing the distinctive integrated nature of the intervention. SCIP Intervention has been shown to place emphasis on early social development and the influence of language impairment in the emergence of persistent social communication difficulties. We have also outlined the nature of the three main components of SCIP Intervention and related these to the underlying rationale. We have emphasised that SCIP Intervention is a specialist resource. The next chapter describes the principles of the intervention and should be read carefully before starting to deliver SCIP Intervention.