

**UNDERSTANDING PRAGMATIC MEANING. A STUDY OF SECONDARY SCHOOL
STUDENTS WITH SPECIFIC DEVELOPMENTAL LANGUAGE DISORDER.**

Wendy Frances Rinaldi

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London University, Institute of Education.



ABSTRACT

This study explores the hypothesis that there are particular difficulties for secondary school students with specific developmental language disorder (SDLD) in understanding contextual, pragmatic meaning in relation to non pragmatic (semantic) meaning. It compares sixty-four SDLD students, aged between twelve and fourteen years, with chronological-age-matched and language-age-matched non-language impaired students. Language age is measured by a test of non-pragmatic meaning comprehension.

Incorporating the development of new procedures, the study examines the students' comprehension of two types of ambiguity where the context determines the speaker's intention: inconsistent messages of emotion and multiple meanings in context. These types of ambiguity are evident in a range of communicative intent, for example, to express sarcasm, idiomatic expression, deceit and humour. Preliminary study into adolescent language suggests that, at this age, there is a particular expectation for students to be able to understand these kinds of communication, both in the classroom and socially.

The study provides much evidence to support its central hypothesis: SLD students made significantly fewer pragmatic responses than both comparison groups. The way students responded suggested two types of pragmatic analysis, one concerning plausibility judgment and a second concerning awareness of multiple reference and detection of miscomprehension. Non-language-impaired children were significantly more able to use these types of analysis, for example, to rule out literal interpretations when they did not know the contextually implied meaning. Some evidence is provided to suggest that these analyses are underpinned by skills in both the metacommunicative and linguistic domains.

The study's findings have several implications for research and practice. There are serious implications, for example, for diagnostic assessment, in the light of the literature survey revealing that those currently available do not assess pragmatic meaning comprehension. The findings further provide a basis to challenge a view that disorders in the semantic and pragmatic domains necessarily co-occur, as reflected in the diagnostic category semanti-pragmatic disorder.

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CHAPTER 5. DISCUSSION

FIGURE 5.1. Stages in the comprehension of a multiple
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FIGURE 5.2. Stages in the Comprehension of an
Inconsistent Message of Emotion

CHAPTER 1. INTRODUCTION.

In this chapter I will begin by explaining the rationale for the focus of the present study, which will include a brief description of the students taking part. I will then describe pragmatic meaning, which in this study is illustrated by two types of ambiguous communication, multiple meanings in context and inconsistent messages of emotion. I will continue by outlining the design of the study and, finally, will examine potential implications.

The points raised will be covered fairly briefly at this time; more detailed descriptions and analysis will be made in subsequent chapters.

1.1. RATIONALE FOR THE FOCUS OF STUDY

The origins of this study lay in my observations as a speech and language therapist with secondary school students who have specific developmental language disorder.

The diagnosis of developmental language disorder is made when children's language development deviates from common

developmental patterns which have been identified from normative study, for example, Crystal, Fletcher and Garman (1976), Ingram (1976), Bloom and Lahey (1978) Cooper, Moodley and Reynell (1979). A number of factors have been identified (Emerick and Hatton, 1978; Bishop and Rosenbloom, 1987) which precipitate the language disorder or predispose the youngster towards language disorder. These are hearing loss, mental retardation, emotional disturbance, neurological dysfunction, environmental deprivation and physical handicap.

The diagnosis of specific developmental language disorder has been less clearly defined. Early definitions, for example by Zangwill (1978), were reached at by exclusion, that is, a specific language disorder was said to occur where there was no identifiable aetiology. However, Lees and Urwin (1989) noted that in a number of children diagnosed specific language disorder, the kinds of predisposing or precipitating factors, outlined by Emerick and Hatton (1979) and Bishop and Rosenbloom (1987), did exist to some degree, although not sufficiently to bring about the degree of language disorder observed.

Cromer (1987) also noted that although children with specific developmental language disorder achieve average

or above average scores on performance scales of IQ tests, these youngsters do have cognitive deficits, in particular, relating to impaired short term memory.

It would appear reasonable to conclude that when the diagnosis of specific developmental language disorder is applied, the problem particularly affects language development, and although there may be some associated factors, such as a history of hearing loss, learning or emotional difficulty, the language disorder cannot be attributed to any of these alone or to the sum of those effects. Indeed, this aspect of the diagnosis was also referred to by Lees and Urwin (1989).

It should be noted that the term 'specific developmental language disorder' is not used consistently by authors. Recent literature refers either to 'specific developmental language disorder' or 'specific language impairment'. However in earlier descriptions, the condition is referred to as 'developmental dysphasia'. This diagnostic term is also used in the field of acquired language disorder to refer to partial loss of language facility which occurs following brain lesion, as a result, for example, of head injury or neurological dysfunction, as in the case of stroke. This acquired form of language disorder

therefore more commonly occurs in adulthood than childhood.

It is possible that the move away from the term developmental dysphasia towards a diagnosis including the term 'specific' was made in an attempt to emphasise the relative weakness in the area of language in comparison to any other difficulties the child may have, and because of the differences between the developmental and the acquired condition. Acquired dysphasia, for example, has clearly identifiable neurological aetiology, whereas, as discussed by Robinson (1992) developmental language disorder does not. Further, in acquired dysphasia the consideration is on lost ability as opposed to a failure to develop language. Aram and Eisele (1994) note that few of the language deficits seen in children with unilateral left hemisphere brain lesions (the localisation of dysfunction in acquired dysphasia) are as persistent or severe as those seen in developmental language disorder.

In the present study the condition will be referred to as specific developmental language disorder (SDLD), in line with much of the more recent literature.

Warnock (1978), in the report of the committee of enquiry into the education of handicapped children and young people, identified children with speech and language difficulties as requiring 'special means of access to the curriculum' (page 41). SLD children's education is therefore usually provided in a specialist language class within a mainstream school or in a language school (Charteress, 1994) where a speech and language therapist has an input into the planning and the delivery of the curriculum.

Although the need for a specialist approach within education has been identified for children who have speech and language difficulties, a preliminary view of the literature revealed a paucity of research with this group, particularly at secondary school age. In 1987, at the time of commencing the study, I was able to uncover only one study relating to secondary school students with specific developmental language disorder. This was a longitudinal study being undertaken by Haynes and Naidoo to examine different subgroups within SLD and their progress into adulthood. The results of this study, which was completed in 1992, will be described in the literature review.

In the present study, rather than looking at outcomes for SLD children, which was the main focus of Haynes and Naidoo's study (op cit), I wanted to contribute more precisely to our knowledge of the nature of language difficulty at secondary school age, in order to assess the practical and theoretical implications.

My choice to focus on pragmatic meaning arose from my observations that this aspect of language appeared to present particular difficulty for the SLD students with whom I worked, in relation to other aspects of language. For example, I noted that a number of students had considerable difficulty in understanding ambiguity, which, as will be outlined below, can be located within the area of pragmatics. The same students, however, achieved age appropriate scores (or near age appropriate scores) on standardised assessments of language comprehension such as the British Picture Vocabulary Scale (Dunn, Dunn, Whetton and Pintillie, 1982) and the Test for the Reception Of Grammar (Bishop, 1989), which do not include assessment of pragmatic meaning.

In this study I chose to focus on comprehension rather than expression, because I believed that any findings of comprehension difficulty would have particularly strong

practical implications. This belief was based on my observation that comprehension difficulties are less easy to detect than expressive language difficulties and therefore may go unnoticed, particularly bearing in mind that SLD children tend not to voice their confusion. This observation has also been documented by Ehren and Lenz (1989).

Further evidence for the practical implications of studying pragmatic meaning comprehension in the later stages of communication development, at secondary school age, came from my examination of the literature on normative studies. These studies indicated that at this stage in development, children are usually able to understand aspects of pragmatic language, including ambiguity. This implied that those talking to youngsters of this age group would expect them to understand such language and may not make the same kinds of adjustments to their language, (such as simplification or explanation) as they would with younger children. Speakers' expectations of children's understanding of pragmatic meaning as they grow older are also suggested by the frequency with which they use non literal language. A study by Lazaar, Warr-Leeper, Nicholson and Johnson (1989), for example, found that, on average, 11% of teachers' utterances in class

groups of eleven year olds contained at least one idiom; this figure rose to 20.3% for teachers talking to thirteen year olds.

Pragmatic language covers a very broad area, which will be explored in detail in the literature review of this study. For the purpose of this introduction, I would like to identify it as concerning language in the context of use (Bates, 1976), incorporating aspects of language expression and comprehension (Bloom and Lahey, 1978).

A part of pragmatic language is to do with meaning implied by context, which goes beyond a 'diadic' relation between utterance and meaning (Leech, 1983). That is, there is not a direct correspondence between what is said and what is meant. It is this type of meaning which forms the focus of interest for the present study and which I refer to as 'pragmatic meaning'. This contrasts with 'non-pragmatic meaning' which involves expression matching intention in a one-to-one correspondence, and where there is no influence of context.

My preliminary examination of the literature on normative research revealed one study of particular interest, by Cacciari and Levorato (1989). This study indicated that

non-language-impaired children, at the age of nine to ten years, are able to use pragmatic, contextual strategies to enable them to understand idiomatic meaning that they do not know out of context. That is, they were able to use contextual information to make an informed guess at the speaker's intended meaning. I was particularly interested to discover whether SLD students would also be able to make use of such strategies to understand idioms and other forms of ambiguous communication.

The relation between pragmatic meaning and ambiguity will now be explored in describing the two types of ambiguity included in the present study.

1.2. **DESCRIBING AMBIGUOUS COMMUNICATION**

Ambiguity is an aspect of communication which requires the comprehension of pragmatic meaning, because it is the contextual information which gives the clue as to how the speaker intends the communication to be understood. The meaning implied by context, that is the pragmatic meaning, thus resolves the ambiguity.

The two types of ambiguity of interest to the present study are (i) multiple meanings in context and (ii) inconsistent messages of emotion.

1.2.1. Multiple meanings in context (MMC)

Multiple meanings have two possible interpretations to a single form, the correct interpretation being dependent upon the context in which the form is uttered. The multiple meanings included in this study are homonyms, multiple meaning phrases and idioms.

Homonyms are single word forms which have two or more different meanings. For example, the verb 'throw' can mean 'to hurl' or 'to confuse'.

Idioms are multiword expressions whose idiomatic meaning cannot be calculated by adding up the meaning of the individual words that comprise them (Abkarian, Jones and West 1990). Examples include 'pull your socks up', 'drive me round the bend'.

Multiple meaning phrases cannot be defined as homonyms or idioms, according to Abkarian et al's (op cit) definitions, because they are two word combinations as

opposed to multi word expressions, which occur within the same phrase, for example 'carried away', 'tied up'.

The context used to resolve the ambiguity in MMC may involve linguistic or non-linguistic knowledge. For example, in the utterance 'I completely threw Emma with that spelling test', the context implies the meaning of 'threw' to be 'confuse', since the idea of physically throwing a child with their spelling test is semantically implausible in relation to life experience.

1.2.2. Inconsistent Messages of Emotion (IME)

In IME, a speaker deliberately creates ambiguity with the intention that the listener will interpret it as contributing to the meaning of the communication. That is, the speaker deliberately contradicts the words in the utterance which convey one emotion, by using a facial expression and tone of voice to create a different emotion. The expectation is that the listener will interpret the facial expression and tone of voice (the non-verbal context) as being discrepant with the words uttered and carrying the intended meaning of the communication. Therefore, in the case of IME, the context both creates and resolves the ambiguity.

There are three types of IME included in the present study:

(i) the non-verbal message expresses anger whilst the verbal message expresses pleasure, for example: 'You really make me laugh, you do' communicated with a tone of voice and facial expression to convey anger;

(ii) the non-verbal message expresses sadness whilst the verbal message expresses pleasure, for example: 'I'm feeling fine thanks', communicated with a tone of voice and facial expression to convey sadness;

(iii) the non-verbal message expresses pleasure whilst the verbal message expresses sadness or anger, for example, 'I'm sorry I broke your tape' or 'I'm just so angry, I'm going to hit you over the head in a minute !', communicated with a tone of voice and facial expression to convey pleasure.

Therefore, although MMC and IME are both forms of ambiguous communication there is a clear difference between them in that in IME the ambiguity is created intentionally in order to contribute to the meaning of the utterance, whereas in MMC it is not. However, the

essential criteria in relation to the argument of the present study is that, in both cases, the pragmatic meaning may be used to resolve the ambiguity.

1.3. THE DESIGN OF THE PRESENT STUDY

The design of the present study is a comparison of SDL D secondary school aged students with their chronologically age-matched peers and with a group of children matched for language age. A test of non-pragmatic meaning comprehension is used to match the groups on language age.

The main aim of the study is to explore differences between the three groups on their ability to understand pragmatic and non-pragmatic meaning, in order to find out whether pragmatic meaning comprehension is relatively more problematic to the SDL D students.

As outlined earlier, pragmatic meaning is concerned with meaning conveyed by context, where there is not a one-to-one correspondence between intention and expression (Bates, 1976; Leech, 1983). Non-pragmatic meaning, on the other hand, involves expression matching intention in a one-to-one correspondence, where there is no influence of context.

A direct comparison between the understanding of pragmatic and non-pragmatic meaning is possible because the language measure used is a test of non-pragmatic meaning (single word comprehension presented out of context). Further, comprehension checks are made to ensure that youngsters have a sufficient understanding of non-pragmatic meaning relating to the MMCs and IMEs included in the experimental measures; that is, that they are able to understand the meaning of the multiple meaning items and the messages contained in the IMEs, when they are presented in a non-ambiguous context.

1.4. POTENTIAL IMPLICATIONS OF THE STUDY

It has already been suggested that there are a number of implications arising from the possibility of finding that SLDL children have significantly greater difficulties in understanding pragmatic meaning than non-pragmatic meaning and these are outlined in further detail below.

1.4.1. Implications for Descriptive and Theoretical Accounts of Language

In descriptive and theoretical accounts of language and language disorder, there has been a question raised over

the need to view pragmatic meaning separately from semantics (Chomsky 1975; Gibbs, 1984) because of the interrelation between these areas of language meaning. This argument will be explored more fully in the literature review, but at this point it should be noted that this issue relates to the hypothesis of the present study, that SLD students will have more difficulty in understanding pragmatic meaning than non-pragmatic meaning, because non pragmatic meaning can be located within the field of semantics.

The tendency to view semantics and pragmatics as necessarily co-occurring has also been reflected in the diagnostic term 'semantic- pragmatic language disorder', which was first described by Rapin and Allen's (1987) classification of childhood language disorders. Of interest here, is the inclusion of the term 'semantics', even though the kinds of features included in this diagnosis, such as 'makes literal interpretations', 'is poor at making inferences', 'fails to comprehend non linguistic features', 'fails to interpret language pertinent to situational context' (Cullodon, Hyde-Wright and Shipman, 1986) would, according to the descriptions of a number of authors, for example, Bates (1976), Leech (1983), McTear and Conti-Ramsden (1992), clearly fall

within the pragmatic domain of language, and in particular, the comprehension of pragmatic meaning.

McTear and Conti-Ramsden (op cit) suggest that the main problem of pairing semantics and pragmatics together in this way is that it obscures the differences between them. One of the chief differences outlined by these authors is that at the pragmatic level it is possible for an utterance to mean more than it says in a literal sense; this point has already been illustrated in describing the comprehension of ambiguous communication.

If the results of the present study show significant differences in the comprehension of pragmatic and non-pragmatic meaning, this would further suggest the need for pragmatics to be considered separately from semantics, albeit, as will become evident in subsequent chapters, impinging upon all areas of language.

Further, examining how the different student groups respond in comprehending IME and MMC may shed light on the particular processes involved in pragmatic meaning comprehension.

1.4.2. Implications for Diagnostic Assessment

If difficulties in comprehending pragmatic meaning are comparatively greater than comprehension difficulties in other language areas or if they can exist whilst comprehension in other language areas remains intact, the need for diagnostic assessment in this area is clearly identified.

The implications here are particularly strong because of the present paucity of suitable material available to assess difficulties in the comprehension of pragmatic meaning.

Assessment materials developed in the U.S.A. have included subtests on understanding ambiguity, mainly focussing on idiomatic expression, for example: Test of Language Competence, (TLC), (Wiig 1988); Clinical Evaluation of Language Function, first edition (Wiig, 1986), Fullerton Language Test for Adolescents (Thorun, 1986). However, these tests contain only a limited number of examples, some of which are not used in British English, for example, 'I like the new pitcher (baseball player/earthenware vessel)'.

More importantly, in terms of the argument of the present study, examples are presented out of context (Fullerton test). This prevents exploration of the child's ability to use a contextual pragmatic strategy to help them to understand the idiom. In the TLC's ambiguous sentences subtest, multiple meaning words are presented in context, but both of the meanings are equally plausible so that the use of a pragmatic strategy to ascertain the speaker's intended meaning cannot be examined.

Furthermore, the material format used in these assessments, for example, oral or written passages with multiple choice answers (TLC, ambiguous sentences subtest) or requests for children to explain meanings (Fullerton test; TLC figurative language subtest) place a heavy demand on auditory short term memory and expressive language skills. This obscures examination of the comprehension of ambiguity for many children with specific language disorder, who experience deficits in skills of expressive language and short term memory (Menyuk, 1978; Cromer, 1987; Gathercole and Baddely, 1990).

1.4.3. Implications for Education

Again, there would be strong implications here bearing in mind the paucity of teaching materials available in this area and the frequency with which ambiguous utterances occur in everyday communication; for example in joke-telling (Shatz and Horribes 1974), idiomatic expression (Ackerman 1982, Cacciari and Levorato, 1989), sarcastic comment (Capelli, Nakagama and Madden, 1990) and inference of lying (Rotenburg, Simourd and Moore, 1989).

The need to develop effective teaching approaches is further emphasised by evidence outlined earlier in this chapter to show an expectation that youngsters in the later primary and secondary school years will understand pragmatic meaning. A further example here is Nippold's (1991) finding that in three reading programmes developed for 8 to 13 year olds, an idiom occurred in 6.7% of all sentences.

In the next chapter, a review of the literature will provide further background information on areas relating to the points raised above and will cover, in greater detail, the issues relating to the central argument of the study. This will involve examination of related studies

on children who have language disorder and on children and adults who are not language impaired.

CHAPTER 2. LITERATURE REVIEW

2.1. INTRODUCTION

The aim of this literature review is to provide an account of current knowledge relating to the various facets of the central interest of the present study; the possibility that pragmatic meaning comprehension is particularly problematic in relation to non-pragmatic meaning comprehension, in later stages of communication development, for secondary school students with specific developmental language disorder (SDLD).

This issue will be examined within five parts of the present chapter. In each part of the chapter, general points will be covered relatively superficially with the aim of clarifying the focal areas which will then be dealt with in more detail.

The first part will provide an account of the nature of language, in order to locate pragmatic and non-pragmatic meaning within the field of study. This account will therefore focus on the verbal and non-verbal aspects of language which contribute to an understanding of what is

meant by pragmatic and non-pragmatic meaning, rather than a detailed examination of language in its entirety. Similarly, it will focus on that aspect of pragmatics concerning meaning and will not include other aspects studied within this field, such as aspects of discourse organisation, which do not have a bearing on the argument of the present study. This account will also include an examination of the relationship between pragmatics and other aspects of language and will identify pragmatics as involving skills in the areas of linguistic, cognitive and social development. (Roth and Spekman, 1984; Bates, 1976).

The second part of the chapter will focus on the two kinds of communication which have been selected to illustrate pragmatic meaning comprehension in the present study, that is, inconsistent messages of emotion (IME) and multiple meanings in context (MMC). There will be an exploration of processes involved in understanding these forms of ambiguous communication, in relation to the accounts of language outlined in part one of the chapter.

The chapter will then examine, in its third part, the development of the comprehension of ambiguous communication, with a focus on IME and MMC, in children

whose language is developing normally. The particular interest here will be to explore and explain difficulties that younger children have, to give further insight into the linguistic, social and cognitive processes involved in understanding ambiguity. This account will provide a framework for examining potential difficulties that SLD students may have with pragmatic meaning comprehension.

At the end of this part of the chapter, having considered the literature reviewed in the first three parts, I will propose a model that I have developed to describe the processes involved in interpreting IME and MMC and to account for the kinds of responses made by children and adults in the normative studies reviewed.

The fourth part of the chapter will begin by reviewing the literature on what is meant by the diagnosis of specific developmental language disorder (SDL) and will explore current knowledge on the nature and effects of this kind of disorder at secondary school age. This will include an outline of current diagnostic issues.

This part of the chapter will then examine the relatively limited study on SLD students' comprehension of ambiguous communication, in particular IME and MMC. The

focus here will again be on the secondary school age group to reflect the central interest of the study.

Part four of the chapter will also refer to some studies on the pragmatic comprehension abilities of adults who have acquired language disorders as a result of identified brain lesions. In the introduction to this study, it was noted that caution has to be exercised in relating findings about acquired language disorder to the developmental condition; for example, although acquired language dysphasias have been associated with left hemisphere dysfunction (Broca, 1861; Wernicke, 1908), as yet no such localisation of dysfunction has been possible in cases of developmental language disorder (Robinson, 1992). However, the purpose of including accounts of adult performance is that the evidence linking right hemisphere dysfunction with pragmatic meaning comprehension indicates that in acquired forms of language disorder at least, pragmatics can be significantly impaired in relation to other aspects of language comprehension. This clearly has relevance to the central argument of the present study.

The final part of the chapter will draw together the insights gained in the previous four parts, with particular reference to considerations which will be relevant when examining the findings of the present study.

Implications for the methodology of the present study arising from the literature review will be outlined throughout the chapter, however, a final section will also be included to summarise these methodological considerations.

To conclude, there will be an overview of key issues in relation to the central argument of the present study, that SLD students, at secondary school age, and thus in the later stages of communication development, will have greater difficulty comprehending pragmatic meaning than non-pragmatic meaning, in comparison with non-language-impaired children. The research questions posed by the study around this hypothesis will then be presented.

**2.2. A DESCRIPTIVE OVERVIEW OF LANGUAGE:
LOCATING PRAGMATIC AND NON-PRAGMATIC
MEANING.**

2.2.1. A Definition of Language

Bloom and Lahey (1978) define language as 'a knowledge of a code for representing ideas about the world through a conventional system of arbitrary signals for the purpose of communication' (page 23). The first part of this chapter will explore the nature of that conventional system of arbitrary signals.

2.2.1.A. Language as a System

Human language is defined as a system, because it is based on a system of rules, which state what is permissible in any particular language spoken by a group or nation. The analysis of human language is made with reference to these rules. This review will later explore the kinds of rules involved in understanding pragmatic meaning and will show how the acquisition of such rules requires a complex integration of linguistic, cognitive and social knowledge (Roth and Spekman 1984).

2.2.1.B. Language as a Convention

There is a conventional aspect to human language in that it can be changed or developed by those who use it, an example being 'fashionable' words or gestures which can be used more or less frequently by different groups according to, for example, age or culture.

The notion of language as being determined by the way people use it is of importance in appreciating the essence of pragmatic language, since the interest here is in how the speaker uses all of the signals available to communicate a variety of intentions (Bates 1976) and how the listener interprets those intentions.

2.2.1.C. The Arbitrary Signals of Language.

The signals of language are the forms used to represent the meaning to be conveyed. They are arbitrary because (with few exceptions, for example, onomatopoeic words such as 'quack' and some forms of gesture) there is no intrinsic link between the signal and the meaning.

2.2.2. A Descriptive Model of Language

In order to study and describe the kinds of signals available in communication and to examine the rules operating in an individual's language (that is, the individual's language system) it is useful to have a model on which to organise the data and base the analysis. One such model was outlined by Bloom and Lahey in 1978 (figure 2.1). This model outlines language knowledge as an integration (marked A to D in figure 2.1) of language form, content and use. In summary, language form is the acoustic or phonetic shape of the signals; language content is the categorisation of the topics or the ideas encoded into signals, such as a reference to an object, action or a relation; language use is the goal or function of using those signals.

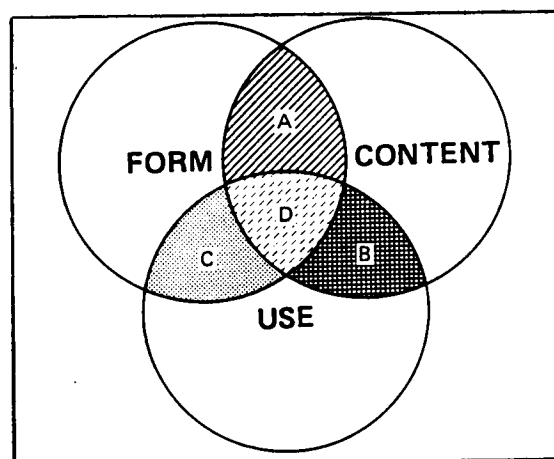


FIGURE 2.1. The interaction of form/content/use in language (Bloom and Lahey, 1978).

For example, in communicating an utterance, such as 'lock the doors', the form comprises the units of sound and morphemes (including words and grammatical markers) and the way in which they are combined; the content includes a reference to an object and an action; the use of the utterance is to convey an instruction.

Bloom and Lahey's (1978) model was developed to look at verbal language, that is, containing verbal signals in the form of spoken or written words. However, it also has application in describing non verbal language, containing non-verbal signals, in the form of, for example, a gesture, facial expression or tone of voice, because, as will be shown below, non verbal signals can have language content and serve a language function.

This review will now therefore examine the literature on the nature of non verbal and verbal signals, focusing on aspects which have a particular relevance to the two kinds of communication of particular interest to the present study, inconsistent messages of emotion (IME) and multiple meanings in context (MMC).

2.2.3. Non-verbal Signals of Language

Although non-verbal signals can fall outside the domain of language (Buck, 1984) and occur simply as an external manifestation of an internal state, the present study's interest is with non-verbal signals which involve an intention to convey a meaning and therefore do carry a linguistic function.

The main focus of study into this linguistic function of non-verbal signals appears to have been in ascertaining the validity of various forms, by examining the consistency of their meaning in communication. These studies have been concerned with the kind of meaning which has been described in this study as non-pragmatic meaning, because they are concerned with simulated facial expression and tone of voice presented out of context and concern a one-to-one correspondence between signal and meaning.

One area where there have been consistent findings across studies is in the field of emotional expression by the face and tone of voice; the two types of non-verbal signal outlined earlier in this study as being chiefly

involved in the expression and comprehension of IME and MMC.

Ekman (1982) and Izard (1971), for example, gathered evidence to support Sylvania Tomkin's (1962) hypothesis that there is a set of 'primary affects' associated with a specific and universal facial display. In their studies, photographs of posed facial expressions were shown to groups of adults from between five and nine different countries, who selected from a list of emotional terms the one that best described each facial expression. The results indicated that there were distinctive facial expressions for six emotions labelled in the same way, regardless of culture, as anger, happiness, sadness, fear, surprise and disgust. These findings were replicated in a study by Winkelmayer, Exline, Gotheil and Paredes (1978) who showed motion pictures (as opposed to posed photographic expressions) to American, British and Mexican adult subjects.

These two studies imply cultural similarities in the way the six emotions outlined above are conveyed and recognised by facial expression. Trower, Bryant and Argyle (1978) also note that facial expressions are very similar in all cultures, although there are different

rules on how freely they can be used. The issue of cultural variation in the interpretation of pragmatic meaning will be referred to again later in this chapter and in outlining the method of the present study.

In a review of studies of vocal affect expression which included study of how American, British, Japanese, German and Dutch subjects judged emotions conveyed by tones of voice, Scherer (1986) reported consistent findings on the acoustic properties of the following four emotions.

(i) joy/elation (increased fundamental frequency mean (indicator of pitch), range and variability; increased vocal intensity and rate);

(ii) sadness/dejection (decreased fundamental frequency mean and range; decreased vocal intensity and rate);

(iii) rage/hot anger (increased fundamental frequency mean, range and variability; increased vocal intensity and rate);

(iv) fear (increased fundamental frequency mean, range variability and perturbation; increased rate).

It is clear that the range of parameters used were insufficient to measure the different tone of voice qualities, for example, to discriminate between joy and rage. However, as Scherer points out, the consistency across the thirty nine studies reviewed was impressive and indicates a good deal of convergence across the cultures included.

Although the above studies deal with non-pragmatic meaning, it will be shown later in this part of the chapter that non-verbal signals can contribute contextual information and therefore can be used to convey pragmatic meaning. In part two of the chapter, which examines the processes involved in comprehending ambiguous communication, this use of non-verbal signals will be illustrated further in exploring the communication of IME and MMC.

To summarise and conclude, referring back to Bloom and Lahey's (1978) model, which describes an interaction of language form, content and use, it can be seen that non verbal signals such as tones of voice and facial expressions are made in consistent forms (particular facial configurations/vocal parameters) to convey content relating to emotion. It will be shown later in this part

of the chapter that the communication of these forms can also serve a pragmatic contextual function, located within Bloom and Lahey's component language use.

The next two sections will also show that the comprehension of pragmatic meaning involves a need to consider a number of aspects of verbal language. Section 2.2.4. will provide an introductory outline of the different components of verbal language; section 2.2.5. will focus on what is meant by pragmatics and its relation to both verbal and non-verbal components of language.

2.2.4. Verbal Signals of Language: An Introductory Overview

Bloom and Lahey's (1978) model has already been outlined as a way of analysing verbal and non-verbal signals. Another method of analysing verbal language, which has been applied by linguists such as Crystal (1987), is in terms of the linguistic levels of phonology, syntax and semantics.

In order to appreciate the overlaps and differences between these linguistic terms and Bloom and Lahey's

terms of form, content and use, the two methods for analysing verbal signals are considered together below.

2.2.4.A. Phonology and Grammar

Applying Bloom and Lahey's (1978) model to the verbal signals of language, language form relates to the acoustic/phonetic shape and combination of (i) individual sound segments or phonemes and (ii) meaning bearing units including words and grammatical markers, such as possessive marker ['s].

Crystal's (1987) linguistic model for organising and analysing verbal language data separates these two aspects of form into two different components of language structure, (i) the system, comprising phonetics and phonology and (ii) grammar.

The phonology of language involves study of how individual sound segments or phonemes are organised. Phonological rules specify the combinations of phonemes possible for a language including how they may be contrasted to signal meaning. Applying Bloom and Lahey's model, there is clearly an interaction at the phonological level of language among language form,

content and use, since the phonetic and acoustic properties of individual sound units are combined and used contrastively in order to signal meaning.

The grammar of language involves the study of word structure and sequence, that is, the way in which words and grammatical markers signalling meaning (morphemes) are combined to form larger units such as phrases, sentences and clauses. The grammar of language clearly relates to Bloom and Lahey's form of language, although accounts of grammar do necessitate some reflection on content, for example in determining a morpheme as a minimum meaning-bearing unit.

2.2.4.B. Semantics

Crystal's third component of language structure is semantics, the study of the way in which meaning is organised in language. Considering Bloom and Lahey's (1978) three language components, language content and aspects of language use both relate to language meaning. Language content is conceived in terms of topics that are represented in particular messages, where the topic is an idea such as a reference to an object, action or

relation. It is this kind of meaning which has been called 'non-pragmatic meaning' in this study.

There is an aspect of meaning however, which Bloom and Lahey (op cit) outline as part of their component language use, where there is not a straightforward reference between a language form and its meaning and which is concerned with 'the influence of linguistic and non linguistic context that determine how individuals understand and choose among alternative forms of language for reaching the same or different goals' (page 19).

Bloom and Lahey's (op cit) distinction of this latter aspect of meaning, associated with language use, has been highlighted by other linguists who have attempted to explain meaning in language by explaining the process of communication as opposed to focusing on word or sentence meaning (Kempson (1979)). It is this perspective on meaning which some models of language consider separately from semantics and term pragmatics.

Crystal (1987), for example, outlines pragmatics as a separate component to language structure (phonological system, grammar and semantics) which includes "assumptions that people make when they communicate, the

intention underlying what they say, the way context influences the amount they say or the way they say it..." (page 49).

The pragmatic perspective on meaning thus involves explanation of how words and sentences are used and interpreted in the act of communication, but, as already indicated by Bloom and Lahey's (1978) description, unlike explanations of meaning that focus on the word and the sentence, it is not restricted to verbal signals. It is this aspect of meaning which forms the focal interest of the present study and will therefore now be explored in further detail.

2.2.5. The Pragmatic Perspective on Meaning

Since the pragmatic perspective on meaning essentially involves that part of language that is 'for communication' a good starting point for exploring this perspective is with the nature of the communication process itself.

**2.2.5.A. The Process of Communicating Verbal
and Non-verbal Signals of Language**

In 1973, Denes and Pinson outlined a model of communication called 'The Speech Chain' which showed the series or 'chain' of events which take place in communicating a verbal message. An extension of this model, which I proposed in 1992, is outlined in figure 2.2, with an illustration of how the model can be extended to account for communication of non-verbal messages.

The content of the message is encoded by the speaker into language form at the linguistic level. In the verbal route of communication this encoding involves selection and combination of morphemes (including words and grammatical markers), phrases, sentences and clauses; in the non-verbal route it may involve selection and combination of, for example, gestures, facial expressions and tones of voice. The language is then communicated, at the physiological level, by voice and speech musculature (verbal and non-verbal (tone of voice) route) and facial/body musculature (non verbal route). At the acoustic level any sound in the communication is transmitted in the form of pressure changes in the air

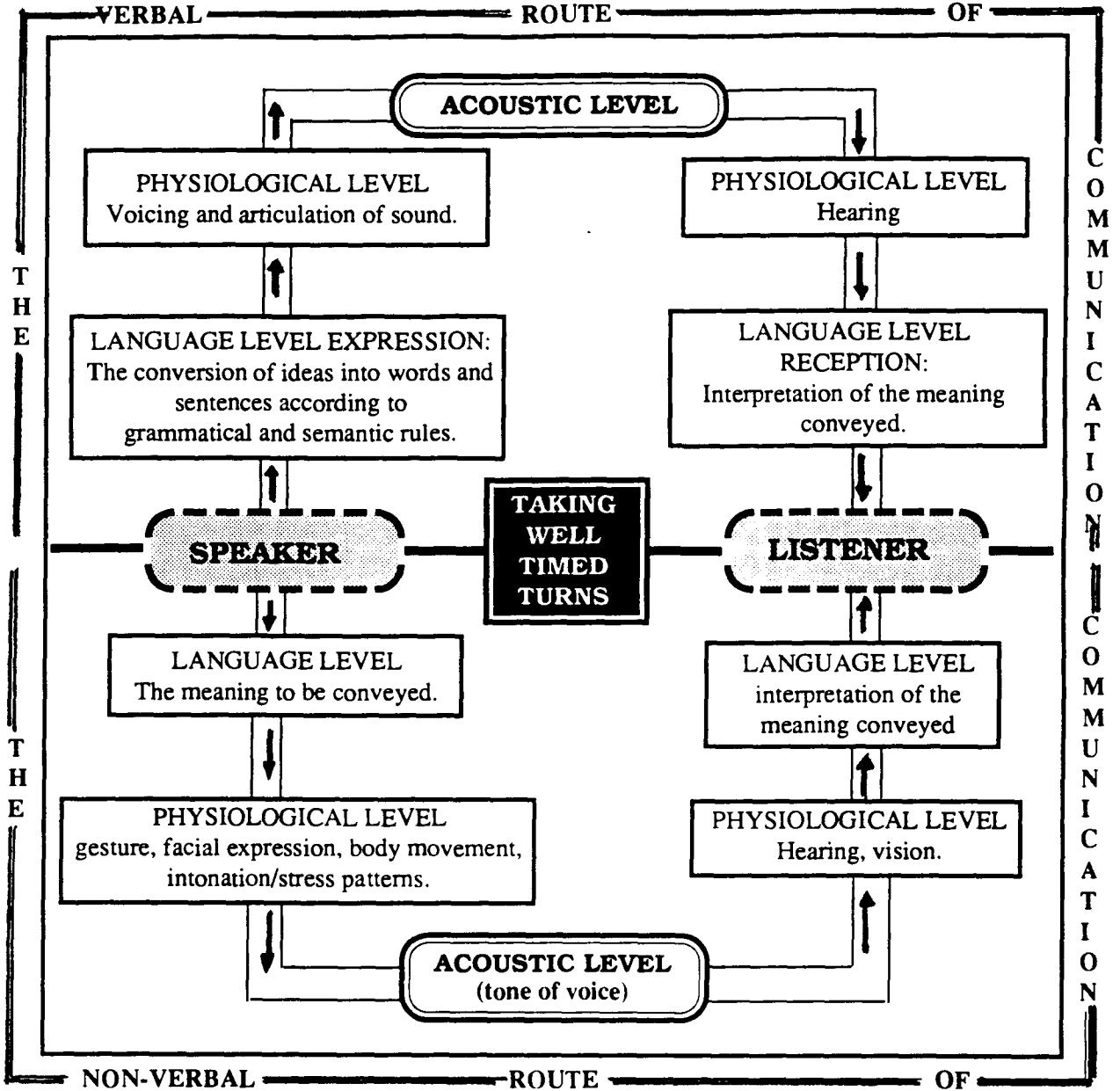


FIGURE 2.2. The interactive process of communication (Rinaldi, 1992)

(sound waves). The listener perceives the sound or visual communication at the physiological level and interprets the communication at the linguistic level.

The communication process, therefore, includes all the language components outlined in section 2.2.4 above, but it is distinct from the language process in that it necessarily involves a speaker listener interaction and is therefore essentially a social enterprise (Bonitatibus, 1988). This social emphasis can also be applied to pragmatic language, and therefore pragmatic meaning, since it is concerned necessarily with the act of communication, unlike any other aspect of language or indeed any other aspect of language meaning.

2.2.5.B. Distinguishing Pragmatic Meaning from Semantics

The hypothesis of the present study is based on the premise that pragmatic meaning is distinguishable from other aspects of meaning. This premise has been argued by a number of authors, most directly perhaps by Levinson (1983), who defined pragmatics as "meaning minus semantics".

One of the earliest writers to differentiate pragmatic meaning from other aspects of language meaning was Morris, who in 1938 outlined semantics as the relation of signs to the objects to which they are applicable and pragmatics as the relation of signs to 'interpreters'. This need for interpretation reinforces the suggestion made earlier in this chapter that pragmatic accounts of meaning do not involve a one-to-one correspondence between sign and representation. This viewpoint is also expressed in McTear and Conti-Ramsden's (1992) attempt to differentiate semantics from pragmatics: 'semantics is concerned with those aspects of meaning that are conventional - for example, the literal meaning of words and sentences. Pragmatics, in contrast, is concerned with those aspects of additional meaning that can be read into sentences without actually being encoded in them' (page 28).

This theme is further evident in Leech's (1983) distinction between semantics and pragmatics which he traces to two different uses of the verb 'to mean'. He suggests that semantics deals with meaning as a dyadic relation as in 'what does X mean', while pragmatics deals with meaning as a triadic relation as in 'what did you

mean by X'. This triadic relation was first captured by speech act semantic theory in the 1960s (Austin, 1967).

The central insight of speech act semantics is that we use language to do things. Austin (op cit) suggested that in uttering a sentence, a speaker is generally involved in three different acts. *The locutionary act* is the act of uttering a sentence with a certain meaning, *the illocutionary act* is the use of the utterance, for example, to praise, instruct, agree and *the perlocutionary act* is the effect the speaker aims to achieve on the listener.

It has already been indicated that Bloom and Lahey's 1978 distinction between the content and use of language may be seen as relating to the semantic - pragmatic distinction. The content of language being conceived in terms of topics that are represented in particular messages, where the topic is an idea such as a reference to an object, action or relation, relates to those aspects of meaning where there is a one-to-one correspondence between signal and its representation, that is, non-pragmatic meaning. The component of language use relates to pragmatic meaning because it is conceived as comprising the goals of language, as outlined by

Austin's speech acts, and because it is concerned with the influence of linguistic and non-linguistic context on how individuals understand and choose among alternative forms of language.

Considering Austin's and Bloom and Labey's work together, the locutionary act could be envisaged as representing the non-pragmatic meaning of the utterance, that is, that represented by its form and content. The illocutionary and perlocutionary force of the utterance are concerned solely with the use of language and its pragmatic meaning, an understanding of which helps the listener to make a choice between alternative forms, in line with speaker intention.

In summary, the literature reviewed so far implies three aspects which distinguish pragmatic meaning:

(i) it is dependent upon the form and content of all the signals of language, both verbal and non-verbal;

(ii) there is an indirect correspondence between utterance form and meaning which is therefore open to interpretation and requires some kind of choice on the part of the listener, not only on the content of the

alternative forms, but also on what the speaker is trying to achieve in making the utterance;

(iii) it is concerned with linguistic and non-linguistic context.

This review will now explore further this third aspect of pragmatic meaning.

2.2.5.C. The Role of Context in the Communication of Pragmatic Meaning

Craig (1983) emphasises the prioritisation of contextual information in accounting for the pragmatic view of meaning, as do Rae Smith and Leinonen (1992) who define pragmatics as 'the study of how expressions of meaning by humans gain significance in context and use' (page 27 - 28). Their differentiation between pragmatics and semantics as 'contextual' and 'decontextual' meaning also reflects this emphasis.

The diverse nature of context is outlined by Ochs's (1979) classification which incorporates:

(i) the verbal environment, to include both verbal signals such as choice of vocabulary and signals which have been described in this chapter as non-verbal, such as dialect;

(ii) the physical environment, to include aspects about the listener, speaker and location.

Because of the diverse nature of context, it is clear that pragmatic accounts of meaning may go beyond the verbal message and beyond the domain of language itself. This is illustrated by the 'open window' example described below (Bates, 1976), which considers all of these aspects of context, including those which are non-linguistic, as impinging upon the pragmatic domain of language.

Bates (1976) goes so far as to equate pragmatics with 'language in context', an area of language which develops from the relationship between content and use which 'permits us to do many things with language operating simultaneously at different levels'. Bates (op cit) illustrates this point with the example of a question 'Is the window open?'. The content of the question is a proposition formed by a predicate and one argument : OPEN

(window). At one level the speaker is using language to ask for information, but at another level, in a context where the speaker is uncomfortably cold, the question may also be used as a request to close the window.

Bates' example indicates that the 'levels' she refers to are in line with Austin's speech acts. The question 'Is the window open ?' has a locutionary force relating to the content of the utterance, an illocutionary force of asking for information and a perlocutionary force of an expectation that the listener will close the window.

Bates' example also illustrates the function of context on meaning. In order to interpret the meaning at the different levels in the way the speaker intends, the listener of the sentence needs to have knowledge of the context in which the sentence is uttered, for example, be able to experience the temperature in the room and to see the speaker's discomfort. Further, there has to be a joint understanding between speaker and listener of the rules of the language concerning how the context may contribute to the linguistic content of the message.

This aspect of the use and interpretation of communication is further exemplified by Grice's (1975)

co-operative principle which he outlined as a general agreement of co-operation between speakers and listeners in communication. This consisted of a number of maxims which specify the convention which participants in a conversation should and normally do obey. The maxims concern (i) the quantity of communication (make your contribution as informative as required); (ii) the quality of communication (do not say what you believe to be false or for which you lack adequate evidence); (iii) the relevance of communication and (iv) the clarity of communication (avoid obscurity and ambiguity).

Grice (op cit) noted that there are times when speakers deliberately flout the maxims to achieve a purpose in communication and, in doing so, make assumptions over and above the meaning of the sentence used, which they intend the listener to make in order to interpret the message in accordance with the co-operative principle. The example that Grice gives to illustrate this, is in terms of flouting the maxim of quantity in giving a reference for a job applicant. Here, it is possible to express the unsuitability of a candidate by giving only a brief reference. The description of inconsistent messages of emotion made in part 2 of the chapter will provide an example of how the maxim of clarity may be deliberately

flouted to create ambiguity, which the speaker intends the listener to perceive and interpret as part of the communication.

In deliberately flouting the rules of co-operation, the speaker thus expects the listener to interpret, not the language itself, but the speaker's manipulation of it. Therefore, in order to understand pragmatic meaning, before the listener is able to make a choice on speaker intention, they must be aware of how speakers use context, both linguistic and non-linguistic, to convey their true meaning. This kind of expectation calls upon an awareness of the rules governing the use of language within the process of communication. This aspect of communicative awareness is explored further below, in considering the role of metacommunication in interpreting ambiguous communication.

2.2.5.D. Metacommunication and Pragmatic Meaning

Introduction

Van Kleeck (1982, 1984) first defined metalinguistic skills as 'the ability to reflect consciously on the nature and properties of language'. Metacommunicative

skills also involve conscious reflection, but, unlike metalinguistic skills, consider messages within the context of conversation and serve to negotiate the context in which a particular utterance is to be interpreted.

Van Kleek (1984) identifies particular instances of metacommunication as including, for example, whether or not the message is to be interpreted as a joke, seriously or ironically: she notes that these kinds of messages are conveyed simultaneously with 'a linguistic message by non linguistic means' (page 131). These types of messages will be illustrated further in part 2 of this chapter, in describing the two forms of ambiguity of interest to the present study.

Given the descriptions outlined by Van Kleek (op cit), the involvement of metacommunicative skills can be seen as central in comprehending pragmatic meaning, since the intentionality is not explicit here. For example, if an individual does not have an awareness of a distinction between intention and expression, they will fail to perceive intention where there are discrepancies between expression and intention or where intention is not

explicitly expressed by the speaker but inferred by the context (as in the case of IME and MMC).

Processes Underpinning Metacommunicative Abilities

Since the role of metacommunicative skills appears central in understanding ambiguity, it is of interest to the present study to explore the processes underlying metacommunicative abilities, since such processes may form a basis for discussing possible explanations for difficulties in pragmatic meaning comprehension.

Meline and Bracken (1987) consider, in particular, the nature of the cognitive processes underlying metacommunicative abilities to include coordination of two dimensions outlined by Bialystock and Ryan (1985) as 'analysed knowledge' and 'cognitive control'.

Analysed knowledge involves the structuring and classification of specialised knowledge including the ability to make inferences. This analysis is responsible for the knowledge of rules of language and at the extreme of this component is the verbalisation of rules, that is, the ability to say what you know about the rules of language. This implies that there may be an ability, at

some level of the component, to know about the rules of language in the absence of an ability to say that you know. This has implications for the methodology of the present study, since the interest here is to explore childrens' knowledge of pragmatic rules and not their ability to describe or explain them.

Cognitive control involves the selection and coordination of information and is responsible for (i) knowing what information is required; (ii) retrieving or accessing that information and (iii) coordinating information into a solution. According to Meline and Bracken, this dimension is involved in shifts of attention between the meaning of a linguistic message, which is more salient, to its form and context. Later in this chapter it will be shown that in order to interpret both IMEs and MMCs it is necessary to make these kinds of shifts.

Since communication is necessarily a social activity, metacommunicative knowledge also requires knowledge in the socio-cognitive domain, that is, the knowledge and cognitive processes involved in perceiving and interpreting the social world (Ostram, 1984). This kind of knowledge has already been illustrated by Grice's co-operative principle (1975) and features in Rae Smith and

Leinonen's (1992) view of pragmatics. Rae Smith and Leinonen see pragmatic knowledge as involving two aspects: a pragmatic component, concerned with metacommunicative knowledge, which allows an individual to 'be pragmatically able' and also factors influencing the pragmatic component, which enable the individual to 'feel or be allowed to be pragmatically able'. The influencing factors include (i) environmental factors, relating to, for example, previous communication experiences and the communication partner and (ii) within-person factors, including anxiety, self confidence and motivation.

These kinds of influences are also incorporated into a model exploring one kind of metacommunicative skills, comprehension monitoring, which is illustrated in the next section.

An Example of Metacommunication : The Role of
Comprehension Monitoring in Comprehending Pragmatic
Meaning

One kind of metacommunicative skill which would appear to play a part in understanding ambiguous communication is the skill of comprehension monitoring, outlined by Bonitatibus (1988) as 'the ability to determine if and how well one has understood a linguistic input'.

In the introduction to this study reference was made to Cacciari and Levorato's (1989) finding that children developing language are able to use a contextual, pragmatic strategy to help them to understand idioms . It may be proposed, based on the descriptions outlined by Bates (1976) that the context alerted the children to a need to seek an alternative representation to the literal meaning of the lexical items. Without the ability of comprehension monitoring, an individual would be unable to see the need to seek an alternative representation to the only one available.

Dallagher (1987) proposes a number of ways in which a listener may fail to detect a comprehension problem, outlined in figure 2.3.

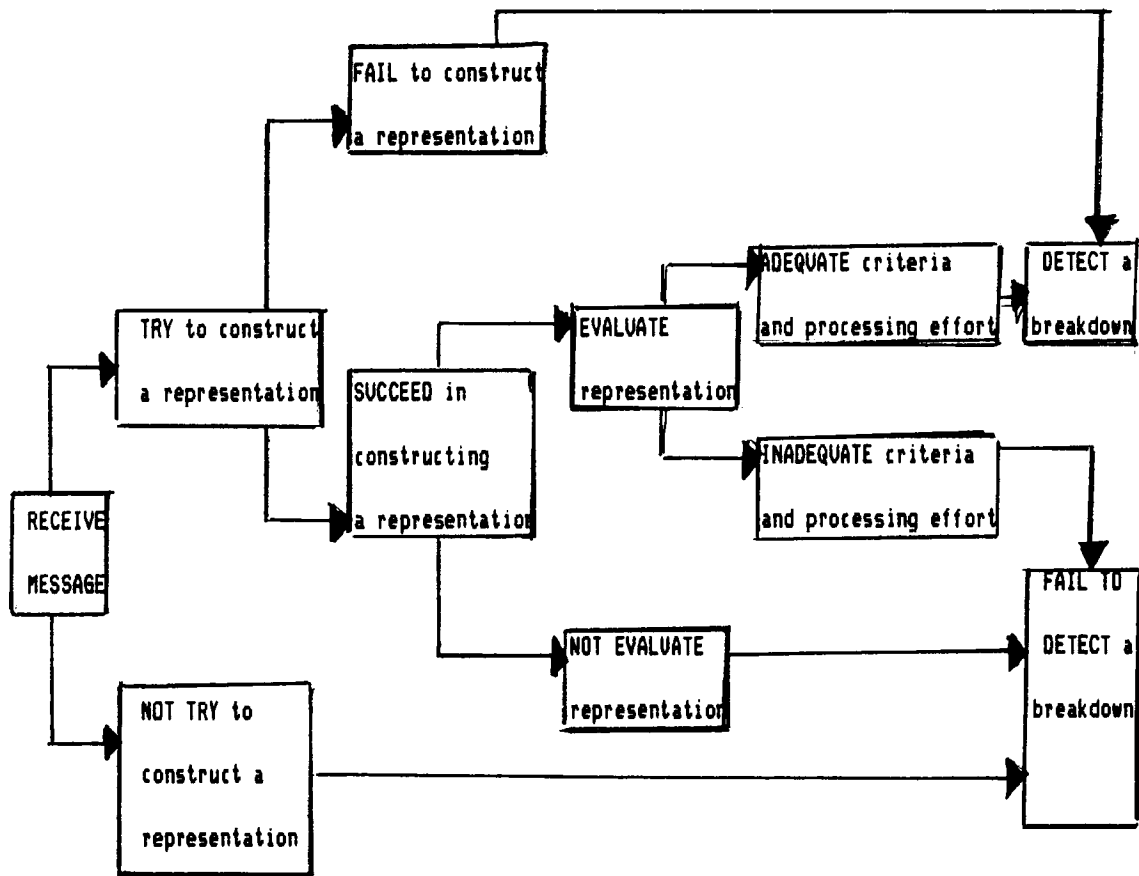


FIGURE 2.3. A model of the various paths by which a listener may detect or fail to detect a comprehension problem (Dallagher, 1987).

This model shows a number of stages in the detection of a comprehension problem which complement the stages of cognitive control (Bialystock and Ryan, 1985) outlined earlier. The model identifies that listeners first need to be alert to the message and to try to construct a representation; having made the attempt (which may or may not be successful) they need to evaluate this representation in order to detect a comprehension problem. This evaluation requires a level of processing and effort. Difficulties with comprehension monitoring can therefore occur as a result of breakdown in a number of ways.

In the first instance, the listener may 'tune out' the message or not pay sufficient attention to it to be aware that they do not understand it; in the second instance, they may construct a meaning interpretation but fail to detect a comprehension problem because the representation may not be the one the speaker intended. Here, because the listener does not realise a possibility of a second meaning, (s)he does not evaluate message adequacy.

Listeners who do decide to evaluate message adequacy need to apply sufficient effort and to know the appropriate criteria. The nature of such criteria will be examined in depth at the end of part three of this chapter in

exploring the difficulties that young non-language-impaired children have in understanding ambiguous communication and will be shown to involve social, cognitive and linguistic knowledge. For example, the influence of linguistic knowledge on comprehension monitoring is indicated by Peterson, Danner and Flavell's (1972) findings that four year-old children did not understand the word 'understand'. They equated the word with 'hear' and were unaware of its perlocutionary force, that is, the expectation that the utterance may be clarified. Such a finding may be a further reflection of the lack of knowledge of a distinction between saying and meaning, that is, 'I hear what you say but I don't understand what you mean.' (Robinson, Goelman and Olson, 1983)

The inclusion of 'sufficient effort' in Dallagher's (1987) model provides support for considering 'person' influences on the skill of comprehension monitoring; in this instance, relating to the individual's motivation in the communication and the ease with which they are able to apply the necessary linguistic/social/cognitive criteria.

To summarise, the literature reviewed so far indicates that pragmatic meaning comprehension involves skills in a number of different domains, including perception, cognition, language, social awareness and factors of personality such as motivation and effort. These areas will be explored further in parts 2 and 3 of this chapter.

The review of the literature will now focus on the issue concerning descriptive and theoretical accounts of language, in particular, the need to consider pragmatics separately from semantics.

2.2.6. **The Interrelation between Language
 Components and the Validity of the Semantic
 -Pragmatic Distinction in Relation to the
 Present Study.**

2.2.6.A. **The Interrelation between Language
 Components**

The models of language outlined so far in this chapter have made distinctions between the components of grammar, semantics and pragmatics (or content, form and use) with the purpose of analysing and understanding the different

dimensions which exist within language. The interaction between these components is however emphasised (Macnamara 1972, Bloom and Lahey 1978, Butterworth, 1980, Craig 1995). Macnamara states that 'meaning and the linguistic code are best treated as though they were elements of a compound...not usually experienced separately, although they are distinguishable' (page 3). Later in this chapter, it will be shown, for example, how, in the interpretation of MMC, the contextual information used to resolve the ambiguity may include a knowledge of both semantic plausibility and syntactic congruity.

The interaction between language components in theoretical approaches is a focus of a recent chapter by Craig (1995). She argues for a shift from a modular approach (figure 2.4) where pragmatics is viewed as a 'conversational analog' to phonology, syntax, morphology and semantics and where there is an emphasis on the independence of pragmatics from other linguistic systems.

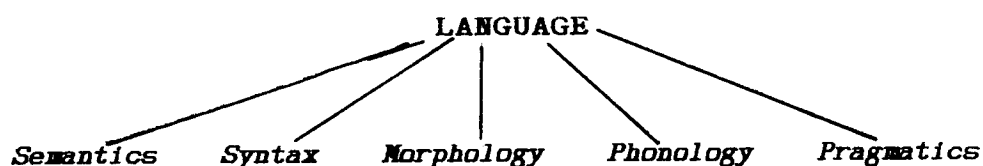


FIGURE 2.4. A modular approach to describing pragmatics (Craig 1995).

As an alternative, Craig (op cit) proposes a functionalist approach where 'Rather than conceptualising pragmatic rules as a system in parallel to other linguistic systems, pragmatics can be viewed as an additional system of patterns that establishes linkages between linguistic forms and discourse functions' (page 631). This view, summarised in figure 2.5., sees pragmatics as a process of mapping forms (such as words and grammar) onto the functions or purpose of communicating these forms.

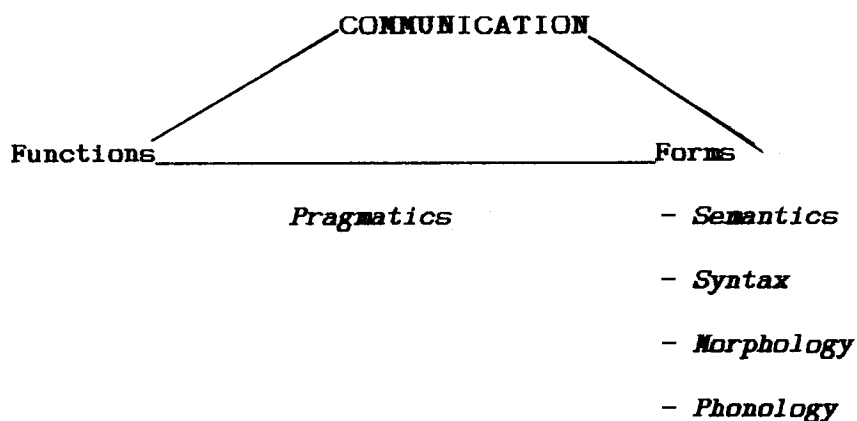


FIGURE 2.5. A functionalist approach to describing pragmatics (Craig, 1995)

Craig's (1995) chapter emphasises the expressive aspects of pragmatics rather than meaning comprehension, but the approach proposed is of interest to the concern of the present study because, whilst it acknowledges the links between pragmatics and other aspects of language, it highlights a possible discrepancy between understanding the forms themselves (including syntax, semantics and morphology) and understanding what the speaker is trying to do in uttering such forms. It will be shown in part 2 of this chapter that it is this latter aspect which enables listeners to resolve ambiguous forms such as inconsistent messages of emotion and multiple meanings in context.

2.2.6.B. The Validity of the Semantic-Pragmatic
Distinction in Relation to the
Present Study

Having now located pragmatics within the field of study and having clarified the nature of pragmatic meaning, I must point out that there is disagreement amongst authors over the usefulness and indeed validity of differentiating pragmatics from semantics.

For example, Bates (1976) notes 'at first, it seemed that pragmatic information was ancillary to the rest of semantics, something that could be added on or studied separately. It is now far less clear that this is the case'.

Chomsky (1975) proposes an independent extra linguistic level of meaning, apart from sentence grammar, where semantic properties and relations are defined, which incorporates information about speaker belief. This proposal therefore suggests that pragmatic aspects of meaning are incorporated within semantics.

Dockrell and McShane's (1993) model of language processing combines semantic and pragmatic representation of meaning within one conceptual system.

Gibbs (1984) states 'there appears to be little motivation in a psychological theory for making a separation between semantics and pragmatics'. He bases this statement on his findings that adults use pragmatic information at the earliest stages of non-literal sentence processing without having first to construct a complete semantic representation of a sentence.

The question, therefore, appears to be not over the existence of that aspect of meaning described in this study as pragmatic meaning but over whether this aspect of meaning should be considered separately.

Within the field of language disorder a current diagnostic issue which has relevance to this debate and highlights the difficulties that practitioners and researchers have had in separating pragmatics from semantics is the emergence in the past decade of the diagnostic term 'semantic-pragmatic syndrome' (Rapin and Allen, 1987) or 'semantic-pragmatic disorder' (Bishop and Rosenbloom, 1987). This issue will be outlined in detail in part 3 of the chapter in reviewing literature on language disorder and related considerations, where it will be argued that the main features included within this diagnostic category can be located within pragmatics.

The models of language outlined in part one of this chapter emphasise the interaction between the components of language (Bloom and Lahey, 1978, Crystal 1987). Having appreciated this interrelation, however, the present thesis proposes that there may be a clinical and educational validity in considering pragmatic aspects of

meaning separately. It may be that the group of children of particular interest to the present study, that is, those with specific developmental language disorder, may have a particular difficulty in understanding pragmatic meaning as compared to non-pragmatic meaning.

This group of children will be considered in depth later in this chapter, but it should be noted at this stage that their performance on assessments of pragmatic meaning compared to non-pragmatic meaning may have implications for descriptive models of language. If SLD children do perform comparatively worse on assessment of pragmatic than non-pragmatic meaning, a differentiation needs to be made for the purpose of diagnosis at least, otherwise children may be described as having falsely high levels of language comprehension or, in cases where difficulty in language comprehension affects pragmatic meaning only, may not be diagnosed at all. Further, if there is a differentiation between SLD children's understanding of pragmatic and non-pragmatic meaning, detected by assessment of language meaning comprehension, this has implication for the development of more effective educational programmes.

2.2.7. Summary and Conclusion to Section 2.2.

Language can be described broadly in terms of three interacting components which can be applied to both non-verbal and verbal language signals. These are :

(i) the forms of sound or meaning units (for example, words, grammatical markers, facial expressions, tones of voice). Considering verbal language signals, the combinations of forms are also studied within the domains of phonology (organisation of sound units) and grammar;

(ii) the content or meaning of language;

(iii) the use or goals of language.

There has been a move towards distinguishing pragmatic meaning from semantics with the former being concerned with language in context (or use) and involving a choice among alternative forms to express or interpret intent. The range of context in communication is such that pragmatic meaning may be dependent upon linguistic and non-linguistic factors, such as the situation in which the communication occurs and the speaker's belief about the listener. Metacommunication, the ability to reflect

on what you know about the rules of language in context, is concerned with the realm of pragmatics and involves social, cognitive and linguistic skills. Pragmatics has therefore been outlined as occupying the interface between linguistic, cognitive and social development (Roth and Spekman 1984, Bates 1976). Furthermore, it is proposed that there are a number of environmental and 'person' factors which influence an individual's ability to 'be pragmatically able' (Rae Smith and Leinonen 1992; Dallagher, 1987).

There may be educational and clinical validity in distinguishing pragmatics from other aspects of language meaning when the existence of disordered language meaning affecting only those aspects which have been described as relating to pragmatics.

This review will now focus on the interpretation of the two types of ambiguous communication of interest to the present study, inconsistent messages of emotion and multiple meanings in context. These two kinds of communication have already been cited as examples of pragmatic meaning comprehension, because, in both cases, the context is used to resolve the ambiguity.

In the next section, IME and MMC will be described more fully with reference to the models of communication outlined in part 1 of this chapter and there will be an examination of the processes involved in resolving the ambiguity of these utterances.

2.3. EXPLORATION OF THE PROCESSES INVOLVED IN THE INTERPRETATION OF INCONSISTENT MESSAGES OF EMOTION (IME) AND MULTIPLE MEANINGS IN CONTEXT (MMC).

2.3.1. Introduction

This part of the chapter will first describe inconsistent messages of emotion (IME) and multiple meanings in context (MMC) with reference to the literature. It will then examine the processes involved in interpreting these two forms of ambiguity, in light of the language models outlined in the first part of this chapter and will further establish the relevance of IME and MMC to the focal issue of the study.

2.3.2. Descriptions

2.3.2.A. Inconsistent Messages of Emotion (IME)

Some of the earliest documentation describing the use of non-verbal communication, in particular that of facial expression, to contradict verbal communication, came from Ekman and Friesen (1969). They outlined a model of emotional expression (figure 2.6.), including 'display rules' which they describe as factors inhibiting or altering direct expression of emotional states, for example to accommodate the appropriateness of a situation, such as not smiling at a funeral.

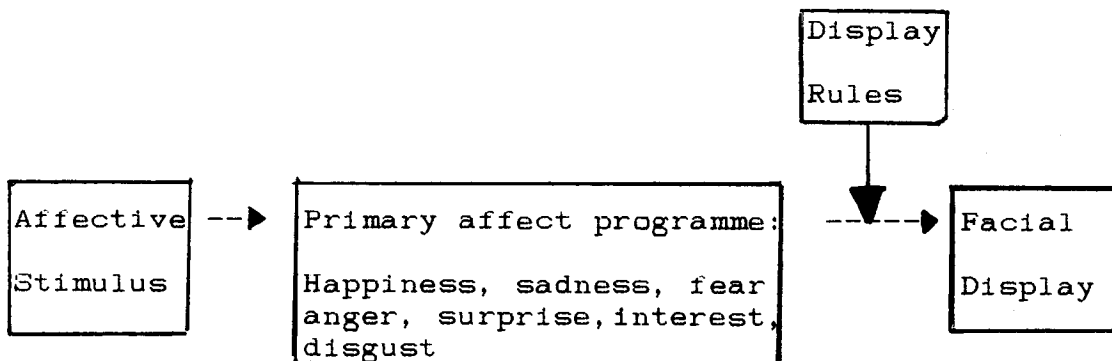


FIGURE 2.6. A model of emotional expression, Ekman (1982). Adapted from Ekman and Friesen, (1969)

Ekman and Friesen (1974) examined the methods communication 'senders' use to conceal true emotional states. They showed nurses an unpleasant film showing burns and amputations. The nurses were then asked to conceal their negative feelings and convince the interviewer that they had seen a pleasant film. This study showed that the face provided the best source for concealing true emotion; it was easier to detect that the nurses were trying to deceive the interviewer from observing their whole body cues. Ekman and Friesen (op cit) explain this finding as arising because communication receivers pay most attention to communication made by the face as opposed to other forms of body communication, such as that of body posture, hand and foot movement; 'senders' therefore develop a greater control over preventing the leakage of true emotions through the face.

The kinds of messages Ekman and Friesen looked at are different from IME, because in IME, although the speaker deliberately uses non-verbal display rules, involving the face and tone of voice, the intention is not to deceive the listener, rather, the speaker intends the listener to perceive the inconsistency and to interpret it as

negating the meaning of the communication in the verbal channel. For example, In IME, a speaker says, 'I am feeling fine' with a facial expression/tone of voice to communicate that they are not fine, with the intention that the listener will interpret the non verbal message as the meaning of the communication. There is, therefore, a single correspondence between sentence and meaning in the verbal signal, deliberately negated by a non verbal-signal, to create a contextually implied or pragmatic meaning, which is the intended meaning of the communication. The non-verbal context therefore serves to both create and resolve the ambiguity of the utterance.

Since the speaker wishes the listener to notice the inconsistency, it is in keeping with Ekman and Friesen's (op cit) findings that the speaker uses the face, (in addition to the tone of voice) rather than other forms of body language, to convey the non-verbal context.

With reference to the descriptions of language proposed by Bloom and Lahey (1978) and Crystal (1987), which were outlined in part one of this chapter, the meaning of the verbal message and the non-verbal message can be located within the field of semantics or content, the type of meaning referred to in this study as 'non-pragmatic'.

However, the choice on which of the two messages the speaker intends to convey as the meaning of the communication, (that is, the non-verbal message), can be located within the field of pragmatics or language use. Since the speaker's intended meaning is implied by the context in which the verbal message is uttered, it has been identified in the present study as 'pragmatic meaning'.

Instances of inconsistent messages have been shown to be used and interpreted as expressions of, for example, sarcasm (Ackerman 1981; Capelli, Nakagama and Madden 1990) and lying (Rotenburg, Simourd and Moore, 1989). These references are reviewed more fully later in this chapter, in examining how children develop an understanding of ambiguity.

This chapter will now provide a description of the second form of ambiguity of interest to the present study: multiple meanings in context.

2.3.2.B. Multiple Meanings in Context (MMC)

There are three types of multiple meanings of interest to the present study: homonyms, multiple meaning phrases and idioms presented in context.

Idioms are multi-word expressions whose meaning cannot be calculated by adding up the meaning of the individual words that comprise them (Abkarian, Jones and West, 1990), although Gibbs (1987) noted that some idioms, which he called transparent, have a more direct semantic relationship to the meanings of the individual words than others, which he called opaque. The idiom 'skating on thin ice', for example, has more apparent links between the idiomatic meaning and the literal meaning (to be careful) than the idiom 'kick the bucket' (to die).

Homonyms comprise individual lexical items; multiple meaning phrases comprise a combination of two lexical items within the same phrase. The forms here have the same phonemic pattern but different meanings and may also serve a different grammatical function. For example, the word 'jam' has two meanings, one only functioning as a noun, with the meaning 'a sweet conserve', and the other with derivatives in verb or noun form, with the meaning

'to be wedged or obstructed' or 'a mess/blockage'. The verb phrase 'tied up' has two meanings both functioning in verb form, one meaning 'to be physically tied' the other meaning 'to be busy'.

In the case of MMC, therefore, there is more than one possible correspondence between sentence and meaning in the verbal signal and it is the contextual information which, as in IME, serves to resolve the ambiguity. The context may be supplied by one or more of a number of factors, including the other words in the utterance, the non-verbal context in which the utterance is made (chiefly, tone of voice) and the listener's knowledge of what is syntactically congruous and semantically plausible.

With reference to the linguistic levels and to Bloom and Lahy's (1978) model, which were outlined in part 1 of this chapter, the multiple meanings of the lexical item(s) can be located within the field of semantics or language content, which has been referred to in the present study as 'non-pragmatic' meaning. The choice as to which of the meanings is intended, given the context, is, however, concerned with pragmatics or language use. Since the speaker's intended meaning is implied by the

context in which the lexical items are uttered, it has been identified in the present study as 'pragmatic meaning'.

Having described the two types of utterance of interest to the present study this review will now examine, in terms of speech act theory and the Cooperative Principle (Grice 1975), the speaker's goals and intentions in making such utterances. It will then explore, in more detail, the perceptual and linguistic processes involved in their interpretation, with reference to the models outlined in the first part of this chapter.

This will provide a framework for examining potential difficulties that children with specific developmental language disorder may have with these forms of communication.

2.3.3. Applying Speech Act Theory and 'The Co-operative Principle' to the Interpretation of Inconsistent Messages of Emotion (IME) and Multiple Meanings in Context (MMC)

2.3.3.A. Inconsistent Messages of Emotion (IME)

Applying the Co-operative Principle (Grice, 1975), in IME, the speaker deliberately flouts the maxim of clarity to create ambiguity, with the intention that this will be interpreted by the listener as contributing to the meaning of the utterance.

Considering Speech Act theory, there are two locutionary acts in IME, one represented by the content of the verbal message, the other represented by the content of the non-verbal message, which also serves to create a linguistic context for the verbal utterance. The illocutionary force of IME is the deliberate creation of ambiguity with a perlocutionary force, in line with Grice's Co-operative Principle, that the listener will perceive the illocutionary force and interpret the message as the speaker intends, that is, in terms of the meaning communicated by the non-verbal signals.

2.3.3.B. Multiple Meanings in Context (MMC)

In MMC there are two possible locutionary acts represented by the verbal signal. The speaker's intention therefore is not necessarily clear, because there are two possible intentions of the same expression and the listener has to use the context to determine the intended meaning. The speaker does not deliberately create the ambiguity, as in IME, but the perlocutionary force of the utterance is that the listener will interpret the communication as the speaker intends.

**2.3.4. The Perceptual and Linguistic Processes
Involved in Interpreting Inconsistent Messages
of Emotion and Multiple Meanings in Context.**

**2.3.4.A. Applying the Speech Chain (Denes and Pinson
1973; Rinaldi, 1992)**

Inconsistent Messages of Emotion (IME)

The processes involved in the listener interpreting IMEs may be explored using my extension of Denes and Pinson's speech chain model, with the example message 'I

am not feeling fine', comprising verbal message 'I am feeling fine' and the non verbal message 'I am not feeling fine' (fig 2.7.).

The communication is first perceived through the auditory channel (verbal message plus tone of voice) and the visual channel (facial expression).

With reference to the descriptions of language outlined earlier in this chapter, it may be proposed that at the language level there are three kinds of interactive processes

(i) Syntactic/form dealing with the structure of the signals (verbal: Subject, verb, adverbial; non-verbal: decreased fundamental frequency mean and range, decreased intensity and rate, facial display to include, for example, a frown, furrowed brow);

(ii) Semantic/content dealing with the ideas referred to by the signals (verbal: I am fine; non-verbal: I am not fine);

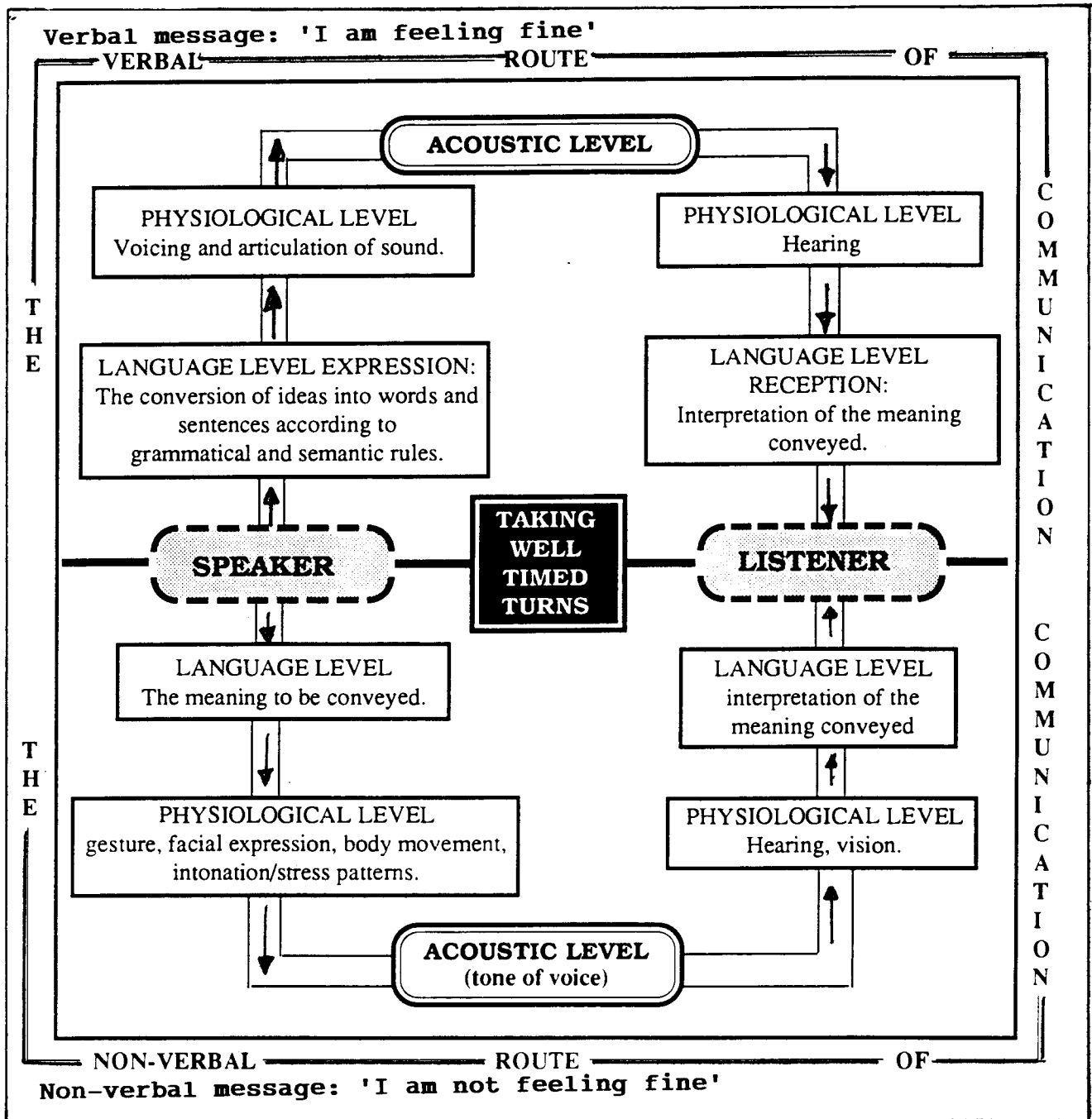


FIGURE 2.7. The process of communicating and inconsistent message of emotion.

(iii) Pragmatic/use where the context is taken into account and a choice is made concerning the speaker's intent.

The detection of the ambiguity is therefore dependent upon processes at both perceptual and language levels, with the resolution of the ambiguity occurring at the language level and being dependent upon the knowledge of pragmatic rules, which, as has already been shown, involve metacommunicative knowledge, such as an awareness of the rules of co-operation between speakers and listeners (Grice, 1975).

Multiple Meanings in Context (MMC)

It may be proposed that in interpreting MMC, the interpretation of ambiguity is again dependent upon processes at the perceptual and language levels involving syntactic and semantic analysis, with the resolution of the ambiguity occurring through pragmatic analysis. Based on the review of the literature in part 1 of this chapter, this pragmatic analysis can be envisaged as including analysis of contextual information with a choice being made between the two (or more) possible interpretations. The contextual information used to

resolve the ambiguity may vary according to the particular utterance. This is illustrated by the three different examples below.

(i) 'the road was jammed solid';

i) 'her room is a real pigsty';

(iii) 'he couldn't go to the party because he was tied up all day'.

Utterances such as 'the road was jammed solid' are only ambiguous if there is insufficient syntactic/semantic knowledge to recognise that there is only one meaning rendered by the use of words in certain forms, in this example, 'jam' in verb form. The other meaning of 'jam', that is, a sweet conserve, used only in noun form, is rendered syntactically incongruous and semantically implausible in relation to situational understanding and life experience. This utterance thus provides an example of how syntactic and semantic knowledge can contribute to pragmatic analysis.

The ambiguity of utterances such as 'her room is a real pigsty' is resolved by knowledge of semantic plausibility

and also by the non-verbal context in which the utterance is made. For example a tone of voice/facial expression to convey anger, indicates the meaning of the verbal signal to be that her room is a mess.

Resolution of the ambiguity of utterances such as 'he was tied up all day' rely solely on recognising semantic implausibility in relation to situational context.

2.3.4.B Further Exploration of the Linguistic Processes Involved in interpreting INE and MMC: A Focus on Locating Pragmatic Processes

A model of speech production outlined by Butterworth (1980) (figure 2.8.) implied a sequentially organised processing system, with a flow of communication away from what is seen as the highest level in the system, the pragmatic subsystem.

In this model, the pragmatic subsystem is concerned with the kind of phenomena already outlined in this chapter, including implicature, indirectness and politeness. The inputs to the subsystem include descriptions of the

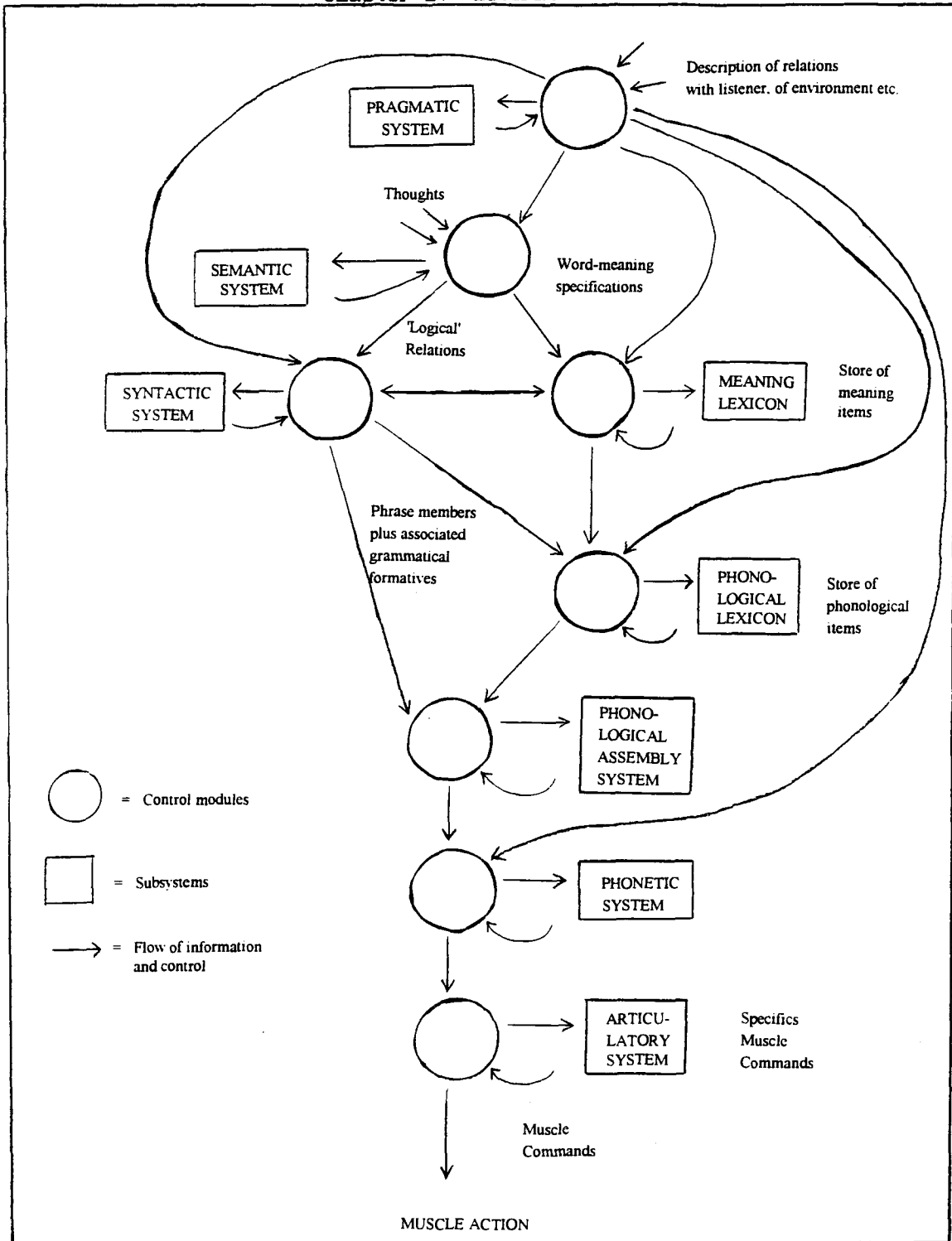


FIGURE 2.8. A model of speech production (Butterworth, 1980). An attempt to locate pragmatic processes.

environment, the speaker's belief about the listener and the speaker's goals in communication. The 'inputs' therefore include metacommunicative knowledge and factors which have already been identified as influencing this knowledge (Rae Smith and Leinonen 1992; Dallagher 1987). The outputs of the pragmatic subsystem are interpretable by all other subsystems including those concerning syntax, semantics and phonological assembly.

The implication of Butterworth's (1980) model is, therefore, that pragmatic processing takes place early in the process of speech production and, conversely, it could be assumed that in speech comprehension it takes place at the end of the process.

Indeed, this is the proposal of Dockrell and McShane (1993), who outline, in comprehension, that information from a lexical system (concerned with word meaning) and grammatical system (concerned with syntax and morphological structure) feeds into a conceptual system which creates semantic and pragmatic representations of meaning.

This view of pragmatics as occurring at the end of some kind of chain of events was also reflected by Searle's

(1975, 1979) set of principles by which a listener is able to interpret multiple meanings. He proposed that the listener first 'computes' the literal meaning (that is, the non-pragmatic meaning) of the sentence, through syntactic and semantic analysis, and then decides if the literal meaning is defective given the context; if the literal meaning is inappropriate, the listener seeks another meaning depending upon the principles of the conversation and knowledge of speech acts.

However, the idea that pragmatic processes come into force towards the end of a sequential process following a preliminary semantic analysis is challenged by Gibbs (1984) and Capelli, Nakagama and Madden (1990) who showed that pragmatic analysis may occur relatively early on in the process of utterance comprehension.

Capelli et al (op cit) proposed that when the context is supplied by tone of voice, the listener only needs to make a superficial examination of the literal message, to determine the general topic, in order to make a decision on the intended meaning. The intonation is perceived and encoded, but by suggesting that the listener interprets the speaker's intention, 'from the start', the indication is that the ambiguity is resolved without requiring

detailed analysis at the language level as suggested by Searle (1975, 1979). These proposals are of interest to the exploration of the interpretation of IME and MMC, where tone of voice contributes to the contextual information.

Capelli et al (1990) read a series of short scenarios to children, where the final statement contradicted information given previously. For example, 'Laura and her sister Ann were talking about what they wanted to get for Christmas. "Gee I hope no one gives me socks" said Laura, "Everyone always gives me socks, I probably have about 30 pairs that I've never even worn". That evening Laura and Ann opened their gifts. Laura opened her first one and in it were six pairs of socks. "This is great," said Laura, "just what I always wanted."

They found that the children could understand the contradictory verbal statement better when intonation was used to emphasize the contradiction. They did less well when intonation was not used so that the contradiction was in terms of the verbal context only.

Capelli et al (op cit) suggest a possible explanation of this finding to be the very early development of

sensitivity towards prosodic features. For example, Kuhl's (1987) review of studies into infant perception of changes in tone of voice, which examined physiological changes in infants, such as heart rate variability and sucking response, concludes 'the data available confirms that infants under 4 months are capable of discriminating changes in intonation contour' (page 318).

Gibbs' 1984 paper on literal meaning and psychological theory pointed to evidence that adults also use pragmatic information at the earliest stages of sentence processing without having to first construct a complete semantic representation of a sentence. He cites evidence from his 1979 study that it did not take adult subjects longer to process indirect requests than literal uses of the same sentence, which he argues should be the case if the literal meaning is computed before deriving a non-literal meaning. His conclusion is that the analysis of literal componential meaning (semantic representation) is not necessary or useful in interpreting a speaker's intentions. Rather, a listener learns to recognise a speaker's intentions through an understanding of social context and speaker goals/beliefs. The emphasis of this view is therefore on the listener's social knowledge enabling an understanding of the illocutionary force of

the utterance and away from the linguistic knowledge involved in the process of analysing and comparing the locutionary force of the utterance with the context, as suggested by Searle (1974, 1979). This view thus emphasizes the role of metacommunicative skills in interpreting ambiguous communication.

A study by Ortony, Schallert, Reynolds and Antos (1978), however, identified that the amount of context in which a non-literal item occurs affects the time it takes adults to process the meaning. These authors found that it **did** take subjects longer to process idioms and metaphors than literal meanings when the context was of short duration, but that this difference in processing was eradicated when more context was included. This finding indicates that it is the use of contextual information which allows the more automatic processing facility, based on metacommunicative knowledge, suggested by Gibbs (1984).

2.3.5. Summary and Conclusion to section 2.3.

This part of the chapter has provided a focus for examining inconsistent messages of emotion and multiple meanings in context, the two forms of ambiguity included in the present study to represent instances of pragmatic

meaning comprehension. The literature has highlighted the involvement of perceptual, linguistic, social and cognitive processes in interpreting these kinds of communication and confirms the claim made at the end of part 1 of the chapter for pragmatics to be at the interface of linguistic, cognitive and social knowledge (Roth and Spekman, 1986).

The comprehension of contextual information, which necessarily involves pragmatic analysis, is central in resolving the ambiguity of IME and MMC, but there is uncertainty as to (i) when in the process of utterance interpretation pragmatic analysis occurs, and (ii) the role of linguistic and socio-cognitive rules within pragmatic analysis. There is evidence, however, to suggest that metacommunicative skills, based on socio-cognitive knowledge, enables a more automatic level of processing, involving a lesser degree of linguistic analysis, but that this type of processing may not apply when multiple meanings are presented out of context or in a context of short duration (Ortony et al, 1978).

These aspects will now be explored further by examining studies of children in varying stages of developing the ability to interpret ambiguous communication. In

particular, explanations as to why children developing communication have difficulty in resolving ambiguity will be explored in order further to clarify the nature of pragmatic analysis, including the pre-requisite linguistic and socio-cognitive skills and aspects pertaining to environmental influences.

2.4. AN EXPLORATION OF THE PROCESSES INVOLVED IN INTERPRETING INCONSISTENT MESSAGES OF EMOTION (IME) AND MULTIPLE MEANINGS IN CONTEXT (MMC). EVIDENCE FROM DEVELOPMENTAL STUDIES ON THE COMPREHENSION OF AMBIGUOUS COMMUNICATION.

2.4.1. Introduction

In this part of the chapter, the presentation of developmental studies on the comprehension of ambiguous communication have been grouped together according to whether they relate to IME or MMC. The main interest here is to explore further the particular processes involved in the interpretation of IME and MMC, relating to linguistic, cognitive and social knowledge, which may underpin the development of pragmatic meaning comprehension. (Roth and Spekman, 1984; Bates 1976).

Influences of personality and environment will also be considered.

2.4.2. Studies Relating to IME and MMC : A Focus on the Development of Metacommunicative Knowledge.

2.4.2.A. Studies on the Ability to Detect Ambiguity Created by Incomplete Verbal Communication

Studies by Ackerman (1981) and Bonitatibus, Godshall, Kelley, Levering and Lynch (1988) highlight the difficulty five-year-old children have in interpreting messages in referential tasks rendered ambiguous due to insufficient information. The children were asked to select one of four drawings varying in size, colour or shape, but because insufficient information was given, for example, 'show me the red ball' (the pictures from which the children selected contained one large red ball, one small red ball), the intended referent was not clear. Ackerman and Bonibatibus (op cit) suggest that difficulty arose because the five-year-olds' reliance on the illocutionary force of the utterance was marred by their inaccurate beliefs about the intentions and co-operativeness of speakers.

Bonitatibus et al (1988) proposed that because of underdeveloped skills of social cognition, children assume the speaker's honesty and cooperativeness and this prevents them from carefully examining their words and noting multiple interpretations. Further, they found that five-year-old children normally assume that the speaker refers to a single referent which prevents them from exhaustively searching the array for other possible referents.

Viewing this finding from a purely cognitive perspective, the work of Piaget and Inhelder (1964) would appear pertinent here. For example, they identified skills which develop at seven years plus, at the stage of concrete operational thought, which allows children to 'decentre attention away from a salient attribute'. In Bonitatibus et al's (1988) study it may be that the information given provided the salient attribute and that children were unable to decentre their attention to the missing information.

Further, Ackerman's (1981) and Bonitatibus et al's (1988) studies showed that when five-year-old children were told that the speaker would try to deceive them, they were more able to detect ambiguous messages. Bonitatibus et

al's (op cit) study also showed that children were more able to detect ambiguity when they were made aware that the speaker might refer to more than one referent. It may be that increasing children's awareness in this way had the effect of making the 'hidden' meaning more salient.

The skill of comprehension monitoring, that is the ability to realise that you do not understand (Bonitatibus, 1988; Dallagher 1987) has already been identified as a necessary skill for comprehending ambiguity and would also appear to have a bearing on the above studies. For example, if the children were unable to realise that they may not understand the communication, they would not see the need to seek an alternative referent. However, a study by Robinson and Mitchell (1990) found that children as young as five years were able to report accurately that they did not understand the name of an unfamiliar character, when they were asked. Robinson and Whitaker (1985) also found that when they included a model of a "mystery man" (a toy figure with a question mark on it's T shirt) to represent a 'don't know' response in a picture selection task, children made fewer incorrect responses to ambiguous utterances.

Robinson (1992) also showed that children as young as four years were able to discriminate between difficult questions; that is, ones that they could not answer but which were sensible nevertheless (for example, 'is America further away than India?') and semantically anomalous questions (such as 'is a box louder than a knee?'), when they were asked to judge whether the questions were 'sensible or silly'.

In all these studies, the researchers made the need for children to determine whether they understood or not explicit, either by asking 'Do you know?', by using the Mystery man toy or by requesting silly/sensible judgments. It would appear that under these conditions, children as young as four years are able to use skills of comprehension monitoring, but it may be that at this age, they cannot organise the operation of this skill for themselves.

The hypothesis that young children make false assumptions on speaker honesty and co-operativeness is supported by Robinson and Robinson's (1978) and Meline and Bracken's (1987) findings that five-year-olds 'blamed' the listener and not the speaker for failed communication relating to incomplete, ambiguous messages. That is, they

believed the listener to be responsible for not understanding the communication. Seven-year-old children, however, blamed the speaker on the grounds that they did not say enough.

Robinson, Goelman and Olson (1983) also found that an average of sixty percent of five and six-year-old children were unable to make a distinction between what is said and what is meant. Their experiment involved giving children incomplete instructions to select a picture from an array, for example 'the red flower' (the intended meaning was 'a big red flower'). When children were asked if the experimenter had said 'the big red flower' forty seven per cent agreed that this had been said. In speaker role, when the children gave inadequate instructions to the experimenter, seventy four per cent accepted that they had given an adequate instruction, for example 'the big red flower', when they had not.

Robinson et al (op cit) conclude that although some knowledge about the relation between expressions and intentions is implicit in speaking practices from an early age, as demonstrated, for example by Shatz and Gelmans' (1973) findings that children as young as four years will simplify their descriptions when talking to a

younger child, there is a lack of explicit awareness of the ways in which alternative expressions relate to an underlying intention.

Robinson et al (1983) suggest that this awareness is carried by competence with lexical items, such as 'mean' and 'say', which express the distinction between expression and intention. They found that the mothers of those six-year-olds who were 'speaker blamers' explicitly marked instances of non-comprehension by saying 'I don't know what you mean' or by asking 'what do you mean?'. Their proposal is that by making such statements, the mothers were showing their children that what you say may not always make clear what you mean. This suggests that the speaking practices of parents influence young children's learning of distinction between intention and expression.

Although Robinson et al's (op, cit) findings offer insight into young children's awareness that speakers can give ambiguous messages, it should be noted that the findings of their 1983 study, relating to children in speaker role, may be affected by the childrens' desire to agree to having given adequate instructions, even though they may have in fact been aware that they were not

adequate. Further, the children's responses in listener role may have been affected by their confidence to challenge the experimenter. These kinds of "within person" factors influencing children's pragmatic performance have already been referred to in the models proposed by Rae Smith and Leinonen (1992) and Dallagher (1987).

2.4.2.B. Ability to Detect Inconsistencies
in the Verbal Message

Two studies will be included in this section to examine possible reasons why children may fail to detect inconsistencies in the verbal message (Markman, 1979; Ackerman, 1981). Although the kinds of inconsistencies explored by these studies are not those evident in inconsistent messages of Emotion and do not include multiple meanings, they do involve pragmatic meaning comprehension. The same kind of metacommunicative skills required to detect inconsistencies explored by these studies relating to, for example, assumption of speaker honesty, awareness of illocutionary force and the interpretation of contextual meaning may also have application for describing difficulties in comprehending IME and MMC.

The study by Markman (1979) explored eight to twelve-year-old children's awareness of their own comprehension failure when presented with inconsistent information in written paragraphs. For example, '*Fish must have light in order to see. There is absolutely no light at the bottom of the ocean. Some fish that live at the bottom of the ocean know their food by its colour and will only eat red fungus.*' The children were asked a series of questions about the paragraphs to check their recall of information and to assess their detection of the inconsistency (for example the children were asked, 'Did everything make sense? Did I forget to tell you anything?')

Markman's finding that even some twelve-year-olds judged as comprehensible a sizeable proportion of paragraphs with inconsistencies was in line with Piaget's (1970) cognitive developmental stage of formal operations (12 years plus) which includes the emergence of an ability to detect inconsistency. Markman noted, however, that the children in her study did have the necessary cognitive skills to detect the inconsistencies, including good probed recall of information, logical capacity to draw inferences and willingness to question the experimenter. Markman proposes that children may be able to cope with the entire set of required processes necessary to resolve

inconsistent communication but may not spontaneously organise the behaviour themselves. She found that when children were warned about a problem, their performance improved.

It should be noted that, although Markman's proposals raise questions regarding Piaget's theory on the stages of cognitive development, which relate to a body of research challenging Piaget's original claims (for example, Donaldson (1978)) this research does not have particular significance to the central focus of the present study, and therefore will not be included here. For the purpose of this study, the key area of interest in Markman's findings is that despite having necessary cognitive skills to detect inconsistency, twelve-year-old youngsters still failed to do so. It may be that the difficulty lay in the youngsters' inability to make accurate judgements of the speaker's (or writer's) communicative intentions and a lack of knowledge regarding the rules of conversational cooperativeness, including the purpose of flouting the rules (Grice 1975).

Ackerman (1981) looked at the ability of adults, and of nine and six-year-old children to interpret utterances where the speaker deliberately marks inconsistency

between the verbal content of a message and verbal contextual information presented prior to the message, in order to achieve a certain illocutionary and perlocutionary force. For example, *'Robert asked all of his friends to play baseball. He wanted to have two complete teams. He counted up all that came and it seemed they needed exactly two more for two teams. Then his younger brother came and asked to play, but Robert said "Sorry, but we've got too many guys, so you can't play"'*.

The children were asked questions to assess knowledge of (i) detection of inconsistency (Fact questions, for example, did Robert have enough guys for two complete teams to play?) (ii) the speakers awareness of their inconsistent communication (Did Robert know exactly how many guys they had?) and (iii) speaker intent (Did Robert want his brother to play?). Ackerman found developmental differences in that younger children were more likely to retain the literal interpretation of the utterance when it was inconsistent with the facts. The six-year-olds were able to detect the inconsistency to some extent, shown by a 'no' response to the fact questions and they made some non-literal interpretations of the intent. However, Ackerman's conclusion is that, at this age,

there is only a very superficial understanding of the conversational purpose of marking inconsistency, because the six-year-olds' judgement on speaker intent did not vary according to whether they thought the speaker was aware of the inconsistency.

The nine-year-olds made more non-literal judgements *per se* than the six-year-olds and they also made a higher proportion of non-literal interpretations when they judged the speaker to be aware. These interpretive tendencies were even more pronounced in the responses of adults.

These findings show that nine-year-olds were assisted in their interpretation of speaker intent by knowing that the speaker was aware of the inconsistency, and indicates that they have 'some inchoate understanding of the constraints on evaluating the intentional use of an utterance and of the non-literal ways in which an utterance can be used...this understanding increases with age.' (page 478, Ackerman, 1981).

Ackerman's (op cit) study indicates a developmental stage present to some degree in some children at least as early as 6 years, where there is an ability to make a context

sensitive appraisal of the information to detect inconsistencies in what is said (Ackerman 1981) but the ability to infer the speaker's conversational purpose in marking inconsistencies may not be acquired until a later stage.

Ackerman's (op cit) study suggests that children are able to detect inconsistency at an earlier age than those in Markman's (1979) study; one explanation for the discrepancy in these findings is that the children in Ackerman's study were asked to reflect on the speaker's awareness and intent, that is, on the illocutionary force of the utterance, whereas in Markman's study they were not. It could be argued therefore that Ackerman made the metacommunicative function of the utterances more explicit. Further the inconsistent-aware utterances in Akerman's study were read with a sarcastic intonation which could have made the inconsistency easier to detect. The findings of Capelli et al's (1990) study, outlined earlier in this part of the chapter, indeed showed this to be the case.

2.4.2.C. The Ability to Understand the Function of Indirect Requests.

Studies on children's understanding of indirect requests confirm that some aspects of pragmatic comprehension develop as early as four years. A study by Leonard, Wilcox, Fulmer and Davis (1978) showed that four-year-olds were able to respond appropriately to indirect requests such as 'Can you answer the telephone?'. That is, they were able to realise the appropriate response required was not a 'yes/no' but a directive to answer the telephone. Thus they were able accurately to detect the inferred perlocutionary force.

2.4.2.D Summary

The studies outlined so far in this part of the chapter, highlight the involvement of metacommunicative skills in spontaneously recognising a speaker's intention. In particular, the ability to:

(i) recognise that speakers can manipulate language, for example, to deliberately flout the co-operative principle (Grice, 1975);

(ii) recognise that there may be more than one referent to an expression;

(iii) determine how well one has understood a linguistic input.

The first of these skills has particular relevance to the interpretation of IME, where the speaker's manipulation of the communication is deliberate to convey an intended meaning.

The second skill has application to both IME and MMC since in both forms of communication the listener selects from two or more referents. In IME, one referent is carried by the non verbal content, the other by the verbal content. In MMC, both of the referents are carried by the content of the verbal message; it is the pragmatic analysis which enables the listener to select the speaker's intended referent, given the context. The third skill, the ability to determine how well one has understood the communication, has relevance to both IME and MMC, since, as was outlined earlier in the chapter, without the ability of comprehension monitoring, an individual would be unable to see the need to seek alternative referents. This is of particular interest

bearing in mind Cacciari and Levorato's (1989) findings that children whose language is developing normally may have knowledge of only one referent but, nevertheless, can use metacommunicative skills, which presumably would include comprehension monitoring and awareness of the use of contextual information, to work out the implied meaning.

The studies outlined thus far indicate that these kinds of pragmatic skills begin to develop at around the age of four to six years, when, for example, children begin to blame the speaker for inadequate communication (Robinson and Robinson 1978) and show some pragmatic awareness to understand indirect requests in line with speaker intention (Laurence et al, 1978). However, there is evidence to show that in the early stages of development, pragmatic skills required to detect ambiguity may be present but are not used unless the need to do so is made explicit by the speaker. (Robinson, 1992; Robinson and Mitchell, 1990; Robinson and Whittaker 1985; Ackerman 1981; Bonitatibus, 1988).

Ackerman (1981), for example, noted a developing understanding of constraints on the intentional use of an utterance at nine years, although Robinson and Robinson's

(1978) findings indicate that family speaking practices, in particular, the tendency to make reference to a distinction between 'saying' and 'meaning' may lower the age at which this spontaneous understanding emerges.

There is much in this section to illustrate the environmental influence on pragmatic meaning comprehension, in particular the tendency of others interacting with the child to make the metacommunicative function explicit. The example quoted by Robinson et al (1983) on the influence of parental speaking practices also illustrates how aspects of language, in this case, the parents' use of vocabulary, can impinge upon the development of metacommunication.

Meline and Bracken's (1987) emphasis on the cognitive processes underlying metacommunicative skills was outlined earlier in this chapter. The work of Piaget and Inhelder (1968) has also demonstrated cognitive skills required to comprehend communication where there is more than one referent. However, it is worth noting that even at twelve years, children can fail to detect inconsistencies when the need to do so is not inferred by the speaker, despite having the necessary cognitive and linguistic skills to do so (Markman 1979). It may be

that other factors, concerning, for example, the expectations that children have regarding speaker honesty, are also relevant.

**2.4.3. Studies Relating to the Interpretation
of Inconsistent Messages of Emotion (IME).**

**2.4.3.A. Ability to Detect Inconsistency in the Non-
Verbal Channel.**

A study by De Paulo, Rosenthal, Eisenstat, Rogers and Finkelstein (1978) explored judgement of emotion in communication, where inconsistency occurred between the auditory modality (tone of voice) and the visual modality (facial expression and body movement). Subjects within the age range of twelve to twenty years were included in the study. They found that whereas adults were more influenced by visual than auditory inputs in their judgements, more of the twelve-year-old subjects' judgements did not reflect 'video dominance', that is, they were more influenced by auditory than visual inputs. De Paulo et al suggest that 'modality dominance may show developmental trends, with children more attuned to audio inputs than adults' (page 321).

Volkmar, Hodder and Siegel (1980) replicated this finding with younger subjects aged twelve to forty-two months. They found that when discrepancies occurred between auditory and visual channels (that is, an actor smiling and beckoning children to 'come here' using a 'cold' tone of voice) more children conformed to the auditory than the visual channel.

Although the inconsistency in the IMEs included in the present study is not within the non-verbal channel, but between the non-verbal and verbal channel, the findings of these studies on auditory/visual primacy are of interest bearing in mind that visual inputs are not always available. That is, there are times when listeners do not make eye contact with speakers, for example, if the listener is engaged in a simultaneous activity, such as looking at a book. In these contexts the listener is totally reliant on the auditory signal.

The above findings on audio/visual primacy would suggest that non-language-impaired children, who give greater weight to the auditory signal, would not be influenced by unavailability of visual information. However, it has been noted (Tallal, Stark, Kallman and Mellits, 1981; Rinaldi, 1996) that the auditory input channel provides a

less effective source of learning, than the visual input channel, for students with specific developmental language disorder. It may be suggested that if a listener is less influenced by auditory non-verbal cues (tone of voice) than visual non verbal cues, they may give greater weight to the content carried by the words than the auditory non-verbal signal (the tone of voice) in interpreting the utterance. In order to explore this suggestion the methodology of the present study will need to include an experimental condition where visual input is not available.

Studies outlined in the next section further suggest that when the auditory information includes contradicting verbal and non-verbal messages, it is the verbal information which carries greater weight for non-language-impaired children.

2.4.3.B. Ability to Detect Inconsistency between the Verbal and Non-verbal Channels

Studies by Bugental (1974) and Bugental Kaswan and Love (1970) showed that compared to adult judgements, children's judgements of meaning are more influenced by the lexical content of communication, that is, the words

in the utterance, and less influenced by extra-lexical content, such as tone of voice and by visual information, such as facial expression. For example Bugental et al (op cit) showed that primary-school-aged children interpreted "joking" messages (criticisms said with a smile) more negatively than adults.

Rotenburg, Simourd and Moore (1989) investigated children's awareness of the use of inconsistency between the verbal and non verbal channel to imply lying. A sample of children aged five, seven and nine years, watched an actor expressing a verbal message with either positive valence ('I like that shirt') negative valence ('I don't like that shirt) or neutral valence ('my house is white'), which were contradicted by facial expression. The children were required to match the actor's facial expression to picture cards, repeat the verbal message to show they had attended to both signals and were then asked to judge whether the actor was telling the truth or lying. A second experiment required the children to judge from audiotapes what the facial expression might be if the actor was (i) telling the truth or (ii) lying.

The findings yielded by both experiments indicated that the use of verbal - non-verbal inconsistency to detect

lying increased with age. The use of this principle was shown in a very limited fashion by the five-year-olds but almost entirely by the nine-year-old children, not only for the positive - negative combinations but also for the neutral (verbal) negative (non-verbal) combinations. A smiling facial expression was generally associated with truth by all subjects, but more strongly for the younger age groups, even when the verbal message was negative. It should be noted, however that in Rotenburg et al's study intonation was deliberately minimised; the younger subjects may have found it easier to detect inconsistency had this been part of the non-verbal communication.

All age groups were able to associate emotions appropriately with facial expression.

Capelli et al's (1990) exploration into how much children are helped by a sarcastic, contradictory intonation in detecting inconsistency in the verbal message was outlined earlier in this chapter in examining the possible processes involved in understanding inconsistent messages. Their study is included again here, to focus more on the nature of the subject's responses.

Capelli et al compared the responses of two groups of children aged eight/nine years and eleven/twelve years with a group of adults on reading passages where the concluding statement contradicted the content of the previous statements. For example, *'Dick and Wendy were playing catch with a football. Wendy threw a long pass and Dick was running full speed for it when he slipped in the mud. He landed flat on his bottom. The ball bounced off his head and landed next to him in the mud. "Oooh nice catch", said Wendy'*.

The children in both age groups were more able to detect the inconsistency and correctly assess speaker intent when sarcastic intonation was used, whereas adult subjects were able to detect the inconsistency regardless of whether sarcastic intonation was used. There were developmental trends in that eleven/twelve-year-olds made more 'sarcastic interpretations' overall than the eight/nine-year-olds.

The above studies show that older children and adults are more influenced by information in the non-verbal channel in interpreting IME. Solomon and Ali's 1972 study, however, revealed that even adult subjects can rely more heavily on lexical content in some contexts. They

examined seven to twenty-five-year-old subjects' interpretation of the meaning of verbal reinforcers such as 'very good' 'I like that' spoken in three levels of intonation (pleased, indifferent, displeased).

In line with the findings of the studies outlined above, they found that the relative importance of intonation to perceptions of affective meaning (that is, response to the question 'did the teacher like/dislike the child?') increased with age, being increasingly prominent for students from eight/nine years to twenty-five years. However, content was dominant at all ages in judging what the teacher actually meant.

Solomon and Ali (op cit) emphasise metacommunicative knowledge in explaining their findings of increased use of intonation to interpret affective meaning. They suggest this trend occurred because of (i) increased familiarity with language and (ii) our experience as speakers and listeners which enable us to place the statements we hear in different cognitive and social contexts. Adults therefore have different expectations regarding the number of meanings available to them and the notion of hidden meaning. Solomon and Ali suggest that these aspects may be learned relatively slowly

because they are less clearly definable and more idiosyncratic than information in the content channels.

It is of interest, however, that even adult subjects used content to interpret the teacher's meaning, which was not the teacher's intention. These findings imply that, at least in the case of verbal reinforcers used in a teacher context, even adults may make faulty interpretations on the illocutionary force of the utterance. When the question asked required a more explicit inference, because it was not possible to ascertain from the content of the message whether the teacher liked or disliked the child, adults and older children from eight/nine years upward were able to switch to using a different communication channel, that is, intonation, in their judgement. Therefore, they made a more accurate interpretation of the illocutionary force of the utterance.

2.4.3.C. Summary and Conclusion to Developmental Studies relating to IME.

The studies relating to IME indicate that there is a shift, at around the ages of seven to nine years in using non-verbal information to assess speaker intent

(Rotenburg et al 1989, Capelli 1990, Solomon and Ali 1972). The studies by De Paulo et al (1978) and Volkmar et al (1980) indicate that initially children are more likely to rely on auditory non-verbal information, such as tone of voice, than visual non-verbal information, such as facial expression, even though they are able to understand both kinds of information.

However, Solomon and Ali's study showed that in some contexts, even adults may interpret ambiguous communication in terms of lexical content of the verbal message and therefore misinterpret speaker intent. It is of interest that in the context misinterpreted by the adult subjects in this study the speaker is a teacher and the need for inference is not made explicit. This was also true of Markman's (1979) study, where twelve-year-olds failed to detect verbal inconsistency. This was an unexpected finding in comparison to other studies (Akerman, 1981; Robinson and Robinson 1978) and bearing in mind that, according to Markman, the children had the necessary cognitive and linguistic skills. It may be that in the teacher context, listeners are particularly vulnerable to making faulty assumptions about speaker honesty, because of expectations built for example, by social status of figures in authority.

Dallagher (1987) points to the amount of information contained in the message as being a factor influencing detection of ambiguity. It may be that in the case of Markman's study, subjects failed to detect the anomalies in the written paragraphs because the amount of information prevented adequate attention focus on the anomalies.

The findings of Solomon and Ali (1972) do not concur with Capelli's (1990) proposal that when the contextual information is supplied by tone of voice, children (and adults) only make a superficial analysis of the verbal content of the message. If this were true, the subjects in Solomon and Ali's study would have given more weight to the teacher's non-verbal communication. It would appear, rather, that both the non-verbal and the verbal messages are analysed, and the decision made on the meaning of the utterance is dependent upon (i) metacommunicative knowledge, (ii) social/personal factors, such as judgements on the speakers's honesty and (iii) the explicitness of the need for inference.

Rotenburg et al's (1989) findings indicate a distinction between pragmatic and non-pragmatic meaning in children's development of language. Whereas five-year-old children

were able to understand the meaning of facial expression and tone of voice in a one-to-one correspondence between signal and referent, they were not able to make use of this knowledge in interpreting inconsistent messages of emotion.

2.4.4. Studies Relating to the Interpretation of Multiple Meanings in Context (MMC)

2.4.4.A. Introduction

Developmental studies on the interpretation of multiple meanings provides a further dimension in exploring the resolution of ambiguity, because a child may have incomplete semantic knowledge. It could be argued that if only one representation is available in semantic knowledge, there is no ambiguity for the child to resolve and the utterance will be interpreted in line with the single representation available. However, even if only one semantic representation is available, it is possible to envisage that the child may recognise the implausibility of this interpretation and reject it in favour of another unknown interpretation, through pragmatic analysis. Such findings would suggest that

pragmatic analysis is not dependent upon semantic knowledge alone.

This dimension is explored by the studies of idiom comprehension outlined below.

2.4.4.A. Comprehension of Idioms

Cacciari and Levorato (1989) emphasise metacommunicative skills in comprehending idioms, in particular the need to be aware that some utterances cannot be understood by putting together the meanings of individual words. They investigated the contribution of linguistic and non-linguistic (tone of voice) context in understanding idioms, which they propose contributes a more 'global' meaning to contrast with the literal meaning of the idiom and therefore encourages children to develop a figurative strategy. That is, meaning conveyed by context enables children to realise that there may be an alternative meaning to the literal interpretation of the idiom. Reference has already been made to the findings of this study, which is described in more detail in the next paragraphs.

In this Italian study, Cacciari and Levorato examined the responses of seven-year-old, nine-year-old and adult subjects to multiple choice questions about the meaning of a series of idioms. In one condition the idioms were presented out of context; in another they were presented at the end of a short story. For example, *'A little boy named Paul moved house. It was winter so he had to go to a new school. His mother suggested that he should try and get to know his new schoolmates. Once at school he lent them his box of crayons and so he broke the ice'*.

The question asked about this idiom (in the out of context and the story conditions) was 'What did Paul do when he broke the ice? Did he a) make friends with his school mates, (idiomatic answer) b) break a piece of ice, (literal answer) c) tell his mummy everything (plausible, but not specified in the paragraph)?'.

Cacciari and Levorato's (op cit) findings that seven and nine-year-old children were able to choose more answers reflecting idiom comprehension to questions about scenarios containing idioms than about idioms presented out of context, supported their proposal that contextual information encourages children to use a figurative strategy in interpreting idioms.

Their findings support the idea that children do not misunderstand idioms simply because they do not know them, since if ignorance explained lack of idiomatic comprehension, the same number of idiomatic answers would have been achieved regardless of contextual information. Further, children in Cacciari and Levorato's (op cit) study were able to assess answers reflecting a non-literal interpretation as incorrect when they did not know the idiomatic expression. Therefore Cacciari and Levorato propose a step in the developmental process where children are learning that 'normal words can be part of configurations of meaning having a non-literal sense' (page 404) and show an awareness of such a phenomenon without understanding the semantic representation of the idiomatic expression.

Cacciari and Levorato's findings support an earlier suggestion by Shatz (1987) that when learning language children 'bootstrap' their way to learning new forms and meanings by using what they already know: that is, when children hear a novel utterance they use the parts they understand to work out the parts that they don't know.

The effect of context on idiom comprehension was also examined by Nippold and Martin (1989), whose study

included older students (14 to 17 years) than that of Cacciari and Levorato. They also found effects of context in that students could explain idioms more accurately when they were presented in context than when they were presented in isolation.

In a further study, Levorato and Cacciari (1992) showed that familiarity to idiomatic expression plays only a minor role in comprehension of idioms and only for younger age groups of children (five-year-olds) who were not able to use contextual information to understand idioms. This implies that the semantic knowledge relating to the learning of individual idioms is related to familiarity, but when children develop the ability to use a pragmatic strategy to understand idioms rather than relying upon semantic knowledge to learn them 'item by item', familiarity is no longer important.

In Part 2 of this chapter, two different views were outlined on how adults use context to resolve ambiguous communication and these have been applied to idiom comprehension. Clark's (1979) view for example, which reinforces that of Searle's (1975, 1979) is that a literal interpretation of an idiom is interpreted parallel with an idiomatic interpretation, with the

contextual inappropriateness of the literal interpretation acting as a cue that a non-literal idiomatic interpretation is required.

Gibbs' (1980) alternative view is that meaning of idioms are relatively fixed or 'frozen' and they are interpreted in the same way as meanings of literal uses of utterances, that is, because of the frozenness, the idiomatic meaning of a phrase has the same status of lexical representation as the meaning of a literal use of a phrase. This view therefore proposes that idiomatic interpretation requires less contextual support.

Ackerman's 1982 study investigated the application of these two views to children's comprehension of idioms, in particular, looking at their reliance on context to resolve the ambiguity. The question posed was whether children learned to interpret idioms in a set manner, as they would the literal meanings, or whether, because they have less knowledge of conventional interpretations of idioms than adults, their interpretations are less fixed and rely more on context of use.

Ackerman (op cit) compared children aged six, eight and ten years with adults in their interpretation of short

stories providing contextual information to a terminal sentence containing an idiomatic phrase. Questions were used to assess children's recognition that a literal interpretation of the sentence was inappropriate. The contextual information was biased towards an idiomatic, literal or neutral interpretation of the terminal sentence, with the idea that if idiom interpretation required minimal contextual support, the interpretation should be the same in the idiom and neutral contexts.

Ackerman (op cit) found that the six and eight-year-old children were influenced by the idiomatic biased context whereas the ten-year-olds and the adults were not. The ten-year-olds and adults understood idioms equally well independent of context, but the six and eight-year-olds who were developing idiom comprehension did better in the idiomatic context than the neutral context.

This evidence suggests, in support of Gibbs' view, that, for older children and adults, idiom interpretation is relatively fixed and not strongly dependent on contextual support. However, children in the process of developing idiom comprehension are influenced by context. It was also noted earlier in part one of this chapter that adults' ability to use a more automatic processing of

idioms, based on metacommunicative knowledge, is dependent upon the amount of context included (Ortony et al, 1978).

Ackerman proposes a developmental model for the interpretation of idioms in which children first learn to recognize that contextually incongruent literal interpretations of utterances are inappropriate. Once it is seen that a non-literal interpretation is required, a fixed formulaic meaning for an idiom may be applied, if it is known. If it is not known, young children may fall back on a literal interpretation, whereas older children may construct appropriate interpretations of unfamiliar idiomatic phrases from contextual information. For example, Ackerman found that some of the eight-year-olds in his study were able to do so.

This latter process outlined by Ackerman, which supports the developmental process suggested by Cacciari and Levorato (1989), is clearly dependent on pragmatic knowledge.

Gibbs (1987) points to a further possible developmental aspect, dependent upon the form of the idiomatic

expression and the semantic relation to its literal interpretation. He argued that children have a better understanding of idioms whose figurative interpretation is related in a more obvious, 'transparent' way to the literal constituents of the idiom. e.g. 'skating on thin ice' (being careful). Nippold and Rudzinski (1993) also found that eleven, fourteen and seventeen-year-old students found it easier to give written explanations of transparent idioms. It should be noted that Nippold and Rudzinski further found effects of familiarity in the students' ability to explain idioms, which have not been found in other research on idiom comprehension in adolescence. However, Nippold and Rudzinski (op cit) were not looking at comprehension *per se*, but the students ability to express their comprehension.

Abkarian, Jones and West (1992) showed that neither transparency nor context were important in three to six-year-old children's comprehension of idioms. In their study of twenty-two children, the number of non-literal responses did not increase when idioms were placed in a story context.

This provides further evidence that very young children learn idioms as individual items and are unable to use a

pragmatic, contextual strategy to work out the meaning of unfamiliar idioms. Abkarian et al (op cit) claim, based on their findings that 'idiom learning is not a straight line function towards greater and greater non-literal interpretation' (page 585). This conclusion appears rather misleading since non-literal idiom interpretation was generally low in all age groups and there was a definite trend towards increased non-literal interpretation with age. The explanation for three-year-olds making less literal interpretations appears bound, not with more non-literal interpretations but with their levels of literal language comprehension, since at this age there were a large number of errors concerning verb and object literal meanings. Therefore, at the age of three, children have insufficient language knowledge to be able to comprehend even the literal interpretation of idioms.

It appears that around the ages of six to eight years, the understanding of idioms is in a process of development and at this time, is dependent upon a number of factors including the context in which the idiom is spoken and the semantic relation between the literal and non-literal meaning (that is, the degree of 'transparency'). Prior to this age, it appears that

idioms are learned on an 'item by item' basis and familiarity with particular examples is therefore more important.

It is suggested that this kind of learning enables children as young as five years to understand certain intems, for example, 'he got ripped off' (Strand and Fraser, 1979).

2.4.4.C. Homonym Comprehension

Study on homonym comprehension, compared to idiom comprehension, appears relatively limited. A recent study by Backsheider and Gelman (1995), however, indicates that children as young as three years have sufficient metalinguistic skills to realise that a single form can have more than one meaning. In this experiment, children were asked whether picture pairs (some homonyms; some non-homonyms) had 'the same name' and were 'the same kind of thing'. (Their understanding of these phrases was checked prior to the experiment.). In addition to recognising that the homonym pairs shared the same name but did not mean the same kind of thing, some children's comments as they completed the tasks also showed that their understanding extended to items not included in the

experiment, for example, 'night and knight have the same name too'.

It should be noted that this study explored an area of semantic as opposed to pragmatic comprehension because children were asked to reflect only upon the semantic properties of homonym and non-homonym forms rather than upon the use of the different forms in particular contexts. However, the metalinguistic knowledge required for this task would appear a pre-requisite for comprehending multiple meanings in context: that is, it would appear reasonable to assume that an individual would need to be aware of the possibility of multiple reference to be able to choose between the different meanings of a form, given the context.

2.4.4.D. Comprehension of Verbal Jokes

Studies into the comprehension of verbal jokes give insight into the comprehension of multiple meanings since, as a study by Shultz and Horribes (1974), illustrates, the resolution of verbal jokes is frequently dependent upon the interpretation of a multiple meaning word.

In Shultz and Horibes' (op cit) study, six, eight, ten and twelve-year-old children were presented with a series of jokes containing a lexical ambiguity, for example, 'Order in court!' - 'Ham sandwich please, your Honour'. The resolution of the jokes was thus dependent upon understanding the multiple meaning, in this example, of the word 'order' (request for food/request for quiet). The original jokes were altered in one of two ways: (i) by removing an aspect of the joke which prevented its resolution, that is, 'Silence in court' - 'Ham sandwich please your honour', or (ii) by removing the incongruity, that is, 'Order in court' - 'I only want the truth to be told, your honour'.

The six-year-olds' ratings of these samples for 'funniness' showed an appreciation of pure incongruity in the 'resolution removed' samples ('Silence in court' - Ham sandwich please you honour), presumably because of the unlikeliness of anyone saying such an utterance in this context. However, the six-year-olds did not appreciate the resolvable incongruity evidenced by the lexical ambiguity, whereas the older children did. Shultz and Horibes point to 'the systematic organisation of cognitive schemes characteristic of concrete operations' (Piaget, 1970) as serving a necessary

background for the need to resolve incongruities in order to enjoy them.

2.4.4.E. Summary and Conclusion to the Developmental Study of MMC Comprehension

The developmental studies reviewed in this section show that children begin to understand the use of idioms in context at around the age of seven to nine years, even if they do not have the entire set of semantic representations available and may be more reliant on context than older children and adults. Younger children are not assisted by contextual information and are more influenced by familiarity of particular items (Levorato and Cacciari, 1992; Srand and Fraser, 1979). The indication is, however, that children are able to understand homonyms from a much earlier age and are aware that words with the same name can have different meanings. The development of metacommunicative skills to understand, for example, how speakers may use inadequate or ambiguous utterances to achieve a communicative purpose, appear to develop later, between the ages of 7 to 9 years. This finding supports those of the studies on the interpretation of IME.

Although such metacommunicative skills are assisted by linguistic knowledge and family speaking practices (Robinson et al, 1983; Peterson et al 1972), the studies by Cacciari and Levorato (1989) and Ackerman (1982) on idiom comprehension show that such a skill can develop even when linguistic knowledge (in this instance, semantic knowledge) is incomplete. The children in these studies were able to use contextual information to determine the meaning of unknown idioms or at least to reject the literal interpretation as incorrect. It has been argued that in order to do this, children need to have the necessary metacommunicative skills to detect miscomprehension and the necessary metalinguistic skills to be aware of multiple reference. The study by Baksheider and Gelman (1995) suggests that this latter awareness is already developed at three years. Comprehension monitoring, however, develops at a later stage (Bonitatibus et al, 1988), at around the age of seven or eight years.

Shultz and Horribes (1974) highlight the relationship between the development of cognitive skills at the level of concrete and formal operational thought (seven years plus; Piaget 1970) and the ability to resolve ambiguity. This relation was acknowledged earlier in this chapter in

identifying the child's ability to 'decentre attention away from a salient attribute' as a possible explanation for why young children do not search for an 'array' of referents in interpreting multiple meanings.

Difficulties in this area may also explain errors in the interpretation of IME, if, for example, children find the verbal content of the communication more salient. The studies of Markman (1979), and Solomon and Ali (1972), however, imply that even when these skills are developed, children and adults may still fail to interpret ambiguity, because, for some reason, they do not spontaneously make use of the knowledge they have. It may be that in the teacher context explored by these studies, listeners are particularly vulnerable to making faulty assumptions about speaker honesty, because of expectations of the teacher role.

Looking more specifically at the processes involved in MMC interpretation, the transitional stage in the development of idiom comprehension indicated by Cacciari and Levorato's (1989) study and by Ackerman's (1982) study supports Searle's (1975, 1979) proposal that there is a need to analyse the literal meaning of the utterance and to make a comparison with contextual information

before interpreting the utterance. The children's responses showed that they had analysed the literal meaning and used the contextual information to judge this as an incorrect interpretation, even though they did not know the implied meaning of the utterances.

Ackerman's (1982) study indicated that this level of processing is only required in the early stages of idiom comprehension. In later childhood and adulthood, in support of Gibbs' (1984) view, there may be more emphasis placed on the illocutionary force of the utterance from the beginning of sentence processing. However, the findings of Ortony et al (1978) indicate that the level of processing required to interpret idioms is dependent upon the amount of context included.

2.4.5. Summary and conclusion to section 2.4

The interpretation of MMC and IME are dependent upon metacommunicative, pragmatic skills which require cognitive, linguistic and social knowledge. It should be noted however, that although the development of pragmatic skills is assisted by linguistic, semantic knowledge (Robinson and Robinson, 1978; Peterson 1972), it is not dependent upon it, as demonstrated by the findings of

Cacciari and Levorato (1989). These findings provide evidence for a distinction between the semantic and pragmatic areas of language.

Further, the finding that twelve-year-old subjects failed to detect verbal inconsistencies, even though they had sufficient cognitive and linguistic skills to be able to do so (Markman 1979) implies that cognitive and linguistic development alone cannot account for the development of pragmatic skills.

Other aspects, such as the social/personality aspects of the speaker - listener interaction, for example concerning the listener's belief regarding the trustworthiness of the speaker, may also need to be considered.

Difficulties with the comprehension of pragmatic meaning therefore need to be examined in terms of possible dysfunction in the areas of language, cognition and social knowledge. 'Person' factors, such as the willingness to challenge the speaker, may also need to be considered. In part 4 of this chapter, a possible relation between neurological dysfunction and pragmatic meaning comprehension will also be outlined.

The development of pragmatic skills sufficient to allow spontaneous comprehension of speaker intention in ambiguous statements appears to occur at around the age of seven to nine years and this is reflected in the emergence at this time of the ability to interpret IME and MMC in line with speaker intention. The limited study on homonym comprehension (Backsheider and Gelman, 1995) suggests that this form of multiple meaning may be understood at an earlier stage, although this study did not examine children's ability to determine which meaning was appropriate given the context; it only examined whether children were aware that a single form may have different representations. Therefore, this study examined the children's metalinguistic skills rather than their metacommunicative knowledge.

Looking more specifically at the processes involved in IME and MMC interpretation, there appears to be a need for children in the process of developing an understanding of IME and MMC to analyse these communications in terms of literal and non-literal representations of meaning and to make a comparison between them (Ackerman, 1982; Searle, 1975, 1979; Solomon and Ali, 1972, Rotenburg et al, 1989) although, in the case of MMC, this comparison is not required

when the developmental process is complete (Gibbs, 1984; Ackerman, 1982). This would indicate that at some stage in development, the interpretation of IME and MMC requires pragmatic processes involving comparison and selection of the most plausible meaning given the context. At a later stage, in MMC comprehension, there is evidence that the interpretation becomes more automatic and does not require the same kind of processing, although this automatic facility may depend upon the amount of context available (Ortony et al, 1978).

Having considered the literature outlined in the first three parts of the chapter, I have proposed a model (figure 2.9) to describe the processes involved in comprehending pragmatic meaning.

At the perceptual level, the communication is perceived in terms of auditory and visual inputs.

At the language level, analysis is made of the form and content of the verbal and non-verbal message and generates more than one possible interpretation. At this

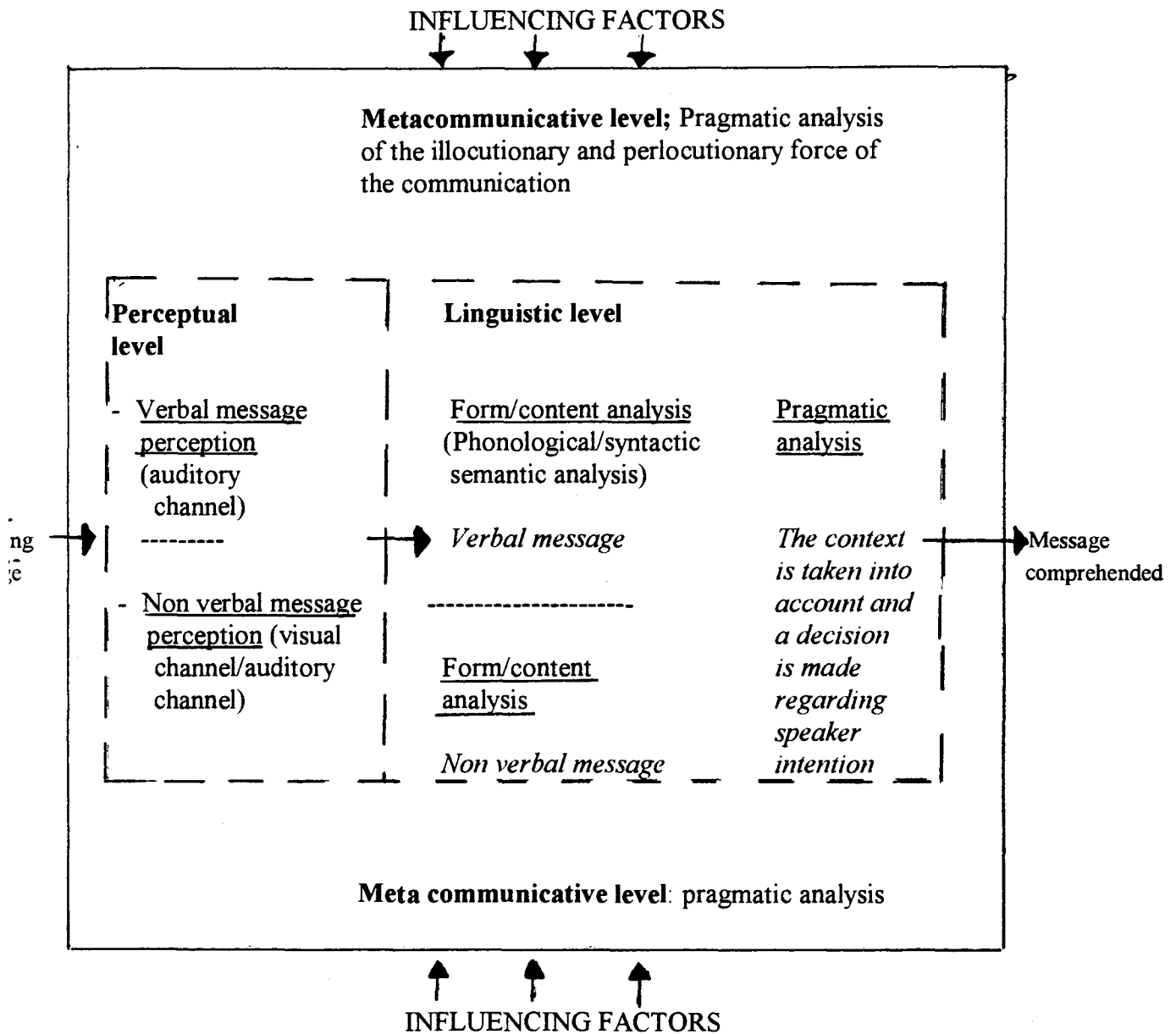


FIGURE 2.9. A model of pragmatic meaning comprehension.

level, the pragmatic analysis is concerned with selecting the appropriate interpretation given the context.

However, in order to make this analysis, metacommunicative knowledge is required at every stage. Firstly, at the perceptual level, the listener has to be aware of the need to attend to the verbal message and the context. Secondly, at the language level, the listener has to know that they need to consider more than one referent in the analysis and to consider the context in determining the speaker's intention. This model therefore proposes two levels of pragmatic analysis: one at a metacommunicative level another at a language level.

Pragmatic analysis at the metacommunicative level is based on the knowledge of rules governing language in context. This includes knowledge that:

(i) context can carry information which can help an individual to work out intended meaning. This includes determining whether the literal interpretation is plausible or not, given the context;

(ii) there may be more than one referent to a communication and therefore a need to make a choice on

the alternative content of the form, given the context. There may also be more than one input channel to consider;

(iii) speakers can deliberately flout cooperative rules of communication (Grice, 1975) in order to add to the meaning of the communication. This can occur regardless of 'person' factors, such as social status of the speaker, and environmental factors such as formality of the situation;

(iv) It is possible not to understand a communication and, therefore, there may be a need to seek clarification.

Pragmatic analysis at the language level involves the actual choice among alternative contents of the form, as a result of assessing the influence of linguistic and non-linguistic context on the utterance (for example, the non-verbal context, semantic plausibility, syntactic congruity) to arrive at an interpretation of the communication in line with speaker intention.

The metacommunicative level of pragmatic analysis therefore involves a broader knowledge of the

communication process and requires knowledge in the socio-cognitive domain. The language level of pragmatic analysis is concerned with the interpretation of particular utterances. It should be noted that although this latter level of analysis has been categorised as language analysis, a part of this analysis is to consider the influence of non-linguistic context on utterance interpretation.

The model I have developed accounts for how children can understand idioms in context even though they do not understand the non-literal meaning of these items out of context (Cacciari and Levorato, 1989). Here, the children were able to make a context sensitive appraisal to reach an accurate interpretation of speaker intention without having the necessary semantic knowledge. I propose that children are able to use pragmatic knowledge at the metacommunicative and language levels to conclude that the literal interpretation, which is the only one available to them because of incomplete semantic knowledge, is incorrect given the context. They are then able to ascertain, through metacommunicative knowledge that there must be a second referent of which they are unaware. This results in the child making an informed guess based on the context as to the speaker's intended

meaning, or concluding that they do not know the speaker's intention.

This model also accounts for the finding that very young children learn the meaning of idioms as a result of familiarity (Abkarian et al 1992; Levorattoo and Cacciari, 1992; Strand and Fraser, 1979) without understanding the rules governing the use of language in context. In this eventuality, I propose that children are able to make a pragmatic analysis at the language level, to consider the context in the light of previous experience, but do so without applying metacommunicative knowledge.

It is however proposed that metacommunicative knowledge is necessary to generalise pragmatic comprehension beyond this kind of 'item by item' learning. That is, when metacommunicative knowledge is developed, children are able to apply the necessary analysis to work out the intended meanings of ambiguous items that they have not encountered previously.

Finally, it may be that in adults, the language level of pragmatic analysis is more automatic and possibly 'by passed' to some extent (Gibbs, 1984). This would account for instances of adults and older children 'jumping to

conclusions': it may be that by focussing too heavily on what the speaker is trying to achieve in making the utterance (that is, the illocutionary and perlocutionary force of the utterance) not enough attention is paid to what is actually said.

In order further to clarify the nature of the model, its relation to two other views of pragmatic impairment (Rae Smith and Leinonen, 1992; Craig, 1995), outlined earlier in this chapter, will first be described.

To review, Rae Smith and Leinonen (1992) view pragmatic performance as incorporating two aspects: (i) a pragmatic component which is concerned with pragmatic competence or 'the potential to be pragmatically able', and (ii) influencing factors, including within person and environmental factors. In the model I propose, the pragmatic component has been further considered to include two levels of analysis, that is at the metacommunicative and language levels, as outlined above.

The model I propose also includes factors influencing the metacommunicative and language levels of analysis, incorporating the within person and environmental factors outlined by Rae Smith and Leinonen, concerning , for

example, listener anxiety, self confidence and previous experience. A number of studies described in part 3 of this chapter indicated the influence of environmental factors on pragmatic meaning comprehension, in particular, concerning how explicit the speaker makes the need to make a metacommunicative analysis. (Robinson et al, 1983, Bonitatibus et al 1988, Ackerman, 1981).

Considering Craig's (1995) model, this outlined pragmatics as the process whereby forms are mapped onto functions. In the model I propose, pragmatic analysis at the language level incorporates this kind of mapping, for example, in analysing syntactic congruity and semantic plausibility in order to work out the intended meaning. This level of analysis also includes consideration of how the non-verbal language context can contribute to the meaning of the verbal message, for example, as in the case of IME, to negate the meaning of the verbal message.

Craig's (op cit) view of pragmatics as a mapping process between form and function was based on the argument that in study of children with disordered language, there is no evidence of particular difficulty with language use. That is, the difficulty language-impaired children have lies not in language function as such, but in the way

children map the forms onto the functions. Craig's argument will be referred to again in the next part of this chapter, however, at this point, it should be noted that the model I propose challenges Craig's view because I suggest that, in the case of pragmatic comprehension, difficulty may occur at the metacommunicative level, which is concerned with the actual functions of language, in particular, understanding what the speaker is trying to do in making the utterance and how they expect the listeners to in comprehend it.

The model described here will be considered again, in part 5 of this chapter in drawing together the various insights gleaned from the literature review.

The chapter will now examine the literature on specific developmental language disorder and related issues, with a focus on the secondary school age group, and will examine previous study on SLD students' ability to comprehend pragmatic meaning.

2.5. CHILDREN WITH SPECIFIC DEVELOPMENTAL LANGUAGE DISORDER AND THEIR ABILITY TO UNDERSTAND PRAGMATIC MEANING IN COMPARISON WITH NON-LANGUAGE-DISORDERED CHILDREN.

2.5.1. Introduction

This part of the chapter will first describe the diagnoses of language disorder and specific language disorder and will examine the kinds of language difficulties and related problems that youngsters with specific developmental language disorder have. The chapter will then focus on later communication development in the secondary school years and on the nature of pragmatic language difficulties. Issues of diagnosis will also be covered, in particular, whether pragmatic language disorder would more appropriately be viewed within the context of autism (Brook and Bowler, 1992) than specific developmental language disorder and the validity of the diagnostic term 'semantic-pragmatic disorder'.

The limited study on SLDL children's ability to understand pragmatic meaning will then be reviewed.

A final section will put forward indicators from the literature review to suggest that SLD youngsters may indeed have difficulty in comprehending this kind of language. These indications will be drawn from (i) the earlier review of the literature on the processes involved in comprehending pragmatic meaning, (ii) the performance of children who are developing language normally, and (iii) the current knowledge of the particular dysfunctions which form part of the language disorder. The cumulative effects over time of having a language disorder, for example relating to opportunity for experience and to self-esteem will also be considered.

2.5.2. Language Acquisition and the Concept of Disordered Language Development

The American Speech Language Hearing Association (1980) defines language disorder as 'abnormal acquisition, comprehension or expression of spoken or written language. The disorder may involve all or some of the phonologic, morphologic, semantic, syntactic or pragmatic components of the linguistic system.' (page 317-8)

One method of describing or diagnosing language disorder has been to make comparisons with reference to normal patterns of language acquisition.

This chapter has already reviewed language acquisition studies looking at children's development of the comprehension of ambiguous communication, and common developmental patterns have been indicated.

Common developmental patterns have also been found in other areas of language development. Ingram (1976) for example, outlined a developmental sequence in the acquisition of phonology comprising different simplifying processes occurring at different ages between eighteen months and six years. Crystal, Fletcher and Garman (1976) outline stages in the development of syntax up to the age of five years. Carol Chomsky (1969) outlines a further five aspects of syntax acquired between the ages of six and ten years. Bloom and Lahey (1978) noted common features in children's development of language content.

Considering receptive language, the standardisations of language comprehension assessments have included developmental norms, for example, for the understanding

of grammar (Bishop, 1989) and word content (Dunn, Dunn, Whetton and Pintillie, 1982).

An age-related improvement in understanding forms of non-verbal communications such as facial expressions, has also been suggested. For example, from a review of research in the field of emotional understanding, Harris and Saarni (1989) conclude that the emotions happiness, sadness, fear and anger are the earliest to be recognised and understood.

Normative guidelines have also been proposed for aspects of perceptual and cognitive development which are seen as pre-requisite for language. Cooper, Moodley and Reynell (1979) outline stages during the pre-school years in the development of attention control, concept formation and symbolic understanding.

In making such comparisons with normative data, authors and practitioners have attempted to differentiate language impairments in terms of delayed and disordered development. Cooper, Moodley and Reynell (1979), for example, outline language delay as a slowing in the rate of language development but they note that in this kind of impairment the language follows a developmental

pattern along the lines of recognised normative stages, with verbal comprehension developing prior to verbal expression. When language development is disordered, however, it develops in an uneven and atypical way in terms of normative trends. A child with language disorder, therefore, may show linguistic features not found in the course of normal development (Bishop and Rosenbloom (1987). Bishop and Edmunson (1987) also noted that deficits within a language disorder are more persistent than those of a language delay.

It should be noted that the distinction between delay and disorder outlined above is not always clear. Ingram (1989) believes that knowledge of normal acquisition is not sufficient to allow accurate judgement here. Further, reported case studies (Rinaldi 1992) show that Bishop and Edmunson's claim for delayed language development to be less persistent may not necessarily be so. Youngsters may continue to simplify their language in ways usually seen in the speech of pre-school children into the secondary school years, despite specialist teaching/therapy.

Rather than considering age-related distinctions, other descriptions of language disorder have focused entirely

on the language itself. Bloom and Lahey (1978) for example, describe language disorders in terms of their three-component model, outlined earlier in this chapter. They describe disruption as occurring within one or more of the components - form, content or use, or in their interactions. Difficulties may therefore occur with: (i) formulating ideas (content) (ii) in learning the code or system of language (form), and (iii) in using the code in the range of contexts and functions required and in a way that matches the conventional system of the linguistic community (use). Lees and Urwin (1989) outline mismatches in the development of the various subsystems of language, in comparison to normative development, as a feature of language disorder as opposed to language delay.

Such mismatches were evident in Bloom and Lahey's (1978) observations of language disordered children. For example, they outline instances where ideas about the world of events and objects (language content) are more intact than their knowledge of the linguistic system for representing and communicating these ideas (language form). Other children have a good knowledge of the linguistic system but are weakest in developing ideas that make up the content of language.

Bloom and Lahey (op cit) also noted cases where the component of language use was more impaired than content or form. Here, learning the system to code ideas is less of a problem than using the system for communication. This is of particular interest to the present study, since pragmatic meaning has been associated with the component of language use.

Bloom and Lahey suggest that when there is a relatively strong weakness in language use, compared to language form and content, difficulties are not as obvious to detect and may require continual interaction with the child before the nature of the disruption becomes apparent. Bloom and Lahey describe children who have a particular problem with the use or pragmatic component of language as appearing 'intrapersonal rather than interpersonal; they talk about something that is out of context and ramble repetitively or tangentially associate ideas without regard for the listener' (page 299).

Although the emphasis of this description is on inadequate expression of language, the indication is of a low awareness of context, which was outlined in part 2 of this chapter as being central to the comprehension of pragmatic meaning.

Rapin and Allen (1987) also indicate mismatches in language profiles in their classification of language disorders, by differentiating, for example, specific problems with syntax and phonology and specific problems with semantics and pragmatics. This classification combining difficulties with semantics and pragmatics resulted in a diagnostic term 'semantic-pragmatic syndrome', more recently described as 'semantic-pragmatic disorder' (Bishop and Adams, 1989). This type of language difficulty will be described later in this chapter in considering diagnostic issues relating to the present study.

The classifications outlined above take a linguistic approach, by describing which language components are affected. Another way of classifying language disorders, outlined as a 'medical approach' (Bishop and Rosenbloom 1987) is by identifying the aetiology, for example, hearing loss, physical handicap, mental retardation, poor environmental stimulation, emotional disturbance, neurological dysfunction (Emerick and Hatton 1979). Language disorder/delay has been associated with all of these conditions, however, in some instances it is not possible to identify clear aetiology, as detailed in the next section.

2.5.3. The Concept of Specific Language Disorder

The concept of language disorder has already been associated with a developmental pattern which deviates from common developmental patterns, mismatches in the child's language profile and identifiable aetiology. The diagnosis of specific developmental language disorder, (that is a problem specific to language development) appears to have been applied where there is no identifiable aetiology.

Lees and Urwin (1989), for example, summarise attempts to define specific language disorder as having been reached by exclusion. Therefore, a child is said to have a specific language disorder if there is an absence of predisposing or precipitating factors. This kind of definition was first applied in the 1960s to the diagnosis of 'childhood aphasia' (Kirchner and Skerakis Doyle 1987).

Lees and Urwin (1989) note this kind of definition as unsatisfactory, since their observation is that in the vast majority of children with specific language disorder, some or even all of the predisposing or precipitating factors outlined by Emerick and Hatton

(1979) have been or are present. Bishop (1987) also suggests a multifactorial aetiology, where specific language disorder is the final common pathway for a number of factors which interrupt development. Lees and Urwin (1989) therefore propose a definition that acknowledges that a specific language disorder may be associated with a history of hearing, learning, environmental or emotional difficulty, but cannot be attributed to any one of these alone or even to the sum of these effects: that is, the predisposing factors are not of a degree sufficient to bring about the degree of language disorder.

Lees and Urwin (op cit) also summarise four other common findings which may also be seen in a child with specific language disorder. These are: (i) a family history of specific difficulty in language development, (ii) evidence of cerebral dysfunction, for example, presence of neurological signs such as clumsiness and epilepsy (Robinson, 1987) (iii) mismatch in the subsystems of language in relation to aspects of cognitive development, and (iv) a failure to catch up these differences with 'generalised' language stimulation.

The theoretical framework for disordered language development presented by Kirchner and Skarakis-Doyle (1983) also assumes a genetic or lesion based disruption in the growth of component language skills required for the development of normal communication. Lees and Urwin note, however, that despite their findings outlined in points (i) and (ii) above, as yet it has not proved possible to isolate a genetic marker for language disorder nor to find evidence of clear cerebral lesions (Robinson 1992). Aram and Eisele (1994) also concluded that the type of unilateral neurological lesion to the left hemisphere, clearly identified in acquired childhood language disorder, cannot account for the persistent nature of language difficulty in specific developmental language disorder. They suggest that a more adequate explanation for a neurological basis of SDLD would be in terms of bilateral or more diffuse areas of the brain.

Cromer (1987) highlights the importance of underlying perceptual and cognitive impairments to account for the observed language behaviour of children with specific language impairment, in particular that affecting auditory processing and memory. He cites evidence from studies by Menyuk (1964) and Tallal and Piercy (1973, 1978, 1981).

Menyuk's (1964) study indicated that a memory deficit could account for some language deficits. In an imitation task, language disordered children performed differently from non-language disordered children in that they omitted the first part of the sentence and could not retain strings greater than three to five morphemes in length.

However, in a more recent study which compared a small group of six language impaired children, aged six to nine years, with language-age-matched children, Van der Lely and Howard (1993) did not find short term memory deficits using verbal repetition and picture pointing tasks. The conclusions drawn from this study are however limited by the small number of language-impaired children studied, indeed, Howard and Van der Lely suggest that 'different groups of language-impaired children may have different characteristics in short term memory tasks' (page 1204). This statement emphasises the heterogeneous nature of SDLD children as a group, a theme which will be taken up again later in this part of the chapter.

Tallal and Piercy (1981, 1978) found language disordered children's ability to process the order of auditory signals was particularly affected by the rate of

presentation. For older children, aged seven to eight years, these processing difficulties were only evident for auditory as opposed to visual stimuli, whereas five-year-olds had difficulty in processing both kinds of stimuli.

Tallal and Piercy (1973) also found that the children had difficulty making distinctions between and remembering sequences of auditory events when a chunk of that event was too short in duration. Their conclusion is that some cases of developmental dysphasia (specific language disorder) are the direct consequence of defective processing of rapidly changing acoustic information and an associated, possibly consequential, reduced memory span for auditory sequence. Menyuk (1978) also proposes that the language of children with specific language disorder may be accounted for by differences in auditory processing abilities, in particular, in the way information is analysed and stored and/or in the way the information is retrieved for output.

Therefore, although it has been found that children with specific language disorders may attain values equivalent to average or above average intelligence on performance

IQ subtests, it is not true that these children are, except for language, cognitively intact (Menyuk 1978).

Bishop's (1992) attempt to pursue the underlying nature of specific language impairment develops the earlier thinking of Menyuk (op cit) and of Tallal and Piercy (1981, 1978, 1973). Whilst noting that a single underlying factor is unlikely to explain adequately all cases of specific developmental language disorder, because of its heterogeneous nature, Bishop (1992) proposes that a fundamental deficit may be a slowed rate of information processing leading to impairment in any task requiring integration of rapidly presented information. She speculates that SLD children may be able to perform normally in certain non-language based tasks which require information processing, such as block design, because these tasks require them to operate on mental representations that are processed simultaneously. That is, all the necessary information for solving the task is present simultaneously and the individual blocks can be mentally manipulated into a single spatial representation. However, the information processing deficit may show itself when the child has to process information which is transient or when a transient

representation must be held in mind while another representation is formed.

In the same paper, Bishop also explores the hypothesis that abnormal learning strategies may underly specific language impairments. Her review focuses on hypothesis testing abilities and concludes that this strategy does not appear to be deficient in SDLD children. However, it can be envisaged that certain learning strategies, such as requesting clarification and interjection to check understanding, may influence the information processing capabilities of children.

The heterogeneity of the SDLD population was referred to earlier and case studies of language-disordered-children (Lees and Urwin 1989; Bloom and Lahey 1978) have further shown that specific developmental language disorder is not a unitary condition. As indicated by Bloom and Lahey's (1978) model, language disorder can affect any one or more of the language components and/or their interactions. Further, language profiles of language disordered children show discrepancies between children's comprehension and expression of any one or more of the language components, although Lees and Urwin note that because expressive language is the outward manifestation

of a language disorder, receptive problems have tended to be overlooked in diagnosis.

Aram and Nation's (1975) study further emphasises the heterogeneous nature of language disorder. They studied phonological, syntactic and semantic subsystems, looking at forty seven language disordered children. They identified as many as six patterns of language performance within this group.

Kirchner and Skarakis-Doyle's (1987) theoretical framework explains some of the heterogeneity within the language disorder population as occurring because of the different compensatory strategies children use to adapt to communication demands. These strategies involve processes which are relative strengths in the child's communicative system. Their case studies showed a range of strategies including gesture to aid word finding and simplification of syntax to increase intelligibility.

Having provided an overview of the diagnoses of developmental language disorder and specific developmental language disorder, the chapter will now focus on the age range of particular interest to the present study: the secondary school years.

2.5.4. Language Impairment at Secondary School Age

Since the students who form the focus of the present study are of secondary school age, study on language impairment at this age is of particular interest. A survey of the literature, however, shows that very little has been documented in this area: the majority that has been written has come from the U.S.A.

Prather (1984), for example, begins her chapter 'when asked to write a chapter on adolescent language disorder I could think only of the many unknowns'. Guilford (1988) notes 'there remains a paucity of research relating directly to the language problems evidenced in adolescence' (page 716). Guilford outlines that this lack of research with the adolescent age group is reflected in a lack of adequate assessment instruments suitable for this age group and a tendency for older students to be 'neglected' by speech-language pathologists (the American term for speech and language therapists). He cites evidence from the findings of Boyce, Goodwin and Larson's (1979) survey of speech and language pathology training establishments that only 50% of courses in 5 mid-western states provided formal course work on this age group. I recently attempted to seek the percentage of course work

specifically focused on secondary school SLD students in the U.K Speech and Language Therapy training establishments. Of six establishments contacted (two in London, two in the Midlands, one in Scotland and one in Wales) three stated that no course work was specifically focused on this student group; one estimated, 'perhaps 1 to 2 hours in the whole 4 year course'; one stated, 'very small, we think'; and one concluded, 'I'm afraid it's impossible to estimate'.

Ehren and Lenz (1989) express a concern that many adolescent students remain 'unserved'. This appears of even greater concern bearing in mind prevalence figures from an American study by Albritton (1984). In a group of 1,028 students aged twelve to thirteen years, assessed by speech clinicians, Albritton found 7% prevalence of specific language disorder. A review of prevalence studies by Blum, Harasty and Rosenthal (1992) unfortunately revealed no further study with this age group. However, Blum et al claim that all the studies they reviewed, including that by Albritton (1984), failed to include pragmatic impairments: this implies that Albritton's (op cit) findings may be a conservative estimate.

In the British Isles, there is no data available on the prevalence of language impairment at secondary school age. It is true, however, that considering educational provision, this group of youngsters have a much smaller range of specialist speech and language resources available to them than the primary school age group, as indicated, for example, by the very small number of secondary specialist language classes or units available (Charteress, 1994).

The paucity in assessment material for the secondary age group, outlined by Guilford (1988) and Rinaldi (1992) serves to create inadequate resources to meet these youngsters' needs, since without appropriate assessments it is not possible to provide reliable information on their language skills or needs. Guilford points to a tendency to use updated tests originally standardised on younger age groups as inadequate since such tests do not reflect knowledge of normal adolescent behaviour or the communication demands placed upon them.

Ehren and Lenz (1989) and Guilford (1988) provide evidence based on observation of the types of language difficulties shown by this group and the implications in terms of demands of the school curriculum. The authors

note that some adolescent students with language disorder have a history of language disorder identified in the pre-school years. Their problems persist, albeit with changing symptomatology. Ehren and Lenz (1989) also identify a group who may have had language disorders in earlier years which were manifested in more subtle ways when they were younger and only have become observable as the demands of the school curriculum and school setting requires a greater reliance on language competence.

Ehren and Lenz (op cit) note that because of a change in school demand, the effect of the language disorder often manifests itself more broadly in terms of curriculum areas and therefore may be mislabelled as a learning difficulty: '...as these students mature, the language disorders at the root of their difficulties in school are often forgotten as the label of "language disordered" is traded for another educational tag, more often than not "learning disabled"' (page 193).

In a follow up study of pupils who had attended a primary special school for children with specific developmental language disorder, Griffiths (1969) also found that youngsters who had apparently overcome their oral language difficulties in the primary years were having

continuing education and social problems at their secondary mainstream school. These problems could be accounted for by a number of factors, for example, the transition from a residential special school to a mainstream day school setting, however, the possibility of effects created by continuing language difficulties cannot be discounted, particularly bearing in mind the relation between pragmatic language and social development which has already been identified in this literature review. Indeed, Aram, Ekelman and Nation (1984) found that 70% of a sample of twenty children, assessed as having language difficulties at three years five months to six years eleven months, obtained low scores on language tests ten years later.

The effects of residual language difficulties on social development were also evident in Haynes and Naidoo's (1991) study. This was a retrospective study looking at a cohort of 156 children (mean age 7 years 10 months) admitted to the I CAN Dawn House School, Nottingham between the period of 1974 and 1987.

This study unfortunately did not include language assessment at secondary school age and the assessment battery used did not include pragmatic language. The

authors explain that because of the retrospective nature of the study, the assessment tests used were those available in 1974; at this time, little study had been made of pragmatic language, and assessment materials had not been designed to tap this aspect of language.

However, Haynes and Naidoo's follow up at 18.0 to 22.10 years, of the youngsters who were assessed in their primary school years, led them to conclude, 'If given appropriate and intensive help, it is possible for some SLI (specifically language-impaired) children to make excellent progress...but for almost all, some language difficulties persist and for many these problems will affect scholastic achievement, work prospects and social life.' (page 181, Haynes, 1992)

The findings regarding employment were fairly positive in that twenty five of the thirty four youngsters were in employment; four were students. Of particular interest, however, was the finding that many of the youngsters had difficulties socially. For example, although twenty of the thirty four subjects reported going out socially with friends of their own age, 14 of the 20 did so only rarely.

Aram and Nation (1975) observed that as the language disordered child grows older, the language disorder becomes more specific and the observations of Guilford (1988) and Wiig and Semel's (1984) on the kinds of language difficulties shown by adolescents emphasise the area of pragmatic language.

Wiig and Semel's (1984) descriptions of language difficulties in adolescence, for example, outline difficulties and confusions in interpreting the emotional intentions that people communicate through facial expressions and body language.

Guilford (1988) lists a number of pragmatic language difficulties to include the following: (these aspects particularly identify difficulties with metacommunicative analysis.)

(i) A tendency, as a group, to be less sensitive to conversational rules and therefore to appear less cooperative than their normal peers;

(ii) A disinclination to request clarification when given ambiguous messages by peers.

These difficulties would clearly affect the interpretation of ambiguous communication such as IME and MMC which require an understanding of conversational rules based on cooperation including the purpose of deliberately flouting the rules.

The suggestion that language disordered adolescents do not seek clarification of ambiguous communication also implies deficiency in metacommunicative knowledge and in practical terms is of particular concern since there may be no other way of detecting their misperception or confusion. Bearing in mind that the amount of ambiguous communication used, for example to create humour, and mark sarcasm, appears comparatively frequently at secondary school age, the amount of confusion experienced by language disordered youngsters could be predicted as being considerable.

This chapter will now focus further on SLD youngsters' difficulties with pragmatic language, in particular considering diagnostic issues.

2.5.5. **A Focus on Difficulties with Pragmatic
 Aspects of Language. Diagnostic Issues**

2.5.5.A **Introduction and Summary of Key Issues**

An issue relating to the central argument of this study is for pragmatics to be viewed as a discrete, albeit interactive, component of language which is concerned, in part, with the ability to interpret contextual meaning. The proposal for pragmatic language to be considered in this way stems from my belief that many youngsters with specific developmental language disorder (SDLD) may have difficulties specifically pertaining to this aspect of language comprehension, and unless this aspect is included in theoretical accounts of language and in diagnostic assessments, these kinds of difficulties may pass undetected.

The indication in the literature reviewed thus far is indeed that pragmatic language impairments may form a particular area of difficulty for secondary-school-aged SDLD students (Guilford, 1988; Wiig and Semel, 1984).

The observation that language difficulties can specifically pertain to the pragmatic area in relation to

other aspects of language resulted in the development of a diagnostic term semantic-pragmatic syndrome (Rapin and Allen, 1987) later renamed semantic-pragmatic disorder (Bishop and Adams, 1989). A more recent view (McTear and Conti-Ramsden, 1992; Rae Smith and Leinonen, 1992) is that the term 'pragmatic disorder' or 'pragmatic disability' more accurately reflects the kinds of language difficulties included within this classification.

A further current diagnostic issue relates to whether pragmatic language difficulties should be viewed within the context of specific language disorder at all, and whether, rather, it should be viewed within the context of autism (Brook and Bowler, 1992; Happe 1994). These diagnostic issues will now be outlined in more detail and implications for the present study will be considered.

2.5.5.B. Issues Relating to the Diagnostic Term
Semantic-Pragmatic Disorder

The term semantic-pragmatic syndrome was outlined by Rapin and Allen (1987) as one of a number of subtypes of developmental language disorder, where the main problem is 'encoding meaning relevant to the conversational

situation' (page 174). The diagnostic term semantic-pragmatic disorder was further applied by Bishop and Rosenbloom (1987) to children who have delayed early language development, but who then develop fluent complex speech with clear articulation. The authors note that these children may do well on multiple choice comprehension tests, but have comprehension problems nevertheless in less structured situations, where they make over-literal responses.

However, although the diagnostic term applied to this kind of language difficulty combines the terms semantic and pragmatic, the features of the language and communication described in children who have been diagnosed 'semantic-pragmatic disordered', (for example, Culloden, Hyde-Wright and Shipman 1986, Bishop, 1989) would appear to be more accurately located within the pragmatic domain of language. For example, characteristics have included 'makes literal interpretations; poor at making inferences; fails to interpret language pertinent to situational context' (Culloden, et al, 1986); 'abnormal conversational characteristics such as increased initiations and violations of turns' (Bishop, 1989).

Further, some descriptions of semantic-pragmatic disorder include characteristics such as 'large, sophisticated vocabularies' (Rapin and Allen, 1987), which indicate that some aspects of semantics may be relatively well developed.

McTear and Conti-Ramsden (1992) therefore propose that the term semantic-pragmatic disorder be replaced by 'pragmatic disability', since the difficulty of putting together 'semantics' and 'pragmatics' may prevent adequate explanation of the nature of a child's difficulties.

Similarly, Rae Smith and Leinonen (1992) also propose that characteristics or behaviours seen in the kind of disorder labelled 'semantic-pragmatic disorder' should be viewed as aspects of pragmatic knowledge. They also argue that the concepts semantic and pragmatic may not be as closely interlinked within the field of language difficulty, as the term semantic-pragmatic disorder suggests. For example, some types of pragmatic difficulties, such as use of conversational rules governing initiation and turn-taking, do not affect the acquisition of concepts and meaning. The present study will further explore this claim by examining two

different aspects of meaning, one located in semantics, the other in pragmatics.

This part of the chapter will now focus on the issue of pragmatic disorders within the context of autism.

2.5.5.C. The View of Pragmatic Disorder within the Context of Autism

In recent years, an issue which was not current at the outset of the present study (1987) has created a growing debate over whether pragmatic impairments would more appropriately be viewed within the context of autism than specific language disorder. Although this issue was not current at the outset of this study, it does have relevance to it and is therefore included here.

In order to understand this debate and its relevance to the present study, a brief summary of the diagnosis of autism will first be outlined.

Kanner's (1943) first account of Autism, based on the observation of eleven youngsters, included the following characteristic features:

(i) inability to relate to people;

(ii) failure to develop speech or largely non communicative use of language...obsessive questioning and ritualistic use of language in several;

(iii) behaviour governed by an obsessive desire for sameness;

(iv) good cognitive potential with excellent rote memory.

Since this first outline, a number of developments in the description of autism have taken place which emphasise the variability of the condition (Frith, 1989). Autism is now viewed as a continuum or spectrum of disorders, both in terms of pattern and severity (Wing, 1988) and there is less emphasis on the inability to relate to people (Frith, 1989) although social impairment has been identified as the core symptom of autism (Wing, 1988).

This change of perspective has emerged largely since a paper by Frith (1989) which emphasised, not so much the symptomatology of autism, as outlined by Kanner (1943), but the difficulties underpinning three areas or 'traids of impairment' within the condition; (1) the capacity to

form and maintain sophisticated social relationships; (ii) intentional communication, and (iii) imaginative activity. Frith proposed the underlying difficulties of this triad of impairments to be in the area of cognitive functioning, in particular, in the ability to make 'second order representations': that is, the ability to know that something can function as something else. The example Frith gives relates to a play context, where real objects may be used to represent something different, such as the use of a banana to represent a telephone.

The relationship between pragmatic meaning comprehension and second order representation is immediately apparent, since the requirement here is for an individual to realise that a speaker may say something with a reference, but in fact they may mean something else.

The question over whether pragmatic difficulties should be viewed entirely within the context of autism (Brook and Bowler, 1992; Happe, 1994) arise because communication and language abnormalities are a central symptom of autism (Bishop, 1989) and those language difficulties cited pertain in part to the pragmatic area, for example, the use of language appropriate to the social context, the rules of conversational exchange and

the ability to understand shades of meaning, metaphor and humour (Aarons and Gittens, 1992).

Since, as has already been shown, pragmatic language is intrinsically bound with aspects of social development, children who have pragmatic language difficulties tend also to have problems socially (Griffiths, 1969; Guilford, 1988; Rinaldi, 1992), including the development of friendship and appropriate use of language in different social contexts. Viewed in this way, the overlap between autism and pragmatic language difficulty becomes immediately apparent. Churchill (1972), for example, proposed that there was no qualitative distinction between developmental dysphasia (specific developmental language disorder) and autism, only one of degree. Wing (1976) implied that children with developmental receptive language disorder could be placed at the upper end of the autistic continuum. Brook and Bowler (1992) suggest that semantic-pragmatic disorder may be 'autism by another name'.

There is however, evidence to indicate that although the pragmatic language area is clearly affected in youngsters with autism, it is a false picture to consider all pragmatic language difficulties (or indeed, as Wing

(1979) suggests, all receptive language disorders) in the context of autism. Bishop (1989) states 'it is not helpful to treat specific developmental language disorder and autism as points on a continuum: most children with developmental language disorders have communication problems that are more circumscribed than those of autistic children, and which are not associated with any abnormalities of behaviour' (page 115). Bishop outlines two key differences between the diagnosis semantic-pragmatic language disorder and Asperger's syndrome, which has been identified as a synonym for autism of a less severe kind (Schopler, 1985).

In Asperger's syndrome, verbal IQ is above performance IQ (Wing, 1988) and early language development is not delayed. In semantic-pragmatic language disorder, as a category of specific language disorder, verbal IQ is lower than performance IQ and language development is delayed with evident comprehension problems (Rapin and Allen, 1983). Clearly, some caution has to be applied here, because some 'performance' subtests have been found to have a high verbal loading. However, the above differences in performance and the patterns of language development do clearly differentiate the two groups.

Rapin's (1987) attempt to differentiate specific developmental language disorder from autism suggests that a child can have a pragmatic language disorder without meeting the criteria for autism. These criteria include 'bizarre choice of conversational topic' and 'obsession with particular activities' (page 25).

In conclusion to the points already made with regard to differential diagnosis, although there appear areas of overlap between the language difficulties described within the diagnosis of autism, Asperger's syndrome and semantic-pragmatic disorder or, as it is argued here, more usefully, 'specific pragmatic disorder', there is enough evidence in the literature to indicate that these kinds of language difficulties can be viewed either within the context of autism or within the context of specific language disorder, depending on, for example, the history of the language difficulty, and the presence/absence of other criteria associated with autism.

A further consideration in this issue, is the possibility that, in some cases of specific developmental language disorder, pragmatic language comprehension difficulties may co-occur (or there may be a history of co-occurrence)

with other kinds of language difficulties, for example, with phonology and grammar. Although difficulties with phonology and grammar have been classified as a separate kind of developmental language disorder (Rapin and Allen, 1983), it is possible, bearing in mind the relatively late onset of pragmatic meaning comprehension in non-language-impaired youngsters, that, SLD youngsters with a history of phonological and/or syntactic impairment may also have pragmatic difficulties which persist into the adolescent years. A study by Bishop and Adams (1992), for example, showed that using context to comprehend passages containing inference was equally impaired in the 'semantic-pragmatic disorder' and 'other specific language disorder' groups. Vance (1992) and Vance and Wells (1994) also found no difference in SLD youngsters compared to a subgroup of semantic-pragmatic disorder, in their understanding of metaphor.

Further, the study by Haynes and Naidoo, (1991), described earlier in this chapter, which included youngsters with a range of specific language disorder, but not including a sub group of semantic-pragmatic disorder, found that for almost all of the youngsters, persisting language

difficulties affected social life. Since pragmatic language has most strongly been linked with social development, this may provide an indication that pragmatic language difficulties co-occured with other kinds of speech and language disorders included in this study, for example, 'speech difficulties', 'no language' and 'classic' (Haynes, 1992, describes this sub-group as resembling Rapin and Allen's 1983 classification of phonologic-syntactic syndrome).

Vance (1992) suggests that 'some of the features found in the language of children within the sub-group of semantic-pragmatic disorder may be common to all children with specific language impairment, but are more noticeable, and therefore more noted in this sub-group, because all other aspects of language are relatively intact.' (page 5)

Since the present study focuses on the SLDL population, a finding that pragmatic meaning comprehension is relatively more impaired than non-pragmatic meaning comprehension for this group, as a whole, would provide further justification for considering pragmatic language difficulty within the context of SLDL and not solely within the context of autism.

A further aspect in this issue is, however, the possibility that the pragmatic language difficulties of some of the youngsters included in the study, who have been diagnosed SLDL would, by some authors, be viewed as being seen within the context of autism. This difficulty was not apparent at the conception of the present study (1987) because at this time the debate was not current, however, the criteria set by special schools and units for children with SLDL include specification for verbal IQ to be lower than performance IQ, which, according to Wing's (1988) criteria would differentiate this group from Asperger's syndrome at least. Furthermore, criteria for entry includes exclusion of youngsters who show particular emotional/behavioural difficulties, which again would imply that youngsters with features of 'classic autism', for example, obsessive behaviour, are not included.

However, since there is clearly a strong relationship between pragmatic difficulties and autism, the findings of the present study are likely not only to have implications for the SLDL youngsters but for autistic youngsters also.

Diagnostic issues relate in part to the development of appropriate diagnostic assessment tools, since without adequate assessment material, accurate diagnosis is not possible. This chapter will now therefore review the literature on the current state of affairs with regard to pragmatic language assessment.

2.5.6. Assessments of Pragmatic meaning

In the introduction to this study, inadequacies with assessments of ambiguity presently available were highlighted, in particular, the failure of such assessments to examine the comprehension of contextually implied meaning to resolve ambiguity and, secondly, the influence, for SLD children, of extraneous variables such as high auditory memory load, obscuring the assessment of their language comprehension.

A review of assessment of pragmatic language skills, by McTear and Conti-Ramsden (1992) and Rae Smith and Leinonen (1992) shows the majority of assessment procedures to be concerned with the child's language use and their ability to structure conversation as opposed to their comprehension of pragmatic meaning. McTear and Conti-Ramsden, for example, outline a number of

observation checklists (Prutting and Kirchner, 1983; Gutfreund, Harrison and Wells, 1989) which do not include pragmatic meaning comprehension.

An exception here is 'The Analysis of Language Impaired Children's Conversation' (Bishop and Adams, 1989), an observation checklist based on a number of categories, developed as a result of examining transcripts of language-impaired and control children, where the normal flow of conversation appeared disrupted because of inappropriacy. One of these categories is 'failure to use context in comprehension' and refers to the type of response which shows a literal interpretation of a partner's utterance as opposed to the intended meaning.

This is precisely the kind of comprehension problem which is of interest to the present study, however McTear and Conti-Ramsden (1992) point out the difficulties of using assessment of this kind. These concern the effects of the competence of the communication partner and variation of judgements regarding inappropriacy. Another problem with observational methods of this kind is that the need for the type of communication (or communication comprehension) to be observed may not arise in the time set aside for observation. Furthermore, the detection of

comprehension problems in observational methods of this kind is open to difficulty because children do not always respond when they do not understand. Rae Smith and Leinonen (1992) therefore suggest that comprehension difficulties can only be assessed impressionistically unless targetted probes are used.

An example of an impressionistic assessment based on parental interview is the Pragmatics Profile of Everyday Communication Skills in Children (Dewart and Summers, 1995). This incorporates four questions, out of a total of twenty-nine, relating to the child's comprehension of ambiguous communication, in particular, indirect requests, sarcasm, idioms and requests for clarification.

The development of standardised tests in the area of pragmatic language is in its infancy. The one outlined by McTear and Conti-Ramsden (1992) and Rae Smith and Leinonen (1992), Schulman's Test of Pragmatic skills, (1984), does not include pragmatic meaning comprehension.

In summary, the assessments presently available are insufficient to detect difficulties in pragmatic meaning comprehension. In order to assess this aspect of

comprehension beyond an impressionistic view, it is suggested that target probes will need to be developed.

Further consideration in assessing pragmatic meaning comprehension includes the necessity for presenting items in context and a means of focussing on the youngster's ability to use context to determine amongst choices about intended meaning. This aspect has been lacking in assessments of non-literal meaning presently available, for example, the ambiguity and figurative language subtests of the Test of Language Competence (Wiig, 1992) and The Fullerton test for Adolescents (Thorun, 1986). It is therefore impossible to ascertain from these assessments whether students are able to use context to determine intended meaning. Of particular interest is whether youngsters can use context to rule out the literal meaning even when they do not know the non-literal meaning. In this way it is possible to determine whether children are able to use pragmatic knowledge or whether they are relying more upon semantic knowledge, to learn multiple meanings 'item by item'. The present study will aim to produce procedures which will enable exploration of these dimensions.

Further considerations in assessing SLD children relate to the control of extraneous variables such as auditory memory load and syntactic complexity. These factors will be referred to again in the methodology chapter of this study.

2.5.7. Studies on SLD children's Comprehension of Pragmatic Meaning

Research into SLD children's pragmatic language skills has only been undertaken in recent years: in 1987, for example, study in this field was outlined as being in a state of infancy (Fey and Leonard). Furthermore, the bulk of study has been to examine SLD youngsters' use, rather than comprehension, of pragmatic language.

The findings here have been inconclusive. Craig (1995), for example, in a review of research into the field of language use concludes that, compared to normal language age peers, children with specific language impairments evidence essentially the same level of pragmatic language skills. For example, they (i) use the same speech acts, including requesting, commenting, responding and clarifying (for example, Brinton, Fujiki, Winkler and Loeb, 1986; Merrit and Liles, 1987) (ii) reflect a

comparable knowledge of presuppositional principles, that is, they construct equally informative messages by foregrounding new information and backgrounding old information (Rowan, Leonard Chapman and Weiss, 1983; Skarakis and Greenfield, 1982), and (iii) vary only slightly in their conversational turn-taking in that SLDL children make more conversational interruptions (Craig and Evans, 1989).

It should be noted that there are some exceptions here. Bishop and Adams (1989), for example, found problems with 'informativeness' (too much or too little information required of the context) in children with semantic-pragmatic disorder. Brinton and Fujiki (1982) found that SLDL children produced fewer requests for clarification than non-language-impaired children, in a naturally occurring communicative context. The main concern here, however, in relation to the present thesis, is the lack of study into SLDL youngsters' pragmatic language comprehension.

Craig (1995) argues that the lack of evidence to show difference between SLDL and non-language-impaired youngsters in the aspects of language use studied, is an indication that the pragmatic impairments of SLDL

youngsters do not concern difficulties with the language functions themselves, but an inability to map forms (including semantics, syntax and morphology) onto the functions. However, the present study argues that if comprehension is considered, it may be that SLDL children not only have difficulty in using forms to interpret speaker intention (for example, in assessing semantic plausibility and syntactic congruity) but also have difficulty in understanding the particular function of ambiguous communication, that is, relating to an awareness that speakers can deliberately make their communication ambiguous to serve a communication purpose (Grice, 1975).

A review of the current limited research into SLDL children's understanding of pragmatic meaning comprehension indicates that this may indeed be the case.

Meline and Bracken (1987), for example, explored an aspect of children's metacommunicative knowledge, which has already been identified as requisite to interpreting pragmatic meaning. They investigated fifteen primary school-aged American children with specific developmental language disorder, (mean age eight years two months) and

compared them to a group of chronological-age-matched peers and a group of language-age-matched children.

The children viewed a series of communicative contexts rendered inadequate because the speaker gave insufficient information. The children were asked to determine whether the speaker or the listener was responsible for the breakdown in communication. Those who chose the speaker (classified 'speaker blamer') showed an awareness that speakers may make their communication inadequate; those who chose the listener (classified 'listener blamers') did not.

Children in both control groups blamed the speaker more often than youngsters in the language-impaired group, indicating poorer metacommunicative functioning in the language-impaired group, although only the difference between the chronological-age-matched and language-impaired group were statistically significant.

Parsons, Russell, Malesa, Korn, Morris, Skafte and Harrison (1986) also found that SLDL children had poorer metacommunicative understanding, relating to comprehension monitoring, than chronological-age-matched peers and language-age-matched children. In their study,

groups of children (n=10), aged seven years eight months to ten years four months, were given incomplete, ambiguous instructions. The language-impaired children used fewer clarification requests than the comparison groups, although as in the case of Meline and Bracken's (1987) study, only the difference between the language disorder group and the chronological-age-match group was statistically significant.

Considering studies more specifically relating to the comprehension of multiple meanings in context, Anderson (1991), in an unpublished MSc dissertation, found that a small group (n = 3) of twelve and thirteen-year-old youngsters, diagnosed SDLD, had considerably greater difficulties in understanding idioms presented in context and out of context, than non-statemented students attending the same comprehensive school (n = 24). The SDLD students gave an average of 33.75% appropriate responses in comparison to the non-statemented student's 66.98%. Of further interest was the finding that the SDLD students' performance was poorer than bilingual children (n = 18), whose average score was 54.95%, and than students with educational statements relating to moderate learning difficulties (n = 8), whose average score was 48.75%. Clearly caution has to be exercised in

interpreting these findings because of the small number of students in the language disorder group. However, a finding of particular interest to the argument of the present study was that the SLDL students were aided less by contextual information than the other student groups. For example, their average scores improved by 12.5% between the 'context' and 'out-of-context' condition, whereas the non-statemented students' scores improved by 21.7% and the 'other statemented' students' scores improved by 25%. The non-statemented students' performance was therefore similar to that of students taking part in Cacciari and Levorato's (1989) study. This suggests that SLDL students were less able than the other students, including the youngsters with moderate learning difficulties, to make use of contextually implied meaning to resolve the ambiguous idiomatic utterances.

Unfortunately, the size of the language-impaired student group is too small to merit any conclusion that language-impaired students are less able to understand contextual information than the other student groups. These preliminary findings would however appear worthy of further investigation since replication in a larger scale study would provide insight into why children with SLDL

should have greater difficulty here, in particular, why they should perform so differently from MLD students, bearing in mind the cognitive influences of pragmatic meaning comprehension already outlined. This issue will be considered again in discussing directions for future research.

A study by Vance and Wells (1994) into children's understanding of idiom and metaphor presented in context revealed no difference in the performance of youngsters with specific language impairment and a subgroup of semantic-pragmatic disorder. Indeed, both groups made the same number of non-literal interpretations as a language-age-matched control group. These findings do not support those of Anderson (op cit). However, with reference to the literature on developmental studies, (for example, Cacciari and Levorato, 1989; Ackerman, 1981) the language age range of subjects in Wells and Vance's study (6 - 7 years) would imply that the children in the language-age-match groups would be in the early stages of idiom comprehension, where they are not able to use a pragmatic, contextual strategy to work out intended meanings, where they tend to learn meanings 'item by item', and where idiom comprehension is influenced more by familiarity (Levorato and Cacciari, 1992). There are

two findings in the study by Vance and Wells (1994) which indicate that this is indeed the case.

Firstly, the number of non-literal responses for all groups was fairly low at around 50% of total responses. Secondly, Vance and Wells (op cit) cite evidence which indicates that the language-impaired youngsters performed better in the experimental condition than in more naturally occurring communicative settings. They observed incidences where the the language-impaired youngsters, who did well in the experimental condition, made inappropriate responses, reflecting a literal interpretation, to idioms made by their parents when they collected the children from school. For example 'one child who had correctly identified seven out of ten of the metaphorical interpretations on the test, when his mother commented "You're full of beans today" indignantly told her "I most certainly have not had beans today"' (page 39). Furthermore, children who scored relatively well on the non-literal comprehension task were described by their teachers and speech therapists as having poor ability to use context to deduce meaning.

It may be that in the experimental condition the children were influenced by the explicitness of the

metacommunicative function evident in the practice item which was outlined as follows: 'Sometimes we say things that we don't really mean. If I say "we went out on Saturday and painted the town red" it doesn't mean we had a pot of red paint and painted all the buildings, it means we had lots of fun. Listen to these stories and point to the picture of what you think each really means.'" The children's responses in naturally occurring communicative contexts suggested that they were not able to make use of this kind of metacommunicative knowledge spontaneously.

A further finding of Vance and Well's study (op cit), of particular interest in relation to the argument of the present study for considering pragmatics separately from semantics, was the finding of no relationship between receptive language scores (based on tests of semantic and syntactic comprehension) and non-literal responses in the language disorder group. Therefore, children who did well on the receptive language measures, did not necessarily do well on the metaphor/idiom in context measure and *vice versa*. This was not true for the non-language-impaired group whose performance on the metaphor/idiom measure improved in relation to their

performance on the syntactic and semantic receptive measures.

A study by Bishop and Adams (1992) also revealed no significant difference between primary-school-aged SLD children (mean age nine years nine months) and a subgroup of children with semantic-pragmatic disorder in their comprehension of literal and inferential meaning. Both groups were more impaired than a non-language-impaired group of 5 to 12-year-olds on a task which required them first to listen to or see a story, presented either orally or as a series of pictures, and then to answer questions (i) pertaining to the literal content of the story and (ii) requiring them to make inferences. For example '*Andrew was skating on the ice, wrapped up in his woolly hat, gloves and scarf. He skated to the middle of the pond, where the ice was thin. Andrew cried out when the ice gave way under his weight...*' An example of a literal question was '*What was Andrew doing at the start of the story ?*'. Examples of inferential questions were '*Why was Andrew all wrapped up when he went skating ? Did Andrew know that the ice was thin ?*'

The language-impaired children performed similarly to non-language-impaired aged two to three years younger, a difference which could not be accounted for by their 'comprehension age' on the Test for Reception of Grammar (Bishop, 1989).

Of particular interest to the present study was the finding that neither group of language-impaired children had disproportionate difficulty with the inferential questions. Since the need to make inference forms an aspect of pragmatic meaning comprehension, this finding suggests that SLD children, including those who had more specific pragmatic difficulties, did not have greater difficulty with pragmatic comprehension than non-pragmatic comprehension, in comparison with non-language-impaired children. It appears, therefore that primary-school-aged SLD children are equally able in tasks of this kind as non-language-impaired children aged two to three years younger, to consider contextual information in comprehension. The interest of the present study will be to explore whether such similarities in performance remain at secondary school age, when, as suggested by normative study, non-language-impaired children have a firmer understanding of pragmatic meaning.

Considering studies relating to the interpretation of inconsistent messages of emotion, a review of the literature has uncovered no previous study on SLDL comprehension of these kinds of utterances, nor of any similar utterances, where the non-verbal message is inconsistent with the verbal message. The limited study relating to this field has been within the semantic domain of language, looking at SLDL youngsters' ability to comprehend non-verbal communication of emotion, through facial expression and tone of voice, where there is a direct reference between signal and meaning.

A study by Berk, Doehring and Bryans (1983), for example, found that a group of nineteen SLDL youngsters aged between five to eleven years (mean chronological age, eight years seven months) made significantly fewer correct judgements than non-language-impaired children in recognising tone of voice associated with the emotions, 'happy', 'sad' and 'angry'. This study did not, however, measure the effects of language age.

A similar study by Courtright and Courtright (1983) looking at a younger age group (three to seven years) also showed that SLDL children were less accurate in identifying vocal cues of emotion than non language-

impaired children. However, the authors found that when they considered the effects of language age, the differences between the groups were 'virtually eliminated'.

Considering the above two studies together, the findings on the pattern of children's responses were inconclusive. Berk et al, for example, found that language-impaired children made most errors in recognising the emotion of sadness, frequently confusing this with anger, whereas Courtright and Courtright found that both the language disordered and the non-language-impaired groups were more accurate in recognising sadness and anger than happiness. The conflicting nature of these findings may be accounted for by variation in stimulus material.

In an unpublished MSc dissertation, Davis (1986) also found no difference in the ability of secondary-school-aged language-disordered students, compared to language age matched children, to recognise facial expressions from posed photographs associated with the emotions of anger, happiness and sadness. Indeed, SLDL youngsters had a higher percentage of correct responses in recognising sadness and anger than the younger language-age-matched children.

The findings of the above studies suggest that, when language age is taken into account, the non-pragmatic meaning of facial expressions and tones of voice does not pose a particular problem for SLDL youngsters, at least not considering the emotions of interest to the present study, that is anger, happiness and sadness. The particular interest of this study is to discover whether this is also true in instances of pragmatic meaning comprehension involving these kinds of messages. There is no indication from the above studies on how well SLDL children (or non-language-impaired children) are able to make use of their ability to understand the non-pragmatic meaning of non verbal messages to understand inconsistent messages of emotion, which contain the same kind of non-verbal messages.

It should be noted that the choice of stimulus materials in the studies outlined in this section do not reflect a communicative context where tone of voice and facial expression are both available. Further, the use of posed photographs to convey facial expression may place a false restriction on the amount of information available, compared to a naturally occurring communicative context where the facial expression may be sustained for a longer period or may vary in intensity. Therefore, it is

possible, given changes to the stimulus material, in particular to include video material combining facial expression and tone of voice cues, that children's performance on recognition of emotion would improve.

Since the present study's interest is to compare relative difficulties between pragmatic and non-pragmatic meaning comprehension, the aim will be to select subjects of an age range where the kinds of difficulties in non-pragmatic meaning comprehension, evident in the studies by Berk et al (1983) and Courtright and Courtright (1983), are no longer present.

These themes will be taken up again later in this chapter in summarising methodological considerations arising from the literature review.

To conclude, the literature reviewed in this section has indicated a possibility that students with specific developmental language disorder may have particular difficulty in understanding context to resolve ambiguous communication (Vance and Wells, 1994; Anderson 1991), however, study has been limited and has focussed on the primary school population. In this age group, significant differences between language-impaired and

non-language impaired children have not been uncovered. A possible explanation for the lack of significant difference here is that the language-age-matched children are chronologically much younger than the other children studied. Developmental factors applying to language-age-matched children may therefore account for their performance being similar to the language-impaired group. The only study looking at comprehension of secondary-school-aged-pupils, which did indicate differences between impaired and non-impaired groups was that by Anderson (1991), but unfortunately the language impaired group was too small to be worthy of conclusion.

A central aim of the present study will be to attempt to provide more conclusive evidence of secondary school-aged students' performance in this area, in comparison to non-language impaired groups.

The metacommunicative and language analyses involved in comprehending pragmatic meaning have already been outlined in this chapter, together with a number of environmental and 'within-person' factors which may serve to influence pragmatic performance. One 'within-person' factor which has not yet been explored, however, and which has been proposed to influence contextual

understanding (Cook, 1986) is that of neurological function. Cook's proposal has stemmed from study of adults with acquired language disorder, which does not have particular relevance to the present study. However, the implication that the skills necessary for contextual understanding may be neurologically represented separately from other aspects of language comprehension does relate to the argument of the present study. A summary overview of the relation between neurological function and pragmatic meaning comprehension will thus be outlined in the next section.

**2.5.8. The Relation between Right Hemisphere
Brain Dysfunction and the Comprehension
of Pragmatic Meaning.**

Cook's (1986) proposal is that the right hemisphere of the brain maintains the cognitive context within which speech comprehension and expression occurs. Right hemisphere function, he suggests, is therefore necessary to understand contextual information and plays a central role in 'disambiguation'. Cook (op cit) further proposes that the corpus callosum, that is the fibres connecting the brain's hemispheres, functions to integrate the comprehension of those language skills which have been

associated with the left hemisphere, concerning sentence structure and literal meaning, with those associated with the right hemisphere, in particular, the contextual aspects of language.

The implication is therefore that the skills necessary for contextual understanding, which have been associated in this study with pragmatic meaning comprehension, are neurologically represented separately from skills of non-pragmatic meaning comprehension, albeit in an interactional way through the functioning of the corpus callosum.

Evidence from adults with acquired right hemisphere lesions has supported Cook's proposal. For example, Myers and Linebaugh (1981) found a tendency among right hemisphere injured patients to understand idioms literally. Hirs, Le Doux and Stein (1984) showed that patients with right hemisphere damage were able to comprehend literal or conventional meanings but were unable to determine when this conventional meaning did not apply.

It has already been stated that caution must be exercised in relating clinical observations of patients with

acquired disorders in order to explain developmental disorders. However, the specificity of the above findings have resulted in the question 'Is semantic-pragmatic disorder a right hemisphere syndrome?' (Shields, 1991) and a plea for further research to confirm the observed similarities between comprehension difficulties of children diagnosed semantic-pragmatic disordered and those of adults with lesions to the right hemisphere. As has already been shown, the difficulties experienced with pragmatic meaning comprehension do not only occur for children diagnosed with semantic pragmatic disorder, but within the SLD group as a whole.

The indication is that if neurological processes do have a bearing on SLD youngsters' difficulties with pragmatic meaning comprehension, that the dysfunction would be located within the right hemisphere or within the corpus callosum, the mechanism responsible for coordinated functioning of the two brain hemispheres. Indeed, associated right hemispheric dysfunction in children with specific pragmatic difficulties was implicated in a study by Shields, Varley, Broks and Simpson (1996). Groups of children diagnosed semantic-pragmatic disorder and 'high-level' autism scored relatively poorly, compared with children diagnosed phonologic-syntactic

disordered, on a battery of neuropsychological tests which are selectively sensitive to right hemisphere damage (for example, block design, line orientation, face recognition, postural expression). However, the three groups performed with greater similarity on neuropsychological tests which are selectively sensitive to left hemisphere function (such as vocabulary and grammar comprehension). For example, the children with semantic-pragmatic disorder performed equally poorly as the phonologic-syntactic disordered group on grammar comprehension. This suggests that the picture of hemispheric function in children with semantic-pragmatic disorder may not be as clear as that proposed by Cook (1986).

This avenue of exploration is in its infancy and the study by Shields et al (1996) can be criticised on the grounds of the small subject samples ($n = 10$). However, it has been included here to raise awareness of a possible relation between neurological functioning and pragmatic meaning comprehension. It is proposed here that it may be of value to note potential influences of this kind in a model of pragmatic meaning comprehension.

2.5.9. Summary and Conclusion to Section 2.5.

Impaired language may involve a delay or disorder in language development which may be linked to one or more of a number of predisposing or precipitating factors. Differential diagnosis between delayed and disordered development is determined by comparison to normative stages or by the presence of mismatches in the child's language profile (Bloom and Lahey, 1978; Lees and Urwin, 1989).

Children with specific language disorder have particular difficulties with language, although the type of language difficulties shown may vary considerably from individual to individual and may or may not be specific to the pragmatic domain of language, the area of language of particular interest to the present study. It is however likely, considering the observations of, for example, Guilford (1988), Rinaldi (1992), that twelve to fourteen-year-old students (the age range examined by the present study) with specific developmental language disorder will experience some difficulty in the kinds of pragmatic skills required for the interpretation of MMC and IME.

It is also likely that although children with SLDL may demonstrate average or above average performance on non-

verbal IQ subtests, they are likely to experience cognitive difficulties, particularly concerning auditory processing (Tallal and Piercy 1973; 1978; 1981) and the storage/retrieval of information (Cromer; 1987). These factors will be considered in outlining methodological considerations arising from the literature in part 5 of the chapter.

The writing of Guilford (1988) and Ehren and Lenz (1989) emphasises the need for research with secondary-school-aged SLD youngsters in order to develop suitable assessment tools and to indicate areas for intervention. Assessment of language comprehension has been highlighted as being in particular need, bearing in mind adolescents' reluctance, (or inability due to poor comprehension monitoring), to request clarification when they do not understand, and bearing in mind Bloom and Lahey's suggestion that problems within the 'use' or pragmatic component of language are the hardest to detect by observation. Lees and Urwin's (1989) view that receptive problems have been overlooked in diagnosis is also pertinent to this need.

Very limited study has been conducted to investigate SLD youngsters' understanding of pragmatic meaning. Those

studies looking at multiple meanings in context have indicated that SLD youngsters may have particular difficulties in using context to resolve the ambiguity of idioms (Anderson, 1991) and that this difficulty may not relate to ability to understand semantic and syntactic aspects of language (Vance and Wells, 1994). However, because of the limited amount of study and the small subject samples involved, findings are not conclusive. It may be that rather than using a pragmatic, contextual strategy, SLD students learn multiple meanings on an 'item by item' basis and are therefore more influenced by familiarity and experience of particular examples than context. Further, SLD students may have particular difficulties at the metacommunicative level of pragmatic analysis. For example, they may have difficulty in realising that speakers can deliberately make their communication ambiguous, or that there are two possible referents and thus a need to make a choice between them.

These ideas will be taken up again at the end of this chapter, when I shall propose a model to describe the processes involved in pragmatic meaning comprehension.

SDL D youngsters' comprehension of inconsistent messages of emotion has not yet been explored in the literature. Studies on SDL D youngsters' comprehension of the (non-pragmatic) meaning of the forms of non-verbal communication included in these messages have shown that when language age is taken into account, this aspect of meaning comprehension does not pose a particular difficulty. The present study argues that this is not however the case for instances of pragmatic meaning comprehension, that is when youngsters have to understand how speakers may use these kinds of non-verbal messages to contradict their words, but still to carry the intended meaning of the communication.

2.6 DRAWING TOGETHER THE INSIGHTS GAINED FROM THE LITERATURE REVIEW. IMPLICATIONS FOR EXAMINING THE FINDINGS OF THE PRESENT STUDY.

2.6.1. A Framework for Examining the Potential Difficulties of Secondary-School-Aged SDL D Students in Understanding Pragmatic Meaning.

Although the study reviewed on SDL D students' comprehension of pragmatic meaning was limited and

inconclusive, particularly in relation to the secondary school age group, there is much in the literature relating to the processes involved in pragmatic meaning comprehension and to the nature of language impairment at secondary school age which indicates that secondary school SLD students may indeed have particular difficulty understanding pragmatic meaning.

I have drawn together these insights to develop a model of pragmatic meaning comprehension which was first described at the end of part 3 of this chapter and is included again here, by way of review, in figure 2.10. This model will now be used to suggest ways in which the comprehension of pragmatic meaning may be impaired in SLD youngsters.

SLD youngsters' difficulties with pragmatic meaning, in particular, their comprehension of IME and MMC, may be seen as occurring because of breakdown in a number of areas considered in this model, as outlined below.

(1) At the metacommunicative level, SLD youngsters may not be aware that speakers may use more than one input channel and refer to more than one referent nor that

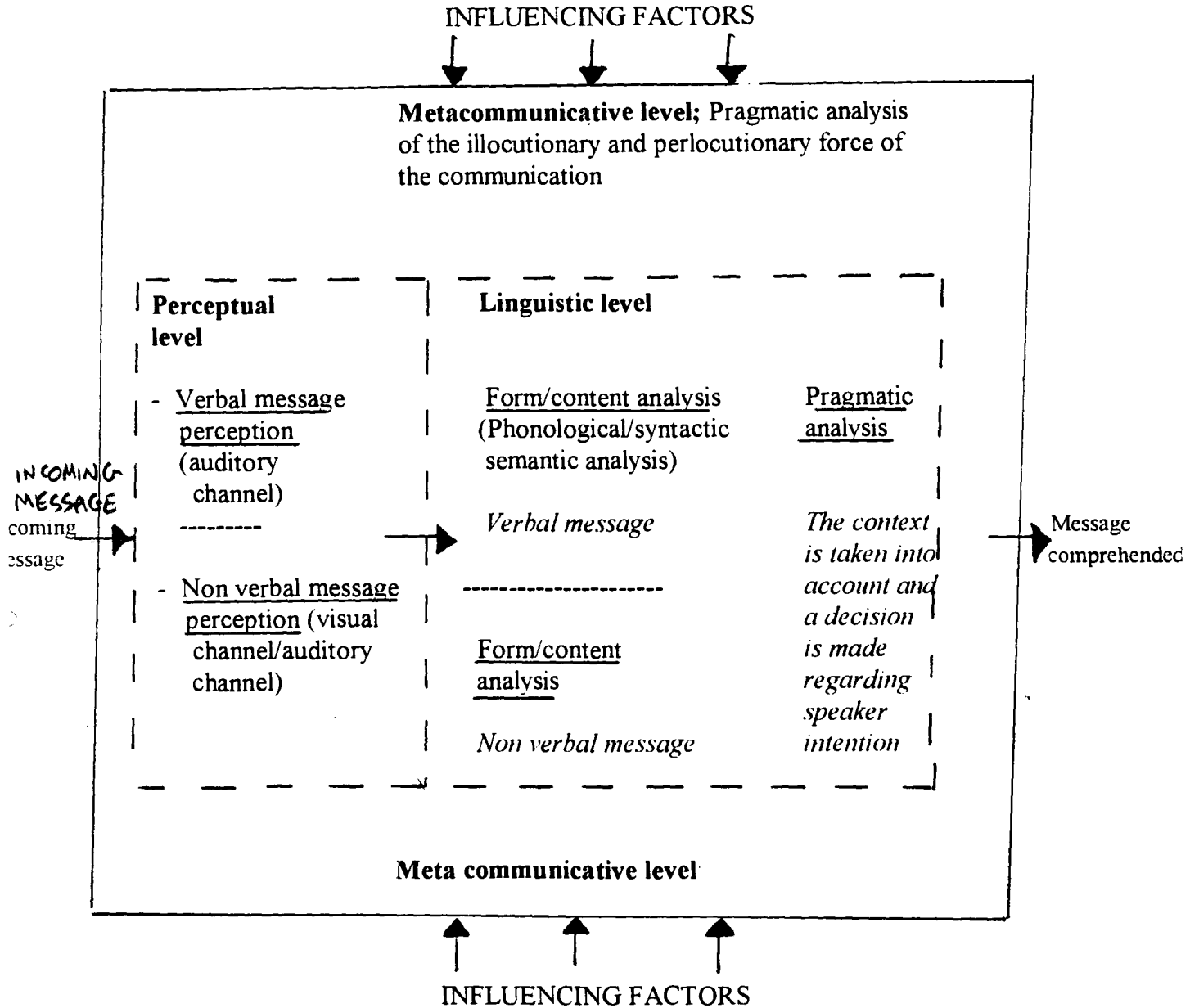


FIGURE 2.10. A model of pragmatic meaning comprehension, revisited.

context may be used to ascertain plausibility and thus resolve ambiguous communication. This lack of awareness may prevent them from sufficiently attending to the range of possible input channels or analysing messages sufficiently to determine alternative referents.

Without analysis at the metacommunicative level it is still possible for youngsters to learn multiple meanings, but they may be learned on an item by item basis and in this way, be more influenced by familiarity and experience. It is the metacommunicative knowledge which allows youngsters to generalise skills of contextual understanding and to rule out literal interpretation when they do not know the non-literal interpretation.

(ii) Difficulties at the language level of pragmatic analysis in comprehending ambiguous communication, may occur if youngsters are unable to use context (including verbal and non-verbal language) to work out the most plausible of the two (or more) interpretations. Although some analysis at the metacommunicative level is a requisite of pragmatic analysis at the language level, for example in the search for more than one referent and the need to analyse context, it is possible to envisage an instance of a youngster having adequate

metacommunicative analysis but selecting an inappropriate interpretation because of a faulty analysis of context.

(iii) Pragmatic analysis at both the metacommunicative and language levels may be affected by the 'influencing factors' including environmental and 'within-person' factors (Rae Smith and Leinonen, 1992; Wedell, 1995). Considering environmental factors, it has already been shown how communication experiences, in particular relating to how explicit the need to use metacommunicative analysis is made, can improve non-language-impaired youngsters' ability to understand ambiguity (Robinson and Robinson, 1978; Bonitatibus et al 1988; Ackerman 1981). Preliminary study (Vance and Wells, 1994) indicates that this may also be the case for SLD children.

'Within-person' factors such as the individual's level of anxiety and motivation were identified by Dallagher (1987) and Rae Smith and Leinonen (1992). A related consideration here concerns the cumulative effects of having communication difficulties over time, in particular relating to repeated experience of failure and the effects on self esteem (Wedell, 1995). Since communication becomes an increasingly important part of

socialising as a youngster grows older (for example through informal chat, joke telling and so on) the experience of failure can be predicted as being considerable. Added to this, in adolescence, the desire for peer conformity is likely to be strong. It may therefore be particularly difficult for SLD youngsters at this age to voice confusions with communication. Considering other 'within-person' factors, there is much in the literature which emphasises the underlying cognitive and sociocognitive knowledge necessary to comprehend pragmatic meaning at both the metacommunicative and language levels; the insights from Cook (1988) indicate that neurological function may also need to be considered as a possible factor influencing pragmatic analysis, although this area requires further research.

The present study aims to control, as much as possible, the influencing factors in order to examine relative differences in youngsters' pragmatic competence in the area of meaning comprehension. It is also hoped that the findings of the present study will shed some light on the nature of SLD youngsters difficulties in comprehending pragmatic meaning, in particular relating to the two levels of analysis proposed.

Before presenting how the method of the present study has been designed to examine these areas, methodological considerations arising from the literature review will be presented.

2.6.2. Methodological Considerations Arising From the Literature Review

In reviewing the literature, a number of methodological issues have been encountered which have implications for the present study. These are summarised below with page references to locate where in the chapter the point was first raised.

(i) Studies by Bonitatibus et al (1988) and Ackerman (1981) (page 139) highlight the importance of designing a method where subjects are aware that there may be more than one referent. It should be noted, however, that by making this need explicit, the experimental design will assist students' metacommunicative knowledge.

(ii) Meline and Bracken (1987; page 100) in outlining the underlying cognitive skills pertaining to metacommunicative performance, propose that the knowledge required to develop such performance may exist without

the ability to verbalise that knowledge. This proposal has even greater significance for SLD students who, because of specific expressive language difficulty, may not be able to communicate their knowledge. Since the present study's interest is with students' pragmatic comprehension and not their ability to talk about their comprehension, in designing the method of the present study, the response format chosen will not require students to verbalise their knowledge.

(iii) Although children with SLD may demonstrate average or above average performance on non-verbal IQ subtests, they may experience cognitive difficulties, particularly concerning auditory processing (Tallal and Piercy, 1973, 1978, 1981) and the storage /retrieval of information (Menyuk, 1964; Cromer, 1987). Such factors need to be considered in developing a suitable methodology, since the aim will be to isolate the independent variable, language disorder, as much as possible, in order to explain why SLD children may have difficulties in interpreting IME and MMC and possibly a greater difficulty than language age matched subjects. Although it has been indicated that pragmatic language skills are dependent on cognitive and socio-cognitive skills relating to metacommunication (Bailystock and Ryan, 1985;

Frith, 1989; Roth and Spekman, 1984; Bates, 1976) other demands on cognitive skills to do with, for example, high memory load, rate of presentation etc. can be controlled within the methodology, whilst keeping within the realms of a natural communicative context.

A review of the assessment material presently available to explore pragmatic meaning comprehension has identified the need to develop new material which will not entail a high auditory memory load nor carry a high auditory processing requirement. The format commonly used by studies on non-language-impaired children, that of read paragraphs followed by questions is, therefore, not suitable for language-disordered children.

(iv) One of the concerns of the present study will be with the generalisation of findings. An experimental design has the advantage of permitting careful control of extraneous variables, however, in attempting to generalise the findings beyond the experimental condition, an attempt will be made to provide a communication context reflective of everyday communication. This will include, for example, in the IME procedure, the inclusion of utterances where there is convergence between facial expression and tone of voice.

Care will also be taken not to make the illocutionary force of the utterance (particularly relating to metacommunicative analysis) unnaturally explicit, so as to avoid the kinds of difficulties noted by Vance and Wells (1994) between experimental and naturally occurring communicative contexts.

(v) Since the findings of some of the developmental studies have shown that even adults may wrongly interpret speaker intention in certain contexts (for example, Solomon and Ali, 1979; page 160) the method of the present study will include a preliminary check of procedures with non-language-impaired adults. This will be completed on the basis that if non-language-impaired adults are unable to interpret the utterances included in the study in the way the speaker intends, the indication is that it would be unreasonable to expect children with or without language impairment to be able to.

(vi) In order to examine the relative differences between non-pragmatic and pragmatic meaning comprehension, the utterances selected will be those where the non-pragmatic meaning, (the literal interpretation of the utterance), will not present difficulty to any of the students taking part in the study. For example, in the IME procedure,

the messages chosen will be associated with the emotions of happiness, sadness and anger, since these three emotions are understood relatively early on in the developmental process (Harris and Saarni, 1989).

2.6.3. Concluding Points. Overview of Key Issues in Relation to the Present Study's Research Questions

This chapter has provided background information to locate the key issues of the present study; it has outlined current theory and research pertaining to these issues and has made proposals to extend current ideology, which will be further considered in the light of the present study's findings.

The key issues concern:

(1) The relative difficulties of pragmatic meaning comprehension in relation to other aspects of meaning comprehension for SLD children in the later stage of communication development, in comparison to non-language-impaired students: the implications for assessment and teaching.

(ii) the consideration of pragmatics separately from semantics in accounts of language comprehension and within diagnostic categories relating to Specific Developmental Language Disorder.

(iii) the nature of potential difficulties for SDLD children with pragmatic meaning comprehension, in particular, concerning the level of analysis at which difficulty arises. Again, there will be implications here for assessment and teaching.

The research questions, which are outlined in the next section, are formulated around these issues, concerning, in particular, children's responses to two procedures of pragmatic meaning comprehension, inconsistent messages of emotion and multiple meanings in context. These two forms of ambiguous communication have been selected to represent pragmatic meaning comprehension, since contextual understanding is central to the resolution of their ambiguity.

2.6.4. Research Questions

The first series of research questions posed examines the differences and relationships between pragmatic and non-pragmatic meaning comprehension in SLDL students compared to non-language-impaired students. If differences are found, this has strong implications that pragmatics should be considered separately from semantics.

The following question represents the focal issue of the study:

Question 1 : Central Question

In comparison to language-age (LA) and chronological-age-(CA) matched groups, do SLDL children aged between eleven years eleven months and fourteen years ten months have relatively more difficulty with pragmatic meaning comprehension than non-pragmatic (semantic) meaning ?

It should be noted that the rationale for including both language-age-matched and chronological-age-matched

students will be detailed in the next chapter of this study.

Questions 2 to 7 below aim to provide answers to address the focal issue of the study by examining the number of responses made on the multiple meanings in context (MMC) and inconsistent messages of emotion (IME) procedures and the relation between age and pragmatic meaning comprehension. Since the language age measure is an assessment of non-pragmatic meaning comprehension, the relation between the language age scores and pragmatic response will reflect the relation between pragmatic and non-pragmatic meaning comprehension.

Question 2

On the MMC procedure, do SLD students make less pragmatic responses (that is, responses which take into account the meaning implied by context) than LA and CA matched students.

Question 3

On the MMC procedure, comparing the SLD and LA matched groups, do students make more pragmatic responses as their language age increases ?

Question 4

On the MMC procedure, comparing the SLD and CA matched groups, do students make more pragmatic responses as the chronological age increases.

Question 5

On the IME procedure, do SLD pupils make less pragmatic responses than LA and CA matched students i. when the context is provided by the auditory channel (tone of voice) only and ii. when the context is provided by the auditory and visual channels (tone of voice and facial expression) ?

Question 6

On the IME procedure, comparing the SLDL and LA matched groups, do students make more pragmatic responses as the language age increases, i. when the context is provided by the auditory channel only and ii. when the context is provided by the auditory and visual channels ?

Question 7

On the IME procedure, comparing the SLDL and CA matched groups, do students make more pragmatic responses as the chronological age increases i. when the context is provided by the auditory channel only and ii. when the context is provided by the auditory and visual channels ?

The following series of questions examine the number of the types of responses made. The aim here is to explore differences between the groups, in particular, whether students are able to use a contextual, pragmatic strategy to determine speaker intention, when they are uncertain or do not know the non literal, pragmatic interpretation. The corresponding response types, which will be detailed in the methodology chapter are included in brackets.

Question 8

On the MMC procedure, do SLDL students make more responses where they choose both the pragmatic and non-pragmatic interpretations ? (response types 2 (non pragmatic) and 5 (pragmatic)). Therefore, are SLDL students less able to reject the non-pragmatic interpretation, rendered implausible by the context, when they are aware of the pragmatic interpretation ?

Question 9

On the MMC procedure, do SLDL students make more responses where having chosen both the pragmatic and non-pragmatic interpretation and asked to make a choice between the two, select the non-pragmatic interpretation ? (non pragmatic response type 2). Therefore, are SLDL students more likely to select the non-pragmatic interpretation in favour of the pragmatic meaning ?

Question 10

On the MMC procedure, do SLD students make less 'don't know' responses to reject a non-pragmatic interpretation in favour of an unknown pragmatic interpretation ? (pragmatic response type 8).

Question 11

On the MMC procedure, do SLD students make less responses which are plausible given the context, and are therefore categorised as pragmatic responses, but are nevertheless incorrect (pragmatic response type 7).

Question 12

On the IME procedure (i. audio only condition; ii. audiovisual condition), do SLD students make more responses where they choose both the pragmatic and non-pragmatic interpretations ? (response types 2 (non pragmatic) and 5 (pragmatic)). Therefore, are SLD students less able to reject the non pragmatic interpretation, rendered implausible by the context, when they are aware of the pragmatic interpretation ?

Question 13

On the IME procedure (i. audio only and ii. audio visual conditions), do SLD students make more responses where having chosen both the pragmatic and non-pragmatic interpretation and asked to make a choice between the two, select the non pragmatic interpretation ? (non pragmatic reponse type 2). Therefore, are SLD students more likely to select the non-pragmatic interpretation in favour of the pragmatic meaning ?

Question 14

On the IME procedure, (i. audio only and ii. audio visual conditions) do SLD students make less 'don't know' responses to reject a non-pragmatic interpretation in favour of an unknown pragmatic interpretation ? (pragmatic response type 8)

Question 15

On the IME procedure, do SLD students make less responses which are plausible given the context, and are therefore categorised as pragmatic responses, but are nevertheless incorrect. (pragmatic response type 7).

The final question concerns differences in the responses relating to the sex of subject. This is believed important in light of the finding that male subjects may be disadvantaged in language learning (Haines, 1992).

There is also a methodological issue here, since, as will be outlined in the methodology chapter, similar sex of subject ratios could not be achieved in each of the groups. This has a particular bearing on the chronological age match group who were not matched with the SDDL group for language age.

Question 16

In each of the groups, do female subjects make more pragmatic responses than male subjects ?

The following chapter will present the method designed to answer these questions.

CHAPTER 3. METHODOLOGY.

3.1. INTRODUCTION

The method described in this chapter has been designed to enable answers to the questions, outlined at the end of the literature review, connected to the central hypothesis of the study, that pragmatic meaning is more difficult than other aspects of language meaning comprehension for secondary school students with specific developmental language disorder (SDL). It is intended that the answers to these questions, will provide a basis for discussing:

(i) the **theoretical implications**, in particular, the processes involved in pragmatic meaning comprehension and the need to consider pragmatics separately from semantics in theoretical accounts of language;

(ii) the **practical implications** in terms of the diagnostic, assessment and educational issues which were outlined in the introduction and literature review chapters.

In answering the questions posed in this study and in discussing the theoretical and practical implications of its findings, it is anticipated that information will be provided about a group that has been little studied: secondary-school-aged students with specific language disorder.

In this study, the dependent variable, pragmatic meaning, is explored by examining students' responses to two assessments of ambiguity, where the contextual or pragmatic meaning may be used to resolve the ambiguity. The two forms of ambiguity studied are inconsistent messages of emotion (IME) and multiple meanings in context (MMC). Assessment is also made of the students' ability to interpret non-pragmatic elements of IME and MMC so that a comparison can be made between their ability to understand pragmatic and non-pragmatic meaning.

This comparison is also made possible by another dimension of the method, concerning the language age measure, the British Picture Vocabulary Scale (BPVS). This measure assesses the understanding of single words presented out of context and is, therefore, an assessment of non-pragmatic meaning. The comparison of students'

responses to the BPVS in relation to their performance on the assessments of ambiguity thus provides another way of examining their ability to understand pragmatic meaning in comparison to non-pragmatic meaning.

The strategy used to explore the hypothesis of the present study is quasi-experimentation (Campbell and Cook, 1979; Robson, 1993). The term 'quasi-experiment', as outlined by Robson, (op cit) is an alternative approach to 'true experimentation', the latter requiring random allocation of subjects to form a representative sample of a known population. In quasi-experiments there are 'less stringent requirements as to allocation and sampling' (Robson, 1993; page 3) which enables the inclusion of all students in a school year group rather than random allocation of students within a year group. Since subjects could not be randomly selected in the present study (details of subject selection is included later in this chapter), other steps to ensure, as much as possible, the internal and external validity of the experimental procedures had to be considered very carefully. Steps concerning the internal validity are covered in detail later in this chapter in describing the procedures developed to isolate the dependent and independent variables.

The external validity or 'generalisability' of the procedure was attempted by gaining as large a subject sample as possible within the constraints of availability, as outlined above, and by relating the experimental condition, as much as possible, to the real life context. The ways in which this was achieved are also outlined later in this chapter in describing the experimental measures and their administration.

The study's method will now be outlined in detail.

3.2. ISOLATING THE VARIABLES OF INTEREST

3.2.1. Introduction

This study compares the performance of students who have specific developmental language disorder (SDLD) with a group of children matched for language age and another group matched for chronological age. The rationale for matching the SDLD students with two groups is outlined later in this chapter.

In order to validate the research, the aim is to control extraneous variables as much as possible, to isolate the independent variable, specific developmental language

disorder. This is central to the methodology of the present study to enable any differences in pragmatic comprehension between the SLDL and comparison groups being viewed in terms of the language disorder, and not because of the influence of extraneous factors. The control of extraneous variables was achieved by a number of different methods. The chapter will first examine those methods employed in the selection of subjects and will later examine steps taken to control extraneous variables in developing the experimental measures and the administrative procedure.

3.2.2. Selection of Subjects

3.2.2.A. Students with Specific Developmental Language Disorder

As stated in the introduction of this chapter, a random selection of subjects was not possible, because the available SLDL population from which the sample needed to be drawn was small.

The optimum way of gaining access to SLDL students, was to visit educational establishments where the diagnosis of SLDL had already been identified from language and

cognitive assessments and in relation to the establishment's admission criteria. (The methods of identification are described further in the next paragraphs).

At the time of study there were, however, only four schools and five secondary language units in existence; furthermore, only three of the schools consented to take part in the study. Therefore, as stated previously, the study adopts a quasi-experimental approach (Robson 1993; Campbell and Cook, 1979) and includes all children attending the schools/language units who consented to take part, within the age range of interest (N = 64). Some exclusions were however made, as described in the next few paragraphs.

The SLD students were selected in an attempt to achieve a group representative of SLD children in general, within the confines, outlined in the literature review, of the heterogeneous nature of this group. All sixty-four students in the SLD group had a developmental language disorder of a severity and specificity which meant they had been statemented under the 1981 Educational Act as requiring speech and language therapy. All students in the SLD group attended a middle/

secondary school or language unit where the curriculum was designed to cater for the needs of children with specific developmental speech and language disorder and where (a) speech and language therapist(s) formed part of the staffing. The criteria for admission for all units and schools visited were for language disorder to be developmental in nature and to coexist with average or above average scores on performance IQ subtests.

For all subjects, the diagnosis of SLDL had been made on the basis of a range of language and cognitive assessment. An examination of school records showed, however, that there was inconsistency in the kinds of assessment employed and the level of recording made.

Therefore, it was possible that there were inconsistencies in how stringently individual schools/units applied their criteria of admission.

In order to be as certain as possible that all subjects included in the SLDL group were developmentally and specifically language disordered in line with descriptions in the literature, exclusions were made if no evidence in the child's school records could be found to indicate that non-verbal performance was at least average and that there was a discrepancy between verbal

and non-language-based performance subtests. Although this kind of discrepancy analysis has its difficulties, in particular relating to the fact that 'non-language-based performance tasks', such as those testing visual sequential memory, may be assisted by language knowledge, it was believed that the presence of such a discrepancy would be a firm indication of the presence of a specific language disorder.

Individuals were also excluded from taking part in the study if they had a hearing loss or if they were from a non-English speaking home background, since both of these factors could contribute to impairment of the first language and thus obscure the diagnosis of specific developmental language disorder. Exclusion on the basis of a non-English speaking home background also reduced the effects of cultural differences in interpreting communication, which have a particular bearing on the interpretation of inconsistent messages of emotion, since there may be a possibility that the deliberate contradiction between non-verbal and verbal communication may not be a feature of all languages. A review of the literature failed to uncover any research in this field, although anecdotal evidence in the form of consultation with Punjabi, Urdu, Spanish, Russian and French speakers,

suggests that tone of voice can be used to negate verbal meaning in these languages at least.

Idioms and multiple meaning phrases may also vary in frequency of use between cultures and over time (Bloom and Lahey, 1978; Trower Bryant and Argyle 1978).

However, this variation is not of particular significance to the present study, which is more concerned with students' ability to use contextual information to detect and resolve ambiguity rather than their ability to comprehend particular multiple meanings. Further, it has been found that familiarity plays a minor role in the comprehension of idioms for non-language-impaired children older than nine years (Cacciari and Levorato 1989). However, even so, the steps taken to reduce variability created by cultural differences, social background and geographical location, outlined below, are pertinent here.

Subjects were included from schools and units in a number of different parts of England, in an attempt to obtain a relatively varied geographical distribution, although financial limitations prevented going further North than the Midlands. Further, control over geographical distribution was affected by the fact that schools

developed to cater for the educational needs of SLDL children offer residential places and not all pupils, therefore, are from areas local to the school.

The schools and units visited served a range of urban and rural areas, and it was hoped that, by making the sample as large as possible, there would be a variation of social background within the sample, representative of SLDL children in general.

The choice of chronological age range for the SLDL group, that is 12 to 14 years, was in line with an aim of the study to provide information on the secondary-school- aged SLDL population who are in the later stages of communication development.

A further influence on the decision to select twelve to fourteen-year-olds arose because the focal concern of the present study is to explore relative differences between pragmatic meaning comprehension and other kinds of language comprehension, linked to the nature of the language disorder and over and above the effects of maturation. The indication of the literature review, that an understanding of ambiguous communication is developing largely between the ages of seven and twelve

years, implied that a language disordered group younger than twelve years could only be expected to have difficulties in this area, since their language age, by nature of the diagnosis of language disorder, would be lower than their chronological age. Further, the difference between the language-impaired and comparison groups would have been predictably low as a result of maturational factors applying to all three groups.

It was also believed that there would be stronger practical implications of finding difficulties in this area for the older age group, because the indication from the literature review, that the development of comprehension of ambiguous communication is more or less complete by the age of twelve years, suggests that the expectation of those talking with children of this age is that they will understand this type of communication. This expectation may not be evident in the case of younger children.

A two year age range was chosen in order to provide an adequate size of sample in the language disorder group, which was manageable in terms of time and financial constraints.

The number of SLD and comparison group students taking part in each of the study's procedures (inconsistent messages of emotion and multiple meanings in context) are summarised in table 3.1, with a breakdown of chronological/language age ranges and the sex ratio within each group. The next section details the selection of comparison group students.

3.2.2.B. Comparison Groups

The comparison group students were selected in an attempt to provide a group as similar to the SLD group as possible, with the exception of the independent variable, in order to control extraneous variables and to isolate the independent variable. It was important, therefore, that all students in the comparison groups showed no evidence of speech, language or hearing disorder nor of cognitive delay. This was determined by the following criteria:

(i) no recorded history of speech, language or hearing disorder;

(ii) language age, in terms of the scores of the language age measure, to be no more than six months (a raw score

GROUP	C.A. RANGE (mean C.A)	L.A. RANGE (B.P.V.S.)	IME	N	MMC	SEX RATIO M:F	
						IME	MMC
Language Disorder	11.11 - 14.9 (13.3)	5.11 - 17.0	54		64	44:10	48:16
Chronological age match	11.11 - 14.7 (13.2)		63		70	36:27	33:37
Language age match	5.10 - 11.7 (9.3)	5.8 - 15.1	75		79	36:29	32:47

TABLE 3.1. Students taking part in the study: details of number, age and sex

of 1) behind chronological age, according to the age norms of the language age measure;

(iii) no recorded history of learning difficulty shown by psychological assessment or school performance.

The students included in the comparison groups were taken from mainstream primary, middle and secondary schools in the South of England: financial constraints prevented a wider geographical distribution. However, in an attempt to make the comparison groups as similar as possible to the SLD group in terms of geographical distribution, the majority of subjects in the control groups were selected from mainstream schools with language units, which had provided the source for some of the subjects in the SLD group.

It was hoped that by taking samples of whole school classes (with exclusions made only on the basis of language or chronological age and evidence of speech, language, hearing or learning difficulty) and where possible, from the same schools attended by the SLD children, that a variation of social background similar to that in the SLD group would be achieved.

An attempt was made to have a similar sex ratio in each of the groups bearing in mind the reports in the literature that language delay/disorder is found more commonly in male than female subjects (Haines, 1992). Language skill variation in relation to sex of subject was also controlled by checking the language age of all comparison group subjects and by excluding those whose language score fell behind their chronological age. This latter step was taken because when matching subjects, a greater priority was given to matching for age than to matching for sex, since this was essential to the design of the study in order to answer the questions it poses. It was therefore possible that different sex ratios would occur in each of the groups.

3.2.2.C. Rationale for Matching on the Basis of Language and Chronological Age

The decision to match for language age was made to allow exploration of whether comprehension of pragmatic meaning was particularly problematic in relation to other (non-pragmatic) language comprehension skills. This could be achieved by comparing the language disorder and language age-matched-groups' performance, by using an assessment of non-pragmatic meaning comprehension as the language

age measure (details of this measure are outlined in the next section). However, the language age matching created a comparison group which, although it had an identical language age range, in terms of the scores of the language age measure, had a chronological age range of 5.8 to 11.9 (mean age 9 years 3 months), which was far lower than the SLD group (mean age 13 years 3 months). This chronological age difference between the two groups suggested differences in other variables, which have been identified as influencing language development, in particular, that of cognitive development and social experience. In an attempt to counterbalance these differences, which could serve to obscure the effects of the independent variable, a second comparison group was established to have a chronological age range identical to the SLD group, albeit with a language age range that would be higher, with analysis of the three groups' performance being considered together.

Matching was achieved by selecting comparison subjects on a 'subject by subject' basis to match exactly with the chronological age or language age (BPVS age equivalent score) of the SLD subjects. The following procedures were used:

(i) the language age measure and the experimental measures were first completed with the SLDL children .

(ii) in the language age comparison group, each subject was first assessed on the language age measure. If a subject achieved a score which did not match with an SLDL subject, the experimental measures were not administered.

(iii) in the chronological age comparison group class teachers were issued with the chronological ages of the SLDL subjects and were asked to include students from their classes matching with the ages specified on this list (and on the 'non language disorder' criterion outlined above).

Although matching was made on a 'student by student' basis, as outlined above, it should be noted that there were more students in each of the comparison groups than in the SLDL group. Therefore there were more students in the comparison groups who shared the same language/chronological age than in the SLDL group. For example, in the SLDL group, 6 students had a language age of 11 years 5 months; in the language-age-matched group 7 students achieved this language age. This situation of unequal numbers arose because, as in the case of the SLDL

student sample, whole school classes were included in the study; some of the comparison data was thus superfluous to requirement in terms of matching the groups, but it was decided to include these data nevertheless in order to allow as much information as possible concerning comparison group performance.

3.2.2.D. The Language Age Measure: British Picture Vocabulary Scale - Short Form (Dunn, Dunn, Whetton and Pintillie, 1982)

The criteria for selection of the language age measure were that it should:

- (i) assess an area of language comprehension which did not include comprehension of pragmatic meaning;
- (ii) be based on a British standardisation sample spanning an age range commensurate with that of the subjects included in the study;
- iii. be relatively quick to administer, bearing in mind the length of administration of the experimental measures and with the aim of completing all of the measures within no more than two assessment periods of thirty minutes

would be practical in terms of timetabling and the subjects' length of concentration. This latter consideration was of particular importance bearing in mind the reports in the literature that SLD subjects may show difficulty in focussing concentration over longer periods (Cooper, Moodley and Reynell, 1979). A further consideration here was that some of the subjects in the language age comparison group would be as young as five years.

The only test which met all three criteria was the short form of the British Picture Vocabulary Scale (BPVS) (Dunn, Dunn, Whetton and Pintillie, 1982). In line with the first criterion outlined above, this test does not deal with comprehension of pragmatic meaning since it explores a student's understanding of the meaning of words presented out of context and in terms of a single interpretation, either because there is only one interpretation of the word or because a single interpretation is predetermined by the selection of the four drawings from which the student is required to match the word. For example, in assessing comprehension of the word 'ball' the pictures from which students are required to select include one correct interpretation of the word

(i.e the throwing variety) but a second possible interpretation (a dance) is not included.

In line with criteria (ii) and (iii) above, the BPVS is standardised on an age range of three years to eighteen years eleven months and takes approximately between five and ten minutes to administer.

It should be noted that although the BPVS covers only one aspect of language, that is, comprehension of word content and therefore has only a restricted value in forming a child's language profile, it has particular validity for use within the context of the present study, since it allows a direct comparison between a subject's comprehension of pragmatic and non-pragmatic meaning. Furthermore, this assessment has the advantage of providing a normative reference which creates a very tight matching, since one point on the raw score is equivalent to six months in age. That is, in order to achieve the same language age, subjects must obtain identical raw scores. The disadvantage of the age values being assigned to the raw scores in this way, however, is that a chance correct response can skew the age equivalent score quite considerably and thus affect the reliability of the matching. For example, two chance

correct responses could falsely raise the age equivalent score (the language age) by one year. Within the context of the present study, it is hoped that such variation is controlled by adequately sized samples.

3.2.3. Rationale for the Development and Administration of Procedures Designed to Measure Pragmatic Meaning Comprehension.

3.2.3.A. Introduction

New experimental procedures were developed to investigate subjects' understanding of the two types of ambiguity of interest to the present study, that is, inconsistent messages of emotion (IME) and multiple meanings in context (MMC).

There were two focal areas of exploration:

(i) whether subjects would be able to make responses which take the context into account, as the speaker intends;

(ii) whether such responses are possible in the absence of sufficient semantic knowledge.

The factors considered in designing the experimental measures will now be presented.

3.2.3.B. Validating the procedures

Certain steps to prevent extraneous variables obscuring the effects of the independent variable have already been outlined in this chapter, in particular relating to the selection of subjects and concerning the diagnosis of language disorder, the cognitive ability of students, the geographical and 'school distribution' of students and the sex ratios of the groups included.

In designing the experimental measures and administrative procedures there were further potential extraneous variables to be considered in attempting to isolate, as far as possible, the dependent variable, pragmatic meaning and to further isolate the effects of the independent variable, specific developmental language disorder. The next section summarises these considerations, which apply to both the IME and MMC procedures and relate to (i) subject variables and (ii) variables of administration. Further details are given later in the chapter in describing each of the experimental measures.

3.2.3.C. Summary of the Potential Extraneous Variables Considered in Developing the INE and MMC Procedures

Subject variables

Two variables which could serve to influence the performance of all students were: (i) their level of interest in the assessment materials and (ii) fatigue. An attempt was made to control for effects of fatigue by dividing the testing into two separate sessions of no more than thirty minutes duration. Further, if subject fatigue was observed, testing was deferred to a later date. Care was also taken to design material which would be of interest to the wide age range of students included in the study.

Other subject variables particularly related to the language disorder group. These were:

(i) difficulty in areas of language not being explored by the present study, for example, expressive language difficulty and comprehension of grammar. The control of expressive language difficulty was made by choosing a picture selection response. Subjects could therefore

indicate their comprehension of an item without needing to use expressive language. Control for difficulty in grammar comprehension was provided by avoiding complex grammatical structures in the presentation of the measures and in the items themselves.

(ii) difficulty in areas relating to the language disorder, for example, auditory short term memory deficits (Cromer, 1987, Tallal and Piercy, 1978) and difficulties in focussing concentration over sustained periods (Moodley, Cooper and Reynell, 1978). This latter factor also related to the youngest children in the language-age-matched control group. The use of picture material was believed to provide a visual aid for difficulties with auditory short term memory. Subjects were also permitted to hear items on a second occasion when required. It was hoped that any difficulties subjects had with sustaining concentration would be overcome by a session duration of no longer than thirty minutes and by designing material which would be of interest.

Administrative variables

The following administrative variables were considered in developing the procedures :

(i) Consistency of presentation. A scripted commentary was developed, for both measures, to achieve as much consistency as possible in their presentation to each subject. The commentary is outlined later in this chapter.

(ii) Subjects' perception of the picture materials. The pictures were designed to provide a clear portrayal of information, however, it was believed important to provide a control for the influence of misperception of picture material, since, in the multiple meanings assessment, some of the pictures contained a number of elements and it was possible that subjects might not focus on those most relevant to the task. A scripted commentary was therefore developed in order to ensure that subjects had noticed these elements.

(iii) Subjects' understanding of the response requirements. A practice item was included for each of the measures to ensure that subjects understood the type

of response required from the task. This was particularly important, because the responses required from the new measures differed from other picture selection assessments that subjects may have completed on previous occasions. For example, in assessments such as the Test for Reception of Grammar (Bishop, 1989) and the British Picture Vocabulary Scale (Dunn, Dunn, Whetton and Pintillie, 1982) subjects select one picture only, whereas in the experimental measures subjects are permitted to select more than one picture. This factor was particularly relevant for the SLDL children, who are assessed regularly with language assessments requiring single picture selection.

(iv) The test situation. Testing was completed in a quiet room and a sign was placed on the door requesting no disturbance. These steps were taken to prevent subjects' performance being affected by situational distractions, such as noise and interruptions.

All items were played to the child using audiovisual equipment judged by the experimenter to give a good quality reproduction of sound and/or vision.

**3.2.3.D. Summary Overview of Other factors Considered
in Attempting to Increase the Validity of
the Experimental Procedures**

Selection of items

The items included in the measures were believed to be representative of everyday communication. All the items included had been observed in classroom practice with a group of twelve-year-old SLD students at a school for language-impaired children, where I worked as a Speech and Language Therapist. The items were also observed in a viewing of TV programmes noted to be popular with this group of students.

Pre-pilot testing with non-language impaired adults

The pre-piloting of the measures, which is described later in this chapter, included a session with non-language-impaired adults. The aim here was to ensure that adult subjects comprehended the items in the way that I (as the speaker making the ambiguous statements) intended. It was believed that if non-language-impaired adults were not able to interpret the communication in line with speaker intention, it would be unreasonable to

expect children to be able to. This step was also believed to be particularly important bearing in mind the indication in the literature review that, in some contexts, even adults can misunderstand speaker intentions in communication. (Solomon and Ali, (1972))

Tests of reliability

Steps relating to the consistency of administration have already been outlined as a way of increasing the reliability of procedures. However, since the hypothesis of the study rests on the validity of its methodology, procedures were also subjected to test - retest reliability with a group of SLD students. The details and results of the test - retest trials are included later in this chapter in describing the pre-piloting process.

A detailed description of the procedures will now be presented and will include further examination of some of the issues outlined in this section, concerning the control of extraneous variables.

**3.3. DESCRIPTION OF THE EXPERIMENTAL MEASURES:
MATERIALS, ADMINISTRATION AND CLASSIFICATION
OF RESPONSES.**

3.3.1. Introduction

The measures designed to explore the focal areas of interest to the study are detailed below including (i) a description of the materials and the types of response required, (ii) the rationale for their development in relation to answering the research questions, (iii) their presentation and (iv) the classification designed to compare responses of the three subject groups.

The description of each measure will also review and extend the outline of issues made above concerning the control of extraneous variables to isolate the dependent variable, pragmatic meaning and the effects of the independent variable, specific developmental language disorder.

The descriptions include amendments made following a series of pre-piloting sessions with adult and child subjects, the results of which which are outlined later in this chapter.

The procedure for multiple meanings in context will be dealt with first; the procedure for inconsistent messages of emotion will follow.

3.3.2. Procedures to measure the Interpretation of Multiple Meanings in Context (MMC)

3.3.2.A Description of the Materials and Response Requirements

The key features of the material design and response requirements are outlined below to give a summary overview. The rationale for these features is then set out in the following section.

Summary Overview of Key Features

(i) Fourteen items (plus one practice item) were included in the measure, comprising five homonyms, five multiple meaning phrases and five idioms.

(ii) The MMCs were presented orally, on audiotape, in a short verbal context, to reflect natural communication and a tone of voice to indicate an implied meaning.

(iii) The students were required to respond by selecting as many pictures as they wished, from an array of four, to convey their interpretation of speaker intention. Two of the pictures reflected a pragmatic interpretation, the other two reflected a non-pragmatic interpretation.

(iv) A picture to represent a 'don't know' response was also included.

(v) There were a series of comprehension checks made after the initial presentation to confirm students' understanding of the non pragmatic meaning and to explore further their pragmatic comprehension.

Detailed Descriptions and Rationale

Fourteen items (plus one practice item) were included the measure, comprising five homonyms, five multiple meaning phrases and five idioms. This number was thought to provide an adequate range of examples, whilst providing a measure of a length that was practical to administer in terms of the time available and the length of concentration required of the subject. Table 3.2 lists the MMCs included, together with the utterances in which they were presented to the

- Chapter 3. Methodology -

Item	Multiple Meaning	Context	Type of Context Resolving Ambiguity
Practice Item (homonym)	stuck	One day, John was trying to do his spellings. He needed some help because he was stuck with his spellings.	- semantic plausibility - syntactic congruity (the particle 'to' is used to convey being physically stuck to something)
1 (phrase)	tied up	Joe's little sister was having a birthday party. Joe wanted to go, but he couldn't because he was tied up all day.	- semantic plausibility
2 (homonym)	jam	Mrs Blue was late for school. She said, 'I'm sorry I'm late, the road was jammed solid this morning.'	- semantic plausibility - syntactic congruity
3 (homonym)	short	Fred said, 'I've been getting very short with Susie recently.'	- semantic plausibility - syntactic congruity
4 (phrase)	real pig sty	Mrs Yellow was talking to her friend. She said, 'Do you know, my little girl's room is a real pig sty.'	- semantic plausibility - non-verbal context (tone of voice)
5 (idiom)	full of beans	Mrs Yellow was pleased to see William. She said, 'Hallo William, you're full of beans today.'	- semantic plausibility
6 (phrase)	fall out	Mrs Yellow saw Bob and Mary. She said, 'Oh dear, have you two fallen out with each other?'	- semantic plausibility - non-verbal context
7 (idiom)	pull your socks up	Mrs Blue said, 'Well Sam, if you want to pass your test, you'll have to pull your socks up.'	- semantic plausibility
8 (idiom)	drove me round the bend	Mrs Orange was talking to her friend. She said, 'Do you know, that little boy drove me round the bend this morning.'	- semantic plausibility - non-verbal context
9 (homonym)	(caught) red handed	'There was a robbery yesterday, but luckily the man was caught red handed.'	- semantic plausibility - syntactic congruity
10 (idiom)	thin on the ground	Mrs Blue said, 'You'll have to use pencils today, the pens in this class are very thin on the ground.'	- semantic plausibility
11 (phrase)	carried away	Mrs Blue said, 'The children in this class are getting carried away.'	- semantic plausibility - syntactic congruity
12 (phrase)	beside himself	Mrs Blue said, 'Do you know, Peter was completely beside himself this morning.'	- semantic plausibility
13 (idiom)	wrong side of the bed	Mrs Blue said, 'I think Joanna got out of the wrong side of the bed this morning.'	- semantic plausibility
14 (homonym)	threw	Mrs Blue said, 'I think I really threw Emma with that spelling test.'	- semantic plausibility

TABLE 3.2. Multiple meanings in context. Items included in the study.

subjects and an outline of the nature of the context which may be used to resolve the ambiguity.

As outlined earlier, all the items included had been observed in classroom practice and in a viewing of children's television programmes. A further selection was made on the basis of whether both the literal interpretation and that implied by context could be depicted. This was an important consideration bearing in mind the choice to use picture materials. The rationale for using picture materials has already been referred to as a way of controlling extraneous variables pertaining to expressive language difficulty.

A practice item was included to aid the subjects' understanding of the the type of response that the task required. The item chosen, therefore, was designed to be easily within the comprehension of the subjects included in the study and this was trialled in the pre-piloting sessions.

The MMCs were presented orally, on audiotape, in a short verbal context to reflect natural communication and a tone of voice to indicate an implied meaning. An audiotape was used in an attempt to ensure consistency

of presentation. Although the procedure was to be presented by the same person (myself) to all the students taking part in the study, it was possible that variation in voice tone or quality might occur unless an audiotape was used. Such variations would have affected the amount of context supplied, impinging upon the dependent variable. That is, my tone of voice may have been more exaggerated in some presentations than others.

Each utterance consisted of no more than four sentences. It was believed that subjects would be able to recall this length of utterance easily; this decision being based upon my experience as a Speech and Language Therapist with secondary school students. This design was taken in order to control for the effects of difficulties with auditory processing and high short term memory load, which has been highlighted as an important consideration for the language disordered group (Tallal and Piercy 1978, 1981; Cromer, 1987).

The utterances were also designed to be of a level of syntactic complexity which could be understood by twelve to fourteen-year-old SLD students, this

decision being based upon my experience as a Speech and language therapist with secondary-school-aged SLD students. It was on this basis, for example, that the use of passive sentences and 'embedded' syntactic structures (one sentence 'embedded' in another) were avoided. Bishop (1989) also found these types of sentence structures to be understood relatively late in children who develop language normally.

An attempt was made to place the MMC in a natural communicative context in order to reflect, as closely as possible, the kinds of everyday situations where subjects may hear utterances of this kind. The speaker's tone of voice was therefore made to fall within a range judged to reflect natural communication. Further, I related each MMC played on the tape to a context with which the child would be familiar by saying, for example, 'this is something you might hear your mum or dad say'. This step was taken in an attempt to provide for the generalisability of findings from the experimental context set up for the present study, to naturally occurring, real life contexts.

The students were required to respond by selecting as many pictures as they wished, from an array of four, to convey their interpretation of speaker intention. A picture pointing response was considered an important aspect of the measure to enable students to demonstrate their comprehension without needing to use expressive language, which may be impaired in the SDLT group. Further, the picture materials acted as an aid to visual memory.

Each MMC was associated with four different pictures containing one which (a) portrayed an interpretation of the multiple meaning which did not take the context into account (non-pragmatic, literal meaning), (b) portrayed an interpretation implied by the context (pragmatic meaning), (c) portrayed an interpretation opposite or related in some way to the literal meaning and (d) portrayed an interpretation that reflected pragmatic understanding, but was incorrect.

Therefore, picture types (b) and (d) reflected pragmatic interpretation (picture type (a) accurately; picture type (b) inaccurately) whereas types (a) and (c) did not. For example, for the utterance 'I'm sorry I'm late, the road was jammed solid this morning' picture type (a) showed a road covered in strawberry

jam, picture type (b) showed a traffic jam, picture type (c) was of a van on the road displaying a picture of strawberry jam and picture type (d) showed one car on a road. This picture template is included in figure 3.1. as an example. The template also illustrates the 'don't know' picture, described under point (iv) below. For each multiple meaning item, the four different picture types (a,b,c,d) were presented in a different order to control for the effects of any response set employed by the subject.

The literal interpretation of all multiple meanings included was rendered implausible by the context in which they were presented, either because the meaning implied did not match to knowledge or experience of what is plausible (for example, it is unlikely that a road would be covered in strawberry jam) or because the grammatical construction used was not consistent with a non pragmatic interpretation (for example, there is no such verb as 'to strawberry jam').

Having heard each MMC, the subjects were required to select pictures (a) to (d) outlined above, to represent their interpretation of the meaning of the utterance, or to select the puzzled character if they

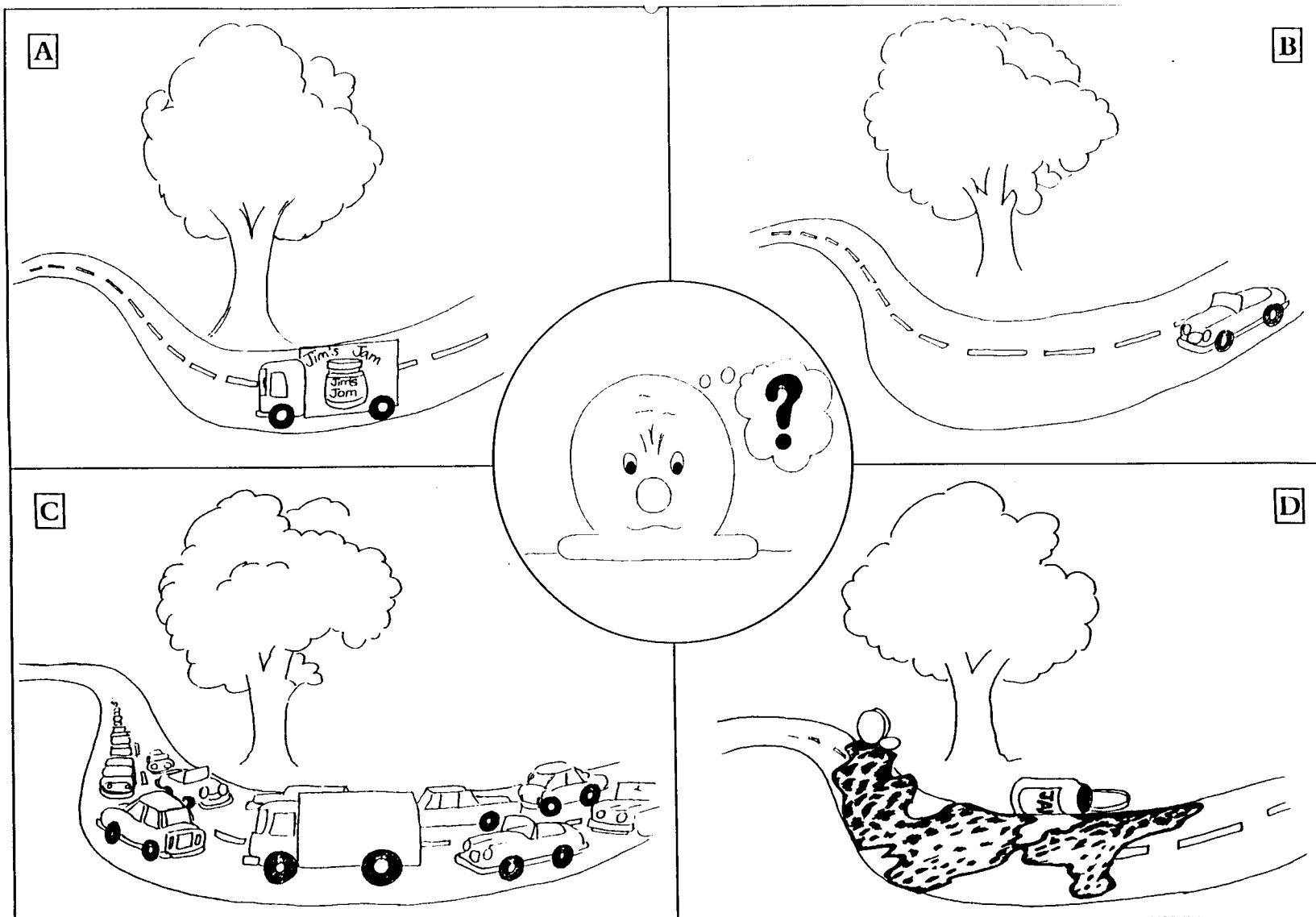


FIGURE 3.1. Picture Template. MMC item 2: Jam.

Picture A: Interpretation related to literal meaning; Picture B: Pragmatically plausible but incorrect; Picture C: pragmatic interpretation in line with speaker intention; Picture D: literal interpretation.

were unsure of the interpretation.

The subjects were instructed to select as many pictures as they desired to interpret the MMC. This was believed to be an important consideration bearing in mind Bonitatibus's (1988) finding that children's performance in detecting ambiguity improved when they were aware there may be more than one referent. It was necessary to take this step because it was possible that the experimental design would falsely influence the results, that is, subjects would respond within a single referential paradigm only because it was set by the method used. Further, giving subjects the opportunity of selecting both the pragmatic and non-pragmatic interpretation, if they wished, allowed exploration of whether there may be a stage in the development of pragmatic meaning where the subject knows the pragmatic meaning but is unable to rule out the non-pragmatic interpretation nevertheless. This would indicate a level of uncertainty in pragmatic comprehension.

Enabling the subjects to select more than one picture, however, had the disadvantage that if the subject did choose both the pragmatic and literal meaning, this

created a restriction on interpreting their responses, because it was not possible to determine which interpretation they believed to be the most plausible. Further exploration of this response was therefore made on completion of the presentation of all fifteen items, as described later in this section.

A picture of a puzzled character representing a 'don't know' response was included along with each picture series for each item. This picture was included to act as a visual reminder to students that they had the opportunity of making a 'don't know' response.

It was important to include a 'don't know' response for two reasons. Firstly, to reduce the likelihood of students making a guessed response, thus increasing the reliability of findings. A further consideration here is the finding of Robinson and Wittaker (1985) that including a 'don't know' picture improved children's interpretations of ambiguous utterances and therefore prevented the design of the procedure from falsely raising the number of incorrect responses.

Secondly, I wanted to explore the possibility that subjects may be able to use a pragmatic strategy to

determine the non-pragmatic meaning as implausible, given the context, even if they did not know the non-literal meaning. This is an important consideration in relation to the possible implications of the study, since such a finding would provide evidence for students being able to use a pragmatic strategy in the absence of sufficient semantic knowledge. In order to make this assessment, a check was included (described in the next section) to ensure that the subject did know the non-pragmatic meaning.

It was decided to include a picture of a puzzled character to represent the 'don't know' response, because during the pre-piloting sessions none of the subjects made this kind of response; instead, when they did not know the pragmatic meaning they chose the picture representing the literal interpretation. On a number of occasions, I noted that this response was accompanied by laughter, which appeared to indicate that the subjects recognised the implausibility of the interpretation. On completion of the items I therefore asked the subjects why they had laughed and their responses verified that they had not believed the literal interpretation to be correct, even though they selected it. When I asked why they had not said 'don't

know', three subjects said they had forgotten that they were permitted to make a 'don't know' response, the fourth was unable to say. This indicated a potential flaw in the face validity of the procedure, which could result from the subject forgetting that they were able to say 'don't know'. It was also possible that some children would have a reluctance to say 'don't know', particularly if they had adjusted to making a pointing response. It was hoped that the inclusion of a 'don't know' picture would alleviate these difficulties.

On completion of the first presentation of items, further exploration was made of responses where the subject (i) selected both the pragmatic and literal interpretations, (ii) made a pragmatic but incorrect response and (iii) made a 'don't know' response.

- (i) Responses where subjects selected both the pragmatic and literal interpretations (picture type (a) - strawberry jam on the road and picture type (b) - the traffic jam).

On completion of presentation and response to all fifteen items, I returned to the items where the

subject had selected two or more pictures and asked them to select one picture only.

- (ii) Responses which reflected pragmatic knowledge but did not reflect the speaker's intended meaning (picture type (d) - one car on the road).

In order to be as certain as possible that this response was accurately classified 'pragmatic', checks were made that the student did understand the literal meaning of the item; the assumption was then made that they had ruled out the literal interpretation as incorrect, on the basis of pragmatic understanding, but had insufficient pragmatic knowledge to determine the speaker's intended meaning.

- (iii) 'Don't know' responses (puzzled character selected)

On completion of presentation and response to all fifteen items, I further explored items where the subject had made a 'don't know' response.

Comprehension of the non-pragmatic meaning was checked and the subject was asked why they had

not selected the literal interpretation. This added a further dimension to be considered in interpreting the subject's responses, in particular, whether there may be a stage in the development of pragmatic meaning comprehension, where the subject makes a decision that the literal meaning is incorrect (even if they cannot explain why), but does not know the pragmatic meaning. This kind of response would provide evidence for children being able to operate a pragmatic strategy to rule out the literal meaning, even when they do not understand of the two possible meanings of the word(s).

3.3.2.B Presentation of materials

Rationale for the method of presentation

The materials were presented to each student using a scripted commentary to ensure consistency of presentation. Before outlining the commentary, the key aims of the method of presentation will be considered.

(i) The materials were first introduced by explaining the 'theme' of the measure (as outlined in the scripted

commentary below). The aim of this introduction was to enable subjects to focus their concentration, in a general sense, on the session to follow, and to feel at ease in the test situation.

(ii) For each item (including the practice item), I initially focused the subjects attention on each of the four pictures, by pointing and making a simple scripted commentary prior to the presentation of each MMC. The aim here was to ensure that the subject had noticed the key information portrayed by the picture. I ensured that the subject was looking at each picture as the commentary was made. As outlined earlier, these steps were taken to reduce the likelihood of inadequate perception of the picture material affecting the response. Care was taken, however, not to include in the commentary any of the homonyms or words included in the multiple meaning phrases and idioms being assessed, since this may have served to bias subjects' responses.

(iii) After each MMC I asked, 'What did X mean, do you know?' The option of making a 'don't know' response was therefore made clear to the subjects after each utterance.

(iv) The subjects were permitted a second hearing of each MMC if required. This reduced the likelihood of interpretation being affected by poor auditory processing or recall of information.

(v) All exploration of responses and comprehension checks were completed after the presentation of all fifteen items to prevent them from affecting the way students responded during the first presentation of items.

Scripted Commentary for the Presentation of MMC Procedure

The commentary included here is for the introduction and the first three items (including the practice item), which is believed to be sufficient to give an indication of the method of presentation. A complete script is included in appendix A.

(i) **Introducing the subjects to the measure.**

'Now we are going to think about things people say in everyday conversation and we're going to try to think about what they mean. Like your mum or your teacher might say something and you have to work out what they

mean don't you? We are going to do it with these pictures.'

(ii) **Practice item**

'These four pictures are all about a boy called John trying to do his spellings. Here (point to picture 1) he's not very happy, is he? Here (point to picture 2) he's O.K. Here, (Point to picture 3) he's O.K. and he's got a tube of glue on his desk, see? and here (point to picture 4) oh dear, the glue has gone all over him and his spelling book.

Now we're going to hear a tape and on this tape I shall tell you something about John . You have to work out what I mean and point to these pictures. You can point to as many pictures as you like - one, two, three or all four. If you don't know what I mean, I want you to point to this little green chap here. How does he look (elicit "puzzled", "unsure", "like he doesn't know"). Right, so if you feel _____ (repeat what student says) point to him, O.K ? Right, well there's a lot to remember there so we're going to have a practice. I'll play you the tape first and on this tape, I shall tell you

something about John. It's going to be something you might hear your teacher say.'

[The tape is played] *John was trying to do his spellings. He needed some help because he was stuck with his spellings.*

'Now, what do you think I meant there. Do you know? [If the child takes a while to respond, suggest the tape is played a second time] O.K, so you thought I meant that one [those two/three] that's fine, you can point to as many pictures as you want to, one, two three or all four. Now say you don't know what I mean on the tape, what do you point to then? [that's right] the puzzled chap.'

(iii) **Item 1**

'Now let's turn over the pictures and see what's next. This is Joe. Here he is (point to picture 1) in his armchair. Look what's happened (point to rope). But now look, (point to picture 2) you can see what he's done. [Picture 2 shows Joe breaking free from the rope]

Here, (point to picture 3) he's busy working at the office and here (point to picture 4) he has got no work to do. Now I'm going to play the tape about Joe and on the tape I shall tell you something about him. It's going to be something you might hear your mum or dad say.'

[The tape is played and repeated if required] *Joe's little sister was having a birthday party. Joe wanted to go, but he couldn't, because he was tied up all day.*

'What did I mean , do you know?'

(iv) **Item 2.**

'Now lets turn over the pictures and see what's next. Here we have four roads (point to picture 1). There's a van on this road - look (point to side of van displaying jam jar). What do you think is in that van ? (Elicit "jam".) (Point to picture 2.) There's just one car on this road. (Point to picture 3.) There's lots of cars on this road. (Point picture 4.) Look what's on this road - do you know what it is ? (Elicit "jam" - looks like it's got strawberries in it etc.). Now I'll play you the tape. You're going to hear something a teacher says. It's something your teacher might say'.

[The tape is played and repeated if required] *Mrs. Blue was late for school. She said "I'm sorry I'm late, the road was jammed solid this morning".*

'What did Mrs. Blue mean, do you know?'

This procedure was repeated for the remaining 12 items

(v) **Scripted commentary for 'forced choices' (required only for items where the child pointed to more than one picture to interpret the meaning)**

'Now I want to go back to the bits in the tape where you chose two (or more) pictures. Now that was O.K, because I said you could didn't I? But this time, I'm only going to let you point to one picture. I shall play you the tape and I want you to think about what I mean and this time, just choose one picture.'

[The tape is played and repeated if required]

'What did I mean?'

(vi) **Scripted commentary for the non-pragmatic meaning check.** (Used for items where the student made a 'don't know' response or an inaccurate pragmatic response.

'Show me (item 1) tied up (item 2) jam (item 3) someone short (item 4) a pig sty (item 5) beans (item 6) people falling out of something (item 7) someone with their socks up (item 8) someone driving around a bend (item 9) red hands (item 10) thin pens (item 11) someone being carried away (item 12) a boy standing beside someone (item 13) the wrong side of the bed (item 14) throwing.'

(vii) **Scripted commentary to explore the "don't know" response.**

' Now I want to go back to these pictures. I'll play you the tape that goes with these pictures again. [The tape is played] Now, last time you pointed to the puzzled picture because you did not know what X (the person on the tape) meant and that's fine. But can you tell me why you didn't think it was this one? (non-pragmatic meaning)".

3.3.2.C. Recording Responses

A record sheet was developed to allow swift recording and classification of responses. A worked example is included in appendix B. The student's picture pointing response was marked onto the sheet as it was made, by writing down the letter(s) (A to D) allocated to the pictures. Where the subject made a don't know response I marked a letter 'DK' on the record sheet. Where the subject pointed to more than one picture, the 'forced' choice, requested after the first presentation of all items, was recorded in a separate column.

3.3.2.D. Interpreting the Data: Classification of Responses

Responses were classified according to whether they represented a non-pragmatic interpretation, that is, one which is implausible, given the context, or a pragmatic interpretation based on the contextually implied meaning.

It should be noted that the student's responses to the practice item were not considered in the analysis of responses; as previously outlined, the inclusion of the

practise item was, rather, to familiarise the students with the different response modes possible.

The following classification was developed to accommodate the different type of possible responses. By way of example, reference is made in brackets to the 'road was jammed solid' item outlined earlier.

RESPONSE TYPE 1: Non-pragmatic. The subject selects the picture of the road covered with strawberry jam).

RESPONSE TYPE 2: Non-pragmatic. The subject selects two possible interpretations, reflecting the literal and the pragmatic meaning (the picture of the road covered with strawberry jam and the traffic jam) but when asked to choose only one, chooses the literal interpretation (the strawberry jam). That is, the subject is aware of a pragmatic meaning but rules it out in favour of a literal interpretation.

RESPONSE TYPE 3: Non-pragmatic. The subject makes a non pragmatic interpretation which is incorrect (the van containing strawberry jam).

RESPONSE TYPE 4: Non pragmatic. The subject makes a 'don't know' response (picture of puzzled character) because s(he) does not know the literal or the pragmatic interpretation (checked in a second presentation of items, as outlined in the scripted commentary above).

RESPONSE TYPE 5: Pragmatic. The subject selects the pragmatic and literal interpretations (the pictures of strawberry jam and a traffic jam) and when asked to choose one, chooses the pragmatic interpretation (the traffic jam).

RESPONSE TYPE 6: Pragmatic. The subject's interpretation is the speaker's intention (The subject selects picture of a traffic jam).

RESPONSE TYPE 7: Pragmatic. The subject makes a pragmatic interpretation, but is incorrect (selects picture of one car on the road). The comprehension check shows that the subject does understand the literal interpretation. The assumption is, therefore, that the subject concludes that the non-pragmatic interpretation is not the speaker's intention.

RESPONSE TYPE 8: Pragmatic. The subject makes a don't know response (picture of puzzled character). The comprehension checks show that the student knows the non pragmatic interpretation, but rules it out nevertheless.

The possible response types are summarised in figure 3.2.

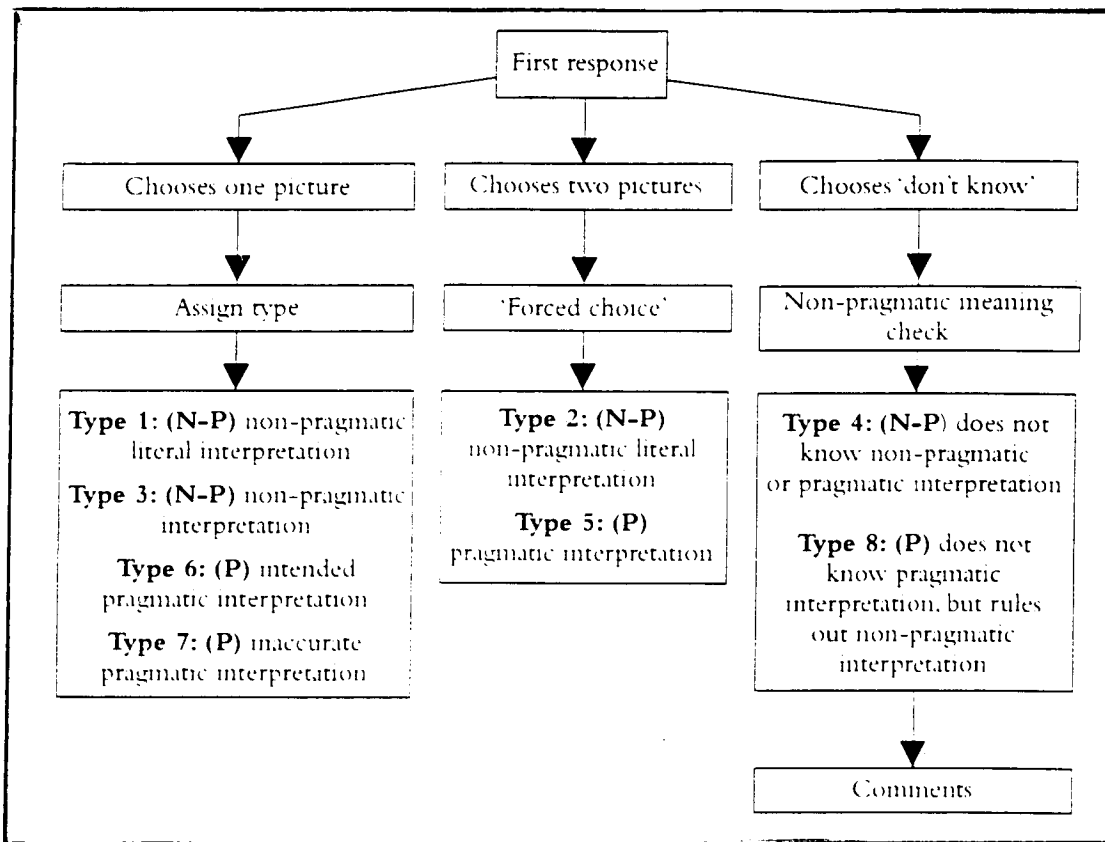


FIGURE 3.2. Summary of response types; MMC procedure.

Response type 6 is viewed as the most accurate pragmatic response, in line with speaker intention. **Response types 7 and 8** are evidence that the student is able to operate a pragmatic strategy to rule out the non-pragmatic meaning, despite not having sufficient semantic knowledge to be able to select the correct contextually implied meaning. Therefore, this kind of response reflects subject awareness that there is a contextually implied meaning (based on pragmatic, metacommunicative knowledge) but insufficient linguistic knowledge to determine the precise meaning of the communication.

Response type 5 indicates that although the student has an understanding of the contextually implied meaning, they do not have sufficient pragmatic knowledge, or confidence in applying pragmatic knowledge, to rule out the non-pragmatic meaning until forced, by the researcher, into making a choice.

3.3.2.E. Comparing the Responses of the Three
Different Groups

Comparisons of the SLD group with the two non-language-impaired groups were planned on the basis of:

- (i) The total number of pragmatic responses (response types 5,6,7 and 8);
- (ii) The number of responses within each response type;
- (iii) The association between pragmatic responses and language/chronological age;
- (iv) The influence of sex of subject.

The relation of the response types to the questions posed by the study will be included in the results chapter.

The measure of inconsistent messages of emotion will now be described.

**3.3.3 Procedures to Measure the Comprehension
of Inconsistent Messages of Emotion. (IME)**

3.3.3.A. Introduction

The second form of ambiguity explored in the present study is inconsistent messages of emotion. To review, in this form of communication an emotion conveyed in the verbal message is contradicted by the emotion conveyed in the non-verbal message. Since it is the non-verbal message which conveys the speaker's intended meaning, the non-verbal context serves both to create and to resolve the ambiguity here.

3.3.3.B. Materials and Response Requirements

As in the case of MMC, a summary of key features is first provided. More detailed descriptions, including the rationale for development, are covered in the following section.

Summary Overview of Key Features

i. Nine inconsistent messages of emotion, plus one practice item, were included.

ii. The IME were presented in two conditions: the first on audiotape (audio only condition), the second on videotape (audiovisual condition).

iii. The subjects were required to select a picture to represent how the speaker was feeling about a particular object or event. This selection showed whether they considered the verbal (non-pragmatic) message or the non-verbal (pragmatic) message to represent speaker intention.

iv. A picture was also included to represent a 'don't know' response.

v. A series of non-pragmatic meaning comprehension checks were made on completion of the IME procedure.

Detailed Descriptions and Rationale

Nine inconsistent messages of emotion, plus one practice item, were included in the measure. This was thought to provide an adequate range of examples, whilst being of a length which was practical to administer in terms of the time available and the subjects' concentration.

In each of the messages, the context, which is supplied by the speaker's tone of voice and facial expression, implies one of three emotions - sadness, happiness or anger (pragmatic message). The pragmatic meaning is contradicted by the words in the utterance (non-pragmatic message) which signals a different one of these three emotions.

The selection of the emotions of sadness, happiness and anger was based on the knowledge that (i) they have been found to be universally associated with distinct facial displays and tones of voice (Ekman 1982, Scherer 1986) and (ii) these are three of the earliest forms of to be understood (Harris and Saarni, 1989).

Table 3.3. lists the IME included, together with the communicative contexts in which they were presented. It can be seen that there are three types of IME. The first type consists of a non-verbal message expressing anger with a verbal-message expressing happiness. In the second type, the non-verbal message expresses happiness whilst the verbal message expresses sadness or anger. The third type consists of a non-verbal message expressing sadness and a verbal message

Practice Item	A: I hear you're moving house. B: It's really good news, I'm very happy to be moving.	Non-verbal context (facial expressions/ tone of voice): sadness
1	A: Wendy, are you feeling O.K.? B: Yes, I'm feeling great thanks. I'm fine.	Non-verbal context: sadness
2	A: Wendy, I think I will go to that party. B: Oh you really make me laugh you do.	Non-verbal context: anger
3	A: Oh Wendy, I've asked my sister to the party, is that alright? B: Oh that's really great, I'll be very happy to see her.	Non-verbal context: anger
4	A: Oh what a day! I couldn't see anything I wanted in the shops and I had to wait ages for the bus. B: Oh you poor thing you, I'll start to cry in a minute.	Non-verbal context: happiness
5	A: Have you got that tape I lent you? B: Oh yes, I'm sad to say I broke it, sorry about that.	Non-verbal context: happiness
6	A: Guess what, I've had some wonderful news, I'm off to America next week. B: Are you? I'm really happy for you.	Non-verbal context: sadness
7	A: You must be so cross. B: Well, I'm just so angry, I'm going to hit you over the head in a minute.	Non-verbal context: happiness
8	A: Look Wendy, I've bought you a new jumper. B: Thanks, it's lovely, I'm really pleased with it.	Non-verbal context: sadness
9	A: Wendy, is there anything wrong, are you feeling alright? B: Yes, I'm perfectly happy, thank you.	Non-verbal context: anger

TABLE 3.3. Inconsistent messages of emotion, items included in the study. (Speaker B's utterance is the inconsistent message)

expressing happiness. There are three examples of each type, presented in random order to prevent effects of any response set employed by the subjects.

A practice item was also included to aid the subjects' understanding of the type of response required by the task.

An attempt was made to place the IMEs in a natural communicative context in order to reflect, as closely as possible, the kinds of everyday situations where subjects may be required to respond to utterances of this kind. The following steps were therefore taken.

- (i) The IME was spoken in response to a question or statement uttered by a second speaker; the IME therefore occurred at the end of a two turn conversational exchange. This also had the advantage of reducing the likelihood of subjects not recalling the IME. This is an important consideration bearing in mind that language disordered subjects may have short term memory deficits (Cromer 1987).
- (ii) The speaker's tone of voice and facial expression

is designed to be made noticeable, but to fall within a range which would be judged to reflect natural communication.

- (iii) A comparison was made between situations when context was in terms of auditory information only (tone of voice) and when context was provided by both auditory and visual information (tone of voice and facial expression), since there are occasions in natural communicative contexts where visual information is not available, for example, when speaker and listener are not making eye contact. This was achieved by using an audiotape and a videotape condition.

Both utterances spoken in the two turn conversational exchange (the opening question/statement and the inconsistent message uttered in response) were developed to contain vocabulary and a level of syntactic complexity which would be understood by secondary-school-aged children with developmental language disorder. This judgement was based on my experience as a speech and language therapist with secondary-school-aged students. This step was taken to prevent any potential difficulties that the SDLD group

may have with complex syntax or vocabulary obscuring effects on the dependent variable.

Both speakers (the one saying the initial utterance and the one saying the IME) were female and spoke with a Standard English accent. The speakers' voices were easily distinguishable in both videotape and audiotape conditions. However, steps were taken in the presentation of the materials to ensure that the subjects could distinguish between the two speakers. This is detailed later in the chapter in describing the presentation of materials.

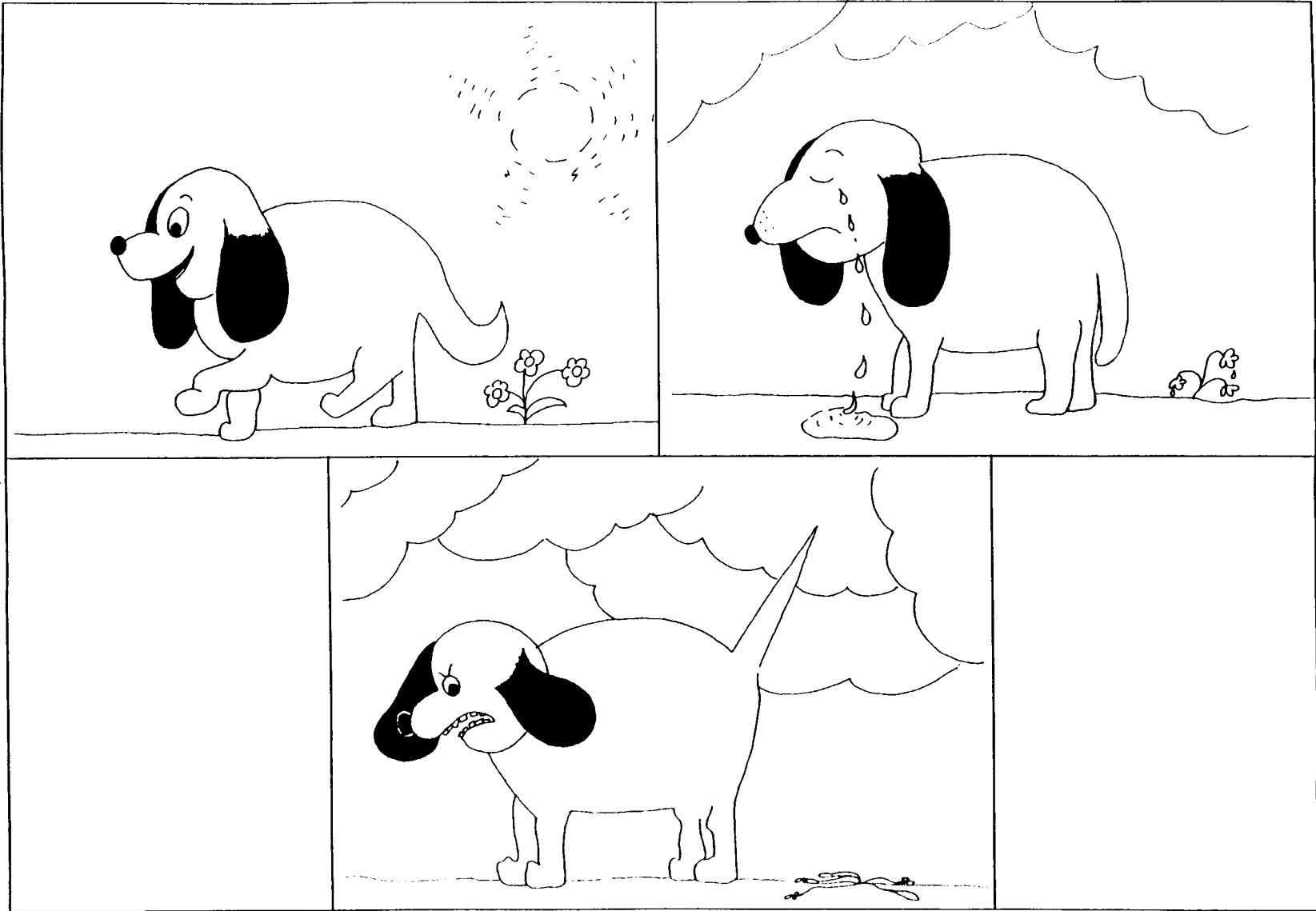
The subjects' responses were in terms of selecting a picture or pictures to represent the speaker's feeling about an object or event. The subject's choice of emotion therefore showed whether or not they were able to take into account the contextually implied pragmatic meaning (facial expression and/or tone of voice) in their decision on how the speaker was feeling. If not they would select the emotion conveyed by the words in the utterance.

The choice of a picture selection response was made because it was believed that if subjects were asked to

name the emotion, their responses could be made unreliable by expressive language impairment, such as word finding difficulty, which was not under investigation in the present study and thus could obscure the effects on the dependent variable.

A series of three pictures of a dog was included to depict each emotion (sadness, happiness and anger) in ways with which even young children are familiar. For example, sadness was portrayed by the dog crying on a cloudy day, with its tail and ears drooping; happiness was portrayed by the dog walking out on a sunny day; anger was portrayed by the dog growling and a thundery sky. The three pictures are included in figure 3.4.

The choice of a dog to portray the emotion was intended to provide a clear representation of the emotion which did not involve facial expression or tone of voice. Had a human character been used, it would have been possible that subjects would have been influenced in the video condition by a one-to-one perceptual matching strategy between the pictures and the facial expressions on the video. This influence would have obscured assessment of their comprehension of IME.



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FIGURE 3.3. Picture card for the inconsistent messages of emotion procedure

The aim of including these pictures was to focus the subjects concentration and to act as a memory aid to the vocabulary.

Subjects were not restricted to selecting one picture only. This enabled exploration of whether they may be aware of meaning implied by context, but may be unable to discount the non-pragmatic meaning. However, in order to explore which of the two interpretations subjects believed to be the most plausible, they were asked, on a second occasion, to select between the two pictures.

A picture of a puzzled character was included to represent a 'don't know' response. As in the case of MMC, enabling this kind of response reduced the likelihood of students guessing and acted as a visual reminder that a 'don't know' response was possible. Inclusion of this kind of response also allowed exploration of a possibility that subjects may be aware of a discrepancy between the verbal and non-verbal message, even though they had insufficient pragmatic knowledge to realise that when inconsistency of this kind occurs, it is the non-verbal message that is the speaker's intention.

A series of non-pragmatic meaning comprehension checks were applied following the IME assessment
These checks are detailed later in this chapter.

3.3.3.C. Presentation of materials

As in the case of MMC, the materials for IME were presented using a scripted commentary to increase consistency of presentation and therefore reliability of the procedure. The rationale of the method of presentation and the scripted commentary are outlined below.

Rationale for the method of presentation

(i) The materials were first introduced with an explanation of the 'theme' of the assessment (see scripted commentary below). This enabled me to focus the subjects' attention, in a general sense, on the session to follow and to encourage them to feel at ease in the test situation. The pictures were then shown to the subject and their comprehension of the three emotion words was ascertained by picture selection. If difficulty arose at this stage testing was discontinued because if they were unable to understand this basic vocabulary in

relation to the pictures, which illustrated the emotions in very obvious ways, it would be irrelevant to consider their responses to these words in the IMEs.

(ii) A tape was played of the two speakers introducing themselves, so that subjects could familiarise themselves with the two different voice types and visual images.

(iii) A second hearing of each conversational exchange was allowed if required, in an attempt to reduce responses being affected by difficulty recalling information.

(iv) The 'audio only' condition was presented first. The video, audiovisual condition was presented on a second occasion. This order of presentation was made because I believed that, although there was a time interval between the two conditions of presentation, it was possible that when the 'audio only' condition was presented second, children would use visual information, remembered from the audiovisual stimuli, to interpret the 'audio only' presentation.

However, the possibility that there may be a learning effect, responsible for subjects making more pragmatic

responses in the audiovisual condition, which was always presented after the audio only condition, could not be ruled out. Therefore the existence of learning effect was checked during the pre-piloting, by comparing the subjects' responses in the two conditions when the video condition occurred first and the audio only condition occurred second.

The details and results of this check are outlined later in this chapter, in the section on pre-piloting, but it should be noted here that no learning effect was found between the two conditions: that is, subjects did not make more pragmatic responses in the audio only condition than the video condition. However, the findings of the learning effect check did support my belief that the video condition influenced the audio only condition because the number of pragmatic responses were much higher in the audio only condition when it was presented second than when it was presented first.

There was also no indication of learning effect within each condition.

(v) Exploration of the 'don't know' responses and the comprehension checks were presented on completion of the

first presentation, in both conditions, to prevent the checks influencing students' responses in the first presentation of items.

Scripted commentary for the presentation of IME

The scripted commentary included here is for the practice item and the first item. The remaining commentary is included in appendix C.

(i) Introduction

"What we're going to think about now is people's feelings. I've got a dog here who feels three different ways. How is he feeling here? (point to picture 1) and here? (point to picture 2) and here? (point to picture 3)." [If the subject is unable to name any one of the emotions]. 'Show me where he's feeling happy. Show me where he's feeling sad. Show me where he's feeling angry.' [If the subject selects incorrectly, testing is discontinued].

'Now you're going to hear a tape of two people talking - it's me and a friend called Lesley. First we're going to say hallo to you, so you can hear our different voices.'

[The tape is played] Lesley : *Hallo, I'm Lesley and this is my friend Wendy.*

Wendy : *Hallo, I'm Wendy. In the tape you're going to hear, Lesley will say something and I will say something back to her. I want you to listen carefully to me.*

(ii) Practice item

'So I want you to listen carefully to both me and Lesley, but especially listen to me because I'm going to ask you a question about me. Let's have a practice. Here comes the first one.'

[The tape is played] Lesley : *Wendy, I hear you're moving house*

[The tape is paused]

'So that was Lesley, now listen to what I say'.

[The tape is played] Wendy : *Yes, it's really good news,
I'm very happy to be moving*
(tone of voice/facial
expression to convey
sadness)

'How do you think I was feeling about moving house? Do
you know ?' (indicate to response choice pictures).

'Fine, ready for the next bit of tape ?'

(iii) Item one

[The tape is played] Lesley : *Wendy are you feeling O.K.?*

[The tape is paused]

'So that was Lesley, now listen to what I say'

[The tape is played] Wendy : *Yes, I'm feeling great
thanks, I'm fine* (tone of
voice/facial expression to
convey sadness)

'How do you think I am feeling ? Do you know ?'

(iv) **Commentary for forced choice.**

'In this bit of tape you chose two pictures, but now I want you to choose just one picture. Listen again and think about how I am feeling about....'

(v) **Commentary for 'don't know' response check**

'Now I want to go back to this bit of the tape.' [The tape is played] 'What did I actually say there. What do those words mean ?' [the emotion word(s) are read in a tone of voice judged by the researcher not to convey any emotion]. 'O.K now last time you pointed to the puzzled picture because you didn't know how I was feeling and that's fine. But can you tell me why you didn't choose this one' (non-pragmatic meaning).

(vi) **Commentary for responses where subjects selected the picture other than those representing the verbal and the non verbal message.**

'Now I want to go back to this bit of the tape.' [The tape is played] 'Now you said I felt [child's response] here and that's fine. Can you tell me why you decided on that one ?'

3.3.3.D. Recording responses

A record sheet was developed to allow swift recording and classification of responses; a worked example is included in Appendix D. The subject's picture pointing response was marked onto the record sheet by writing a letter to correspond with the emotion depicted (H-happy, S-sad, A-angry) in one of two columns to represent audio or audiovisual presentation. Where a subject made two responses, this was recorded, but they were asked to make a second response choosing one picture only. Responses to comprehension checks (outlined in 3.3.3G below) were also recorded in this way.

3.3.3.E. Interpreting the data : Classification of responses

Responses were classified according to whether they represented a non-pragmatic or a pragmatic interpretation.

The following classification was developed to accommodate the different type of possible responses:

RESPONSE TYPE 1 : Non-pragmatic. The emotion chosen is that represented by the verbal message, therefore the subject is not using the implied meaning created by the non-verbal message.

RESPONSE TYPE 2 : Non-pragmatic. The subject selects two emotions to reflect the verbal and non-verbal message and when asked to make a choice selects the emotion conveyed by the verbal message.

RESPONSE TYPE 3 : Non-pragmatic. The emotion chosen is represented by neither the verbal or non-verbal message. Responses to the comprehension checks show that this is because the child has incorrectly interpreted the verbal message.

RESPONSE TYPE 4 : Non-Pragmatic. The subject makes a 'don't know' response because s(he) does not know the non-pragmatic interpretation. (Subjects understanding of the non-pragmatic meaning is checked in a second presentation).

RESPONSE TYPE 5 : Pragmatic. The subject selects two emotions to reflect the verbal and non-verbal message and

when asked to make a choice selects the emotion conveyed by the non verbal message.

RESPONSE TYPE 6 : Pragmatic. The emotion chosen is that represented by meaning implied by the non-verbal message, in line with speaker intention.

RESPONSE TYPE 7 : Pragmatic. The emotion chosen is represented neither by the verbal or the non-verbal message. The comprehension checks show that the subject is able to interpret the verbal message correctly, but discounts it as being the speakers intended meaning. By ruling out the meaning carried by the verbal message, the subject is showing an awareness of meaning which goes beyond a one-to-one correspondence between word and meaning, although the interpretation is incorrect.

RESPONSE TYPE 8 : Pragmatic. The subject makes a 'don't know' response because s(he) does not know the pragmatic interpretation, but rejects the meaning conveyed by the verbal message as being the speaker's intention.

(Subjects' understanding of the non pragmatic meaning is checked in a second presentation).

A summary of response types is included in figure 3.4.

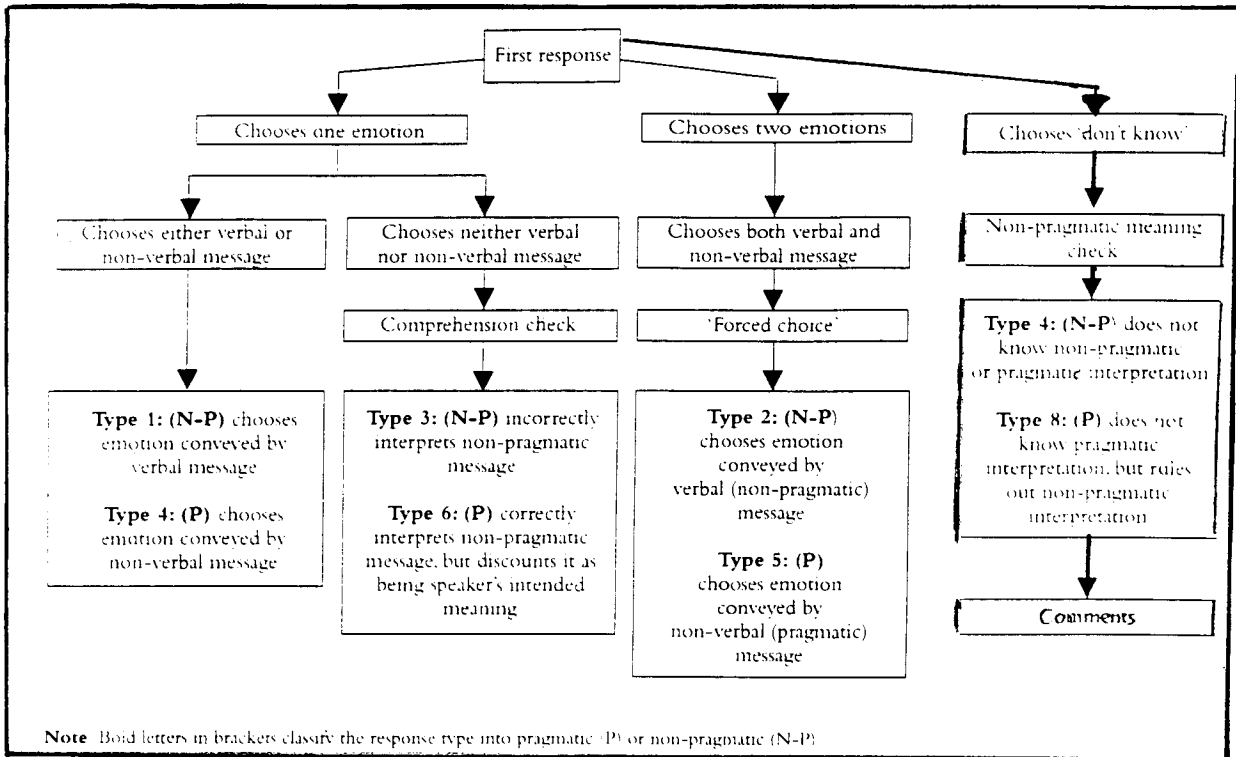


FIGURE 3.4. Summary of response types; inconsistent messages of emotion procedure.

3.3.3.F. Comparing responses of the three different subject groups

Comparisons between the SLD and non-language-impaired groups were made on the basis of:

- (i) The total number of pragmatic responses (response types 5 to 8);
- (ii) The number of responses within each response type;
- (iii) The associations between pragmatic response and language/chronological age;
- (iv) The effects of sex of subject.

3.3.3.G. Comprehension checks

Comprehension checks of the emotion vocabulary, the facial expressions and tone of voice patterns included in the IMEs were made to ensure that subjects had no difficulty in understanding them when presented in a context where there is no inconsistency. These checks therefore provided an assessment of subjects' non-

pragmatic meaning comprehension. The utterances included in the comprehension checks are listed in table 3.4.

The checks were presented to all subjects to ensure that their responses to the IMEs were not affected by their non-pragmatic meaning comprehension. The checks were made on completion of the IME measure to prevent the stimuli in the checks affecting the subjects' responses to the IME.

Vocabulary of emotion

The emotion vocabulary included in the IME was played to each subject, one word at a time, on audiotape. The words were spoken in a consistent tone of voice, which was judged to convey no emotion.

Subjects were asked to attend only to the words themselves and not to the way they were spoken.

The subject's response was to match the word with one of the three feelings portrayed by the multiple choice response pictures.

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Item	Verbal Message	Non-verbal Message
<p>Vocabulary</p> <p>1 great</p> <p>2 I'm going to hit you</p> <p>3 laugh</p> <p>4 sorry</p> <p>5 fine</p> <p>6 pleased</p> <p>7 cry</p> <p><i>(NB: the vocabulary 'happy', 'sad', 'angry' is checked before the Inconsistent Messages of Emotion assessment is administered)</i></p>		judged to contain no emotion
<p>Tone of voice</p> <p>1</p> <p>2</p> <p>3</p> <p>4</p> <p>5</p> <p>6</p> <p>7</p> <p>8</p> <p>9</p>	<p>(judged to contain no verbal emotional content)</p> <p>I'm going to read you a story.</p> <p>I think I'll wear the red dress tonight.</p> <p>What would you like for dinner?</p> <p>I think I heard the doorbell.</p> <p>It's time to say goodnight.</p> <p>I think I'll have burgers for tea.</p> <p>I'm just going down to the shops.</p> <p>I'm going to put on some music.</p> <p>Would you like a glass of orange?</p>	<p>(tone of voice)</p> <p>happiness</p> <p>happiness</p> <p>sadness</p> <p>anger</p> <p>sadness</p> <p>sadness</p> <p>anger</p> <p>happiness</p> <p>anger</p>
<p>Facial expression and tone of voice</p> <p>1</p> <p>2</p> <p>3</p> <p>4</p> <p>5</p> <p>6</p> <p>7</p> <p>8</p> <p>9</p>	<p>(judged to contain no verbal emotional content)</p> <p>Hallo, I think your mummy's going to take you shopping.</p> <p>Can you pass the butter, please?</p> <p>It's time to clean your teeth.</p> <p>I'm going to read you a story today Emily, it's about colours...</p> <p>Right, I'm going to read you a story and it's about numbers...</p> <p>I think it's about time you two went to bed.</p> <p>Shall we watch the television now?</p> <p>Shall we go and play outside now, Emily?</p> <p>Would you like a glass of lemonade, Emily?</p>	<p>(facial expression and tone of voice)</p> <p>happiness</p> <p>anger</p> <p>anger</p> <p>sadness</p> <p>anger</p> <p>happiness</p> <p>sadness</p> <p>sadness</p> <p>happiness</p>

TABLE 3.4. Comprehension checks; IME procedure

Emotion conveyed by facial expression and tone of voice

The subjects were asked to view a series of short communicative contexts, presented on videotape, portrayed by a family. Each context contained a single utterance made by the 'Aunt' (myself) in the family. In this comprehension check video, the words in the utterances were selected so as not to convey any emotion (outlined in table 3.4). The emotion was conveyed, therefore, entirely by the facial expression and tone of voice in which the utterance was made.

Subjects were asked to decide how the Aunt was feeling by selecting from the multiple choice response pictures.

Emotion conveyed by tone of voice only

This check was included, because in check (ii) subjects could select the emotion on the basis of facial expression only. A series of utterances selected to contain words which do not convey an emotion (presented in table 4) were spoken with a tone of voice to convey one of the three depicted emotions.

The utterances were played to the subject, one at a time, on audiotape. Subjects were then asked to select the picture which showed how the speaker was feeling.

The order of presentation of the different components of the IME procedure is summarised as follows:

1. Inconsistent messages: 'audio only' condition.
2. Inconsistent messages: audiovisual condition.
3. 'Forced choices' and requests for explanation (where the picture selected represented an emotion other than that reflected by the verbal or non-verbal message.)
Audio only and audiovisual conditions.
4. Comprehension checks.

Having now described the experimental procedures for IME and MMC, the process of data collection will be presented.

3.4. COLLECTING THE DATA

3.4.1. Introduction

The data was collected during a period between June 1990 and July 1992. There were broadly three stages:

- (i) Pre-piloting the experimental procedures
- (ii) The pilot study
- (iii) The main study

This chapter will now review the general considerations of administration for collecting the data, which was applied to each of the above stages, and will then look at the aims and results of the pre-pilot and pilot study. The results of the main study will be outlined and discussed in subsequent chapters.

3.4.2. General Considerations of Administration

The following steps were taken to control the effects of extraneous variables:

(i) The use of a room where the subject was not distracted, for example, by outside noise and other interruptions.

(ii) The use of good quality audio visual equipment. The audiotape was played to subjects using the same playback facility on model Hitachi 3D Superwoofer, which I judged to provide clear speech production. I made use of individual school video equipment, which varied from school to school, but it was checked for adequate sound and vision prior to testing.

(iii) The presentation of the task was made by myself using a scripted commentary outlined earlier in this chapter.

(iv) Testing was discontinued if the subject showed signs of distress or fatigue.

(v) Each subject was tested on two separate occasions, each of approximately thirty minutes duration. For the majority of subjects the two sessions were organised within a forty eight hour time interval, but where this was not possible, for example, if a subject was unwell or unavailable at the time scheduled for the second session,

the second testing was completed within one week. This time limit was set because any greater time interval between testing sessions could have created differences in the language age of the subjects on the two sessions.

Tests included in the first session were:

- (i) BPVS (pilot and main study);
- (ii) IME audio only condition;
- (iii) MMC.

Tests included in the second session were

- (i) IME audio visual condition;
- (ii) IME 'forced choices' and comprehension checks;
- (iii) MMC 'forced choices' and exploration of 'don't know' and 'pramatic but incorrect responses' (pilot and main study).

As outlined earlier, during the pre-piloting, the order of presentation of the two different IME conditions was trialled.

3.5. PRE-PILOTING THE PROCEDURES

3.5.1. Aims of the pre-piloting

The aims of the pre-piloting sessions were:

(i) to obtain a preliminary indication of the kinds of responses to be expected in the non-language disordered child population and the responses of non-language disordered adult subjects. The inclusion of adult subjects was believed to be necessary, in order to provide a 'yardstick' with which to compare child subjects' responses. This was believed important, bearing in mind Solomon and Ali's (1972) findings, outlined in the literature review, which indicated that adults do not always interpret utterances in the way that speakers intend them to.

(ii) To ensure, as much as possible, that the materials and their presentation would isolate the variables of interest, that is, the effects of specific developmental language disorder on pragmatic meaning comprehension. A number of changes were made to the procedures, some of which have already been described; other changes are outlined below in describing the pre-piloting procedure.

A summary of the trials carried out in prepiloting and the subjects taking part in each trial are presented in table 3.5.

Trial	Subjects
i. indication of responses in non-language-impaired population	i.1. MMC procedure : 12 child subjects; 10 adult subjects i.ii. IME procedure : 16 child subjects; 10 adult subjects
ii. checks of learning effect*	ii.1. MMC procedure as above ii.ii. IME procedure, within conditions, as above ii.iii. IME procedure, between conditions; a further 12 child non-language-impaired subjects.

TABLE 3.5. A summary of prepiloting trials and subjects.

** Test - retest reliability with eight SLD subjects was also carried out at a stage after the pre-piloting and the results of this trial will also be included in this section.*

The steps taken to establish responses in the non-language-impaired population will now be outlined; the steps taken to isolate the variables of interest will then be described.

3.5.2. Obtaining a preliminary indication of responses in the non-language-impaired population

3.5.2.A Procedure

The procedures used in the pre-piloting were those outlined earlier in this chapter, with the following exceptions:

- (i) a 'don't know' response was not included;
- (ii) exploration of responses where students selected two pictures (that is, where students selected both the pragmatic and the non pragmatic interpretation) was not made. Rather, these were classified as pragmatic responses.
- (iii) There were a total of eleven items (other than the practice item). One item, 'follow the road that runs down to the seaside', was omitted after the pre-piloting

because the visually comical nature of the pictures representing the non-pragmatic interpretation, that is, a 'road character' physically running, appeared to influence the younger children's responses. Four new items were included after the pre-piloting to give a broader range of examples.

(iv) The British Picture Vocabulary Scale was not used, since language age matching was not required.

3.5.2.B Subjects

Ten adult subjects, aged between twenty-six and fifty eight years and sixteen child subjects aged between seven and eleven years took part in a series of pre-piloting sessions. All of these subjects met the criteria set for non-language disorder which were outlined at the beginning of this chapter.

3.5.2.C Responses to the MMC procedure

In the adult sample, all responses to the multiple meanings in context showed an interpretation of the MMC based on the contextually implied meaning only. In the child sample, there was a variation in response. The

mean number of pragmatic responses for each year group in the child sample, out of a total of eleven responses, is presented in table 3.6. These findings indicate that the number of pragmatic responses increases with chronological age.

AGE (years)	7	8	9	10	11
N	3	3	2	3	1
Mean nos. pragmatic response.	5.3	5.5	5.5	9.62	11

TABLE 3.6. Number of pragmatic responses made by child subjects in the pre-pilot study out of a total of eleven: MMC procedure

3.5.2.D Responses to the IME procedure

All of the adults interpreted all of the messages on the basis of the pragmatic meaning, that is, the non-verbal context. This was true for both the 'audio only' and

audiovisual condition. There was a greater variation in the students' responses in the 'audio only' condition as shown in table 3.7. These findings further give a preliminary indication that the number of pragmatic responses increases with chronological age.

In the audiovisual condition all the children, with the exception of the six-year-olds, responded at ceiling level, as shown in table 3.8.

AGE (years)	6	7	8	9	10	11
N	4	3	4	2	2	1
Mean nos. pragmatic response.	5.25	7	7.4	8.5	8.5	9

TABLE 3.7. Number of pragmatic responses made by child subjects in the prepilot study, out of a total of 9: IME procedure, 'audio only' condition.

AGE (years)	6	7	8	9	10	11
N	4	3	4	2	2	1
Mean nos. pragmatic response.	6	9	9	9	9	9

TABLE 3.8. Number of pragmatic responses made by child subjects in the prepilot study, out of a total of 9: IME procedure, audiovisual condition.

3.5.3. Testing the reliability of procedures

3.5.3.A. Introduction

A number of steps relating to the validity and reliability of the study were referred to earlier in this chapter in describing the design of the procedures. In addition, during the pre-piloting stage, a series of checks was made to assess the reliability of the procedures and their administration with non-language-impaired and SLD students. Details of the subjects taking part in this aspect of the pre-piloting were included earlier in table 3.5. The checks made in the pre-piloting stage examined the potential influence of learning from the procedures themselves, within a single administration. At a later stage, on completion of the main study data collection, it was also decided to test reliability over time with SLD students, under test-retest conditions. Although not completed at the time of pre-piloting, the results of the test-retest is included in this section alongside the other reliability checks.

3.5.3.B. The potential influence of learning effect

An examination of the responses of the non-language-impaired children who took part in the pre-piloting showed no evidence of learning effect for either of the IME conditions nor for the MMC procedure; that is, subjects did not make fewer errors in response to items presented at the end of the procedures than to those presented at the beginning. A summary of errors for each item of the MMC procedure is presented in table 3.9.; the errors for each item of the IME procedure are presented in table 3.10.

It should be noted that the checks of learning effect over time with SLD students, which are presented later in this chapter, also showed no learning effect **within** condition for the SLD students.

Item (in order of presentation)	Nos. of errors
Tied up	6
Jam	2
Short	9
Stuck with (changed to practice item in main study)	0
Runs (omitted in main study)	4
Fullof beans	8
Fall out	2
Pull socks up	7
Drove me round the bend	0
Thin on the ground	7

TABLE 3.9. Errors on the MMC procedure: prepilot study. Non-language-impaired children (N=12)

Item (in order of presentation)	Nos. of errors Audio only	Audiovisual
I'm great thanks, I'm fine (non-verbal : happiness)	1	0
You really make me laugh, you do (non-verbal : anger)	4	0
That's really great, I'll be very happy to see her (non-verbal : anger)	0	0
You poor thing you, I'll start to cry in a minute (non-verbal : happiness)	7	4
I'm sad to say I broke your tape, sorry about that (non-verbal : happiness)	7	4
I'm really happy for you (non-verbal : sadness)	1	1
I'm so angry - I'm going to hit you over the head in a minute ! (non-verbal : happiness)	5	3
Thanks, it's lovely, I'm really pleased with it (non-verbal : sadness)	1	0
I'm perfectly happy thankyou (non-verbal : anger)	3	0

TABLE 3.10. Errors on the IME procedure, 'audio only' and audiovisual condition: pre-pilot study. Non language impaired children (N = 16)

A further consideration in the IME procedure, was the possibility of learning effect occurring between the 'audio only' and audiovisual conditions. It was outlined earlier in this chapter that the audio only condition was always to be presented before the audiovisual condition, to prevent the potential influence of visual information remembered from the audiovisual condition affecting performance in the 'audio only' condition. However, because the pre-piloting session showed that non-language impaired children always performed the same or better on the audiovisual condition (presented after the 'audio only' condition), it was important to check for learning effect between the two conditions.

A comparison of responses in the two different conditions, outlined in table 3.11, (non-language-impaired children and table 3.12 (language-impaired children*), shows no learning effect: that is, in the audio only condition (presented second) all children made the same number of pragmatic responses as in the audiovisual condition (presented first), or fewer.

* It should be noted that the SLDL data was not collected at the time of the prepilot. During the main study, twelve SLDL students were selected at random to participate in the audiovisual condition before the audio only condition; their responses are included here to add information relating to the learning effect between conditions. The remaining SLDL students participated in the audio only condition first and only their responses are included in the main study data, presented in the results chapter.

Non-language-impaired subjects chronological age	Nos. pragmatic responses	
	Audiovisual condition	Audio only condition
10.10	8	8
9.10	8	8
7.9	8	8
7.5	7	7
7.2	8	8
5.10	6	5
5.11	6	6

(note - A further 5 of the non-language-impaired students made the maximum number of pragmatic responses in both conditions)

TABLE 3.11. Check for learning effect between the audiovisual and audio only conditions, IME procedure, non-language impaired students.

SDL D students		Nos. pragmatic responses	
chronological age	language age	Audiovisual condition	Audio only condition
13.11	11.11	8	8
13.0	10.08	8	8
13.06	10.08	9	9
12.04	10.08	9	8
13.08	10.02	9	8
13.11	10.02	8	8
14.04	10.02	8	8
12.07	9.05	9	9
13.11	9.05	8	7
14.01	9.05	9	8
12.03	7.02	8	8
13.07	5.11	5	5

TABLE 3.12. Check for learning effect between the audiovisual and audio only conditions, IME procedure. SDL D students.

It was of further interest that the children in this check however made more pragmatic responses in the 'audio only condition' than those in the check of learning effect within condition, who had responded first to the audio only condition and then to the audiovisual condition. This finding indicated that the children's responses to the audio only condition were influenced by the audiovisual condition being completed first, and validated the proposed order of presentation for the two conditions ('audio only' condition before the audiovisual condition).

3.5.3.C. Test-retest reliability

A sample of eight children aged between 12 and 14 years, with specific developmental language disorder were included in the assessment of test-retest reliability. The procedure followed with regards to ascertaining the diagnosis of specific developmental language disorder was that outlined earlier for the main study. The retest occurred seven days after the first test. The results of the two tests, presented in table 3.13, show that both the MMC and IME procedures proved reliable under test-retest conditions. Correlations of the total pragmatic responses between the test and retests were statistically

significant in both procedures (MMC; $\tau = 0.9806$, $p < 0.001$; IME audio only; $\tau = 0.9583$; $p < 0.002$). On the IME audio visual procedure, the Student's performance was identical in the test and retest.

SUBJECT	NOS. PRAGMATIC RESPONSES		RANKS	
	1st trial	2nd trial	1st trial	2nd trial
1	13	13	6.5	6.5
2	13	13	6.5	6.5
3	7	7	2.5	2
4	6	5	1	1
5	7	8	2.5	3
6	14	14	8	8
7	9	9	4.5	4.5
8	9	9	4.5	4.5

TABLE 3.13. SLD students responses in a test-retest condition: MMC procedure

SUBJECT	NOS. PRAGMATIC RESPONSES		RANKS	
	1st trial	2nd trial	1st trial	2nd trial
1	1	2	1	1
2	6	6	3	3
3	7	7	5	5
4	8	8	6	6
5	6	6	3	3
6	9	8	7.5	7
7	9	9	7.5	8
8	9	9	3	3

TABLE 3.14. SLDL students responses in a test-retest condition: IME procedure 'audio only' condition

SUBJECT	NOS. PRAGMATIC RESPONSES		RANKS	
	1st trial	2nd trial	1st trial	2nd trial
1	6	6	2	2
2	6	6	2	2
3	7	7	4	4
4	9	9	6.5	6.5
5	6	6	2	2
6	9	9	6.5	6.5
7	9	9	6.5	6.5
8	9	9	6.5	6.5

TABLE 3.15. SDLD students' responses in a test-retest condition:
IME procedure, audiovisual condition.

3.5.4. Summary

This chapter has thus far described the design of the study which has included the steps taken to isolate the independent and dependent variables in descriptions of new procedures, in the process of data collection and in checks of reliability.

The pre-piloting sessions indicated that the experimental procedures were able to elicit a range of responses in non-language disordered groups of children. The distribution of pragmatic responses appeared to increase with chronological age.

Following the pre-piloting sessions, the next step was to embark upon a pilot study in order to gain a preliminary indication of the range, distribution and types of responses which may be expected in the language disorder group in comparison with the other two groups. This is described in the appendix.

3.6. CONCLUDING SUMMARY

This chapter has presented the method designed to explore the hypothesis investigated by the present study. It has included the steps taken in the design and development of new procedures to isolate the variables of interest. The preliminary indications of the pilot study were that SLD students do have particular difficulties with pragmatic meaning comprehension at secondary-school-age, in comparison with non-language-impaired children. The next chapter will further explore these preliminary indications, in the presentation of the main study results.

CHAPTER FOUR. RESULTS

4.1. INTRODUCTION

This chapter will present the findings of the present study around the focal argument, concerning the ability of secondary-school-aged students with specific developmental language disorder (SDLD) to understand pragmatic meaning, in comparison to non-language-impaired children. There are three groups studied: i. 12 to 14-year-old SDLD students, ii. a non-language-impaired group matched for chronological age and iii. a non-language-impaired group matched for language age.

The findings will be presented within a framework of answering a series of questions, first outlined at the end of the literature review and included again in table 4.1., by way of review.

QUESTIONS	STATISTICAL PROCEDURE
<p>CENTRAL QUESTION In comparison with language age (LA) and chronological age (CA) matched groups, do SLDL students aged between 11 years 11 months and 14 years 10 months have more difficulty with pragmatic meaning comprehension than non-pragmatic (semantic) meaning comprehension?</p>	
<p>QUESTIONS RELATING TO THE MMC PROCEDURE</p> <ul style="list-style-type: none"> - Do SLDL students make less pragmatic responses than LA and CA matched students? - Comparing SLDL and LA matched students, does pragmatic response increase with language age? - Comparing SLDL and CA matched students, does pragmatic response increase with chronological age? - Do SLDL students make more responses where they choose both the pragmatic and non-pragmatic interpretations (response type 2 (non-pragmatic) and 5 (pragmatic)). Therefore, are SLDL students less able to reject the non-pragmatic interpretation, when they are aware of the pragmatic interpretation? - Do SLDL students make more responses where having chosen both the pragmatic and non-pragmatic interpretation and asked to make a choice between the two, select the non-pragmatic interpretation in favour of the pragmatic meaning? - Do SLDL students make less 'don't know' responses to reject a non-pragmatic interpretation in favour of an unknown pragmatic interpretation (type 8 pragmatic response) ? - Do SLDL students make less responses which are plausible given the context, and are therefore categorised as a pragmatic response, but are nevertheless incorrect (pragmatic response type 7) ? 	<p><i>Kruskal Wallis ANOVA</i> <i>Kendall's correlation coefficient</i></p> <p>- <i>Kruskal Wallis ANOVA</i></p> <p>- <i>Kruskal Wallis ANOVA</i></p> <p>- <i>Kruskal Wallis ANOVA</i></p> <p>- <i>Kruskal Wallis ANOVA</i></p>
<p>QUESTIONS RELATING TO THE IME PROCEDURE:</p> <ul style="list-style-type: none"> - Do SLDL students make less pragmatic responses than LA and CA matched students? - Comparing SLDL and LA matched students, does pragmatic response increase with language age? (i) Audio only' condition (tone of voice only) - Comparing SLDL and CA matched students, does pragmatic response increase with chronological age? (ii) Audio visual condition (tone of voice and facial expression) <ul style="list-style-type: none"> - Do SLDL students make more responses where they choose both the pragmatic and non-pragmatic interpretations (response type 2 non pragmatic) and response type 5 (pragmatic)). Therefore, are SLDL students less able to reject the non-pragmatic interpretation, when they are aware of the pragmatic interpretation? - Do SLDL students make more responses where having chosen both the pragmatic and non-pragmatic interpretation and asked to make a choice between the two, select the non-pragmatic interpretation in favour of the pragmatic meaning? - Do SLDL students make less 'don't know' responses to reject a non-pragmatic interpretation in favour of an unknown pragmatic interpretation (type 8 pragmatic response) ? - Do SLDL students make less responses which are plausible given the context, and are therefore categorised as a pragmatic response, but are nevertheless incorrect (pragmatic response type 7) ? - Do students make more pragmatic responses in the audiovisual than the audio-only condition? 	<p>- <i>Kruskal Wallis ANOVA</i></p> <p>- <i>Kendalls Correlation Coefficient</i></p> <p>- <i>Kruskal Wallis ANOVA</i></p> <p>- <i>Kruskal Wallis ANOVA</i></p> <p>- <i>Kruskal Wallis ANOVA</i></p> <p>- <i>Kruskal Wallis ANOVA</i></p> <p>- <i>Split plot ANOVA</i></p>
<p>QUESTION RELATING TO SEX OF SUBJECT</p> <ul style="list-style-type: none"> - In each of the groups, do female students make more pragmatic responses than male students? 	<p>- <i>Two-way ANOVA (Meddis)</i></p>

TABLE 4.1. Research Questions and statistical procedures

The chapter will now outline the findings of the present study in a 'question by question' format. The relevant data will first be summarised by presenting the median and modal values for the different response types and, where appropriate, frequency distributions will be depicted in the form of histograms. Piecharts will also be included, where appropriate, to further illustrate how each of the groups responded.

The differences between the groups, relevant to each question, will then be compared. These comparisons will include graphical data and estimates of statistical significance in order to ascertain the strength of the findings in relation to the probability of any differences found occurring as a result of chance.

Wherever possible, non-parametric methods will be used, since, as will be shown, the data is not normally distributed. A summary of the statistical procedures used to examine the relationships between variables and the differences between the groups, relevant to each question, is also included in table 4.1.

A final section will outline qualitative data, in the form of comments that students made as they were completing the procedures. Although the study did not

set out to obtain qualitative data, it is included for consideration alongside the quantitative data in an attempt to provide as much information as possible on the students' performance.

The chapter will conclude with a summary of the findings in relation to the argument of the study. The implications of the findings will then be examined in the concluding chapter of this work.

4.3. PRESENTATION OF RESULTS. MMC PROCEDURE

The following questions serve to address the focal concerns of the study, that is, whether in comparison to language age and chronologically aged matched groups, SLD students aged between 11.11 years and 14.10 years and thus in the later stages of communication development, have more difficulty in understanding pragmatic meaning than non pragmatic meaning.

4.3.1. On the MMC procedure, do SLDL students make less pragmatic responses (that is, responses which take into account the meaning implied by context) than language-age and chronological-age-matched students?

4.3.1.A Introduction

The data considered in answering this question includes the type 5, type 6, type 7 and type 8 responses first outlined in the methodology chapter and presented again in table 4.2, by way of review. This table also presents the response categories included in the IME procedure, which are considered later in this chapter.

Although the type 6 response may be viewed as the most competent type of pragmatic response because it represents an accurate interpretation, in line with speaker intention, and because there is more certainty in this type of response than in the other pragmatic responses, the interest of the present study is in pragmatic performance overall. Therefore, in order to address the first question, the total pragmatic responses, that is, the total type 5, 6, 7 and 8, will be presented first; the type 6 response will then be

PRAGMATIC RESPONSE TYPE	DESCRIPTION
(I) MMC	
TYPE 5	The student selects a pragmatic response in line with speaker intention, but also selects a non-pragmatic, literal interpretation. When asked to select one response, s(he) chooses the pragmatic interpretation
TYPE 6	The students selects the pragmatic interpretation, in line with speaker intention
TYPE 7	The student selects a pragmatic interpretation, which is plausible given the context, but is not correct.
TYPE 8	The student makes a 'don't know' response because s(he) does not know the pragmatic interpretation, but rules out the non-pragmatic interpretation nevertheless
(II) IME	
TYPE 5	The student selects two emotions to reflect the verbal and non-verbal message and when asked to make a choice selects the emotion conveyed by the non-verbally.
TYPE 6	The emotion chosen is that represented by the non-verbal message.
TYPE 7	The emotion chosen is not represented by neither the verbal nor the non-verbal message. The comprehension checks show that the student is able to correctly interpret the verbal message, but discounts it as being the speaker's intended meaning. By ruling out the meaning conveyed verbally, the student is showing an awareness of meaning beyond a one to one correspondence between word and meaning, although the interpretation is incorrect.
TYPE 8	The student makes a 'don't know' response. A comprehension check shows that s(he) does know the non-pragmatic interpretation, but rejects this as being the speaker's meaning.

TABLE 4.2. Pragmatic response categories

considered. Subsequent questions will then examine each of the types 5, 7 and 8 pragmatic responses in turn. This will enable observation of whether the groups were able to use pragmatic strategies when they were unaware (response types 7 and 8) or uncertain (response type 5) of the contextually implied meaning.

4.3.1.B. Summary of Data

Figure 4.1, depicts the frequency - frequency distribution of total pragmatic responses for each of the groups; i. Specific Developmental Language Disorder group; ii. Language age match comparison group and iii. Chronological match comparison group. Table 4.3 shows the median and modal values for each of the groups considering each of the pragmatic response types and the total pragmatic response. These findings indicate that students in the SLD group did make less pragmatic responses overall than the two comparison groups. Indeed, it can be seen that the chronological age match group were responding almost to ceiling level. The SLD student's poorer pragmatic performance is also illustrated by the pie charts in figures 4.2, 4.3 and 4.4, which show the proportion of pragmatic responses made by each of the groups.

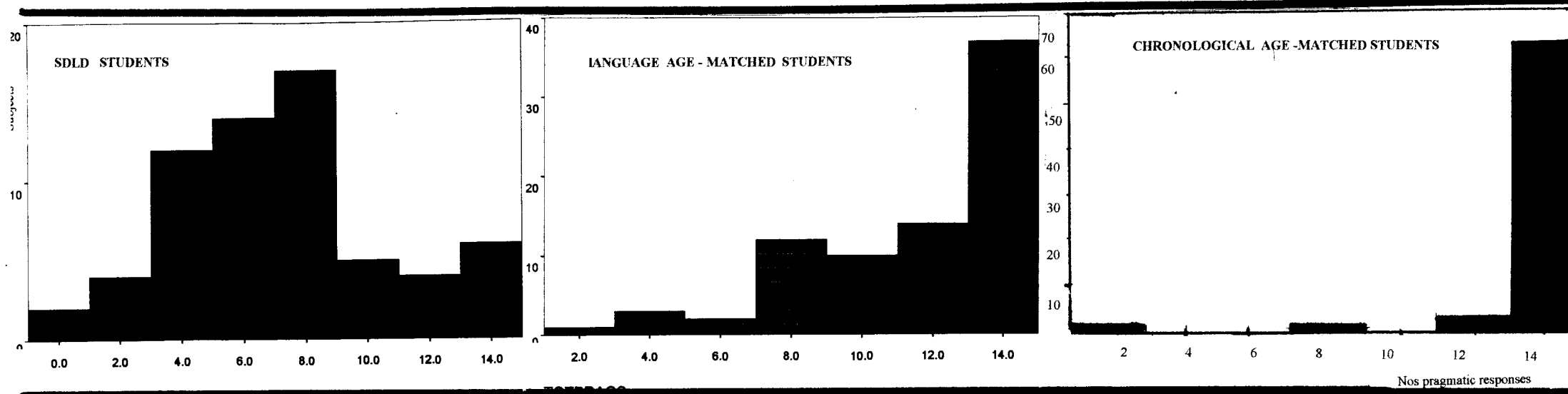


FIGURE 4.1. Frequency distribution of total pragmatic responses on the MMC procedure : SLDL and comparison groups.

RESPONSE CATEGORY	SDL D MEDIAN	SDL D MODE	LA MATCH MEDIAN	LA MATCH MODE	CA MATCH MEDIAN	CA MATCH MODE
TOTAL PRAGMATIC	6.5	5	12	14	14	14
TYPE 6	4.5	6	9	9	13	13
TYPE 7	0	0	0	0	0	0
TYPE 8	0	0	1	0	0	0
TYPE 2 plus 5	1	0	0	0	0	0

TABLE 4.3. Measures of central tendency, for the three groups studied, across the response categories.
MMC procedure.

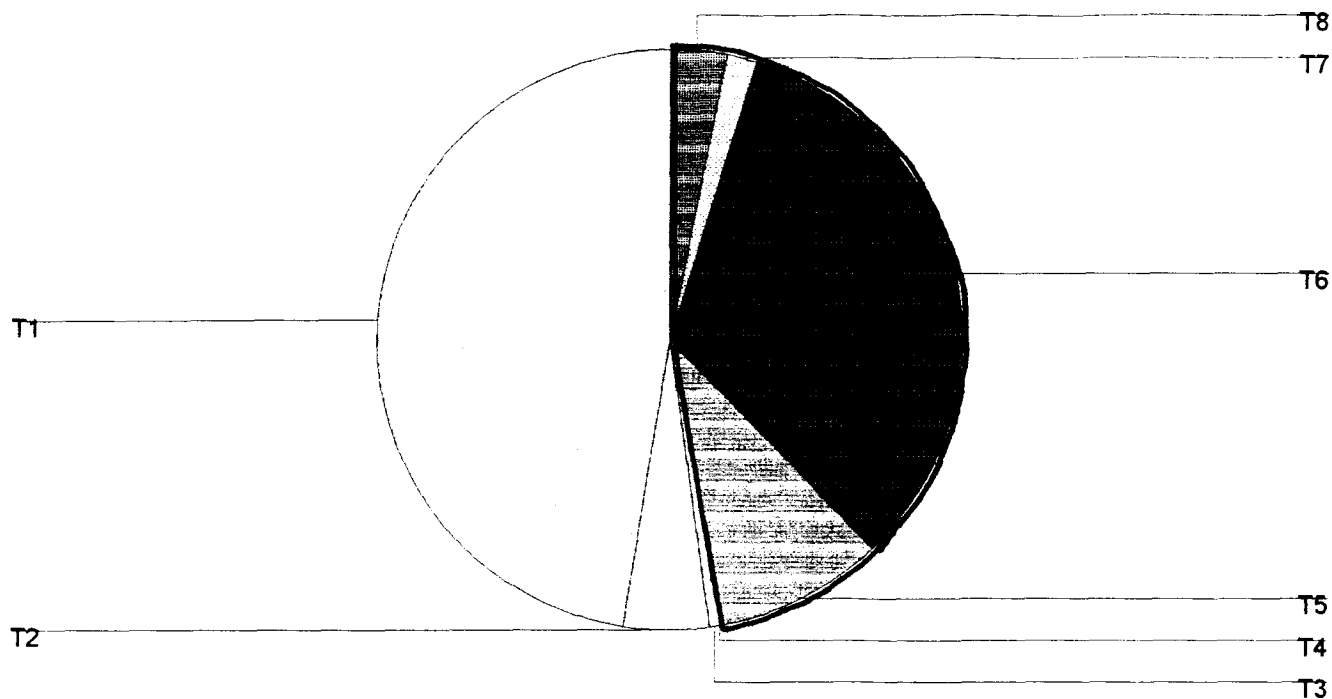


FIGURE 4.2. Pie chart to illustrate the proportion pragmatic responses on the MMC procedure: SDL group.

Note: Type 1 to 4 responses (Labelled T1, T2, T3, T4) correspond to the non pragmatic response categories described in the methodology chapter. Type 5 to 8 responses (labelled T5, T6, T7, T8) correspond to the pragmatic response categories described in the methodology chapter and earlier in the present chapter. The section of the pie chart marked red, illustrates the total pragmatic responses.

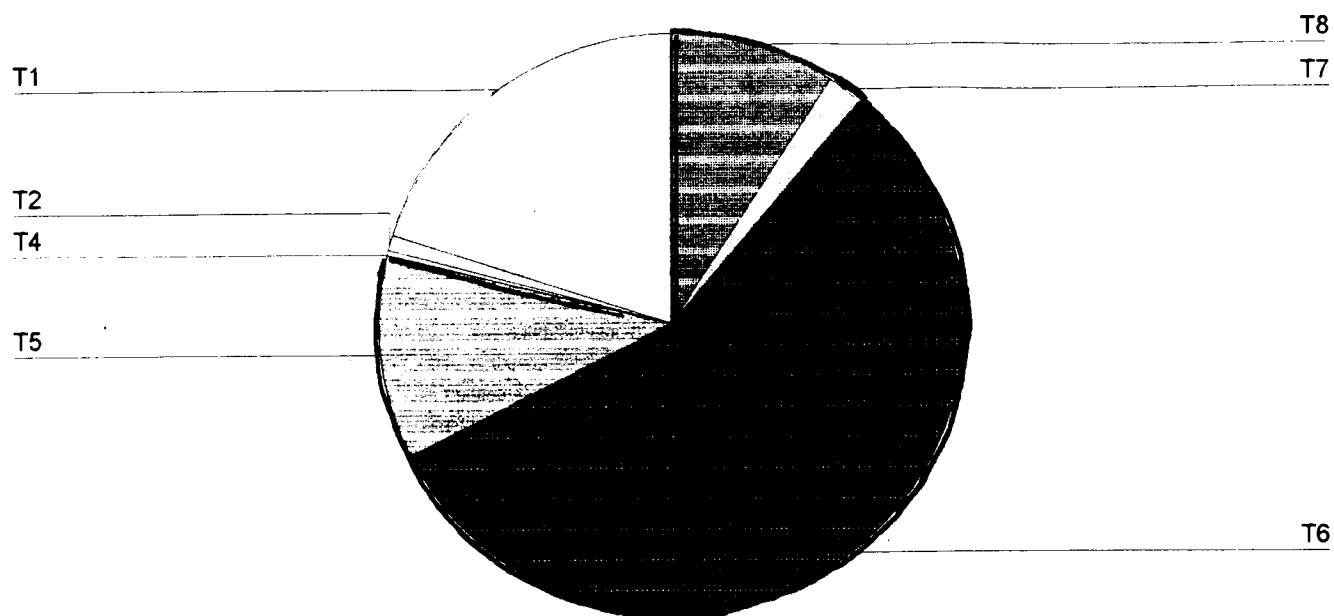


FIGURE 4.3. Pie chart to illustrate the proportion of pragmatic responses on the MMC procedure: LA matched group.

Note: Type 1 to 4 responses (labelled T1, T2, T3, T4) correspond to the non pragmatic response categories described in the methodology chapter. Type 5 to 8 responses (labelled T5, T6, T7, T8) correspond to the pragmatic response categories described in the methodology chapter and earlier in the present chapter. The section of the pie chart marked red, illustrates the total pragmatic responses.

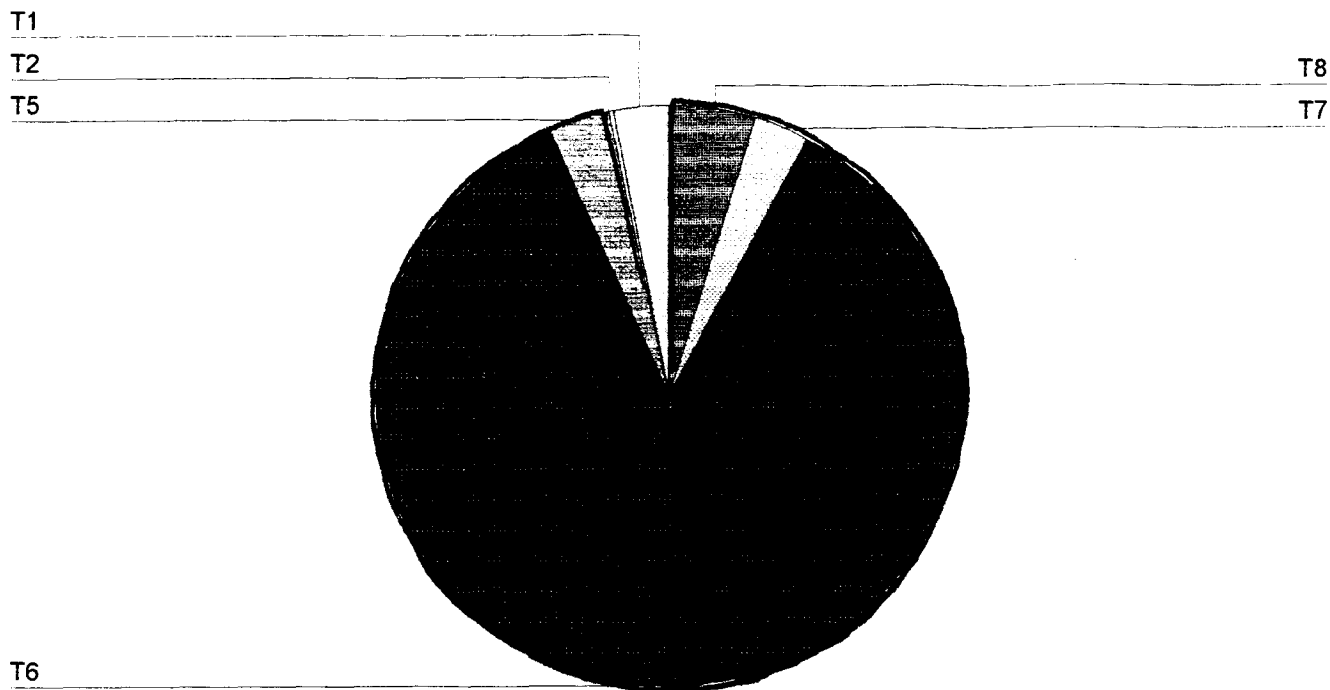


FIGURE 4.4. Pie chart to illustrate the proportion pragmatic responses on the MMC procedure: CA matched group.

Note: Type 1 to 4 responses (labelled T1, T2, T3, T4) correspond to the non pragmatic response categories described in the methodology chapter. Type 5 to 8 responses (labelled T5, T6, T7, T8) correspond to the pragmatic response categories described in the methodology chapter and earlier in the present chapter. The section of the pie chart marked red, illustrates the total pragmatic responses.

In the SLD group, the distribution of pragmatic response appears to reflect considerable difficulties for a number of students but not for others. The distribution of responses for SLD students also revealed that only four students were unable to make any pragmatic responses at all, indicating that the ability to make a pragmatic response is not an 'all or nothing' phenomenon. These issues will be further covered in the discussion chapter.

Figure 4.5 depicts the frequency distribution of type 6 pragmatic responses for each of the groups; i. Specific Developmental Language Disorder group; ii. Language-age-matched (LA) comparison group and iii. Chronological-age-matched (CA) comparison group. Table 4.3 on page , shows the median and modal values for each of the groups. Again, clear differences between the SLD group and the comparison groups are observable in the median number of pragmatic responses made. It is also of interest to compare the median values for each group for the type 6 and total pragmatic responses. All groups did better when their total pragmatic responses were considered compared with the type 6 responses, indicating that all three groups were aided by the different response modes included, however, the LA matched group was assisted more by this than the other

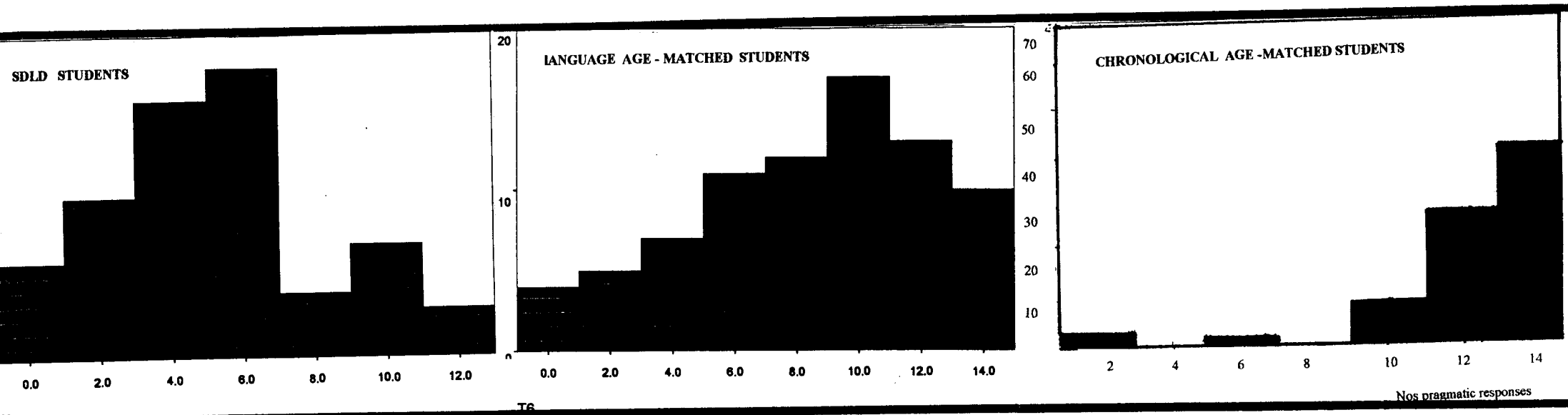


FIGURE 4.5. Frequency distribution of type 6 pragmatic response on the MMC procedure: SLDL and comparison groups

two groups. It is of particular interest to compare the SDDL group and the LA matched group here because the chronological age match group were almost responding to ceiling level considering both type 6 and 'total pragmatic' responses.

Figure 4.6 depict the groups' performance across the response categories, considering each pragmatic response type as a % of the total responses made by each of the groups. The way in which the different response modes aided each of the groups will be examined in further detail later in this chapter in comparing, in turn, each type of pragmatic response.

Details of the number of errors made by each group, on each of the multiple meaning items is included in table 4.4. This indicates that certain items were more difficult than others. Possible reasons for these differences will be discussed in the next chapter, in particular considering the degree of semantic plausibility and syntactic congruity of particular items and the effects of familiarity.

PERCENTAGE OF PRAGMATIC RESPONSES. COMPARISONS BETWEEN THE GROUPS ACROSS THE RESPONSE CATEGORIES

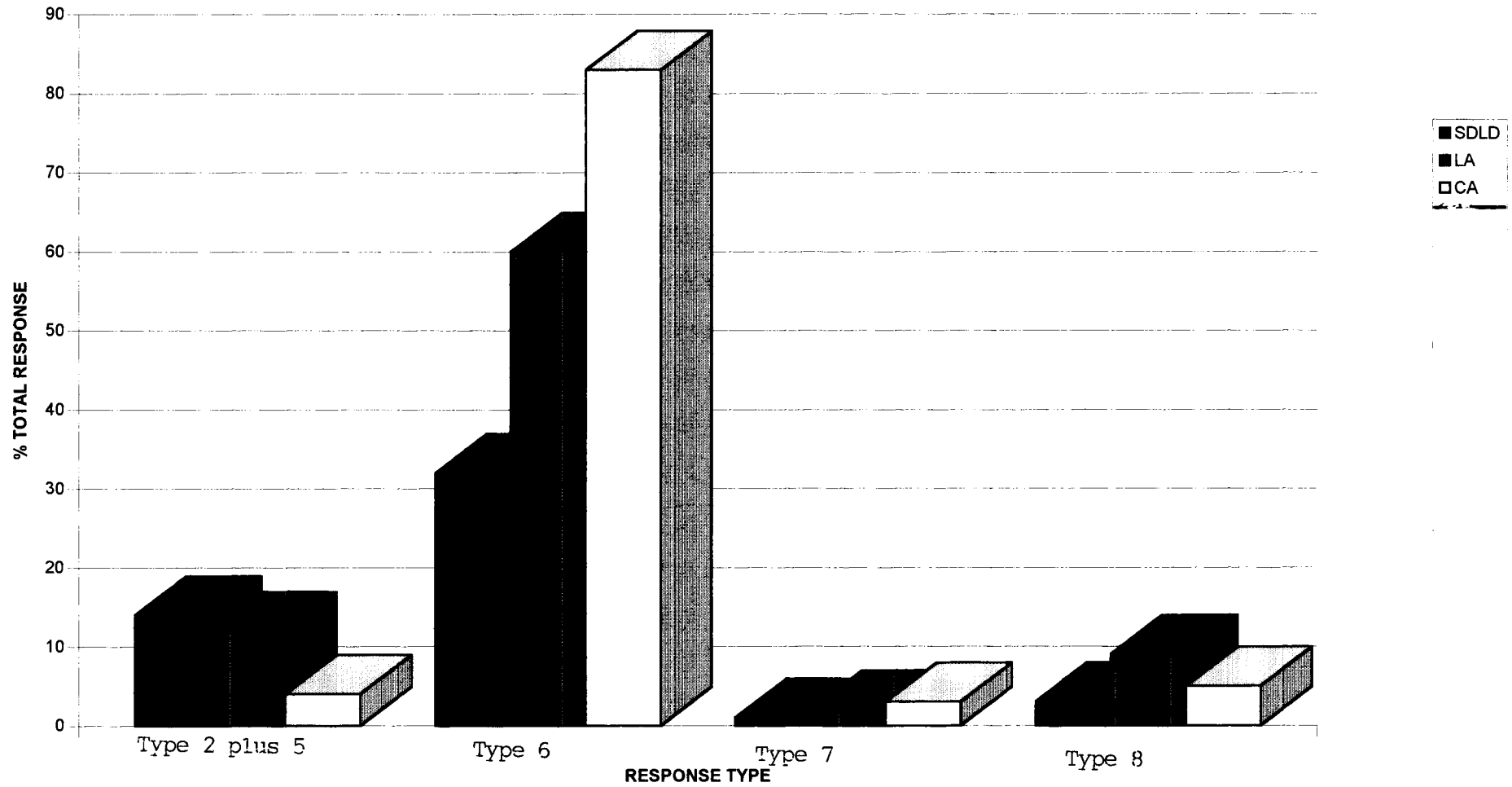


Figure 4.6 . Percentage of pragmatic responses. Comparisons between the groups across the response categories

Item (in order of presentation)	Nos. of errors		
	SDLD group	LA matched group	CA matched group
Stuck (practice)	0	0	0
Tied up	49	32	9
Jam	21	8	1
Short	52	24	3
Pig Sty	17	4	0
Full of beans	45	25	2
Fall out	14	5	0
Pull socks up	34	15	2
Drove me round the bend	41	17	2
Thin on the ground	51	21	2
Red handed	38	25	2
Carried away	26	4	0
Beside self	42	19	1
Wrong side of bed	29	11	0
Threw	36	16	0

TABLE 4.4. Errors made on each multiple meaning item, SDLD and comparison groups: main study.

4.3.1.C Group Comparisons: Calculations of Statistical Significance

Since the frequency of responses was not normally distributed in all the groups, data was analysed using non-parametric methods.

A Kruskal Wallis Analysis of variance was applied to estimate the statistical significance of the difference in the groups' pragmatic responses. The findings were highly significant, considering both the total pragmatic responses and the type 6 pragmatic responses (total pragmatic responses : chi square = 111.76 (2); $p < 0.001$); type 6 responses : chi square = 103.56 (2), $p < 0.001$)

Since the research question specifically relates to the magnitude of the SDL D student's pragmatic response in comparison to the non-language-impaired groups, planned comparison analysis was also applied to examine the difference between each of the groups. The findings were highly significant here also, comparing the SDL D group with each of the non-language-impaired groups (Total pragmatic responses, language-age-matched and SDL D group: R (LA matched group) = 107.28, R (SDL D group) = 49.53, $z =$

4.417, critical value = 30.95, $p < .001$; Chronological age match group and SLD group : R (CA matched group) = 159.22, $R = 49.53$, $z = 4.417$ critical value = 36.17; $p < .001$). Type 6 responses, language age match and SLD group : $R = 99.01$, $R = 55.87$, $z = 3.891$, $p < .001$; CA match and SLD group : $R = 162.77$, $R = 55.87$, $z = 4.417$, critical value = 36.17, $p < .001$). It should be noted that the difference between the two comparison groups were also statistically significant ($z = 4.417$; critical value = 24.24, $p < .001$). However, the differences between the comparison groups is likely to be accounted for by maturity, because the mean chronological age in the CA matched group (13.17 years) was very much higher than in the LA matched group (9.3 years). To explore this possibility further, a comparison was made of the oldest students in the LA matched group (age range = 11 years 5 months to 11 years 11 months; $N = 16$) and the youngest students in the CA matched group (age range = 11 years 11 months to 12 years 3 months; $N = 14$). This comparison revealed non significant differences between the two subject samples ($p = .35$).

Of further interest is the finding that the mean ranks for the SLD and language-age-matched groups are further apart when the total pragmatic responses are considered

than when the type 6 pragmatic response are considered. This difference occurs because the language-age-matched group's performance improves considerably when the total pragmatic responses were taken into account (total pragmatic mean rank = 107.28; type 6 pragmatic response mean rank = 99.01). However, the same cannot be said for the SLDL students. They did comparatively less well than the language-age-matched group when the total pragmatic responses were considered compared to the type 6 pragmatic response (total pragmatic mean rank = 49.53; type 6 pragmatic response mean rank = 55.87). This finding confirms that made earlier, that the language-age-matched students were assisted more by the different pragmatic response modes included than the SLDL group.

4.3.2. On the MMC procedure, comparing SLDL and language-age-matched groups, do students make more pragmatic responses as their language age increases?

In order to answer this question the relation between the variables language age and pragmatic response was explored for the SLDL and language-age-matched (LA) comparison groups.

The scatter plots for each of the groups are included in figures 4.7 to 4.10. Figures 4.7 and 4.8 show the relation between language age and total pragmatic responses; Figures 4.9 and 4.10 show the relation between language age and the type 6 pragmatic response. These plots confirm the degree of variation in response previously outlined for both groups, but in the LA matched group there appears a degree of linear relation between language age and pragmatic responses.

Statistical analysis to test the strength of the relationship indeed showed a stronger statistical

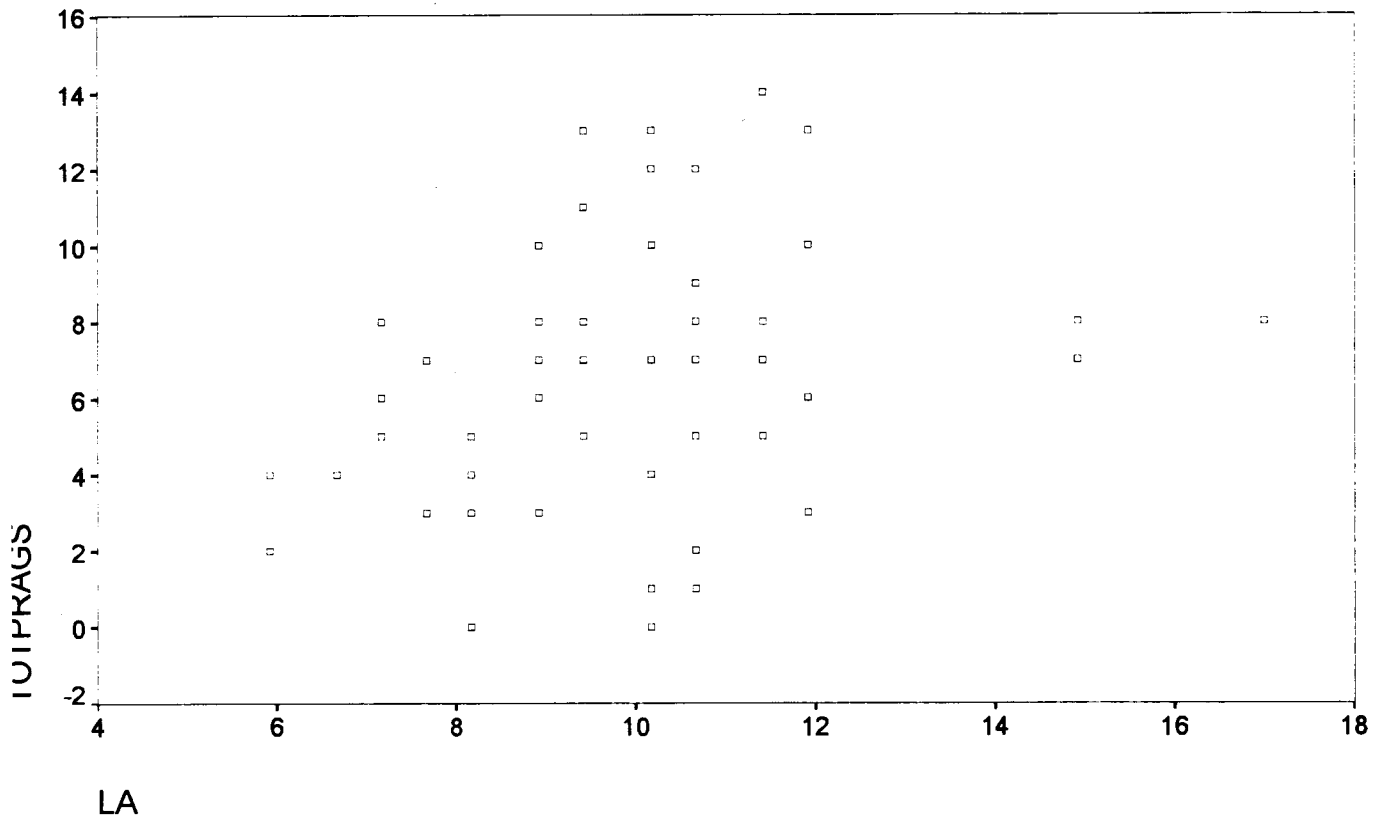


FIGURE 4.7. Scatterplot to illustrate the relation between total pragmatic responses and language age on the MMC procedure: SLD group.

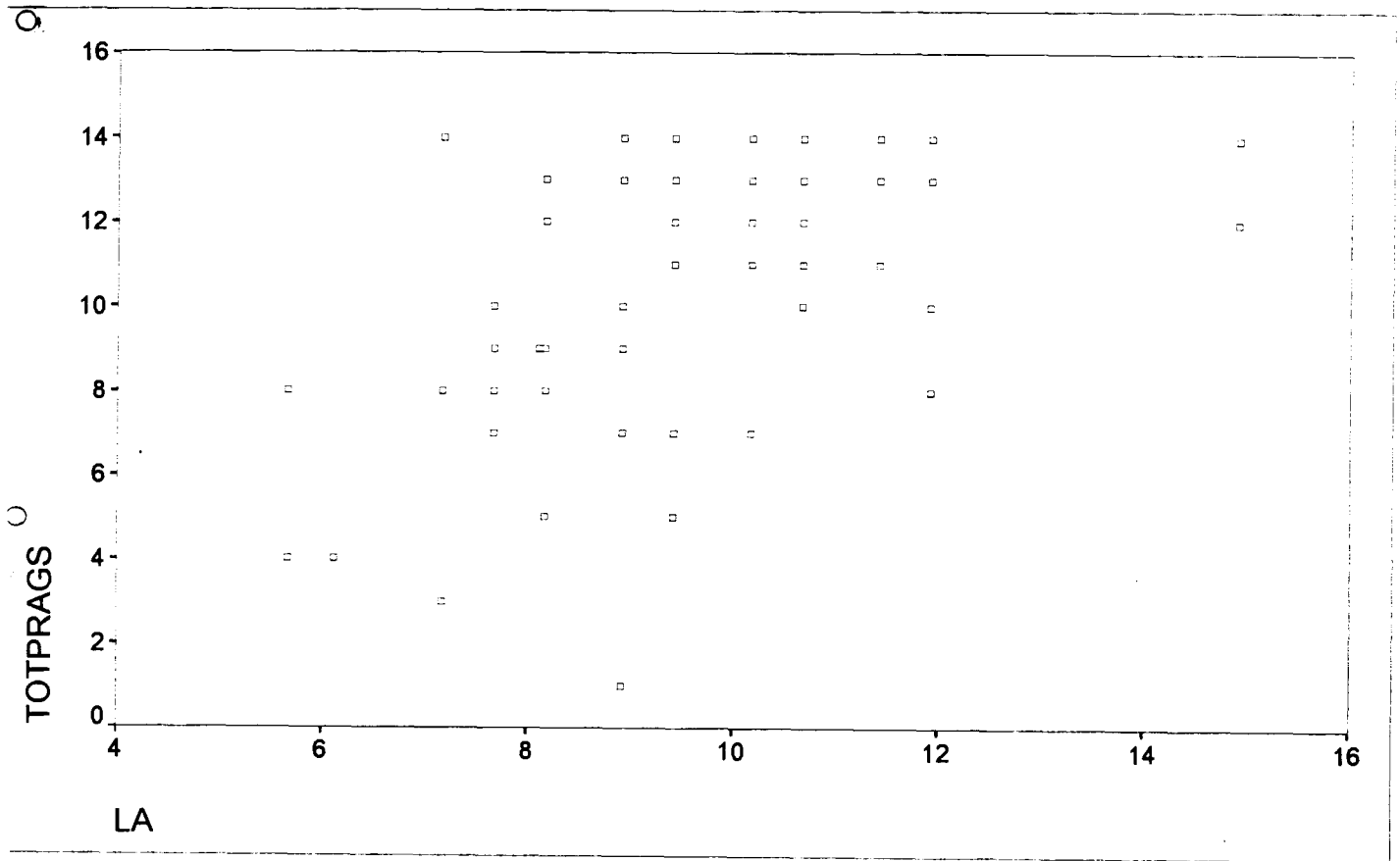


FIGURE 4.8 Scatterplot to illustrate the relation between total pragmatic responses and language age on the MMC procedure: LA matched group.

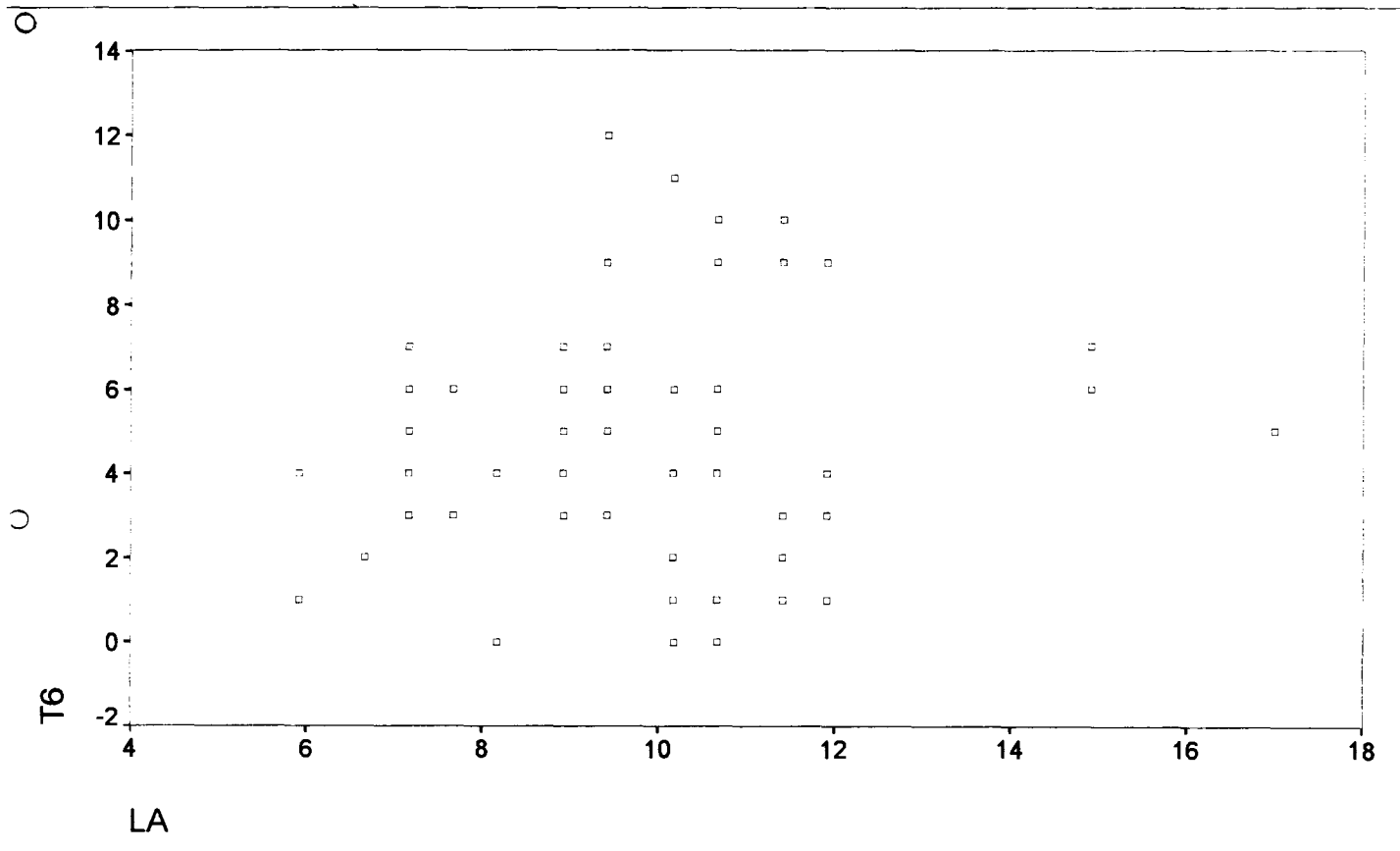


FIGURE 4.9 Scatterplot to illustrate the relation between type 6 pragmatic responses and language age on the MMC procedure: SLDL group.

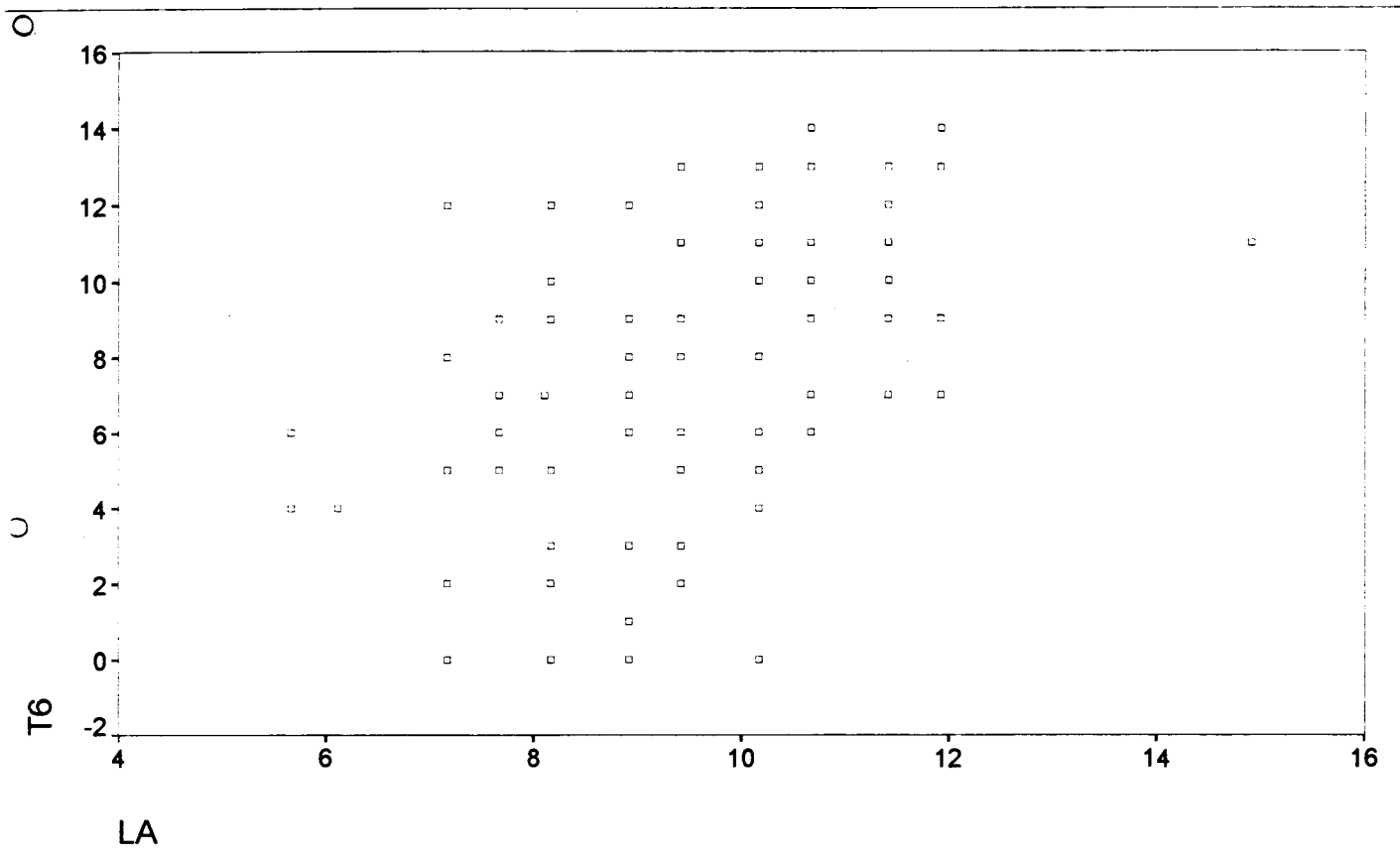


FIGURE 4.10. Scatterplot to illustrate the relation between type 6 pragmatic responses and language age on the MMC procedure: LA matched group.

association between language age and total pragmatic response in the language-age-matched group (Kendalls coefficient (τ) = 0.4466) than in the SDL D group (τ = 0.2572). Both associations were however statistically significant (LA matched group : N = 79; $p < 0.001$, 1 tailed; SDL D group : N = 64, $p < 0.01$, 1 tailed).

Considering the type 6 pragmatic responses, there was again a stronger statistical association between language age and pragmatic response in the LA matched group (τ = 0.3661) than the SDL D group (τ = 0.0959). Here, the association was only significant for the LA matched group ($p < 0.001$, 1 tailed), and not for the SDL D group.

4.3.3. On the MMC procedure, comparing the SDL D and chronological-age-matched groups, do students make more pragmatic responses as the chronological age increases ?

In order to answer this question the relation between the variables chronological age and pragmatic response was explored for the SDL D group, the chronological-age-matched (CA) group and the two comparison groups considered together.

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The scatterplots exploring the relation between total pragmatic responses and chronological age are included figures 4.11 , 4.12 and 4.13 ; the scatter plots of the relation between type 6 pragmatic responses and chronological age are included in figures 4.14 , 4.15 and 4.16.

These plots show a degree of linear relation between chronological age and pragmatic response for the two comparison groups considered together, particularly for the type 6 pragmatic response where the ceiling effect is less evident. However, there was no relationship between chronological age and pragmatic response in the SDL D group. It should be noted that statistical association between pragmatic response and chronological age in the CA matched group alone was very weak because the majority of students in this group responded at ceiling level.

Statistical analysis to test the strength of the relationship indeed showed a stronger statistical association between chronological age and total pragmatic response in the comparison groups ($r = 0.5100$) than in the SDL D group ($r = - 0.0351$). Only the association for the comparison groups was statistically significant ($p < 0.001$)

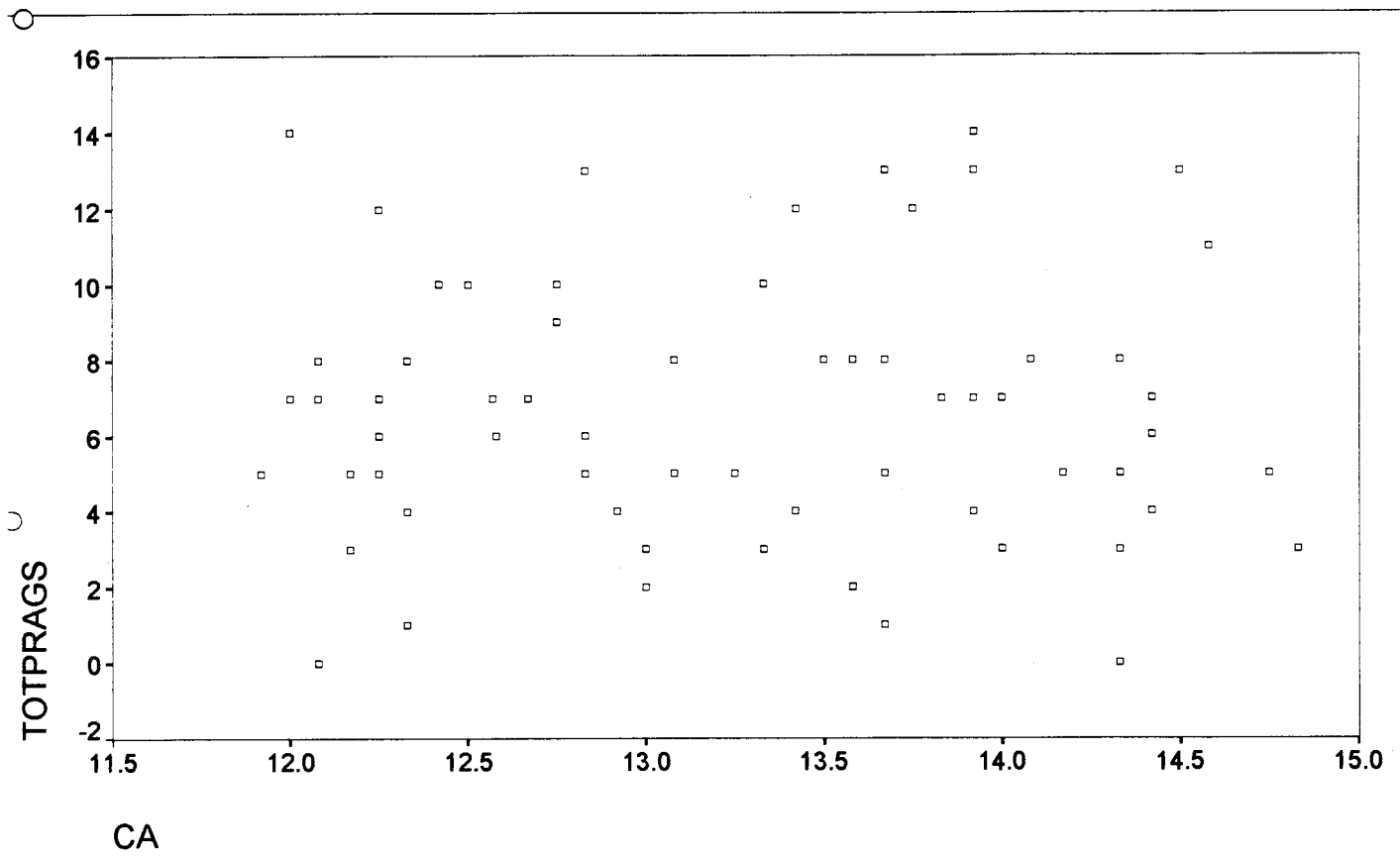


FIGURE 4.11. Scatterplot to illustrate the relation between total pragmatic responses and chronological age on the MMC procedure: SDLG group.

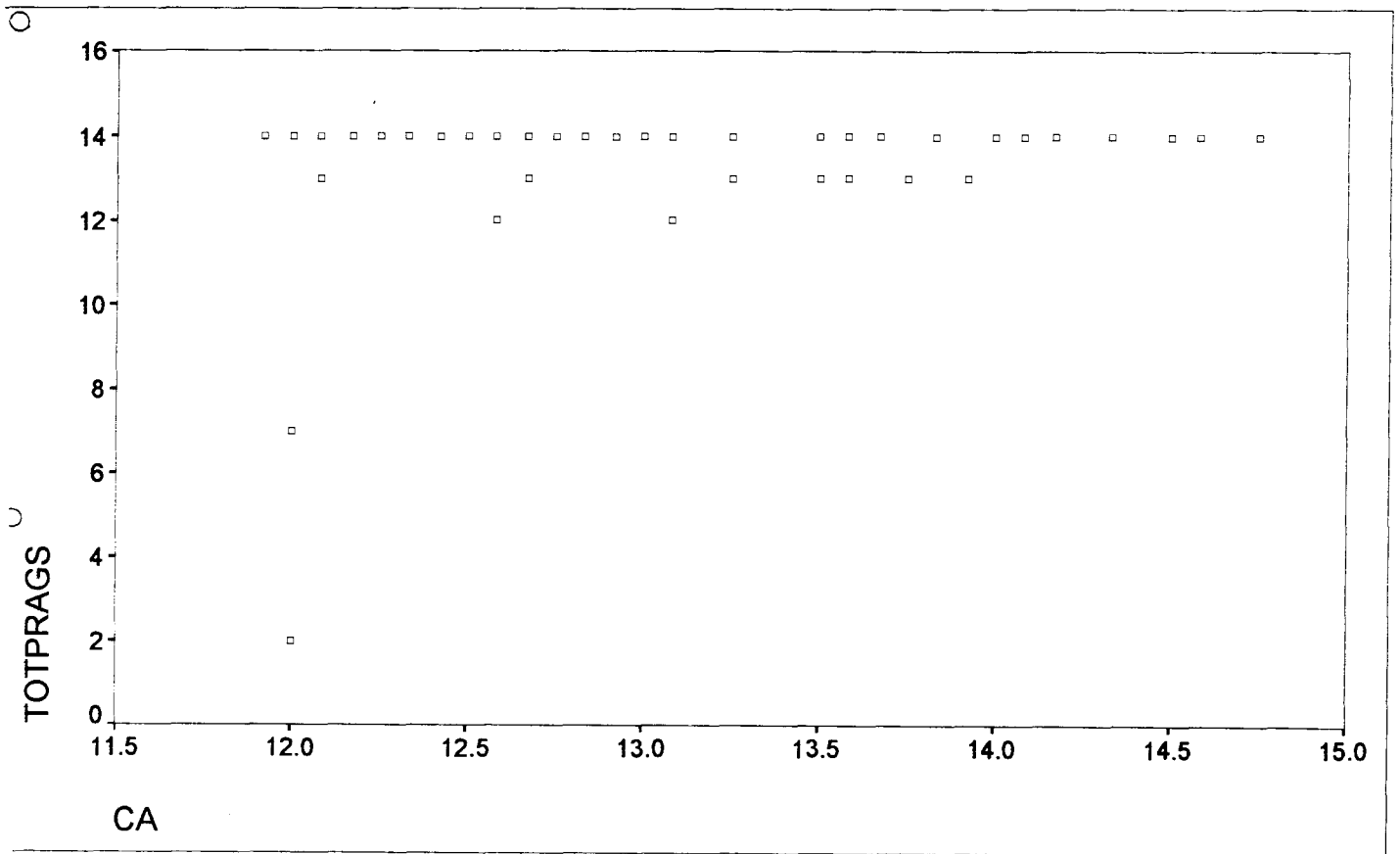


FIGURE 4.12. Scatterplot to illustrate the relation between total pragmatic responses and chronological age on the MMC procedure: CA matched group.

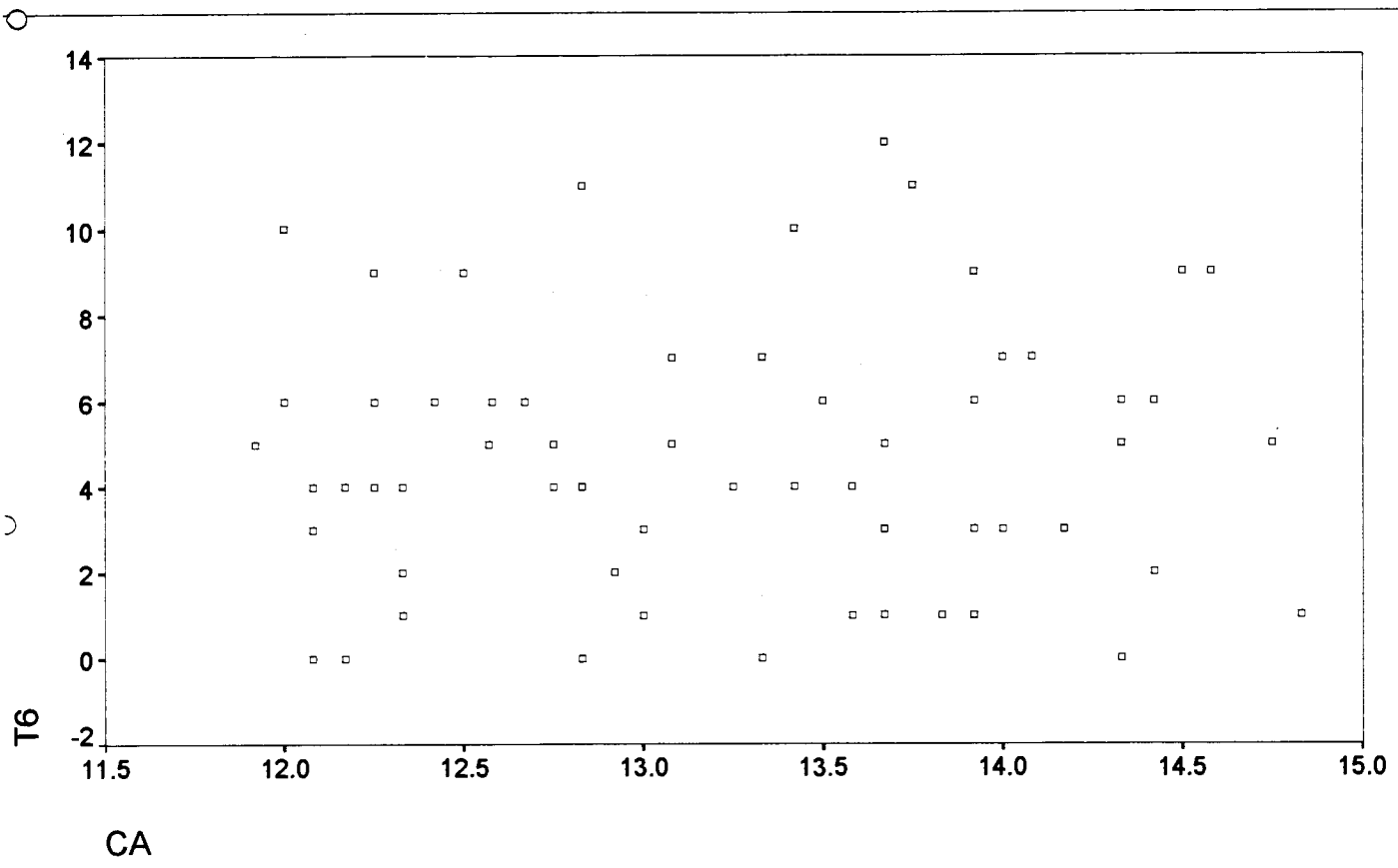


FIGURE 4.14. Scatterplot to illustrate the relation between type 6 pragmatic responses and chronological age on the MMC procedure: SLD group.

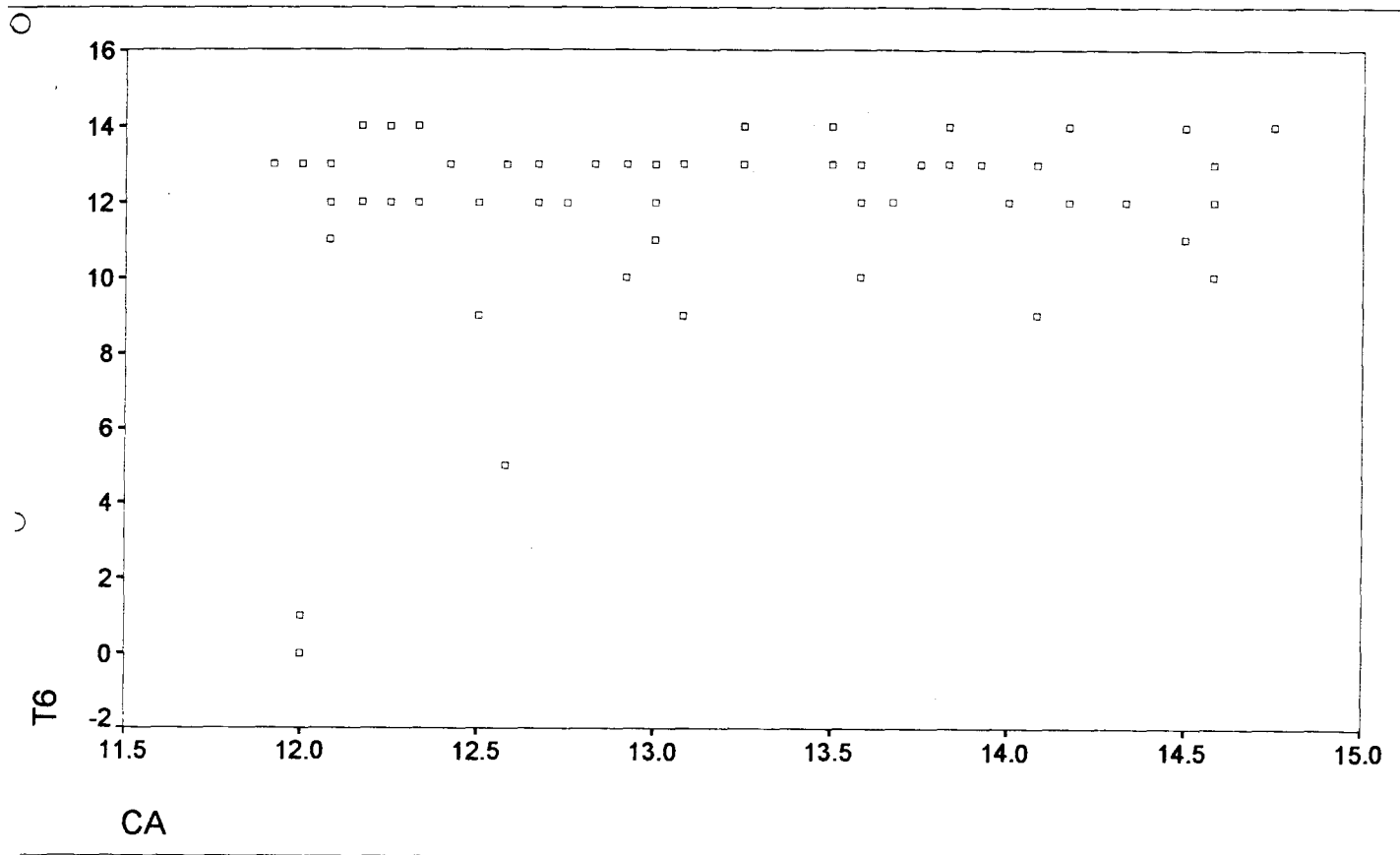


FIGURE 4.15. Scatterplot to illustrate the relation between type 6 pragmatic responses and chronological age on the MMC procedure: CA match group.

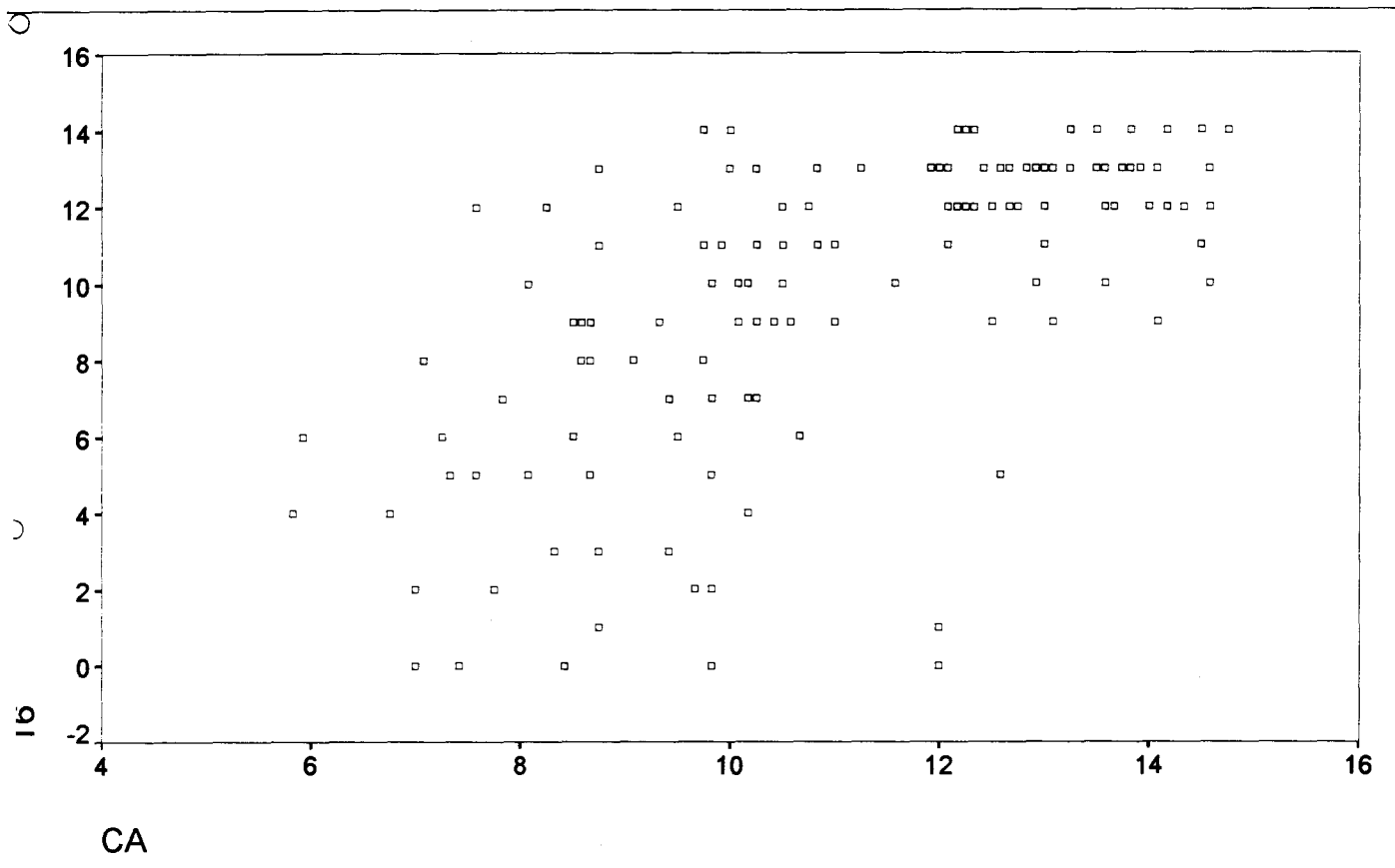


FIGURE 4.16 Scatterplot to illustrate the relation between type 6 pragmatic responses and chronological age on the MMC procedure: both comparison groups.

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Considering the type 6 pragmatic responses, there was again a stronger statistical association between language age and pragmatic response in the comparison groups ($r = 0.63632$) than the SLD group ($r = 0.0037$). Again, the correlation was only significant for the comparison groups ($p < 0.001$).

Having examined the number of pragmatic responses made by each of the groups and the relation between age and pragmatic response, the chapter will now present data to explore further the types of responses made in the MMC procedure. Data relating to the IME procedure will follow.

4.3.4. On the MMC procedure, do SLD students make more responses where they choose both the pragmatic and non-pragmatic responses ? Therefore, are SLD students less able to reject the non-pragmatic meaning when they are aware of the pragmatic interpretation ?

This question can be answered by considering the number of type 2 and type 5 responses made.

Chapter 4. Results

4.3.4.A. Summary of Data

Figure 4.6 , on page 395, illustrated the percentage of type 2 plus 5 pragmatic responses made by each of the groups. Table 4.3 (page 389) presented the median and modal values for this response type. These summaries reflect the low frequency of this kind of response for all groups. However this kind of response was more frequent in the younger language age match group and the SDLD group which indicates a greater uncertainty of pragmatic response in these two groups.

4.3.4.B. Group Comparisons: Calculations of Statistical Significance

There were statistically significant differences between the three groups' type 2 plus 5 responses (chi square = 15.06; (2); $p < 0.01$). Although the mean ranks showed that subjects in the SDLD group made more of these kinds of responses than the language age matched group, planned statistical comparisons showed non-significant differences between the SDLD and language-age-matched group here. The difference between the two comparison groups was also not statistically significant. It was the difference between the SDLD and chronological age match

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group that proved statistically significant ($R = 123.86$,
 $R = 87.02$; $z = 3.291$; $p < .001$)

4.3.5. On the MNC procedure, do SLD students make more responses where having chosen both the pragmatic and non-pragmatic meaning and asked to make a choice between the two, they select the non-pragmatic meaning? Therefore, are SLD students more likely to reject the pragmatic meaning in favour of the non-pragmatic meaning?

This question may be answered by considering the number of type 2, non-pragmatic responses.

4.3.5.A. Summary of Data

The median and modal values for each of the groups was zero, reflecting the low frequency of this type of response in each of the groups. However, the most frequent occurrence was in the SLD group. This is further illustrated in figure 4.17 which compares the percentage of the type 2 responses made by each of the groups.

PERCENTAGE OF TYPE 2 RESPONSES, MMC PROCEDURE. A COMPARISON BETWEEN THE GROUPS

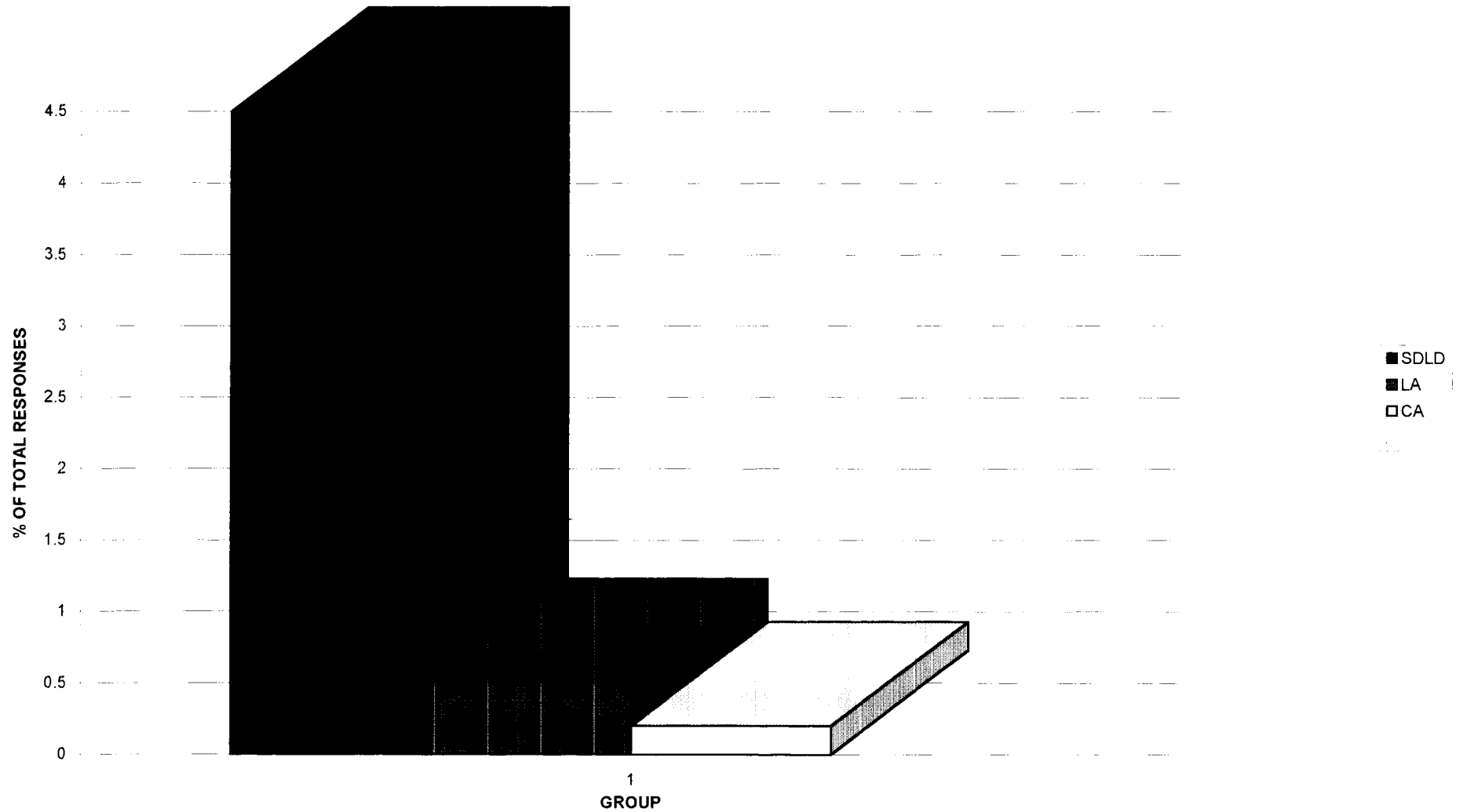


Figure 4. 17. Percentage of Type 2 responses, MMC procedure. Comparison between the SLDL, CA and LA matched comparison groups

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4.3.5.B. Group Comparisons: Calculations of Statistical Significance

A Kruskal Wallis analysis of variance showed a statistically significant difference between the three groups (chi square = 30.39 (2); $p < .001$). Planned comparisons showed a statistically significant difference between the SLD and language-age-matched group ($R = 128.02$; $R = 102.85$, $z = 2.394$; $p < .05$) and between the SLD and chronological-age-matched group ($R = 128.02$, $R = 92.46$, $z = 3.291$; $p < .001$) but not between the comparison groups.

4.3.6. On the MMC procedure, do SLD students make less 'don't know' responses to reject a non-pragmatic meaning in favour of an unknown pragmatic meaning?

This question can be answered by considering the number of type 8 pragmatic responses.

4.3.6.A. Summary of data

Figure 4. 6 , on page 395, illustrated the percentage of type 8 pragmatic responses made by each of the groups.

Table 4.3, (page 389) , presented the median and modal values for this response type. These summaries show that this type of response formed only a small proportion of the total responses made for each of the groups, however it occurred more frequently in the comparison groups than the SLD group and most frequently in the language-age-matched group.

4.3.6.B. Group Comparisons: Calculations of Statistical Significance

A Kruskal Wallis Analysis of Variance showed the differences between the groups to be statistically significant. (chi square = 17.95 (2); $p < .001$). Planned comparisons showed a statistically significant difference between the SLD and language-age-matched groups ($R = 87.77$, $R = 127.4$; $z = 3.891$; $p < .001$). There was also a statistically significant difference between the two comparison groups, although to a lesser degree ($R = 101.56$; $R = 127.4$; $z = 2.394$; $p < .05$). The difference between the SLD group and the chronological age match group was not significant. It should be noted that, in the discussion of the study's findings, the low occurrence of the 'don't know response in the CA matched and SLD group will be explained in different ways.

4.3.7. On the MMC procedure, do SDDL students make less responses which are plausible in relation to the context, but are nevertheless incorrect ?

This question may be answered by considering the number of type 7 pragmatic responses.

4.3.7.A. Summary of Data

Figures 4.6 , on page 395, illustrated the percentage of type 7 pragmatic responses made by each of the groups. Table 4.3, on page 389, presented the median and modal values for this response type. These summaries reflect the low frequency of this kind of response for all groups.

4.3.7.B. Group Comparisons: Calculations of Statistical Significance

The differences between the groups were statistically significant at the 0.05 level (chi square = 6.022 (2); $p < 0.05$). The difference between the SDDL students and the language-age-matched comparison group were not statistically significant here, nor was the difference

between the two comparison groups. A statistically significant difference occurred only between the chronological-age-matched and the SLD group. ($R = 117.69$, $R = 98.05$, $z = 2.394$, critical value = 19.61, $p < .05$).

4.3.8. On the MMC procedure, do female students make more pragmatic responses than male subjects?

A two way analysis of variance (Meddis, 1986) was applied to analyse the effects of sex and group on the number of pragmatic responses made. This showed no significant effects of sex of student on pragmatic response nor of an interaction between group and sex ($Z = .89$; $p < .1$)

4.4. PRESENTATION OF RESULTS : INCONSISTENT MESSAGES OF EMOTION (IME) PROCEDURE

As in the presentation of results for the MMC procedure, the questions presented first in this section examine the total number of pragmatic responses made by the three groups, subsequent sections examine in more detail the types of responses made.

4.4.1. On the IME procedure, do SDDL students make less pragmatic responses i. when the context is provided by the auditory channel only (tone of voice) and ii. when the context is provided by auditory and visual channel (tone of voice and facial expression).

4.4.1.A. Introduction

This question can be answered by considering the number of total pragmatic responses in each of the conditions, that is the type 5 to type 8 responses, which were reviewed in table 4.2 on page 386 .

4.4.1.B. Summary of Data

Figures 4.18 and 4.19 depict the frequency distribution of total pragmatic responses, in the audio only and audiovisual conditions respectively, for each of the groups: i. Specific Developmental Language Disorder group; ii. Language-age-matched (LA) comparison group and iii. Chronological-age-matched (CA) comparison group. Table 4.5 shows the median and modal values for each of the groups in each of the two conditions.

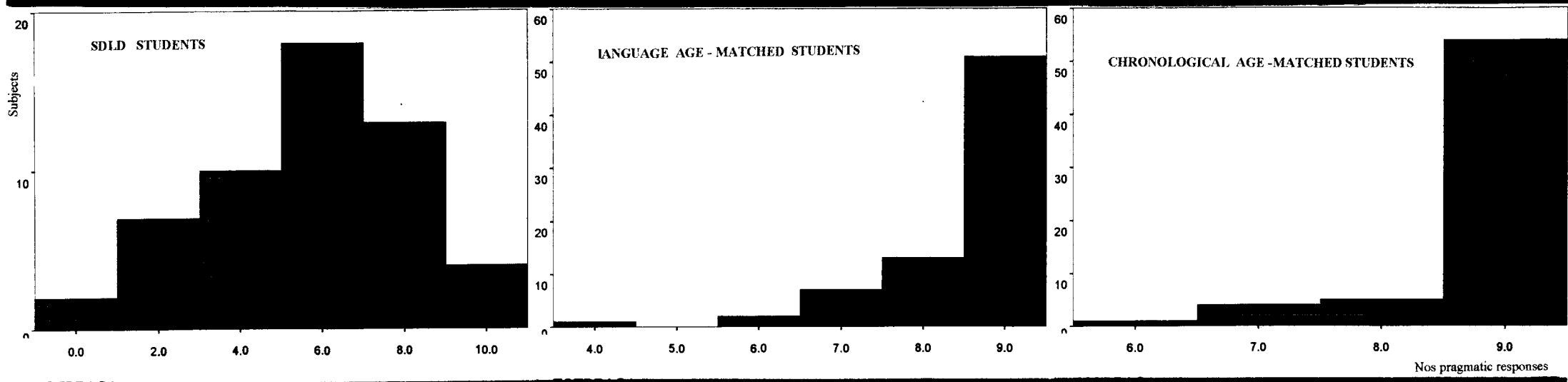
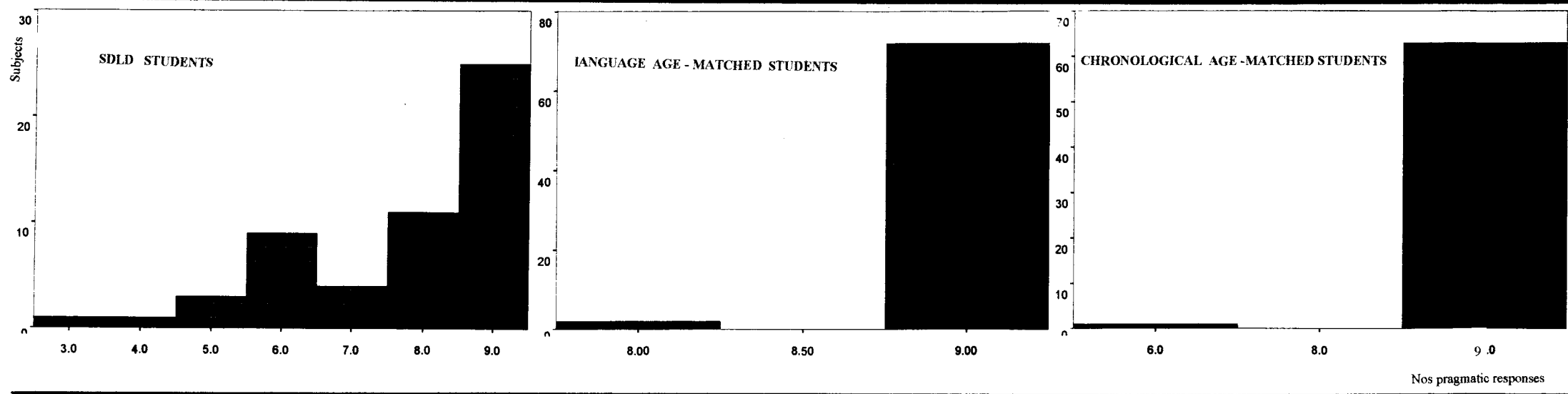


FIGURE 4.18 Frequency distributions of total pragmatic responses on the IME procedure, audio-only condition: SLDL and comparison groups

FIGURE 4.19 Frequency distributions of total pragmatic responses on the IME procedure, audio-visual condition : SLDL and comparison groups



RESPONSE CATEGORY	SDLD MEDIAN	SDLD MODE	LA MATCH MEDIAN	LA MATCH MODE	CA MATCH MEDIAN	CA MATCH MODE
TOTAL PRAGMATICS: AUDIO ONLY	5	5	9	9	9	9
TOTAL PRAGMATICS: AUDIOVISUAL	8	9	9	9	9	9

TABLE 4.5 Measures of central tendency, for the three groups studied, across the response categories. IME procedure.

These summaries show clearly that the SLDL group did indeed make less pragmatic responses than the two comparison groups in both of the conditions, although greater differences are observable in the audio only condition. There is also a much greater variation in response in the SLDL group than the comparison groups; indeed in the comparison groups a large proportion of students were responding at ceiling level in both conditions.

4.4.1.C. Group Comparisons: Calculations of Statistical Significance

The findings were statistically significant in both conditions. (Audio-only condition; chi square = 95.93, $p < .001$, Audiovisual condition; chi square = 74.34, $p < .001$). Planned comparisons between the SLDL group and the LA matched group showed statistically significant differences in both conditions (Audiovisual condition : $R1 = 60.7$, $R3 = 110.16$, $z = 4.417$, $p < .001$; Audio only condition : $R1 = 38.93$, $R3 =$, $z = 4.417$, $p < .001$). There was also a statistically significant difference between the SLDL and chronological age match group (Audiovisual condition : $R1 = 60.7$, $R2 = 110.91$, $z = 4.417$, $p < .001$;

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Audio only condition : $R_1 = 18.93$, $R_2 = 125.79$, $z = 4.417$,
 $p < .001$), but not between the two comparison groups.

In the MMC procedure, it was considered of interest to present data relating to the most accurate type of pragmatic response (type 6 response) alongside the data on total pragmatic responses. However, in the IME procedure pragmatic responses other than the type 6 occurred only rarely. The type 5 and 7 responses made, for example, formed less than 1 % of total responses and the type 8 responses did not occur at all. The differences between the data considering total pragmatic responses and that considering type 6 responses, is therefore minimal. Possible explanation for this lack of variation in response will be raised within the discussion of this work.

Table 4.6 . shows the number of errors made on each IME and reveals that the items expressing a non-verbal message of happiness are the most difficult for students in each of the groups. The possible reasons for this will be speculated upon in the discussion chapter.

Item (in order of presentation)	Nos. of errors					
	SDLD GROUP		LA MATCHED GROUP		CA MATCHED GROUP	
	AO	AV	AO	AV	AO	AV
I'm great thanks, I'm fine (non-verbal : happiness)	15	2	4	0	1	0
You really make me laugh, you do (non-verbal : anger)	12	4	2	0	0	0
That's really great, I'll be very happy to see her (non-verbal : anger)	11	2	4	0	0	0
You poor thing you, I'll start to cry in a minute (non-verbal : happiness)	43	15	7	0	5	0
I'm sad to say I broke your tape, sorry about that (non-verbal : happiness)	38	11	7	3	0	0
I'm really happy for you (non-verbal : sadness)	16	6	2	1	0	0
I'm so angry - I'm going to hit you over the head in a minute ! (non-verbal : happiness)	51	15	12	2	7	0
Thanks, it's lovely, I'm really pleased with it (non-verbal : sadness)	22	5	2	0	0	0
I'm perfectly happy thankyou (non-verbal : anger)	18	1	7	0	0	0

TABLE 4. 6 Errors on the IME procedure, "audio only" (AO) and audiovisual (AV) conditions: main study

4.4.2. On the IME procedure, comparing the SDL D and language-age-matched groups, do students make more pragmatic responses as the language age increases i. in the audio-only condition and ii. in the audiovisual condition?

In order to answer this question the relation between the variables language age and pragmatic response was explored in the SDL D and language age match group, for each of the conditions.

The scatterplots for each of the groups, exploring the relation between total pragmatic responses and language age in each condition are included in figures 4.20 to 4.24. These reveal a much wider scatter of responses in the SDL D group for both conditions. Statistical analysis to test the strength of the relationship showed a stronger statistical association between language age and total pragmatic response in the language-age-matched group for both conditions (Audio only $r = .35$; Audiovisual: $r = .24$) than in the SDL D group

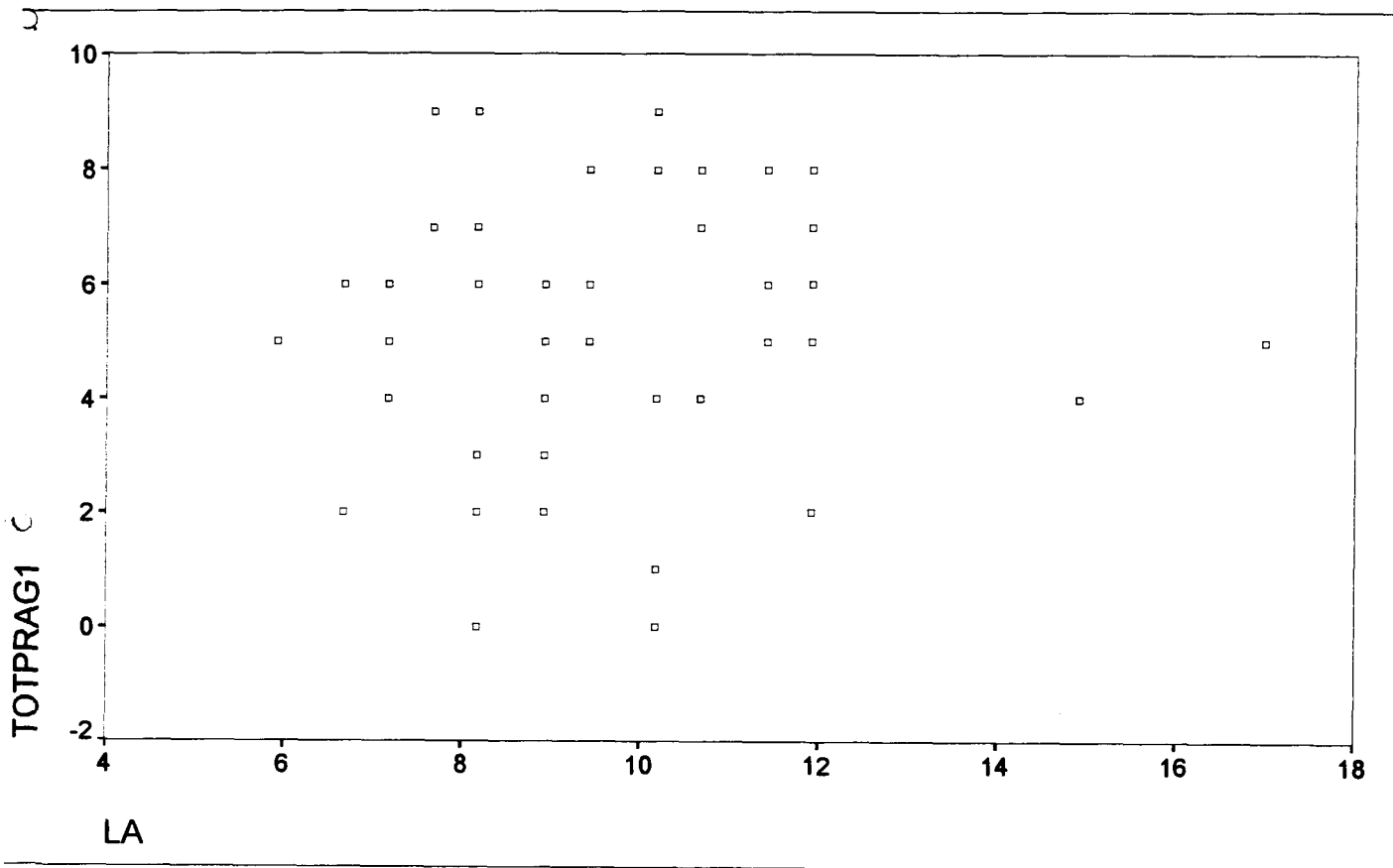


FIGURE 4.20 Scatterplot to illustrate the relation between total pragmatic responses and language age on the IME procedure, audio-only condition: SLD group.

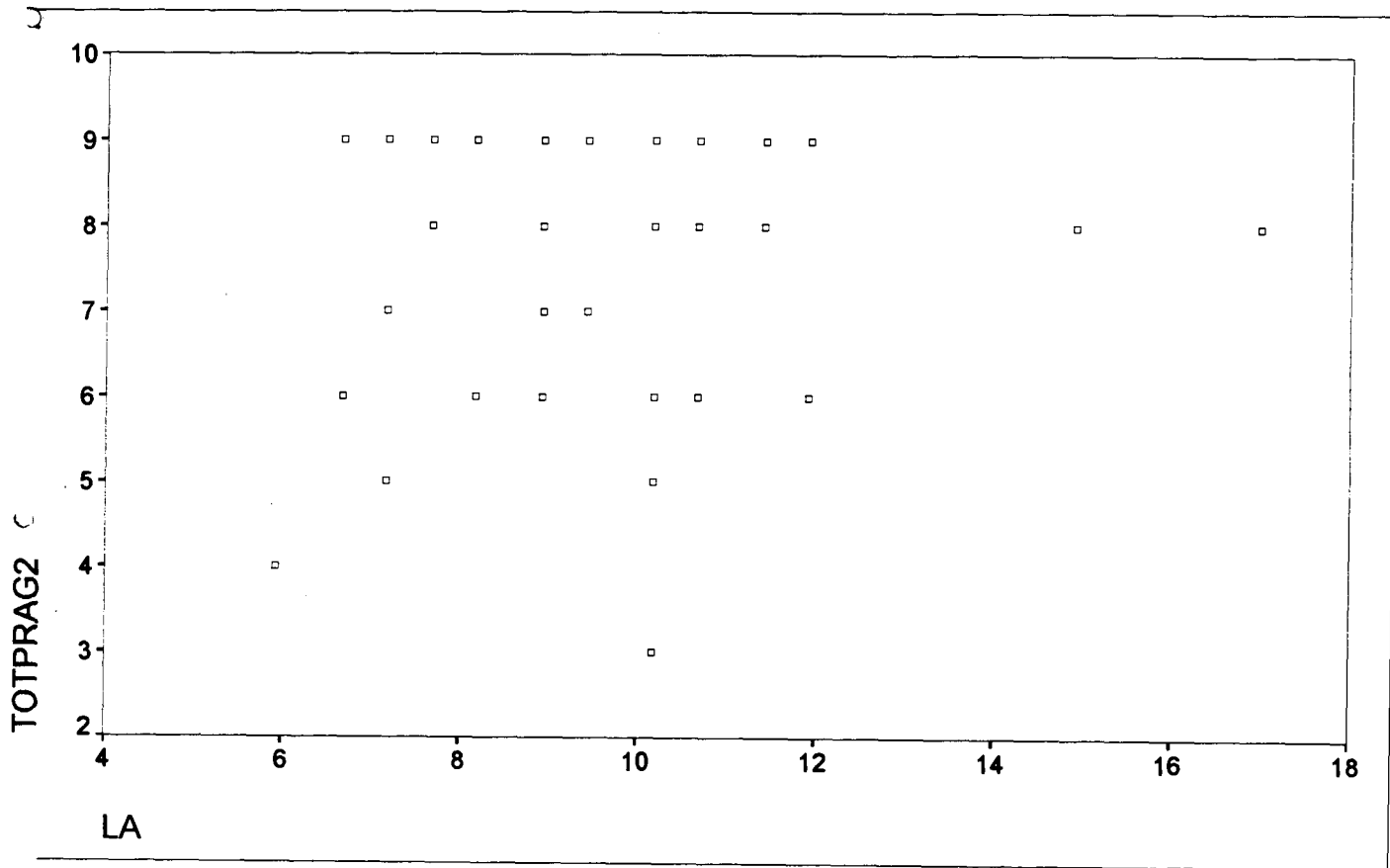


FIGURE 4.22 Scatterplot to illustrate the relation between total pragmatic responses and language age on the IME procedure, audiovisual condition: SLDL group.

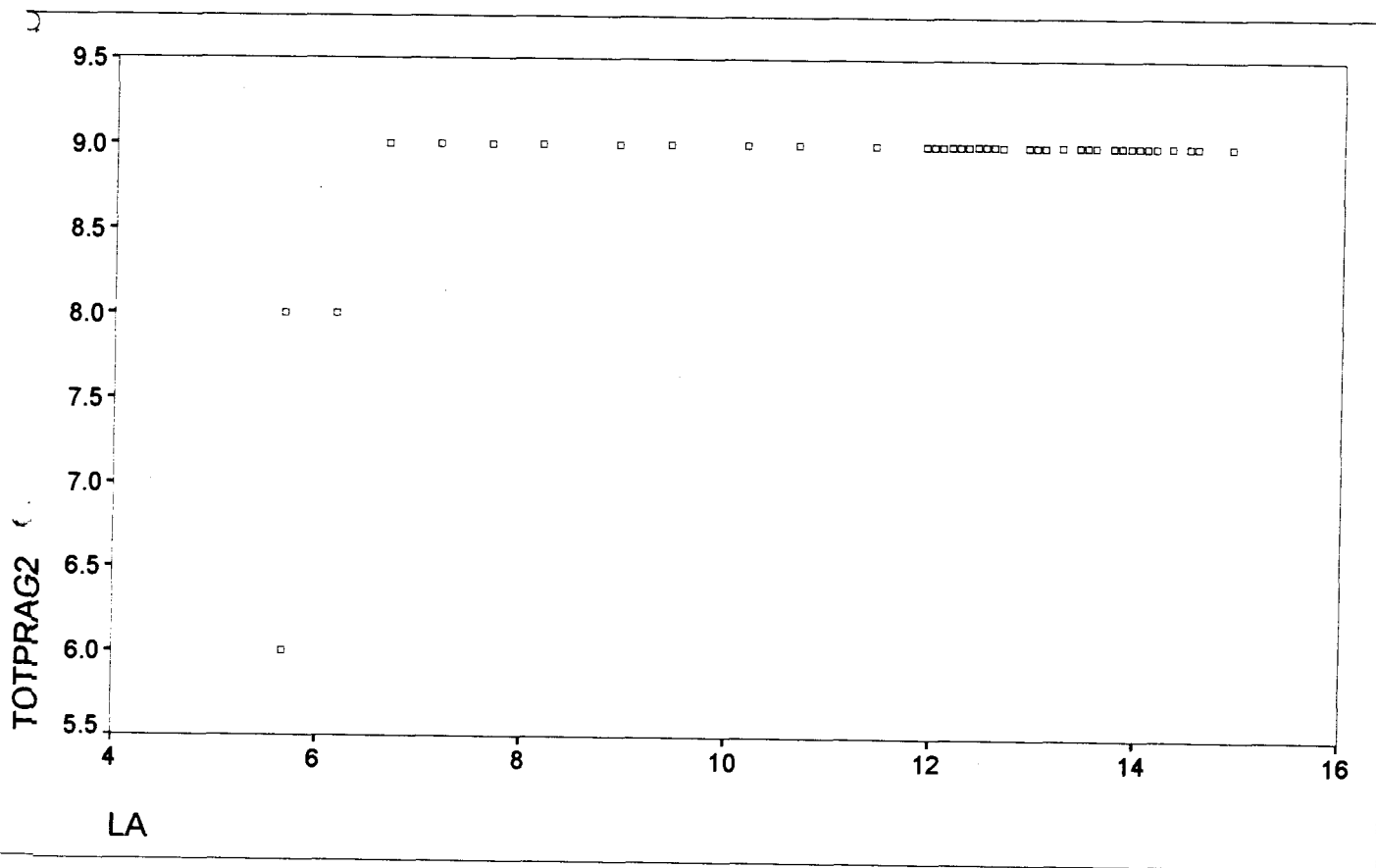


FIGURE 4.23 Scatterplot to illustrate the relation between total pragmatic responses and language age on the IME procedure, audiovisual condition: LA matched group.

Audio only $r = - 0.05$; Audiovisual $r = - 0.05$).

Associations were statistically significant in the language age match comparison group only (Audio only $p < 0.01$; Audiovisual , $p < 0.01$, 2 tailed).

4.4.3. On the IME procedure, do students make more pragmatic responses as the chronological age increases i. in the audio only condition and ii. in the audiovisual condition?

In order to answer this question the relation between the variables chronological age and pragmatic response was explored for the SLD group and the two comparison groups, in each of the conditions.

The scatter plots for each group, exploring the relation between total pragmatic responses and chronological age in each condition are included in figures 4.24 to 4.29.

There are similar findings here to those considering the relation between pragmatic response and language age, with each of the comparison groups responding at or near ceiling level and a much wider scatter of response occurring for the SLD group within the chronological age range.

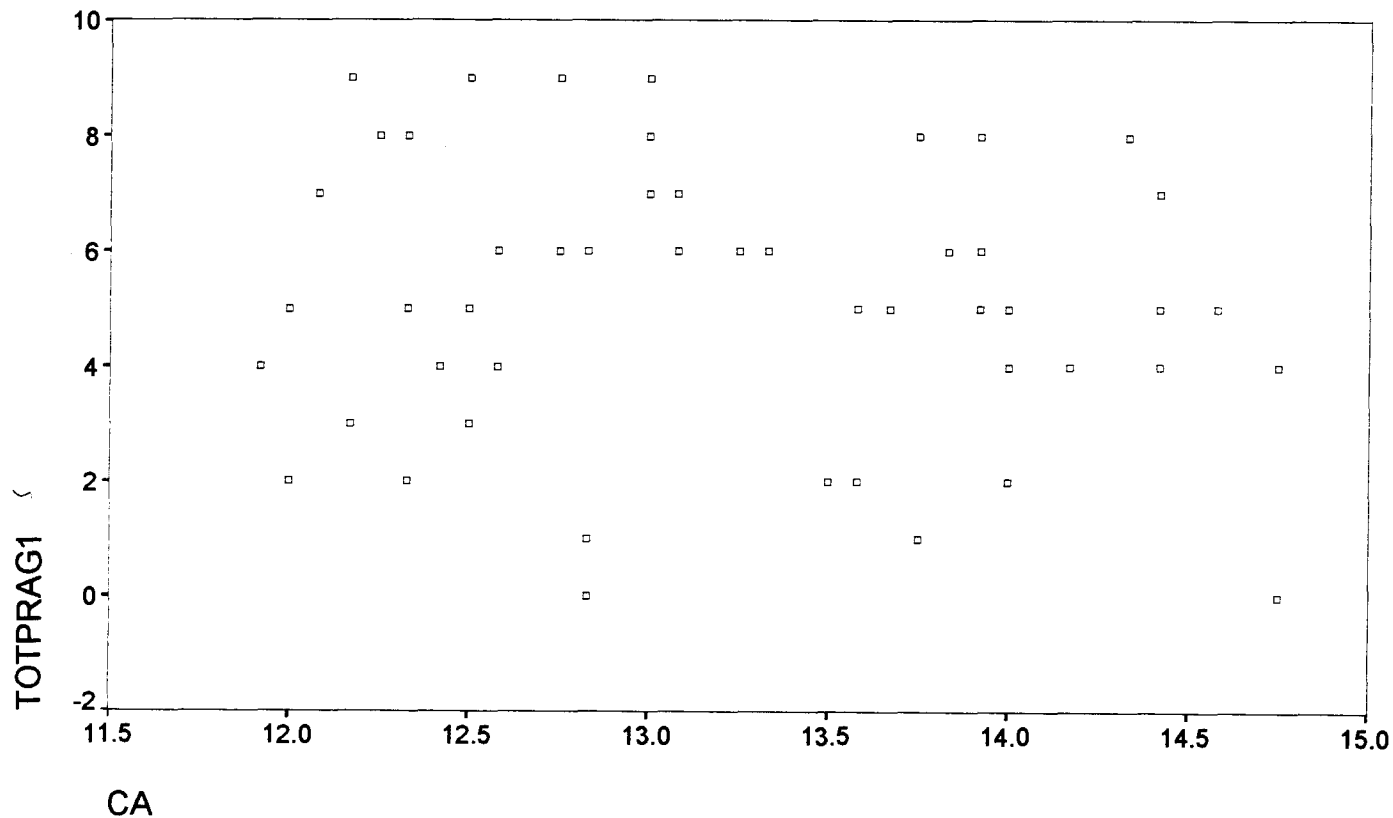


FIGURE 4.24 Scatterplot to illustrate the relation between total pragmatic responses and chronological age on the IME procedure, audio-only condition: SLDL group.

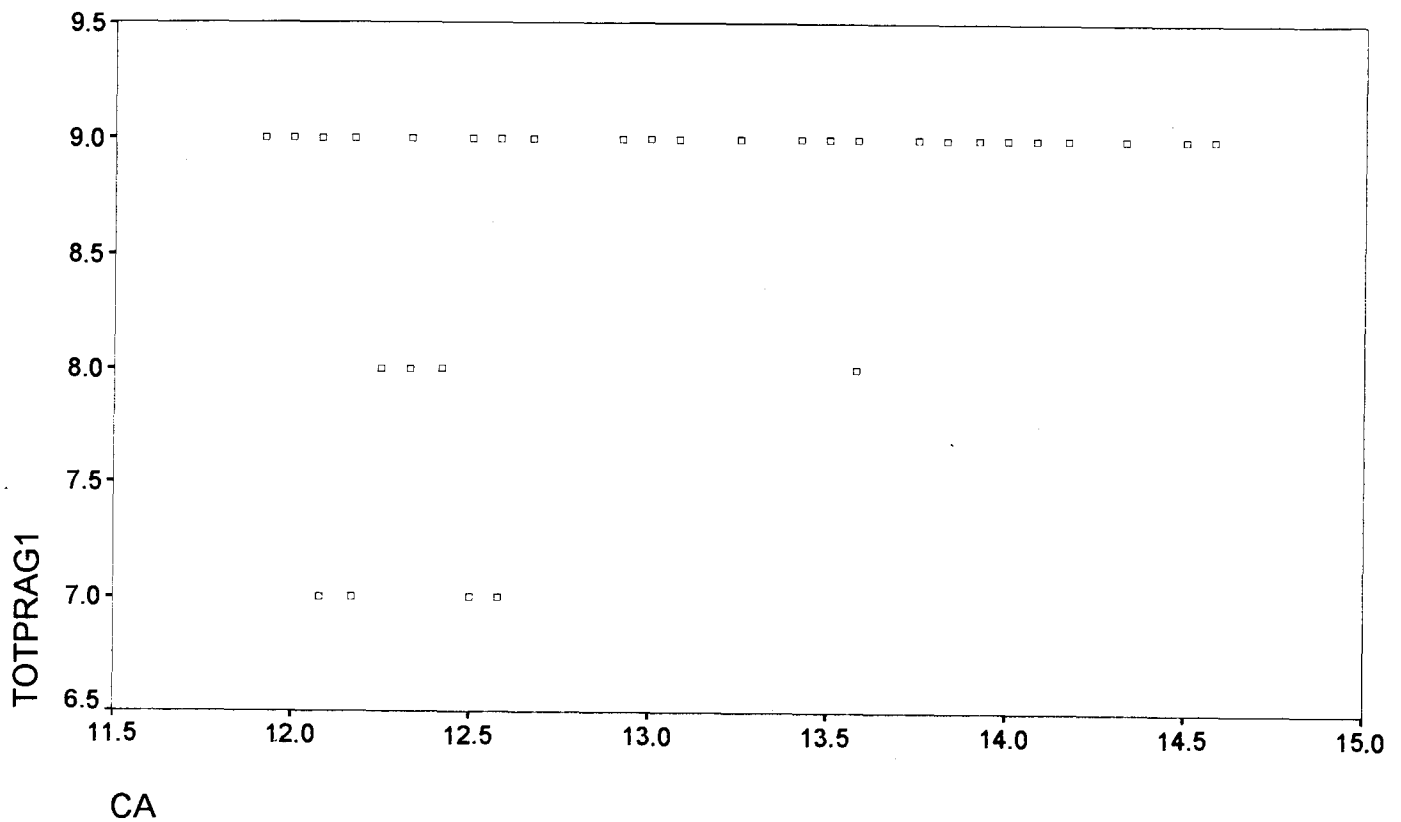


FIGURE 4.25 Scatterplot to illustrate the relation between total pragmatic responses and chronological age on the IME procedure, audio-only condition: CA matched group.

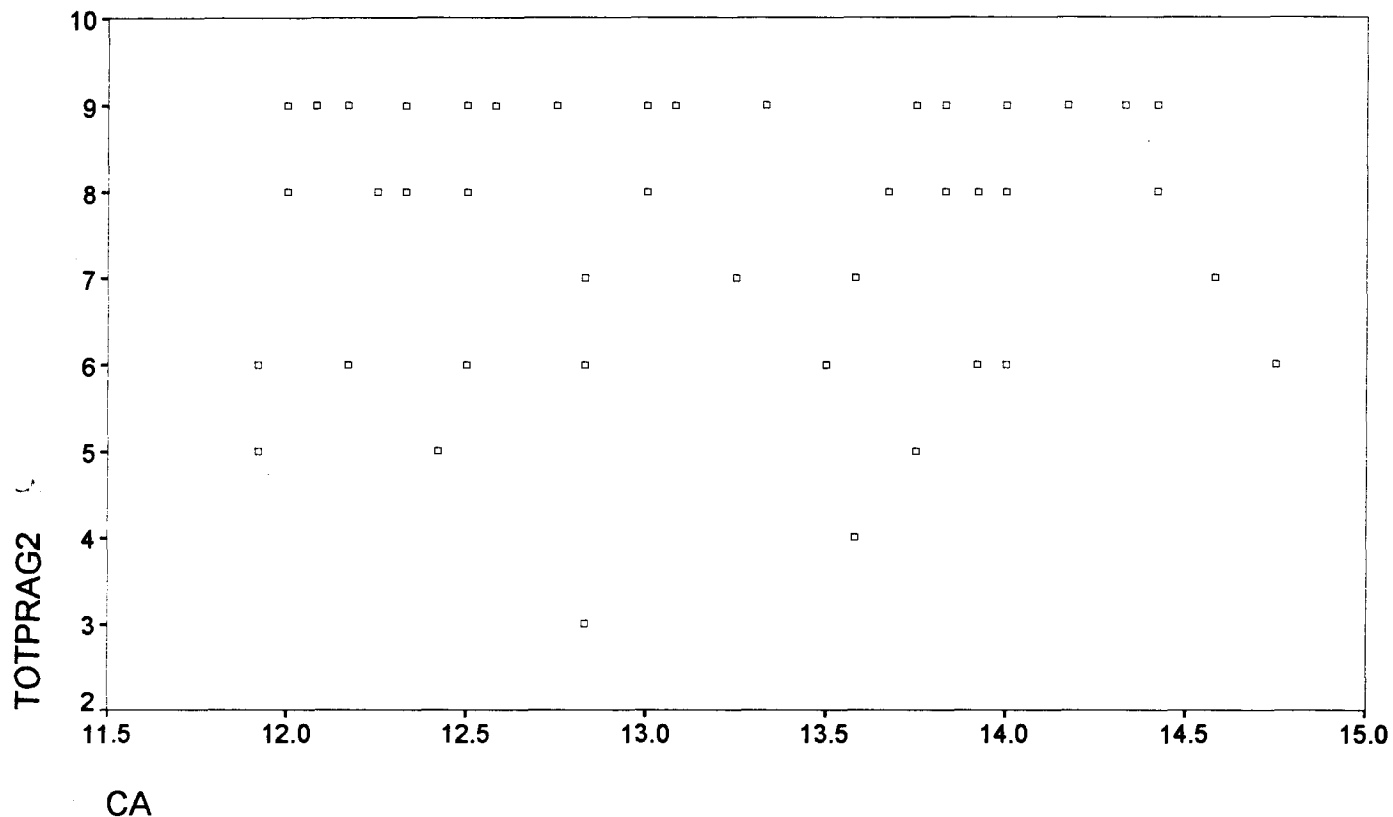


FIGURE 4.27. Scatterplot to illustrate the relation between total pragmatic responses and chronological age on the IME procedure, audiovisual condition: SLDL group.

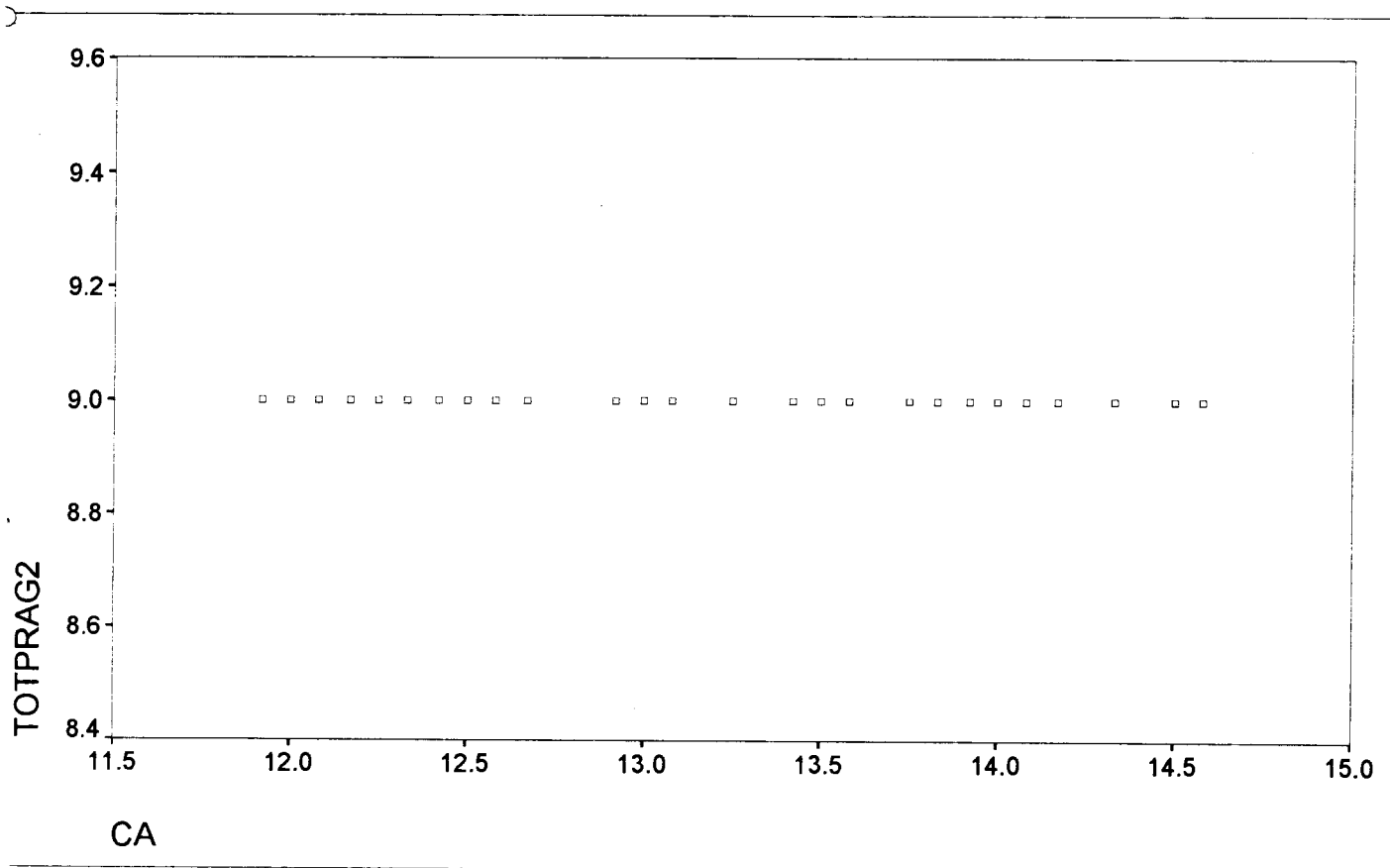


FIGURE 4.28. Scatterplot to illustrate the relation between total pragmatic responses and chronological age on the IME procedure, audiovisual condition: CA matched group.

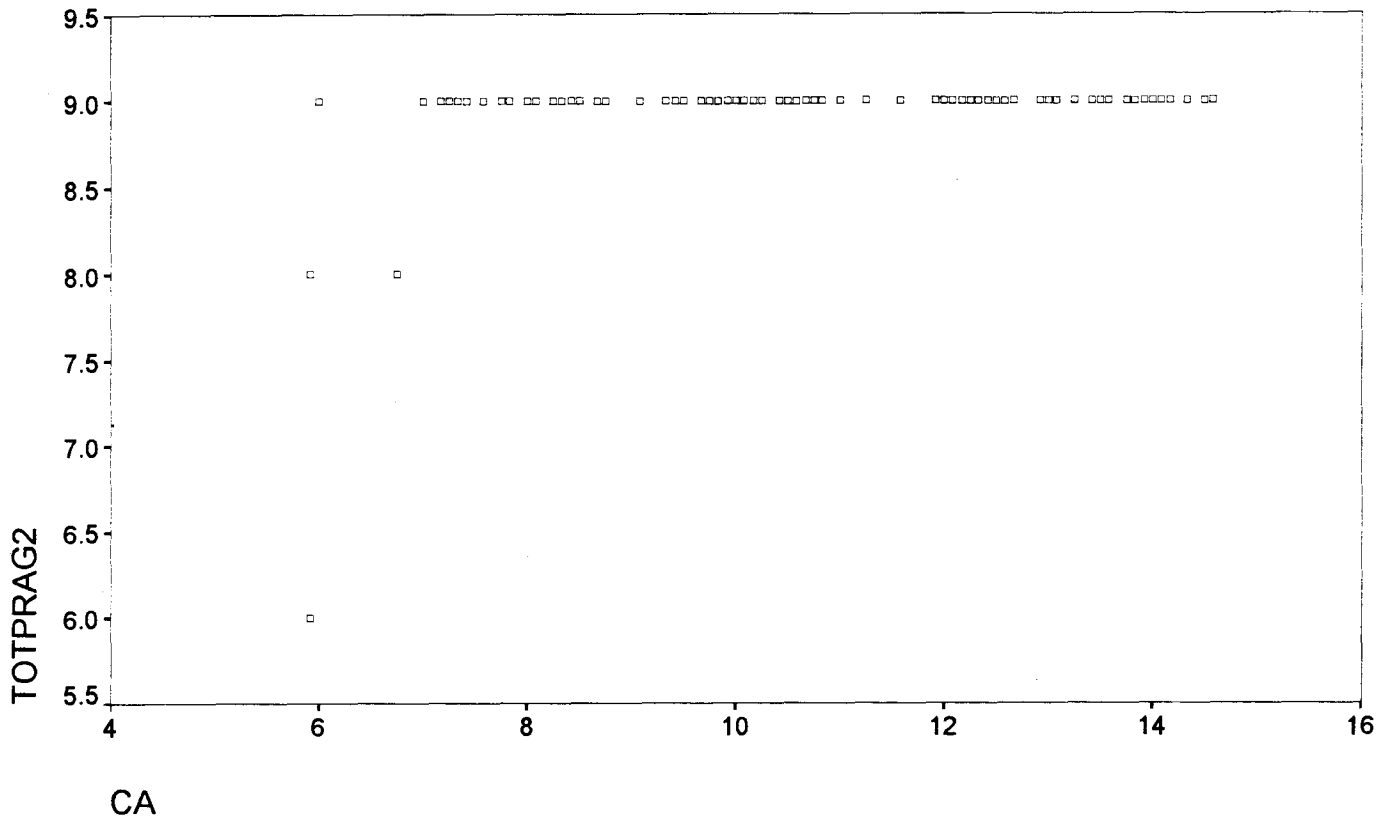


FIGURE 4.29 Scatterplot to illustrate the relation between total pragmatic responses and chronological age on the IME procedure, audiovisual condition: both comparison groups.

Statistical analysis to test the strength of the relationship showed a stronger statistical association between chronological age and total pragmatic response in the comparison groups for both conditions (Audio only : Kendall coefficient = 0.2021; Audiovisual : $\tau = 0.2311$) than in the SDL group (Audio only $\tau = - 0.0608$; Audiovisual $T = - 0.0258$). Associations were statistically significant in the comparison groups only (Audio only $p = 0.001$; Audiovisual , $p = 0.01$, 1 tailed). It should be noted that in considering the chronological age match group alone, there was not a statistically significant association between chronological age and pragmatic response because all but three students in this group responded at ceiling level.

4.4.4 Do students make more pragmatic responses in the audiovisual than the audio-only condition ?

4.4.4.A. Summary of data

The pie charts in figures 4.38., 4.39. and 4.40. illustrate the proportion of pragmatic responses in the audio only condition (labelled totprags 1 on the pie

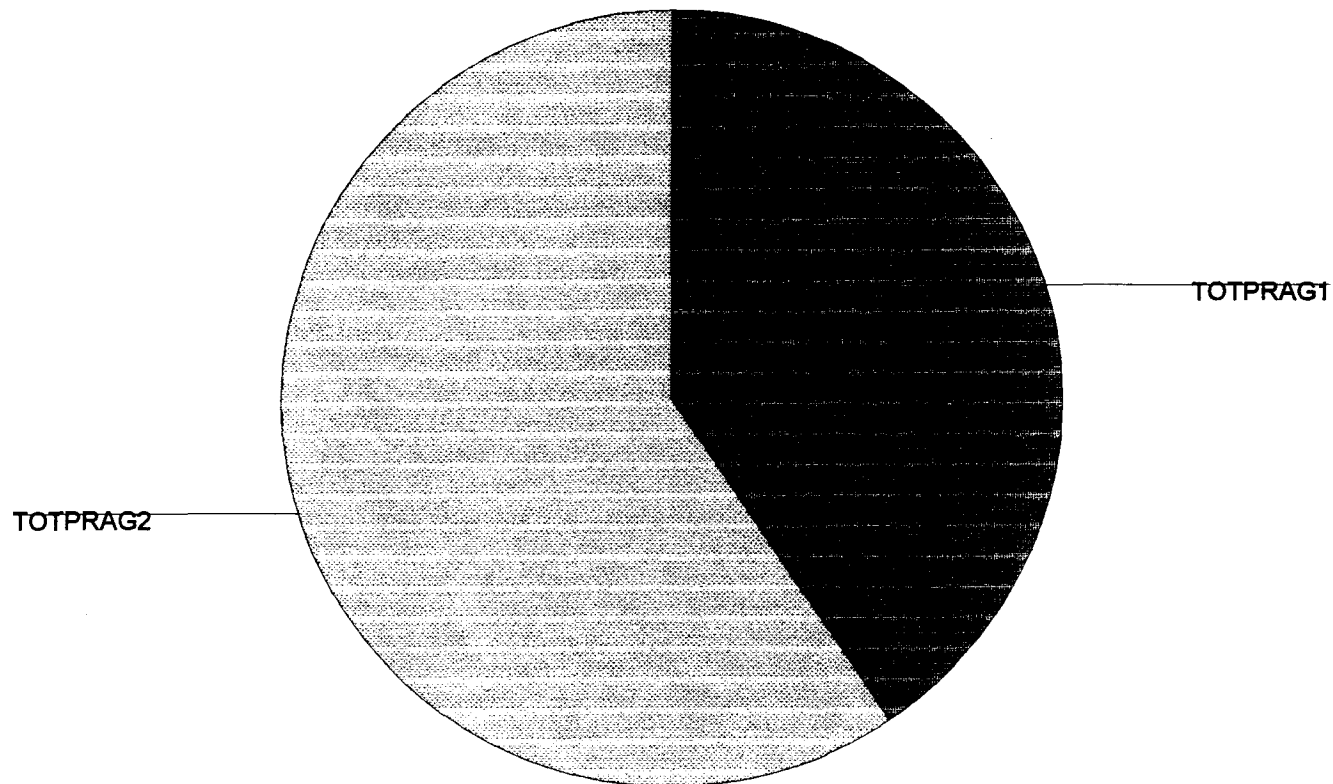


FIGURE 4.30 Pie chart to illustrate the proportion pragmatic responses in the audio only and the audiovisual conditions on the IME procedure: SLDL group.

Note: 'Totprags' 1 refers to the proportion of total pragmatic responses in the audio-only condition. 'Totprags 2' refers to the proportion of total pragmatic responses in the audiovisual condition.

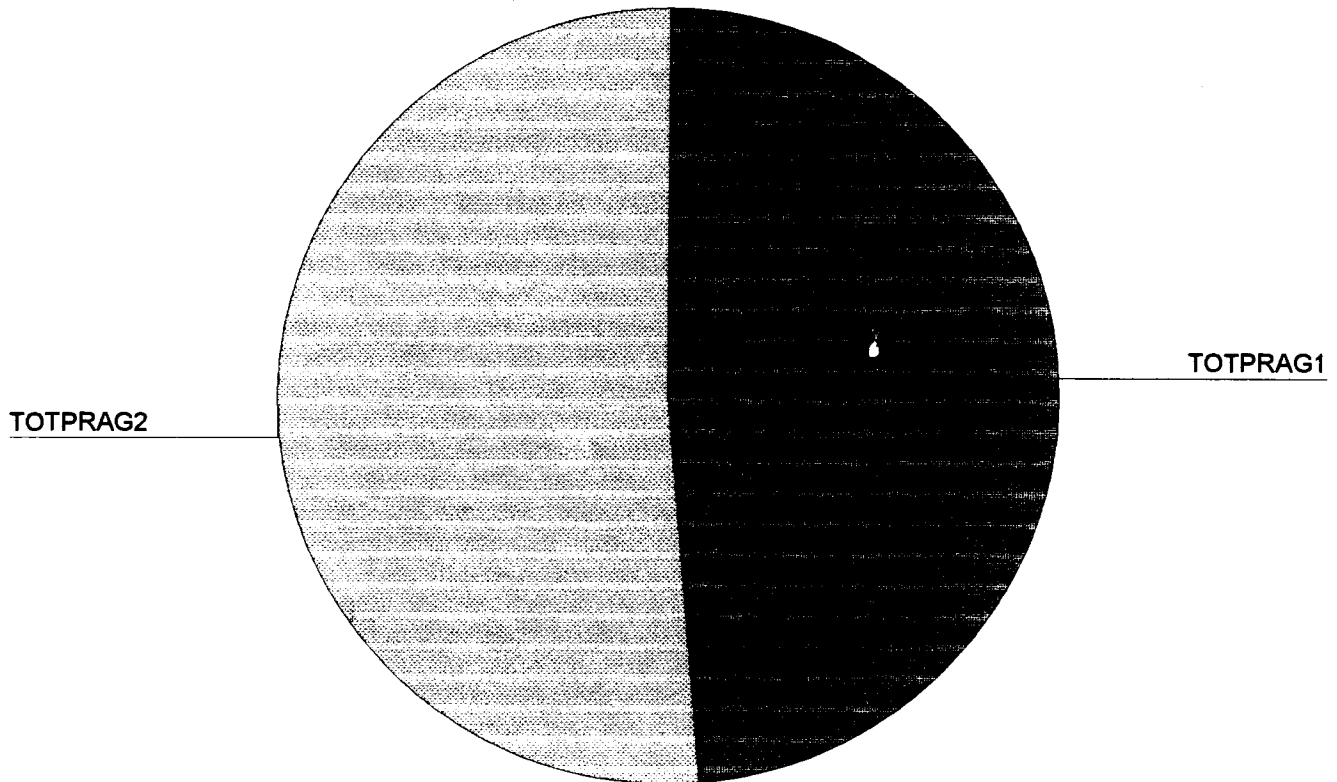


FIGURE 4.31. Pie chart to illustrate the proportion of pragmatic responses in the audio only and the audiovisual conditions on the IME procedure: LA matched group.

Note: 'Totprags' 1 refers to the proportion of total pragmatic responses in the audio-only condition. 'Totprags 2' refers to the proportion of total pragmatic responses in the audiovisual condition.

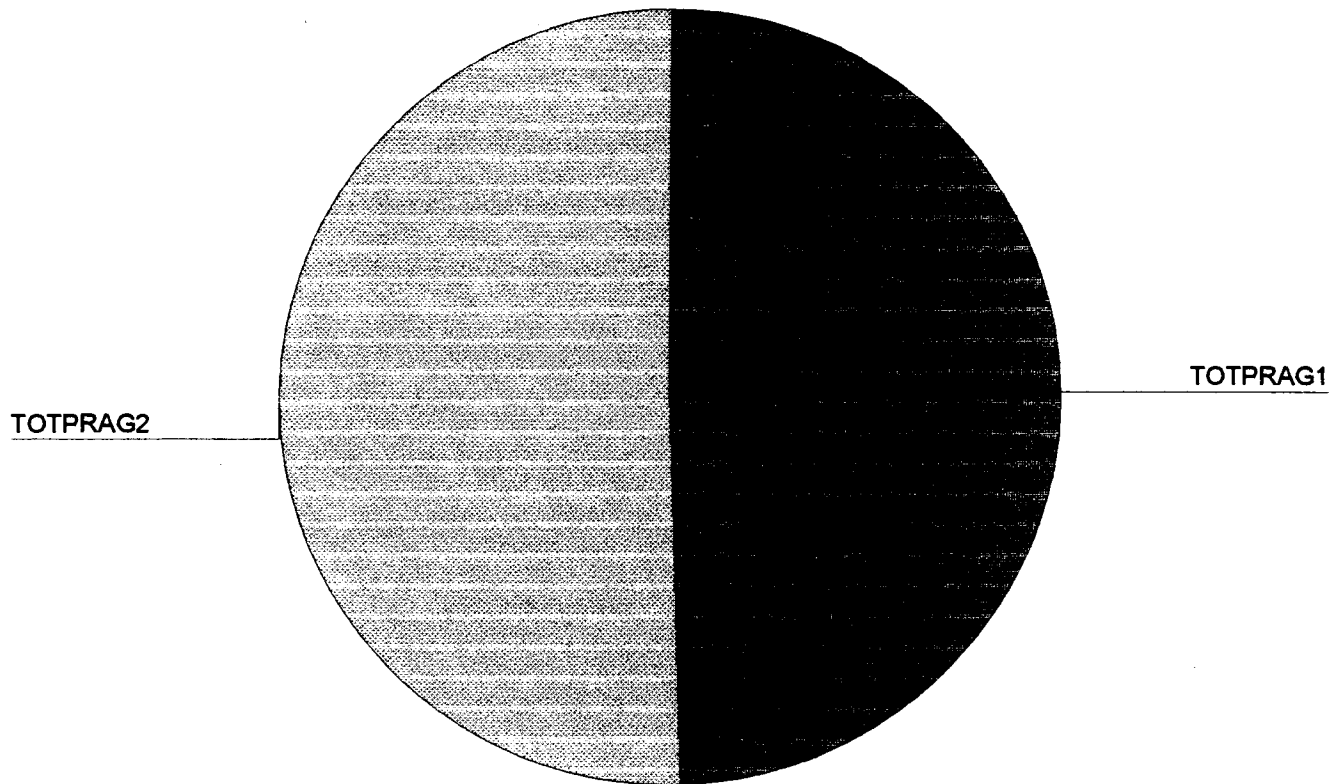


FIGURE 4.32. Pie chart to illustrate the proportion of pragmatic responses in the audio only and the audiovisual conditions on the IME procedure: CA matched group.

Note: 'Totprags' 1 refers to the proportion of total pragmatic responses in the audio-only condition. 'Totprags 2' refers to the proportion of total pragmatic responses in the audiovisual condition.

chart) and the audiovisual condition (labelled totprags 2 on the pie chart) for each of the groups. It can be seen that the SDL D group made the greatest increase in pragmatic response in the audiovisual condition, compared to the audio only condition, suggesting that they were assisted more than the other two groups by the additional visual information.

4.4.4.B. Group Comparisons: Calculations of Statistical Significance

In order to examine this question a Wilcoxon matched pairs signed ranks test was first applied to each individual group. This analysis showed statistically significant effects between the condition for each group (SDL D group, $W = 2063.0$, $z(\text{corrected for ties}) = -5.49$, $p < .0001$; Language age comparison group, $W = 4872.5$, $z = -4.43$, $p < .0001$; Chronological age comparison group, $W = -3626.5$, $z = -3.35$, $p < .001$). In order to compare the three groups' performance in each of the conditions, split plot $A_x(B)$ analysis of variance was applied. This showed a significant interaction between group and condition ($F = 58.66$, $p < .001$). That is, all students did better in the audiovisual condition than the audio only condition, but there was a

statistically significant difference in the amount of improvement made.

The Wilcoxon analysis and the summary of data suggest that the greatest improvement between conditions occurred in the SDLD and LA matched comparison group. A further split plot ANOVA was applied to discover if there was a statistically significant difference between these two groups. The findings were significant ($F= 101.17, 1, p < .001$).

It should be noted that the split plot ANOVA, a parametric statistical procedure, was included here only after considerable investigation revealed no suitable non-parametric procedure to statistically compare the three groups across conditions.

4.4.5. On the IME procedure, do SLD students make more responses where they choose both the pragmatic and non pragmatic meaning? Therefore are SLD students less able to reject the pragmatic meaning when they are aware of the pragmatic meaning?

This response type did not occur in the comparison groups; there were rare occurrences only in the SLD group in both conditions.

4.4.6 On the IME procedure (i. audio-only and ii. audio visual conditions), do SLD students make more responses where having chosen both the pragmatic and non pragmatic interpretation and asked to make a choice between the two, select the non pragmatic interpretation ? (non pragmatic response type 2). Therefore, are SLD students more likely to select the non pragmatic interpretation in favour of the pragmatic meaning ?

Again, there were rare occurrences of this kind of response in both conditions in the SLD group only.

4.4.7 On the IME procedure, do SLD children
make less don't know responses to reject
a non pragmatic meaning in favour of an
unknown pragmatic meaning?

None of the students made this type of response.

4.4.8. On the IME procedure, do female students
make more pragmatic responses than male
subjects?

A three factor $A \times B \times (C)$ split plot ANOVA revealed no effect of sex of subject on pragmatic response and no statistically significant interaction between sex of subject, group, and number of pragmatic responses across the two conditions ($F=.03$, $p < .1$).

This chapter will now present qualitative data in the form of comments made by the students as they completed the procedures. This data, although not substantial, is included here to be considered alongside the quantitative data already presented.

4.5. QUALITATIVE DATA.

4.5.1. Introduction

Although the present study has an experimental design and thus set out to generate data to which quantitative analysis could be applied, it has also yielded some qualitative data, in the form of i. spontaneous comments made by the students as they completed the procedures, ii. students explanation of their 'don't know' responses to the MMCs and iii. laughter to indicate appreciation of the comical nature of the MMC pictures. This data is presented in the following sections and a content analysis (Robson, 1993) is applied to observe common themes expressed by the comments.

4.5.2. Comments Made by Children in the SDDL Group and the Language-Age-Matched Comparison Group.

4.5.2.A. MMC Procedure

There were a number of instances where students in the SDDL group and younger students in the language age comparison group made spontaneous comments as they completed the MMC procedure. These are listed in table

4.7. The ages of the students, which are included in brackets, show that the comments were made by children across the age range studied, including some of the youngest members of the group.

On observing the themes included in these comments, it may be proposed there are broadly three kinds of comment; those that attempt to i. explain or justify a response in terms of the pragmatic, contextual information (for example ' a truck must have had jam on it - and it fell out'; 'maybe it's his shadow'), ii. explain or clarify the non pragmatic meaning (for example 'you've got to pull your socks up' [miming the action]) and iii. check the accuracy of a response.

Considering the first kind of comment, it may be proposed that students were attempting to make their interpretation plausible in relation to the context. However, in the second kind of comment there is no attempt to consider the anomolous nature of the interpretation in relation to the context. When this type of classification is applied to the comments, it can be seen that all of the non-language-impaired children's comments are justification in relation to the context. The comments made by the SLDL students, however, with the

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exception of one ('they're brothers' to explain Peter being completely beside himself) are all explanations in terms of the non-pragmatic meaning.

It was noted on the record sheets of five of the language age comparison group that they asked questions to check the accuracy of their response (such as, 'Do you mean this one?'). My response here, was to say 'you have to decide', however, their ability to use a checking strategy was noted. None of the SLDL students used this kind of strategy.

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Item	Language age comparison group	SDL D group
jammed	'a truck must have had jam on it - and it fell out' (9.10)* 'someone has crashed and there's jam on the road(8.9)	'she couldn't get through that strawberry jam' (12.4/8.4)**
short	'Susies getting bigger' (7.7) 'Susie's growing more than him' (8.4) 'she's getting taller' (8.9) 'does it mean getting ticked off with someone ?(11)' "is it 'in a bad mood ?' (10.9)	
full of beans		'he's a bouncing bean' (then selected non-pragmatic interpretation) (12.4/10.8)

TABLE 4.7. Students comments, made as they completed the MMC procedure.

(continued on next sheet)

* numbers denote years and months e.g. 9,10 represents 9 years 10 months

** the first number represents chronological age, the second, language age

Item	Language age comparison group	SDL D group
pull socks up		'you've got to pull your socks up' (mimes action) and think' (12.4/8.4)
red handed	'he's wearing gloves' (8.7) 'he's got gloves on' (8.9) 'it means caught in the act - doesn't it?' (12.0)	(selecting non pragmatic meaning) 'cause that one hasn't got red hands' (14.4/8.5) 'she saw him with red hands' (12.8/8.2)
thin on ground	'they must have dropped them - they got squashed and fell on the ground' (7.7)	

TABLE 4.7 Students comments, made as they completed the MMC procedure,
(further continued on next sheet)

Item	Language age comparison group	SDDL group
beside self	'he must have an imaginary friend' (8.9) 'two Peters are next to each other' (7.5; 7.7; 6.11) 'Peter's standing next to a Peter that looks like him' (7.2) 'maybe it's his shadow' (7.9) 'he's dreaming' (9.5) 'twins' (7.2) 'there's a reflection' (10.2) 'he's got a mirror' (7.0) 'he's beside another Peter' (8.9) 'is it this ?' (pragmatic response). (10.9)	'they're brothers' (12.3/11.5)
wrong side of the bed		'most children get out that side of the bed' (14.2/7.2)

TABLE^{4.7} (continued). Students comments, made as they completed the MMC procedure.
(further continued on next sheet)

Item	Language age comparison group	SDLD group
throw	'she's thrown her out of the classroom' (7.0) (she's jumping in the air - she's really happy' (10.2) 'is it this one ?' (10.5) (pragmatic reponse)	'through means passed' (13.7/7) (selected Emma looking pleased) (semantic error)

TABLE 4.7 (continued). Students comments, made as they completed the MMC procedure.

4.5.2.B. IME Procedure

In the IME procedure, the comments made by non-language-impaired children, which are presented in table 4.8 ., express a common theme reflecting a level of metacommunicative awareness; in particular, they refer to the communicative purpose in making these kinds of utterances.

The SDL D students comments do not reflect this kind of awareness, but some of their comments (for example, 'you sound happy, but I think it's this;, you sounded sad, but you said this') do suggest that they are aware of a contradiction between a verbal and a non-verbal message. However, they were unable to interpret the contradiction in line with speaker intention, according to the rules governing the communicative function of IME.

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Comparison groups	SDLLD group
'you were being sarcastic' (12.9)	' <u>bit</u> angry/sad/happy' (recorded on four of the student's response sheets -13.9/9.8;
'I can tell by your smile' (7.4)	13.7/9.1; 12.4/8.4; 13.5/8.11)
'sarcastic!' (10.9)	four students repeated the words, e.g. 'I'll start to cry; you broke her tape' (13.8/17;14/11.11; 14.9/10.8;12.10/10.4
'some friend!' (12)	'you sounded happy but I think its this' (picture representing verbal message) (12.1/10.10; 14.7/9.7;13.4/8.11)

TABLE 4.8. Students comments, made as they completed the IME procedure (further continued on next sheet)

Comparison groups	SDLD group
'you were lying to her' (10.5)	'you sounded funny' (but selected verbal message as speaker intention (12/9.1)
'you said that (picture representing verbal message) but you meant this ' (picture representing non verbal message) (9.9)	'you sound sad but you said this (selected emotion conveyed by verbal message) (12.2/8.4)
'that was about sarcasm, wasn't it ?' (9.6)	

TABLE 4.8 (continued). Students comments, made as they completed the IME procedure.

**4.5.3. Comments to Explain the 'Don't Know'
Responses on the MMC Procedure.**

Where students made a don't know response, their semantic knowledge was checked and they were asked to explain why they had not selected the literal interpretation. Not all students who made "don't know" responses were able to explain, but the comments of those who were able, are included in table 4.9 . Again, it can be seen that those students in the comparison groups gave explanations on the basis of the pragmatic, contextual information. Furthermore, comments such as 'it's an expression' and 'it doesn't literally mean...', made by the older non-impaired students in the sample (11 to 15 years) reflect an awareness of the purpose of using these kinds of communication. The language disordered students' explanations, however, are not in terms of the contextual information, rather they reflect the difficulties they had with the non-pragmatic meaning.

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Item	Language age comparison group	SDDL group
tied up	'some people might choose it, but that's stupid, he wouldn't be all tied up like that' (12.4)	
jammed	'it wasn't likely that would happen' (9.5) 'she wouldn't mean strawberry jam' (12.7)	
short	'he couldn't grow tall and then grow short again' (7.2) 'he wouldn't be able to go short again" (9.5) 'it doesn't mean that he's shrinking" (14.1) 'I know it's not number three, people grow upwards not downwards !' (10.3) 'he wouldn't get shorter' (10.10) 'because it's a figure of speech - not physically shorter' (13.0)	'I didn't know short' (12.11/ 6.4)

Table 4.9.. Students explanations of their don't know responses, MMC procedure (continued on next sheet)

- Chapter 4. Results -

Item	Language age comparison group
pig sty	'I thought it might be the room in a mess, but I wasn't sure' (8.2)
fall	'you can't be so clumsy that you'd out fall out a window' (8.7)
pull socks up	'she doesn't mean - actually mean your socks up - its got nothing to do with passing a test has it ?' (8.7)
drive round bend	'kids are too young to drive - it wouldn't be allowed' (9.6)
thin on ground	'it doesn't make sense' (7.0) 'I didn't get it, like the Susie one' (8.2) ' I think she meant an expression, like traffic jam doesn't mean jam on the road' (12.3) 'I didn't get what it means' (12.7)

Table 4.9 .(continued) Students explanations of their don't know responses, MMC procedure (further continued on next sheet).

- Chapter 4. Results -

Item	Language age comparison group	SDLD group
red handed	'it doesn't mean he was caught like that and you wouldn't really have red hands' (8.3)	
carried away	'it doesn't literally mean like getting carried away' (11.11)	
beside self	<p>'there can't be two of him' (8.2)</p> <p>'I think there's another meaning as well but I don't know it' (9.10)</p> <p>there can't be two of the same people' (8.2)</p> <p>'you can't have two of yourself' (10.2)</p> <p>'it's not like real life' (10.3)</p> <p>'cause there's only one of him really, it means a different beside' (6.8)</p>	<p>'beside's like next' (12.11/8.4)</p> <p>none are right (12.10/10.4)</p>

Table 4.9 , (continued) Students explanations of their don't know responses, MMC procedure (further continued on next sheet),

- Chapter 4. Results -

Item	Language age comparison group	SDL D group
wrong side bed	'It's a saying - it's not to do with beds' (8.8)	
throw	<p>'because you're not going to really throw someone' (8.7)</p> <p>'she wouldn't pick her up and throw her' (10.2)</p> <p>'she can't be throwing her about her spellings' (9.10)</p> <p>'she is throwing her there - but it isn't right' (10.2)</p> <p>'I'm not sure what it means actually - that's doing what it actually said but (laughing) she didn't really throw her" (12.8)</p> <p>'she didn't mean it literally" (14.4)</p> <p>'it's an expression, it doesn't mean she actually threw her' (14.7)</p> <p>'she wouldn't actually throw someone (12.0)</p>	

Table 4.9. Students explanations of their don't know responses, MMC procedure

**4.5.4. Laughter to Indicate Appreciation of the
Comical Nature of the MMC Pictures**

It was noted on seven SLD student's response sheets that they laughed on first seeing some of the MMC pictures depicting a literal interpretation, indicating that they appreciated the visual anomaly, for example, of two people falling out a window. A large number of non-language-impaired children also appeared to enjoy the humorous nature of the pictures, although the precise number was not recorded. Of particular interest, was the finding that although the SLD students laughed at the pictures, they still selected them as being plausible interpretations of speaker intention. When asked why they had laughed, all seven students said that the pictures were funny. This indicated that they noted the visual implausibility but were unable to make use of this knowledge in interpreting language meaning.

4.6. CONCLUDING SUMMARY

There is much evidence from the present study to support the argument that secondary-school-aged students with specific developmental language disorder have particular difficulties with pragmatic meaning comprehension. This

was shown most clearly in considering the **number** of pragmatic responses they made, on both the IME and MMC procedures, in comparison to students in both non-impaired groups.

There were also statistically significant differences between the SDLD and comparison groups in the **types** of responses made within the response categories included. Furthermore, there were qualitative differences, in particular in the student's attempts to justify or explain their responses.

The findings will now be discussed, in the final chapter of this work, incorporating implications for issues of theory, practice and future research considerations.

CHAPTER 5. DISCUSSION

5.1. INTRODUCTION

The present study set out to explore whether pragmatic meaning comprehension posed particular difficulty in relation to non-pragmatic aspects of meaning for students with specific developmental language disorder (SDLD), in the later stages of communication development, at secondary school age. It has provided evidence that this is indeed the case: SDLD students made significantly fewer pragmatic responses than two comparison groups, matched with the SDLD group for language and chronological age, on two procedures. These were inconsistent messages of emotion (IME) and multiple meanings in context (MMC), which were selected for this study to represent instances of pragmatic meaning.

This chapter will discuss a number of facets relating to this finding in the following three parts.

The first part of the chapter will explore the nature of SDLD students difficulties in understanding IME and MMC.

In the first section, this exploration will confine itself to the findings of the present study, in particular considering the differences between the SDLD and comparison groups that were statistically significant, and which cannot therefore be accounted for by maturational effects nor by the SDLD students level of language comprehension in the non-pragmatic domain. These findings will be discussed in the light of those differences which were not statistically significant.

This discussion will be made in relation to the model of pragmatic meaning comprehension I proposed in conclusion to the literature review, which draws together insights from the literature on the processes involved in pragmatic meaning comprehension. It will largely consider the way students responded in the present study, with some reference to the literature, but also will include some speculation as to why SDLD students had difficulty. This will provide a basis for making proposals about how children understand IME and MMC and how this process may break down for SDLD students.

In a second section, there will be a fuller consideration of the study's findings in relation to previous research in the field. This discussion will give further insight into the nature of SLD students' difficulties in understanding IME and MMC.

The second part of the chapter will discuss implications of the findings relating to issues of diagnosis, assessment and education. This will include a focal concern of the present study, that is, the need to consider pragmatics separately from semantics in accounts of language comprehension, in diagnosis, in assessment and in teaching. This part of the chapter will also discuss the contribution of the study's findings to our knowledge of how children learn to understand pragmatic meaning and the implications of this for teaching approaches.

The final part of the chapter will cover considerations relating to methodology and directions for future research in the field.

**5.2. SDLD STUDENTS' DIFFICULTIES IN UNDERSTANDING
MULTIPLE MEANINGS IN CONTEXT AND INCONSISTENT
MESSAGES OF EMOTION.**

5.2.1. Introduction and Background Information

At the conclusion of the literature review, I proposed a model drawing together the insights of research into non-language-impaired children's comprehension of pragmatic meaning and taking into account current theoretical perspectives on the nature of pragmatic impairment in children with SDLD.

In particular, I proposed two levels of pragmatic analysis, one at a broader metacommunicative level, involving an understanding of conversational uses of language; another, at a language level, concerning more specific analysis of context to arrive at a speaker's intended meaning. These two levels of analysis enabled an account of how, in the process of developing pragmatic meaning comprehension, non-language-impaired children are able to use metacommunicative strategies to make an informed guess as to the meaning of the utterance, even when they know only the literal interpretation. (Cacciari and Leverato, 1989).

The present study set out to examine whether or not SLD students would have particular difficulty with these kinds of pragmatic analysis and has proved this to be the case. Furthermore, the way in which students responded within the different response modes included in the study sheds some light on the nature of their difficulties in relation to the two levels of pragmatic analysis proposed.

Prior to discussing the study's findings on the students' abilities to make pragmatic responses, there are two possibilities to note, concerning the students' level of semantic knowledge.

In the first possibility, the student may only be aware of the literal interpretation of a multiple meaning. In this event, if s(he) is able to use a pragmatic strategy (involving both the metacommunicative and language levels proposed) they will be able to assess the implausibility of the literal interpretation and to seek an alternative referent. This analysis may enable them to make an informed guess as to the speaker's intended meaning or to conclude that they do not know it.

The second possibility is that the student is aware of the two or more multiple meanings of the item; in this instance, pragmatic analysis (at the metacommunicative and language levels) will enable the student to determine which of the meanings the speaker intends, given the context.

The difficulties that SLD students had with MMC and IME comprehension, in comparison with non-language-impaired students, will now be examined in detail.

5.2.2. Findings of the Multiple Meanings in Context (MMC) Procedure.

5.2.2.A. Introduction

The vast majority of students taking part in the study showed no difficulty in perceiving the utterances nor in understanding their form and literal content. This was evident because only a small number of SLD students (n = 5) made occasional errors (One error each) pertaining to the literal interpretation of the MMCs. The difficulties students had were mainly in terms of pragmatic analysis, as discussed in the following sections.

5.2.2.B. The Finding that SLDL Students Made Fewer Pragmatic Responses Overall than the Comparison Groups

The difficulties that SLDL students had with pragmatic meaning comprehension was first reflected in the number of pragmatic responses they made. In the study, there were four kinds of responses that reflected pragmatic understanding (i) where the student selected a picture to represent the contextually implied meaning, which the speaker intended (type 6 response); (ii) where the student selected a picture of the contextually implied meaning but also selected a literal interpretation rendered implausible by the context. When forced by the experimenter into making a choice, they selected the picture of the contextually implied meaning (type 5 response); (iii) where the student selected a picture to represent an interpretation that was plausible given the context, but incorrect (type 7 response) and (iv) where the student made a 'don't know' response, but showed in a comprehension check that they were able to understand the literal meaning, however, they discounted it as being the speaker's intended meaning (type 8 response).

The type 6 response was determined as reflecting the most accurate pragmatic response, because this interpretation reflected the contextually implied meaning in line with speaker intention. However, the other types of pragmatic response were also included, in order to view the students' ability to use pragmatic strategies to understand ambiguous utterances when they were not aware of the contextually implied meaning (as in the case of type 7 and type 8 responses) or were uncertain (as in the case of type 5 responses).

The results of the study showed that SLD students made fewer type 6 responses than both comparison groups and also made fewer pragmatic responses overall. There was also a statistically significant difference between the two comparison groups here. However, the comparison group differences can be accounted for by maturational factors relating to chronological age differences (mean age of language age comparison group : nine years three months; mean age of chronological age comparison group: thirteen years two months). Indeed, there was no significant difference when the youngest chronological-age-matched students (N = 15) and the oldest language age match comparison group (N = 14) were compared. However, the poorer pragmatic performance of the SLD group,

language-impaired groups, cannot be explained by maturational factors, since the mean age of the SLDL group (thirteen years three months) was higher than both comparison groups. The specific nature of the SLDL students' difficulty will be examined again later in this chapter in discussing the relation between language/chronological age and pragmatic response in each of the groups.

The findings relating to each of the pragmatic response types will now be discussed with reference to the two levels of pragmatic analysis proposed, beginning with the type 6 response, which as outlined earlier, may be viewed as the most accurate pragmatic response. The other types of pragmatic response will then be discussed in turn.

5.2.2.C. The Findings that SLDL Students Made Fewer Type 6 Responses than the Two Non-language-impaired Comparison Groups

The findings relating to the type 6 pragmatic responses show that SLDL students had greater difficulty in making an accurate pragmatic analysis than the comparison groups. ($p < 0.001$)

It is also clear, in examining the performance of individual students, that the ability to make a type 6 pragmatic response is not an "all or nothing" phenomenon. Only a small proportion of SLD students ($n = 6$) failed to make any type 6 responses at all. The remaining SLD students were able to make a type 6 response for some items (or at least one item) and not others. Furthermore, there were also occasional instances of literal interpretation in the responses of thirteen year old non-language-impaired students (mean number of literal responses = 0.4.)

In the literature review, evidence was outlined to show that young children in the earliest stages of idiom comprehension learn these items as a function of familiarity (Abkarian, Jones and West, 1992; Levorato and Cacciari, 1992) and are particularly dependent upon the speaker making the metacommunicative requirement explicit (Bonitatibus, 1988; Ackerman, 1981). Young children can therefore understand certain items but do not have sufficient metacommunicative knowledge to generalise their understanding to multiple meanings they have not heard before. This kind of learning could account for the SLD students' abilities to make some type 6 pragmatic responses. However, it may be proposed that

they failed to generalise this understanding because of insufficient metacommunicative knowledge.

Considering comparison group performance, the occasional instances of literal interpretation in the thirteen year old non-language-impaired students showed that even when metacommunicative knowledge is sufficient to comprehend the majority of items in line with speaker intention, children can still make occasional errors. The nature of their errors, which were all made in response to the item 'tied up', suggests that there is an influence here according to the degree of semantic plausibility and the incidence of syntactic congruity of particular items in the literal sense. For example, the literal interpretation of the item 'tied up' may be seen as more plausible than other items, such as 'short with'. Although the occurrence of not being able to attend a party because you are physically tied up is unlikely, it is more plausible than physically shrinking, as implied by the literal interpretation of 'getting short with Susie'. Furthermore, the item 'tied up' is syntactically congruous in the literal sense, whereas items such as 'short with' are only syntactically congruous in the non-literal sense.

The implication here is that the greater the plausibility of the literal interpretation, given the context, the less likely a non-language-impaired individual is to exercise metacommunicative analysis to consider alternative referents. The syntactic congruity of items in the literal sense may also play a part here. Therefore, the need to use some aspects of metacommunicative analysis, in particular, to be aware of the need to search for alternative referents, is dependent upon sufficient pragmatic analysis at the language level to determine plausibility, given the context.

It should be noted that in the present study, the variation of plausibility of items in the literal sense was not great enough to enable further inspection of this proposal, beyond the 'tied up' item: that is, the remaining 13 items were all extremely implausible. The 'tied up' item was also the first to be presented other than the practice item and it could be argued that this accounted for the greater occurrence of error here. However, it may be counter-argued that all students interpreted the practice item in the pragmatic sense and the position of the 'tied up' item in the order of presentation should therefore not have had an effect.

Of further interest here is that the errors made by SDLD students (and the younger children in the language-age-matched sample) did not show a particular relation between degree of plausibility in the literal sense and literal interpretation. For example, the item interpreted most frequently by SDLD students as non pragmatic was 'short with', which is both semantically implausible and syntactically incongruous in the literal sense. The implication here is that these students were less able to judge plausibility.

Although the present study did not set out to explain SDLD students' difficulties, it is worthwhile to speculate further on possible explanations as to why SDLD students made fewer type 6 responses. This speculation will provide a basis for the proposals made later in this chapter for future research in the field.

Considering the two levels of pragmatic analysis proposed, there are a number of possible explanations for why SDLD youngsters made significantly fewer type 6 pragmatic responses than students in the comparison groups.

For example, in the event of having only the literal interpretation, it is possible that students made insufficient pragmatic analysis at the metacommunicative level and therefore did not even consider the implausibility of the literal interpretation given the context. Alternatively, they may have appreciated the need to consider plausibility, but made a faulty pragmatic analysis at the language level to judge the literal meaning as the speaker's intention.

Another possibility is that SLD students were able to judge the implausibility of the literal interpretation, through pragmatic analysis at the metacommunicative and language levels, but were unable to apply a metacommunicative analysis to seek a second referent or to determine that they did not know the intended meaning. In this instance they would select the literal meaning because they would perceive it as the only response possible. This type of response was evident in the younger children in the language-age-matched group who attempted to justify their selection of the literal meaning. It appeared that they sensed a problem with the literal interpretation but didn't realise there may be an alternative; rather they tried to justify the only meaning they knew. These responses are discussed in more

detail later in this chapter in considering qualitative findings.

In the event of knowing both the literal and non-literal interpretations, it is again possible that students failed to make the appropriate choice because they were not aware of the need to consider plausibility given the context (metacommunicative level of analysis), or because the actual analysis itself was faulty (language level of analysis). This latter type of difficulty was examined by the type 2 non-pragmatic response, where students, having selected both the literal and pragmatic interpretations initially as being plausible, then selected the literal interpretation in favour of the pragmatic interpretation, when forced by the experimenter into making a choice. The type 2 response will be further considered later in this chapter.

The findings relating to the SDL D students' type 6 responses do not in themselves indicate which level or aspect of analysis was impaired. However, it has been suggested that their inability to generalise knowledge from the items they did understand in line with speaker intention, may be a result of poor metacommunicative knowledge and it has been noted that, considering the

language level of analysis, they did not appear to use linguistic contextual information to judge plausibility.

Findings relating to the other kinds of pragmatic responses included in the present study, presented in the following sections of this chapter, will contribute further to this examination of SDL D students' difficulties in relation to the two levels of pragmatic analysis proposed.

5.2.2.D. The Finding that SDL D Students Made Significantly Fewer 'Don't Know' (Type 8) Responses and 'Pragmatically Plausible but Inaccurate' (type 7) Responses than Students in the Comparison Groups

It was proposed earlier in this study that the use of a contextual strategy to work out intended meanings of idioms which are not understood out of context is dependent upon metacommunicative knowledge. In the present study it is further proposed that the operation of this kind of strategy may be reflected in determining that you do not know an intended meaning. That is, if students do not know the non-literal meaning of a multiple meaning item, they may be able to use

metacommunicative, pragmatic analysis to realise that the speaker must be referring to a second meaning of which they are unaware. Therefore, rather than make a literal interpretation, which is implausible given the context, they will assert that they do not know the intended meaning (type 8 response) or make an informed guess based on the contextual information, which may be accurate (type 6 response) or may not (type 7 response). The findings that SDL D students made fewer 'don't know' responses than both comparison groups, suggest that, as a group, SDL D youngsters are less able to make use of this kind of analysis.

It should be noted that a statistically significant difference was found only between the language-age-matched group and the SDL D group here. However, the relatively small proportion of type 8 responses in the SDL D and chronological-age-matched comparison groups can be accounted for in different ways. It may be asserted, viewing the chronological-age-matched group's pragmatic performance overall, and in particular their ability to make a type 6 pragmatic response, that they did not need to make 'don't know' responses as much as the other two groups because they had a better understanding of pragmatic meaning *per se*. The significantly low

occurrence of 'don't know' responses in the SLDL group, in comparison with the language-age-matched group, however, cannot be accounted for in this way because they made significantly fewer pragmatic responses overall than the other two groups. It is therefore argued that SLDL students were less able to select a 'don't know' response as an alternative to selecting a literal interpretation, because of poorer pragmatic understanding, in particular, an inability to use a pragmatic strategy to determine miscomprehension.

SLDL students also made fewer 'pragmatically plausible but incorrect' (type 7) responses than both comparison groups, although a statistically significant difference was only found in comparison with the chronological-age-matched group.

There are a number of possibilities as to why SLDL students' pragmatic abilities proved lacking here. Firstly, it may be that the difficulty arose because the students were not aware of the need to make **plausibility judgements** to determine that the interpretation they **did** know (the literal interpretation) was implausible given the context. That is, the students were not aware that **judgments of plausibility in relation to context are**

required to determine speaker intention. It should also be noted that faulty pragmatic analysis at the language level may also prove a contributing factor here: students may have attempted to assess plausibility, but because of inadequate linguistic knowledge concerning, for example, syntactic congruity in relation to context, they may have failed to detect the implausibility and thus to detect a comprehension problem. The nature of SLDL students' errors, already referred to, which indicated that they were not assisted by such linguistic features, would suggest that this aspect of pragmatic competence could account for some of their difficulty with pragmatic meaning comprehension.

A further possible explanation to account for the SLDL students making fewer 'don't know' responses, relates to an aspect of metacommunicative knowledge concerned with awareness of **multiple reference and comprehension monitoring**. Deficiency here would prevent students being aware of the need to search for a second referent or to be aware that they may not know the speaker's intention. Here, the student may select the literal interpretation as the speaker's intention, despite being aware of its implausibility, because they believe it is the only interpretation available. As outlined earlier, this

appeared to be the nature of difficulty for the younger non-language-impaired students in the language-age-matched comparison group, whose comments as they completed the procedure showed a need for them to justify selection of the literal interpretation. This qualitative data will be included in the next section, which further considers the students' abilities to assess plausibility.

5.2.2.B. The Finding that SLD Students had Greater Difficulty in Determining the Plausibility of the Two Possible Interpretations (Type 5 pragmatic response and Type 2 non-pragmatic response)

The SLD students and students in the language-age-matched groups had greater difficulty than the students in the chronological-age-matched group in deciding which of the two interpretations (literal or non-literal meaning) was appropriate given the context. This kind of difficulty resulted in the students in both groups making more responses where they selected the two interpretations as both being plausible. It should be noted that the SLD students had greatest difficulty here, but the differences between the SLD and

language-age-matched group was not statistically significant.

However, significant differences between the groups were found on examining their responses when forced by the experimenter into making a choice between the two possible interpretations. Here, SLD students made a significantly greater number of responses where they ruled out the non-literal meaning in favour of the literal interpretation.

The implication of this finding could be that SLD students were less aware than students in the comparison groups of the need to consider context in assessing plausibility, through pragmatic analysis at the **metacommunicative level**. Alternatively, their assessment of the context itself may have been faulty because of inadequate pragmatic analysis at the **language level**, including judgement of semantic plausibility and syntactic congruity.

It can be argued that by forcing the students into making a choice, the need to make a plausibility judgement was made more explicit, that is, **metacommunicative information** was supplied. It could be further argued,

therefore, that because the difficulty that SLD students had in making the correct choice persisted, despite the metacommunicative analysis being made explicit, their difficulty here lay at the language level of pragmatic analysis.

Further insights into how the students judged plausibility can be gained by considering the comments they made as they completed the procedure, which are discussed in the next section. As outlined in the results chapter, the study did not seek to collect qualitative data, but these spontaneous comments are believed worthy of discussion to shed light on the strategies that children use in comprehending pragmatic meaning.

5.2.2.F. Qualitative Findings

Student's comments as they completed the procedures

Some of the younger students in the language-age-matched group who were not aware that there was a second interpretation to the utterance, made comments to justify the semantic plausibility of their interpretation, given the context. That is, the younger non-language-impaired

children realised that their literal interpretation was implausible, given the context, and therefore tried to justify their selection.

For example, in selecting a picture of 'two Peters' in response to the utterance 'Peter was completely beside himself this morning' several youngsters commented that the boys must be twins. This would seem to imply that these children had sufficient metacommunicative knowledge to realise that they needed to consider plausibility, were aware that their interpretation was lacking in plausibility and therefore attempted to justify it.

It can be argued that had their metacommunicative skills been better developed this may have enabled them to seek a second referent or to use the 'don't know' response.

SDLD students' comments (with the exception of one) implied that they did not detect a problem with the plausibility of their responses in relation to the context, for example, 'You've got to pull your socks up (miming the action)'. This may reflect that they were not aware of the need to justify their response in terms of semantic plausibility, given the context, as a result of deficiency at the metacommunicative level of analysis or that they did consider the plausibility but believed

their interpretation to be plausible because of faulty analysis at the language level. However, the SDL D students made fewer comments overall than the comparison groups and the possibility that this lack of comment may also have occurred as a result of expressive language difficulty cannot be ruled out. Unfortunately, information was not sought on the level of expressive language capability of the experimental group, since this was not the focal interest of the study, and it is therefore not possible to comment on whether or not the SDL D students had sufficient expressive language skill to explain meaning. This point will be taken up again in discussing considerations relating to methodology.

A further type of comment, evident in the language-age-matched group, but not the SDL D group, reflected an attempt to check the accuracy of a pragmatic response. This type of comment shows a strategy which may serve a useful purpose in learning pragmatic meaning and will be referred to again later in this chapter in considering educational implications.

Student's explanations of their 'don't know' responses

The students in both of the comparison groups were able to explain why they did not select a literal interpretation as the speaker's intention and these explanations reflect their metacommunicative knowledge. Comments such as 'It's a figure of speech...', 'it doesn't literally mean...' 'it's an expression' 'she didn't really mean...' show an understanding of the purpose of using language of this kind.

SDL D students did not make these kinds of comments, which could indicate underdeveloped metacommunicative knowledge. Rather, they tended to make no comment, to make statements such as 'none are right' or to ask if they could change their mind and select the literal interpretation. Again, however, the possible effects of expressive language difficulty on the SDL D students' ability to give explanations cannot be ruled out.

SDL D students' ability to appreciate the comical nature of the pictures representing the literal interpretations

It was noted on seven SLD D students' response sheets that they laughed on first seeing some of the pictures depicting literal interpretations, such as people falling out of a window and a bedroom in a pigsty. When questioned, post assessment, as to why they had laughed, the students stated that these pictures were funny. However, the same students selected these pictures as being plausible interpretations of speaker intention. (It should be noted that the selection of these pictures was in line with their overall pattern of response in selecting literal interpretations and it can therefore be confidently asserted that they did not select these pictures because of their comical nature). These findings therefore imply a discrepancy for these students between appreciating the comical nature of the visual representation and the ability to make use of this information in judging the plausibility of meaning.

This chapter has so far examined the number of pragmatic responses made by SLD D students in comparison with the two non-language-impaired groups. A further consideration, discussed in the next section, is the

relationship between pragmatic meaning comprehension with non-pragmatic aspects of language comprehension in each of the groups.

5.2.2.G. Statistical Associations between Language Age and Pragmatic Response

Comparing the statistical associations between the number of pragmatic responses and language age (measured by a test of non-pragmatic meaning) sheds light on another aspect of SLD students' difficulty with pragmatic meaning comprehension, in particular, how dysfunction in this aspect of comprehension relates to other aspects of meaning comprehension.

Stronger statistically significant associations were found between language age (non-pragmatic measure) and pragmatic response in the language-age-matched comparison group than in the SLD group. Therefore, whereas it is possible to predict that as non-language-impaired students' language comprehension increases in the non-pragmatic domain, their pragmatic comprehension also improves, the same cannot be said for SLD students. For example, there were ten students in the SLD group who achieved age-appropriate scores or near age-appropriate

scores on the language age measure but who had difficulty on the pragmatic meaning procedures.

These findings not only support the central argument of the study but also have implications for theoretical accounts of language comprehension and for issues of assessment and diagnosis. In particular, they emphasise the need to consider pragmatics separately from semantics in accounts of language comprehension and diagnostic assessment, an issue which will be addressed in part 2 of this chapter.

Furthermore, since this finding represents a 'mismatch' in comprehension development, which has been identified as a feature of disordered language development (Lees and Urwin, 1989) there are other diagnostic implications here concerning the issue of disorder as distinct from delayed or 'globally delayed' development. This issue will also be discussed further in part 2 and 3 of this chapter.

5.2.2.H. Summary and Conclusion

In summary, the evidence from SDLD students' responses to the MMC procedure shows that they have comparatively

greater difficulties with pragmatic meaning comprehension than both of the non-language-impaired comparison groups.

The findings of the study have suggested the need to consider **two types of pragmatic analysis** for the interpretation of MMC, the first concerning **plausibility judgments**, the second concerning **multiple reference and comprehension monitoring**; that is the ability to determine that you may not know a meaning.

The ability to make plausibility judgements is dependent upon pragmatic analysis at both a metacommunicative level, which determines the need to make plausibility judgments in the first place, and the language level, where analysis of semantic plausibility and syntactic congruity is made.

Analysis of multiple reference and miscomprehension is located within the metacommunicative domain, because it concerns awareness of the rules of how communication operates, that is, that there is a need to consider multiple reference and a possibility that you may not know one of the referents.

The findings of the study provide clear evidence that SDL D students had greater difficulty than students in the comparison groups with both **types** of analysis, (that is, in making plausibility judgements and in determining multiple reference/ comprehension monitoring) and at both **levels** of pragmatic analysis (that is, the metacommunicative and language levels).

Evidence that SDL D students had difficulty making **plausibility judgements** came from the finding that, unlike the younger non-language-impaired children, their comments did not attempt to justify the plausibility of their choices (although possible effects on expressive language difficulty were noted) and they also made a significantly greater number of responses which rejected the contextually implied meaning in favour of the literal meaning (categorised as a type 2 response). It is difficult within the confines of the present study to determine at which level the breakdown of analysis occurred, that is, whether the students were not aware of the need to consider plausibility (metacommunicative level) or whether it was the actual analysis of the plausibility (language level) which proved faulty. The comments that SDL D students made as they completed the procedure unfortunately did not shed light on the precise

nature of dysfunction. The greater number of type 2 responses in the SLD group, however, implied faulty analysis of plausibility at the language level. Of interest here is that this type of response was a rare feature of comparison group performance: there were only four type 2 responses in the language-age-matched group and none in the chronological-age-matched group. This suggests that when non-language-impaired children are aware of the two possible interpretations, they are more able than SLD students to make a correct choice on the speaker's intended meaning, given the context. It has been proposed that non-language-impaired children are more able here, because of a more effective pragmatic analysis at the language level. The strength of this proposal is however weakened by the low frequency of type 2 responses in the SLD group.

Considering the second type of pragmatic analysis, that of comprehension monitoring and multiple reference, the examination of 'don't know' (type 8) responses and 'pragmatically plausible but inaccurate' (type 7) responses provides evidence to suggest that non-language-impaired children are better able than SLD youngsters to operate a metacommunicative analysis to determine that there must be a second referent of which

they are unaware. A further consideration here, however, is that the need to determine multiple reference or lack of comprehension is dependent upon the need/ability to make plausibility judgements: that is, if students cannot determine implausibility, they will not see a need to seek a second referent.

There is also evidence from the present study to show that SLD students, who overall have difficulty with pragmatic meaning comprehension, are able to make occasional pragmatic responses. This would imply that these SLD students do have the ability to apply pragmatic analysis to assess the non-literal meaning as more plausible than the literal meaning for some items. It is argued here that SLD students are able to understand occasional multiple meaning items in this way because they have learned these items previously, but that they do not have a metacommunicative awareness which would enable them to apply this kind of analysis to unfamiliar multiple meanings.

In the non-language-impaired groups, children showed a greater awareness of a need to consider plausibility than the SLD group: even the youngest children in the sample (5 years 11 months) attempted to justify their literal

interpretations. However, errors on plausibility judgement were made even at 13 years, in relation to the item 'tied up'. These errors were made despite students having sufficient metacommunicative knowledge to make pragmatic responses in the majority of instances, and it was proposed therefore that the error here occurred at the language level because of failure to detect the semantic implausibility of the item 'tied up'. It was further suggested that this type of error occurred because the literal interpretation of 'tied up' is syntactically congruous within the context provided. The older non-language-impaired students' performance, therefore, was influenced by this kind of linguistic information; the same could not be said for SLD students, however, who also made errors on items which were syntactically incongruous and which signalled a greater semantic implausibility.

Considering further the nature of analysis required to comprehend MMC, the findings of the present study suggest some dependency between the two types of pragmatic analysis proposed, in that, for example, the ability to detect miscomprehension is dependent upon detecting implausibility. However, other evidence indicates that they are not necessarily dependent. For

example, the comments of younger non-language-impaired children showed that it is possible to be able to detect implausibility (and thus attempt to justify it), without determining alternative referents or lack of comprehension.

I have summarised the findings on how students' responded to the MMC procedure, in figure 5.1, to propose how an individual may interpret a multiple meaning in context. At (1) the metacommunicative knowledge relating to plausibility allows the individual to know that they must make a plausibility judgement. Failure to do so may cause the individual to select the literal interpretation. Success at this stage then allows the student to make an analysis of the plausibility at (2) the language level. Success here is dependent upon linguistic analysis of the context and errors may occur in relation to the degree of semantic plausibility/syntactic congruity of the item in the literal sense. If the student has both meanings available and is able to make an accurate judgement on plausibility, they may then interpret the utterance as the speaker intends. However, if they do not know the second interpretation, they then need sufficient metacommunicative knowledge (3), concerning multiple reference and comprehension monitoring, to detect that

METACOMMUNICATIVE LEVEL

1. There is a need to attend to all aspects (non-verbal; verbal) of message and message context

PERCEPTUAL LEVEL

2. Verbal; non-verbal aspects of utterance and utterance context perceived

3. There is a need to consider plausibility

LANGUAGE LEVEL

4. Plausibility is analysed in relation to context

5. i) There is a need to consider miscomprehension
ii) There is a need to consider alternative reference

6. Other possible referents are considered in relation to context

Student Response
i) Select pragmatic meaning
ii) Make an informed guess
iii) Assert don't know

Incoming Message (MMC)

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FIGURE 5.1. Stages in the comprehension of a multiple meaning in context.

there is a second meaning of which they are unaware. Insufficient knowledge here can result in the student attempting to justify the literal interpretation because they are aware of its implausibility. Success here will enable the student to attempt a contextually implied interpretation (which may or may not be accurate) or to make a 'don't know' response.

This sequential process operates as a child develops an understanding of pragmatic meaning; it may be, however, considering Gibbs' (1984) findings, described in the literature review, on how adults process non-literal utterances, that the process becomes more automatic as listeners become more experienced in understanding the communicative intent of such utterances.

This chapter will now further explore these aspects in considering the findings of the IME procedure.

5.2.3. Findings of the Inconsistent Messages of Emotion (IME) Procedure

5.2.3.A. The Finding that SLD Students Made Fewer Pragmatic Responses than the Comparative Groups.

The students' responses to the IME procedure confirm the findings of the MMC procedure, that SLD students made significantly fewer pragmatic responses than either of the two comparison groups.

The implication from the comprehension checks included in the IME procedure is that all subjects taking part in the study had the necessary perceptual skills and semantic knowledge to perceive both the non-verbal and verbal messages accurately and to understand the semantic components of both kinds of messages. A deficiency in these skills cannot therefore account for SLD youngsters' inaccurate interpretations of these messages. Rather, it is proposed that difficulty occurred with pragmatic analysis. It should be noted that only two subjects (both with specific developmental language disorder) were excluded from completing the IME procedure

because of difficulties with the non-pragmatic meaning checks.

The nature of SLD students' difficulties will now be discussed in more detail by drawing on findings about the way students responded, and by incorporating some speculation on possible explanations for these responses with reference to the two levels of pragmatic analysis proposed. In the interpretation of IME, the metacommunicative and language levels of pragmatic analysis are closely interlinked, and more so than in the case of MMC, since in IME the non-verbal context is used to both create the ambiguity and to resolve it. That is, the speaker deliberately uses the non-verbal context to negate the verbal message and to carry the intended meaning. Therefore, in IME, the non-verbal context serves a communicative purpose and thus relates to metacommunicative knowledge. The choice about which of the two utterances is the speaker's intended meaning is thus determined by analysis at the metacommunicative level.

Considering the metacommunicative level of pragmatic analysis, it may be proposed that SLD youngsters paid insufficient attention to both types of messages included

in the utterance because they were unaware of the speaker's intention to deliberately manipulate their language to serve a communicative purpose. It would appear that SLDL subjects, as a group, found the words in the utterance to be more salient than the non-verbal communication. It may be proposed that they therefore did not pay sufficient attention to the latter message type. The finding that students made more pragmatic responses in the audiovisual condition, where the non-verbal message included facial expression in addition to tone of voice, thus increasing the amount of non-verbal information and heightening the salience of the non-verbal context, adds weight to this proposal. However, as will be discussed further later in this chapter, the comments of some SLDL students as they completed the procedure showed that they attended to both message types

Another possible kind of difficulty is that, having perceived the two types of message, SLDL students were less able to make an accurate choice on which of the two messages provided the speaker's intended meaning. Although, as previously outlined, this choice is dependent upon knowing the speaker's purpose in communicating these kinds of messages through metacommunicative analysis, the variation in response

between the different types of IME suggests that certain types of inconsistency are less easy to detect than others. For example, SDLD and language-age-matched subjects made more errors in interpreting the type of IME where the non verbal message expresses happiness. These variations in response can be accounted for in the following ways:

(i) It may be that the metacommunicative analysis varies as a function of different message types. Although the underlying communicative purpose is the same for all IME, that is, to use non-verbal context to create ambiguity and to convey the intended meaning of the utterance, there is some variation in metacommunicative function. For example, in the case of IME where the non-verbal message is sadness, the inconsistent expression can be seen as a mood reflection, whereas, in the IME where joy or anger is expressed non verbally, the inconsistency is an expression of sarcasm. For example, the utterance 'I'm really happy for you' (non-verbal message: sadness) to the friend about to leave for America is inconsistent, but it does not express sarcasm, unlike utterances such as 'I'm sorry I broke your tape' (non verbal message: happiness) and 'I'll be really happy to see her' (non verbal message: anger).

However, if response variation could have been accounted for entirely in this way, the expectation would be for all messages expressing sarcasm, including those with non verbal messages expressing anger, in addition to those with non verbal messages conveying happiness, to be equally difficult. However, this was not the case.

(ii) In the absence of sufficient metacommunicative knowledge, it may be that interpretation of IMEs is reliant upon pragmatic analysis at the language level and the choice concerning intended meaning is therefore more likely to be affected by the content and form of individual messages. It may be, for example, that the words included in the verbal messages conveying anger and sadness appeared more salient to the SLD youngsters than the non-verbal message conveying happiness. Further, the non verbal messages conveying anger and sadness may, for some students, have been more salient than the words expressing happiness.

The proposal, therefore, is that SLD youngsters had insufficient metacommunicative knowledge to interpret IMEs; they were therefore reliant upon pragmatic analysis at the language level and, in certain utterances, made faulty analysis at this level also. It is further

possible that those IMEs interpreted in line with speaker intention by the SDLD students and the younger non-language-impaired children occurred simply as a result of message saliency and not as a result of metacommunicative analysis. This issue will be addressed again later in this chapter in presenting qualitative data and, in part 3, in considering aspects pertaining to methodology.

This discussion has thus far indicated faulty pragmatic analysis, at both the metacommunicative and language levels, as central to accounting for the difficulties students had in understanding IME. However, within the confines of the methodology designed for the present study, it is not possible to explore further the nature of pragmatic difficulty in the students' interpretation of these kinds of utterances because of a lack of range in the response types used by all students. For example, in the MMC procedure, SDLD students made fewer 'don't know' responses and this finding was used to propose a less sufficient metacommunicative pragmatic analysis in this group, than the two comparison groups. However, in the IME procedure, none of the students taking part in the study used the 'don't know' response. They instead selected either the verbal message or the non-verbal message to convey the intended meaning, indicating that

they were either aware of the pragmatic meaning or not. Unlike MMC, therefore, there seems to be no transitional stage in the acquisition of IME, for either SLDL or non-language-impaired children, where children are able to use contextual information to work out that the literal interpretation is incorrect even though they are not sure of the intended meaning of the communication.

The absence of this stage may be accounted for by the nature of IMEs themselves, in particular, the fact that the non verbal context carries the intended meaning. Therefore, as soon as children are able to understand that context may be used to resolve ambiguity in IME, they are able to understand the speaker's intended meaning because in IME the non-verbal context is the speaker intention. In MMC, however, the context is provided by the other words in the utterance and not the multiple meanings themselves.

Although the nature of IME places a restriction on identifying the nature of SLDL students' difficulty in terms of the two levels of pragmatic analysis proposed, the study did yield some qualitative findings which shed some light on the matter. These are discussed in the next section.

5.2.3.B. Qualitative Findings

Although, as explained previously, the study did not set out to obtain qualitative data, some of the students made spontaneous comments as they completed the IME procedure which shed light on their level of metacommunicative knowledge.

The non-language-impaired students in both comparison groups made comments which showed an awareness of the underlying function of using IME, for example, 'You were lying to her'; 'that was about sarcasm wasn't it?'. Another comment 'You said **that**, but you meant **this**' (pointing to picture representing non-verbal message) shows an awareness of the difference between saying and meaning, fundamental to understanding how speakers can flout conversational rules to serve a communicative purpose (Grice 1975).

The SLDL students' comments did not show an appreciation of the communicative function of IME, but they did show an awareness of a discrepancy between **what** is said and **how** it is said, for example, 'you sound sad, but you said **this**'. The students' selection of the picture representing the verbal message showed that they were

unable to understand the contribution of this inconsistency to a speaker's meaning.

Four SLDL students referred to the speaker as being a 'bit angry/happy/sad' (the emotion conveyed verbally). The reference to 'bit' also indicates an awareness of the emotion conveyed verbally being contradicted by the non-verbal message, but again, there is a lack of awareness as to how this negation should be interpreted.

5.2.3.C. Statistical Associations between Language Age and Pragmatic Response

A statistically significant association between language age and pragmatic response was found in the language-age-matched comparison group but not in the SLDL group. Thus, as in the case of MMC, whereas it is possible to predict non-language-impaired students' comprehension of pragmatic meaning in line with their development of non-pragmatic meaning comprehension, the same cannot be said for SLDL students.

The implications of this finding will be discussed in part 2 of the chapter in covering issues of diagnosis and assessment.

5.2.3.D. Differences in Performance between the 'Audio Only' and Audio-visual conditions

Students in all three groups made more pragmatic responses in the audio-visual than the 'audio only' condition. SDL D students were assisted more than the non-language-impaired students by the visual aspects of communication and the differences were statistically significant.

This finding indicates the particular importance of including visual information to enable SDL D students to understand these kinds of messages. This issue will be covered further in part 2 of the chapter in considering teaching approaches.

5.2.3.E Summary and conclusion to section 5.2.3

There is less evidence to consider from the IME procedure than the MMC procedure, in viewing the types of response made, as to the nature of pragmatic difficulty for SDL D youngsters. However, the nature of IME themselves implies that pragmatic analysis at the metacommunicative level is an essential aspect of interpreting these kinds of messages. It is this aspect of pragmatic analysis

which appears to pose particular difficulty for SLDL students here.

It is possible to assert, for example, that if SLDL students had been able to apply the necessary pragmatic analysis at the metacommunicative level, their interpretation would have been in line with speaker intention, either because they would have attended more carefully to the contextual information or because they would have realised that, given conflicting messages of this kind, it is the non-verbal communication that carries the speaker's intended meaning. Without sufficient metacommunicative knowledge students are reliant upon pragmatic analysis at the language level to choose from the alternative message forms and contents. This may be subject to fault as a result of varying familiarity with the forms included in the utterances. The comments SLDL students made further indicated that they were aware of the inconsistency between the verbal and non-verbal message but were unable to interpret this in line with speaker intention.

I have drawn together the findings of how students responded to the IME procedure, in figure 5.2, to propose how an individual may interpret an inconsistent message of emotion. At point (1) in this model, the metacommunicative knowledge relating to the need to attend to all signals enables the student to 2) perceive the verbal and non-verbal aspects of the communication. At point (3) in the model, language analysis of the verbal and non-verbal messages then reveals inconsistency in the semantics of the two different forms. At point 4), metacommunicative knowledge enables the student to, at point (5), determine the speaker's intended meaning is the non-verbal message. This knowledge relates to an awareness that when there is inconsistency between the verbal and non-verbal messages, it is the latter which carries the speaker's intention. If there is inadequate knowledge at (4) the student's decision on speaker intention at (5) may be influenced by familiarity or saliency of the two different message types. These proposals will be referred to again in viewing the present study's findings alongside previous research in the field.

This chapter will shortly draw together the findings of the present study relating to the difficulties students

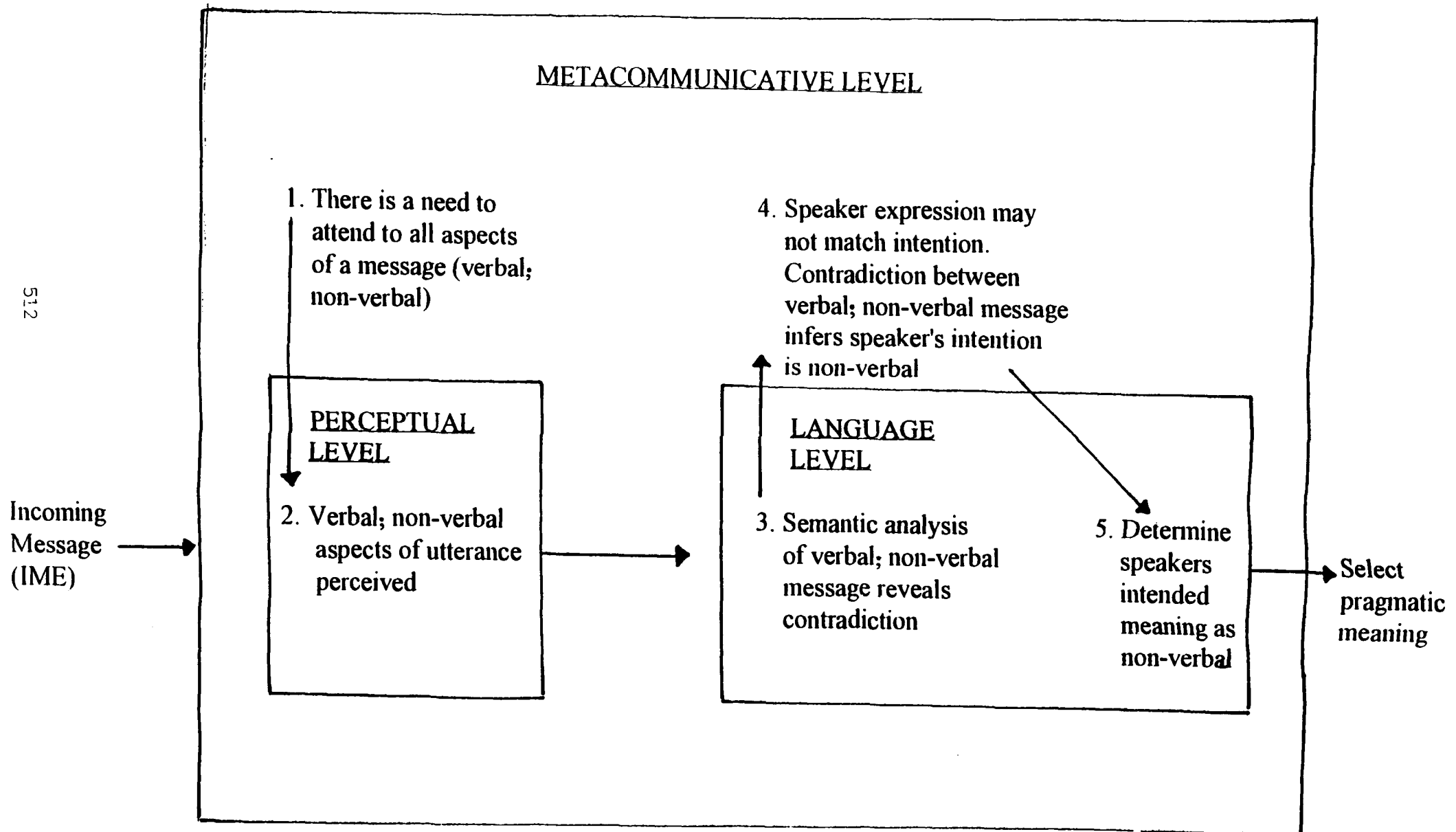


FIGURE 5.2. Stages in the comprehension of an inconsistent message of emotion

had with IME and MMC, but before doing so a brief section will compare students' responses on the two procedures.

5.2.4. A Comparison of Student Performance between the IME and MMC procedures

This study did not set out to compare performance on each of the procedures included, rather, these were selected simply as two different instances of pragmatic meaning comprehension. However, it is believed of interest to note that in all but three cases, students either had difficulty on both procedures (or no difficulty on both procedures) or had difficulty with the MMC procedure but not the IME procedure. This suggested that IME are more easily understood than MMC. However, there were three cases in the SDLD group, where students showed considerable difficulty with IME, but not MMC. This implied a specific deficit for these children, bound up with the pragmatic knowledge needed to understand IME as opposed to MMC.

5.2.5. Summary and Conclusion. SLD Students' Difficulties in Understanding Pragmatic Meaning in Comparison to Non-Language-Impaired Students.

The present study's findings have given insight into the nature of pragmatic analysis involved in the comprehension of IME and MMC. In both forms of communication there are requirements of metacommunicative knowledge: in the case of MMC, these concern judgments of plausibility, awareness of multiple reference and the need to monitor one's own comprehension. In the case of IME, the metacommunicative knowledge concerns an awareness of how speakers can use non-verbal contextual information to negate a verbal message. However, there was evidence to show that a deficiency in metacommunicative analysis is not sufficient to account for all the difficulties SLD and non-language-impaired students had in interpreting pragmatic meaning. For example, in both procedures, certain items proved more difficult than others because of aspects pertaining more to considerations of language analysis than metacommunicative analysis, such as the vocabulary included in the verbal message of the IME and the syntactic congruity of the multiple meaning item in the

literal sense. This provided support for considering two levels of pragmatic analysis.

SDL D students had more difficulty than students in the comparison groups in interpreting both forms of ambiguity included in the present study, because of particular difficulties with pragmatic analysis at both the metacommunicative and language levels. This was evident from the significantly smaller number of pragmatic responses made overall, and by differences in the way students responded.

However, attempts to pin-point the nature of breakdown of pragmatic analysis for the SDL D students, in terms of the two levels proposed, has not proved possible. Instead, potential difficulties at both levels have been proposed. In part the difficulty in differentiating the two levels of analysis concerned restrictions of methodology which will be discussed later in this chapter, but in part this also appears to concern the inter relation between the two levels of analysis. The potential difficulties at each level are summarised as follows:

(i) In MMC, at the metacommunicative level, difficulties can occur in assessing the need to judge plausibility

and/or in being aware of the need to seek alternative referents or to detect a comprehension problem. At the language level, difficulties can occur in making a choice on speaker intention based on the semantic plausibility and syntactic congruity of the meaning(s) within the context. This analysis can affect a second type of metacommunicative analysis concerned with multiple reference and comprehension monitoring: that is, errors of judgment on plausibility at the language level may prevent a student from seeking an alternative referent or detecting a comprehension failure.

Strategies which may assist students here include checking with the speaker on plausibility. This strategy was used by the non-language-impaired students in the study but not the SDLT students.

ii. In IME, the difficulties at the metacommunicative level may be in terms of realising the need to consider the non-verbal context in which the verbal message is uttered and/or to realise that, when the non-verbal message contradicts the verbal message, it is the non-verbal message which carries the speaker's intended meaning. Students may also be assisted here if they

understand the metacommunicative function of making such utterances, for example, to express sarcasm.

In IME, because the context is used to both create and resolve the ambiguity, it appears that children are more reliant upon metacommunicative knowledge to understand such utterances. For example, the choice on which form carries the intended meaning is determined at the metacommunicative level, and not at the language level, as in the case of MMC. However, when metacommunicative knowledge is lacking, difficulty may also occur at the language level in considering adequately the meaning of the non-verbal message; this may be linked to the saliency of the verbal message, that is, the more familiar the vocabulary the less likely the student is to consider the non verbal message.

The possibility was noted that, just as students made errors because they did not attend sufficiently to the non verbal context, they may have interpreted IME in line with speaker intention simply because the non-verbal message appeared more salient and not because they understood the underlying metacommunicative function. The comments made by older non-language-impaired students as they completed the IME procedure showed an understanding

of the metacommunicative function of these utterances. Unfortunately, because the SDL D students did not make comments of this kind, it is not possible to ascertain whether the items they understood in line with speaker intention were a result of message saliency or metacommunicative understanding. The indication from the comments they did make however, is that they did consider both messages, but had a problem in understanding the metacommunicative function of IME and how they should be interpreted. This issue will be raised again later in this chapter in considering aspects of methodology and directions for future research.

A further aspect of the study's findings, which applies to both the MMC and IME procedures, was the lack of statistical association in the SDL D group between language age and pragmatic response. This indicates that the difficulties SDL D students had in comprehending pragmatic meaning cannot be accounted for by maturational effects and appear to be specific in nature, affecting pragmatic aspects of comprehension as opposed to non-pragmatic aspects.

In the second part of this chapter this issue will be discussed in relation to the argument for considering

pragmatics separately from semantics in accounts of language comprehension, in diagnosis, assessment and teaching. The next section will view the present study's findings alongside previous research in the field.

5.2.6. Viewing the Findings of the Present study alongside Previous Research in the Field

5.2.6.A Introduction

This section will be subdivided into two parts, the first relating to multiple meanings in context, the second to inconsistent messages of emotion. In each section findings relating to non-language-impaired students will be considered first; findings relating to SLD students will then be considered and will include comparisons with the non-language-impaired groups.

The present study did not set out to explore developmental patterns in non-language-impaired children. However, examining the responses within the age range achieved in the comparison groups as a result of matching the language and chronological ages of the SLD group, provides information which can usefully be considered to

contribute to a number of proposals made in the developmental studies reviewed in the literature.

5.2.6.B. Non-Language-Impaired Students' Comprehension of Multiple Meanings in Context

The finding that the ability to understand pragmatic, contextually implied meaning increases with chronological age and was poorest in the youngest children in the sample (youngest age = five years eleven months) provide support for Levorato and Cacciari's (1992) findings and Abkarian, Jones and West's (1992) claim that younger age groups, around five years of age, are less able to use contextual information to understand idioms and are more influenced by familiarity. This was also true in the case of homonym and multiple meaning phrases. In the literature review a study by Backsheider and Gelman (1995) had suggested that children as young as three years had some metalinguistic awareness of the multiple reference of homonyms, however the present study showed that the youngest children in the sample did not have the necessary metacommunicative knowledge to enable them to determine which meaning was appropriate given the context.

Perhaps a more surprising finding was the occasional instance of literal interpretation in the responses of thirteen year old non-language-impaired subjects (mean number of literal response = 0.4). As outlined earlier, the implication here is that the greater the semantic plausibility and syntactic congruity of the literal interpretation, given the context, the less likely an individual is to exercise metacommunicative analysis.

These findings have further implication in considering the contrasting views of Searle (1975) and Gibbs (1984), first outlined in the literature review, on how multiple meanings are interpreted. The finding that some of the younger non-language-impaired children in the sample selected both literal and contextually implied interpretations in response to the multiple meanings in context provides support for Searle's (op cit) view that at some stage in the development of non literal meaning, there is a need to analyse both the literal and non-literal meaning in order to make a choice concerning speaker intention. In the chronological-age-matched group (twelve to fourteen year olds) the absence of this response type, (that is, the selection of two possible interpretations of the multiple meaning) implies support of Gibbs' (1984)

view, that the pragmatic analysis of MMC becomes more automatic in non-language-impaired youngsters as they grow older.

It has been argued that this automatic facility is dependent upon metacommunicative pragmatic analysis. However, the occasional literal interpretations of the thirteen year olds implies that metacommunicative analysis is not always automatically applied at this age and that this is dependent upon the plausibility of the literal meaning, given the context. For example, it can be argued that although the non-language-impaired students had the necessary metacommunicative knowledge to realise the need to judge plausibility, in the 'tied up' example, they applied insufficient pragmatic analysis at the language level to detect the implausibility, and therefore did not apply further pragmatic analysis to consider a second referent. Although the instances of literal interpretation at 13 years were relatively few, this provides preliminary evidence for Searle's view that, in the developmental stages at least, there may be a sequential nature to the processing of multiple meanings.

In this sequential process, it would appear that some aspects of metacommunicative knowledge are required from the earliest stage of pragmatic meaning comprehension. For example, in the case of MMC, children must be aware of the need to consider plausibility in relation to context, because speaker intention may not match expression. Other aspects of metacommunicative knowledge, however, in particular, awareness of the need to search for an array of possible referents and to detect miscomprehension, are dependent upon sufficient pragmatic analysis at the language level to determine the implausibility of the literal interpretation, given the context.

Although Searle's (1975) proposal on the need to process both the literal and the non-literal interpretations in order to understand multiple meanings, may not apply to older non-language-impaired students, it appears that it does apply to older SDLN students. For example, the SDLN students in the study made significantly more responses than the chronological-age-matched comparison group where they selected both the literal and non literal interpretation as speaker intention. The SDLN students' responses, in the light of the literature, are discussed further in the next section.

5.2.6.C. SDL D Students' Understanding of Multiple Meanings in Context

The present study supports the findings of Anderson's (1991) small scale study, which showed that SDL D youngsters were less able to use context to comprehend idioms than their language-age-matched peers. This support came not only from the significantly smaller number of pragmatic responses made by SDL D youngsters in comparison to the language-age-matched children but also by the significantly greater occurrence, in the SDL D group, of the type of response where the contextually implied meaning was ruled out in favour of the non-pragmatic, literal meaning.

The present study also reveals similar findings to Vance and Wells (1994) in that a direct relation between language age and pragmatic meaning comprehension was determined for the language age comparison group, but not for the SDL D group.

There were, however, differences between the findings of the present study and those of Vance and Wells (op cit) concerning the number of pragmatic responses. The present study found that SDL D students made significantly fewer

pragmatic responses than both comparison groups, but no significant differences were found between the groups in Vance and Wells' study. The discrepancy between these findings can be explained by the different age of the subjects. In Vance and Wells' study, subjects were taken from a younger, narrower age band (language age, six to seven years) which could account for the lower variation in performance between the SLD and language-age-matched groups; that is, it may be that maturational or experiential factors obscured the differences between the groups. Indeed, the mean number of pragmatic responses for both groups was relatively low at around 50% of total responses. In the present study, the percentage of pragmatic responses in the MMC procedure for the SLD group was similar at 46%, but for the language age group this percentage rose to 79%

A further observation which may account for the difference between the findings of the present study and that of Vance and Wells (op cit) concerns an aspect of methodology. In the study by Vance and Wells, the practise item included made the need for metacommunicative analysis very explicit; more so, it may be suggested, than reflects of natural communication. This suggestion is borne out by the reported occurrence

of language-impaired subjects being able to interpret idioms in the experimental procedure but not in observed instances of spontaneous communication.

In the present study, the need to use metacommunicative knowledge was not made as explicit as in Vance and Wells' study: in the practice item, subjects were informed that they may select as many pictures as they wished, but the need to consider more than one referent was not illustrated by example, as in Vance and Wells' study. Therefore, the present study showed that when youngsters are given some indication of the metacommunicative analysis required, for example, the possibility that an utterance may have more than one referent, this is not sufficient to enable SLDL youngsters spontaneously to carry out adequate pragmatic analysis.

This study has shown that SLDL youngsters have difficulty with with pragmatic analysis at the metacommunicative and language levels. This finding has implications for the approach suggested by Craig (1995) for analysing pragmatic impairments.

Based on a review of research looking at the use of pragmatic language skills, Craig's suggestion was that

SDLD youngsters did not have difficulty with language functions as such, but in mapping forms appropriately onto the functions.

The findings of this study indicated that considering pragmatic **comprehension**, SDLD youngsters may not only have difficulty in mapping appropriate syntactic and semantic forms to determine which of two possible interpretations is correct (pragmatic analysis at the language level). They also may have difficulty in understanding the communicative functions themselves (pragmatic analysis at the metacommunicative level), for example in realising that it is necessary to make a judgement on plausibility and to seek alternative referents.

In the literature review, a model proposed by Smith and Leinonen (1992) drew distinctions between 'within person' and environmental factors within pragmatic performance. Environmental influences were identified as playing an important part in how very young children learn to understand particular items (Abkarian, Jones and West, 1991; Strand and Fraser, 1979). It was also indicated that parental speaking patterns can influence children's metacommunicative understanding, for example,

in realising that speakers can be 'at fault' in producing unclear messages (Robinson, Goelman and Olson, 1983). The present study aimed at viewing more closely the 'within person' factors and a number of skills in the metacommunicative and language domains have been identified as requisite for understanding pragmatic meaning. In addition, the qualitative findings of the study indicated that non-language-impaired students are able to use a number of strategies when they are uncertain, such as justification, explanation and checking behaviour. These strategies, which may be considered as 'processing effort' (Dallagher, 1987) appeared lacking in the SLD students' responses. This theme will be addressed again later in this chapter in considering how children learn pragmatic meaning and the consequences of these considerations for the development of teaching approaches.

This chapter will now examine the study's findings on the IME procedure, in comparison with those reviewed in the literature.

5.2.6.D. Non-Language-Impaired Students' Comprehension of Inconsistent Messages of Emotion

All subjects, even the youngest in the group (chronological age : five years eleven months) showed that they were able to use non-verbal contextual information to interpret speaker intent accurately, in the majority of utterances. The kind of messages where younger subjects made errors were those where the non-verbal message expressed happiness, (for example, 'I'm so angry, I'm going to hit you over the head', said jokingly).

This finding relates back to the proposal made earlier, that the vocabulary associated with anger and sadness may, for some reason, carry more weight for young children than the non-verbal message expressing happiness. It may be, therefore, that young non-language-impaired children (and SLD youngsters) rely more upon the pragmatic analysis at the language level, making judgements upon the strength of the verbal or non-verbal message, without understanding the communicative purpose underlying these utterances.

Capelli et al (1990) proposed that when context is provided by tone of voice children only make a superficial analysis of verbal content, but the evidence from the present study, considering the instances of non-pragmatic response, is that in order to process certain kinds of IME at least, young non-language-impaired children do analyse the verbal content of the message and give greater weight to it than the non verbal message. This finding confirms those of Bugental (1974) and Bugental, Kaswan and Love (1970). A sequential nature of processing IME is therefore proposed, where the listener must be aware of the need to perceive and then analyse both the verbal and non-verbal message. It may be, however, that as children develop metacommunicative knowledge relating to the use of IME, the understanding of these kinds of utterances becomes more automatic, and older children therefore pay less attention to the verbal content of the message.

The responses of the non-language-impaired youngsters in this study also do not confirm De Paulo and Volkmar's (1978) proposal that, initially, children are more likely to rely on auditory non-verbal information than visual non-verbal information. All subjects, including the five and six year olds, made significantly more pragmatic

responses in the audiovisual condition than the audio only condition, showing that their performance was improved considerably when facial expression cues were included.

5.2.6.E. SDL D Students' Comprehension of Inconsistent Messages of Emotion

The findings of this study show that SDL D students aged between twelve to fourteen years (language age range : five years eleven months to fourteen years ten months) are able to understand the non pragmatic meaning of facial expression and tones of voice associated with the emotions of happiness, sadness and anger, that is, the three emotions expressed in the IMEs included in this study. They did as well with this aspect of comprehension as the students in the language age and chronological-age-matched groups. This confirms the findings of Davies (1986) and Courtright and Courtright (1983).

The review of the literature revealed no previous study on how well SDL D children are able to make use of the comprehension of these non-verbal forms to interpret IME. The present study showed that SDL D students were less

able to do so than the non-language-impaired students, highlighting particular difficulty with pragmatic analysis.

The comments that the SLD students made as they completed the IME procedure provides further evidence, with respect to Craig's (1995) model, that their difficulty lay in understanding the actual function of these kinds of utterances and how they should be interpreted. The SLD students detected the inconsistency, but were unable to determine, because of a lack of metacommunicative knowledge, that in such utterances it is the non-verbal communication which expresses speaker intent.

The implications of the study's findings will now be discussed with regards to the issues of diagnosis, assessment and education, first raised in the literature review chapter.

**5.3. IMPLICATIONS FOR ISSUES OF DIAGNOSIS,
ASSESSMENT AND EDUCATION**

5.3.1. Issues of Diagnosis and Assessment

5.3.1.A. The Semantic-Pragmatic Issue

There are a number of findings in the present study which provide evidence for the need to consider pragmatics as a distinct aspect of meaning, apart from semantics, in accounts of language comprehension and disordered language comprehension.

Firstly, the difficulties that SLD students had in comprehending pragmatic meaning occurred despite their having the necessary semantic knowledge to complete both procedures successfully. The difficulty they had arose because of insufficient pragmatic analysis at (i) the language level, concerning the choice of which interpretation was appropriate given the context, and (ii) the metacommunicative level, concerning factors such as understanding the communicative purpose of marking ambiguity, the realisation that contextual meaning can be used to resolve ambiguity, that there is a need to consider plausibility, and that there may be a need to

seek an alternative referent. The indication from the findings of the present study is, therefore, that not only should pragmatics be viewed separately from semantics in study of language comprehension, but that two levels of pragmatic analysis should be considered.

A second finding supporting the view that there is a need to consider pragmatics separately from semantics, were the instances in the MMC procedure, where non-language-impaired children did not have the necessary semantic knowledge to understand the multiple meanings, that is because they were not aware of the non-literal interpretation, but were able to rule out the literal meaning as incorrect on the basis of metacommunicative pragmatic analysis. Therefore, it may be claimed that these children's pragmatic knowledge was in advance of their semantic knowledge.

In the SLD group, however, there were ten students who achieved age appropriate, or near age appropriate, scores on the language age measure (a test of non-pragmatic meaning comprehension) who had difficulty with one or both of the pragmatic meaning comprehension procedures. These findings justify the concern, first outlined in the introduction to this study, that unless pragmatics is

considered separately from semantics and included in diagnostic assessment, these kinds of language comprehension difficulties may pass undetected. This study's findings therefore suggest an urgent need for the production of assessment materials to tap this kind of language comprehension difficulty.

Without such materials it is possible that specific difficulties with this aspect of comprehension will remain undiagnosed. Where pragmatic comprehension difficulties co-occur with difficulties in other areas of language, for example with phonology and syntax, failure to include assessment of pragmatic meaning comprehension may lead to an incomplete picture and a misleading diagnosis. For example, a mismatch between levels of comprehension in the semantic and pragmatic domains may be used to determine a more specific deficit, since mismatches in a child's language profile, in comparison with developmental norms, has been identified as a characteristic of a specific language disorder (Lees and Irwin, 1989).

The educational implications of these diagnostic issues will be discussed later in this chapter. More particular diagnostic issues concerning the terms semantic pragmatic

disorder, autism and Asperger's syndrome will now be considered.

5.3.1.B. Semantic-Pragmatic Disorder, Autism and Asperger's Syndrome

In the literature review of this study, the diagnosis semantic-pragmatic disorder was described in detail and it was proposed that this term be replaced by 'specific pragmatic difficulties' (or disability) more accurately to reflect the nature of the language difficulties observed. The present study's findings provide evidence for the the need to consider pragmatics separately from semantics and thus supports this view.

The term 'specific pragmatic difficulties' reflects the relatively greater difficulties, observed in some cases of specific developmental language disorder, with pragmatic aspects of language in comparison to other areas of language, for example, phonology, syntax and semantics. It is these youngsters who some writers and practitioners (for example, Brook and Bowler, 1992; Happe, 1994) have claimed should be diagnosed as autistic or as having Asperger's syndrome.

However, evidence in the literature to show that some children diagnosed with semantic-pragmatic disorder do not meet criteria for autism (Rapin and Allen, 1987) and that differences may exist between the way children diagnosed with semantic-pragmatic disorder and children diagnosed with autism perform on IQ tests (Bishop, 1989) indicates that this issue remains unresolved.

Furthermore, focusing on this issue obscures viewing the difficulties for SLDL children who have problems with pragmatic language alongside other language difficulties, for example, in the areas of phonology, grammar and semantics.

The present study showed that pragmatic meaning comprehension was particularly problematic for the group of SLDL youngsters who took part in the study. This study did not set out to differentiate this group into students who have specific pragmatic difficulty and those who have pragmatic difficulties occurring alongside other language difficulties and therefore is not able to indicate similarities or differences between these two different groups. It can only review the preliminary findings of the literature which indicate that there are no differences between SLDL youngsters and sub groups of youngsters diagnosed with semantic-pragmatic disorder

(implying specific pragmatic difficulties) in their comprehension of pragmatic meaning (Vance 1992; Vance and Wells, 1994; Bishop and Adams, 1992) and suggest that pragmatic meaning comprehension is particularly problematic for SLDL children as a group, including those who have specific pragmatic difficulties and those who do not, and more so than can be accounted for by their language age.

Considering the debate over whether pragmatic difficulties should be seen only within the context of autism (Brook and Bowler, 1992; Happe 1994), if the diagnosis of the 64 SLDL students taking part is correct, and there is no reason to believe otherwise based on the criteria for admission to the language schools and units included in the study, then it may be suggested that pragmatic difficulties should also be considered within the context of specific language disorder.

It would appear that pragmatic language, in the area of comprehension at least, is likely to pose difficulty for those diagnosed with SLDL and, considering observations cited in the literature, for those diagnosed as autistic (or as having autism-related disorders). Further, since metacommunicative analysis relies upon cognitive

functioning (Meline and Bracken, 1987), pragmatic meaning comprehension is also likely to pose particular difficulty for students with more global learning difficulties (that is, affecting performance on language based and non-language based tasks) in the later stages of communication development.

The educational implications of the study's findings will now be discussed.

5.3.2. Educational Implications

5.3.2.A. Introduction

Although the focus on the present study was on how children with specific language difficulties understand pragmatic meaning, it has yielded some interesting findings to suggest how non-language-impaired children learn to understand pragmatic meaning. These findings can be usefully considered in developing teaching strategies for children with language difficulties.

This section will thus first examine the study's findings, in the light of those from previous study, on how non-language-impaired children learn to understand

pragmatic meaning. It will then examine further why SLD children may have difficulty learning in the necessary knowledge areas, which allow an understanding of pragmatic meaning. Finally, this section will discuss the implications of these findings for the teaching strategies which are likely to prove most effective in enabling children with language and learning difficulties to understand pragmatic meaning.

Each part of this section will first consider the findings of the MMC procedure and then of the IME procedure.

5.3.2.B. Implications of the Study's Findings for how Children Learn to Understand Pragmatic Meaning: Findings of the MMC procedure

How Do Non-Language-Impaired Children Learn Pragmatic Meaning?

The present study suggests that children may understand pragmatic meaning in a series of stages. Previous study indicates that children can learn the multiple meanings of individual items as young as three years (Strand and Fraser, 1979) and certainly the five-year-old children in

the present study were able to understand certain items in the pragmatic sense. However, this ability has been linked to experiential factors, in particular, the speaking practices of families (Robinson et al, 1983) (that is, their tendency to make the need to consider a pragmatic meaning explicit), and familiarity with particular items (Strand and Fraser, 1979).

The evidence in the literature was that the development of metacommunicative knowledge which allows an understanding of what a speaker is trying to achieve in a communication, is vital for a 'true' understanding 'beyond the inchoate' (Ackerman, 1981). The present study's findings have suggested the need to use two different aspects of metacommunicative knowledge to understand MMC, the first concerned with awareness of the need to consider plausibility, the second concerned with the need to consider multiple reference and to detect comprehension failure.

The interdependent nature of these two kinds of knowledge has already been acknowledged, that is, if errors are made in judging plausibility, an individual will not see the need to consider alternative referents. It would appear, however, that these two aspects of

metacommunicative knowledge are not necessarily acquired together. There was evidence to show that children as young as five years were able to see the need to assess plausibility, but having done so and realising the implausibility, they tried to justify their choices rather than search for alternative referents. This would suggest that they were not aware of the need to consider alternative meanings nor that there was a possibility that they may not have understood the communication in line with speaker intention. A further consideration here, rests with the salience of the literal meaning. The findings of Campbell and Bowe (1978), for example, suggest that knowledge of the literal interpretation serves to distract children aged three to five years from thinking about alternative meanings.

By the age of thirteen years, this second aspect of metacommunication appears firmly in place and children's understanding of MMC appears fairly consistently to match with speaker intention, but children can still make errors in judging plausibility because of factors more concerned with the language level than the metacommunicative level, in particular, the influence of the semantic plausibility and syntactic congruity of the item in its literal sense.

How Do Language-Impaired Children Learn to Understand Pragmatic Meaning?

The present study has shown that pragmatic meaning comprehension poses particular difficulties for SLDL children as a group, in the later stages of communication development, but they are able to understand particular items.

It is suggested here that this learning is linked to experiential factors, in the same way as very young children are able to understand particular items, but that SLDL children who have difficulty with pragmatic meaning, have it because they lack the necessary metacommunicative and language knowledge relating to judgements of plausibility, multiple reference and comprehension monitoring. These difficulties prevent them from working out the meanings of items that they have not heard previously. Although young non-language-impaired children also have these difficulties, they appear to have a greater awareness of plausibility than SLDL students, as demonstrated by their attempts to justify their literal interpretations.

Further evidence to show that SLD students do not have the necessary linguistic skills to apply sufficient pragmatic analysis to determine plausibility concerns the finding that, unlike the older non-language-impaired children, the items they found most difficult were not necessarily those which had a greater degree of semantic plausibility/syntactic congruity in the literal sense. That is, SLD students were not assisted in making plausibility judgements by the level of semantic plausibility/syntactic congruity. Furthermore, when SLD students were aware of the two possible interpretations, they made faulty judgements on which was the most plausible in relation to context, when asked to make a choice. Errors of this kind occurred rarely (four occurrences) in the language-age-matched comparison group and not at all in the chronological-age-matched comparison group.

Although the present study has given some insight into how language-impaired and non-language-impaired students understand pragmatic meaning, there are a number of questions which remain unanswered around the issue of which aspects of pragmatic analysis posed greatest difficulty. These will be discussed in part 3 of the chapter in proposing future lines of enquiry.

The implications for teaching approaches, considering the study's findings on how students learn to understand pragmatic meaning, will now be outlined.

Implications for Teaching Approaches

It appears, bearing in mind the relative difficulties of pragmatic meaning comprehension for SLD students, beyond what would be expected in terms of their language age in the non-pragmatic domain, that such difficulties require to be addressed specifically through teaching. This is so, because it appears that SLD students will not be able to acquire the necessary language/ metacommunicative skills as part of the naturally occurring, more experiential learning process, in the same way as non-language-impaired students appear to be able to.

Although the present study falls short in pin-pointing which aspects of pragmatic language and metacommunicative analysis present greatest difficulty for SLD students, it has identified a number of facets in the comprehension of pragmatic meaning which can all be usefully considered in developing a teaching programme to allow a gradual build of learning and understanding. For example, the study's findings on how non-language-impaired students

learn MMC would suggest that an early teaching target is to enable children to be aware of the need to make plausibility judgements. This need may become more apparent to students with the realisation that speaker intention does not always match expression and that context may be used to work out intended meaning.

My own practice (Rinaldi, 1992; 1996) suggests that metacommunicative awareness of this nature can be developed through role play and group monitoring exercises, starting with familiar examples (for example, "glasses"). Here, students have both the semantic representations available and can use the activity to focus upon the context to determine which of the two meanings (spectacles or drinking glasses) is intended. Later work involves less familiar examples; the expectation here is that students will use the metacommunicative strategies, learned in the familiar examples, to make an informed guess or to determine that they do not understand. Other strategies which can also be taught to enable students to generalise an understanding of pragmatic meaning to items not heard previously include requests for clarification and checking to assert intended meaning.

The indication is that this approach may be more effective than teaching the semantics or pragmatics (concerning the choice between particular referents) of individual items. Certainly, Cacciari and Levorato's (1989) findings on non-language-impaired children suggest that if SLD children are able to develop metacommunicative analysis, for example to realise that contextual information can be used to resolve ambiguity and that there may be more than one referent, they will be able to use these skills to understand multiple meanings, even when they do not have the entire set of semantic representations available.

5.3.2.C. Implications of the Study's Findings for how Children Learn to Understand Pragmatic Meaning: Findings of the IME procedure

How Do Non-Language-Impaired Children Learn Pragmatic Meaning?

It would appear that non-language-impaired children are able to understand pragmatic meaning to interpret IME in line with speaker intention from an earlier age than they learn to understand MMC, particularly when the non-verbal context includes both facial expression and tone of voice

cues. The findings indicate that as young as five years (the youngest age in the sample) children are able to have metacommunicative awareness that when speakers negate their verbal communication with a non-verbal message, it is the non-verbal message that carries their intended meaning. In this way, they are able to understand that speaker intention may not match expression.

It has been proposed that this form of context is easier for children to assess because in IME, the context is equated with the speaker's intended meaning, whereas in MMC it is not. However, it has been noted that when the non-verbal message expressed is happiness, it is more difficult for non-language-impaired children to detect or understand the inconsistency and there may be an influence of saliency of input here; that is, in these instances the words associated with sadness and anger may be more salient to the children than the non-verbal message expressing happiness. Furthermore, it may be that in cases where the younger children detected the non-verbal message as being the speaker intention, they did so simply because the non-verbal message carried greater salience in particular items, so that they did not consider the words in the communication.

However, by the age of eleven years, the present study showed that children consistently understood all three types of IME in line with speaker intention, and their comments showed an awareness of the communicative function of using these utterances relating to expressions of sarcasm, lying etc.

How Do Language-Impaired Children Learn Pragmatic Meaning?

Language impaired children have greater difficulty in understanding IME, not only those items where the non-verbal message expresses happiness, but also items where the non-verbal message expresses anger and sadness. As in the case of MMC, however, there are instances when SLD children can understand certain items in line with speaker intention.

It is possible that, as in the case of the younger non-language impaired children, SLD children responded in this way because of saliency of input, but they were unable to understand the communicative function of using these utterances and were therefore not able to generalise their understanding to other items. Their comments indeed indicated that despite being aware of

both messages, they did not understand the communicative function of IME nor of how such utterances should be interpreted.

Implications for Teaching Approaches

As in the case of MMC, the teaching approach which would appear of most value in helping language-impaired children to understand IME, is that which focusses upon the metacommunicative knowledge relating to such utterances, through modelling activities. (For example, Rinaldi, 1996). As in the case of MMC, other metacommunicative strategies include developing comprehension monitoring skills, requests for clarification etc.

A further consideration for teaching, lies in the saliency of inputs. Since language-impaired (and non language-impaired) children's performance improved when the non-verbal message included visual, facial expression cues, this indicates the importance of focussing SLD students' awareness on the visual aspects of non-verbal communication in developing their understanding of these kinds of utterances.

communication in developing their understanding of these kinds of utterances.

Furthermore, the study's findings indicate that items where the non verbal message expresses anger or sadness are easier for students to understand and may therefore provide a useful starting point.

Having discussed the findings of the present study and their implications, this chapter will now make some additional considerations; it will then look ahead to consider methodological issues and directions for future research in the field.

5.4. ADDITIONAL CONSIDERATIONS

5.4.1. Introduction and key points

This section is included to emphasise a series of points which were referred to in earlier chapters, which have relevance in viewing the findings of the present study and which are believed worthy of fuller consideration at this time. These points are:

- 1) the broader view of pragmatics

ii) the heterogeneous nature of the groups studied

iii) task demands

5.4.1.A. The broader view of pragmatics

In as much as pragmatics is seen as 'language in context' (Bates, 1976), a broader view would be to consider that aspect of meaning referred to in this thesis as 'non-pragmatic' within the pragmatic domain, but to a less overt degree. It should be noted that this thesis has taken a narrower view to emphasise the distinct nature of meaning which may be seen as more overtly pragmatic. This type of meaning is characterised by its nature of being 'open to interpretation' and requiring the listener to make a choice on speaker intention. As the literature reveals, this process is assisted, in the developmental stages at least, by an ability to draw upon contextual information of a variety of forms, including textual information (the other words in the communication), and non verbal cues. The indication from the present study is that SLD secondary school students have particular difficulty with this process. It has been speculated upon that this difficulty arises as a result of poor metacommunicative and linguistic analysis, which in turn

are affected by a number of within person and environmental factors. At this point, however, it must be emphasised that the term 'non-pragmatic' may not fall outside the domain of pragmatics, but more accurately be seen as occurring on a less overt end of a pragmatic continuum.

5.4.1.B The heterogeneous nature of the groups studied

One of the difficulties faced by the present study lay in the heterogeneity of the groups of children studied. The heterogeneous nature of the condition Specific Developmental Language Disorder was highlighted in the literature (Aram and Nation, 1975; Kirchner and Skerakis Doyle, 1983) since there appears a number of possible permutations to how communication may be disordered within the receptive and/or expressive domains. In selecting subject samples for this study, there was no attempt to focus upon particular types of language disorder; rather whole groups were studied (with the exceptions of the exclusions made as outlined in the methodology chapter) from the relevant year groups in a school or language unit. In one sense, this gives the findings of the present study greater weight, because it appears that the aspect of pragmatic comprehension

studied is fairly widely problematic within the condition of Specific Developmental Language Disorder, within the age range studied, incorporating the variety of permutations within the disorder. However, the limitation here is that it has not been possible to view any relation between the type of language disorder and pragmatic meaning comprehension.

A further form of heterogeneity relates to the language age match comparison group, with respect to the wide age range (5 to 12 years) studied. The way children responded in this group across the age range has already enabled speculation upon how non language-impaired children may learn to understand pragmatic meaning. However, a problematic issue arising from a group of such a wide and relatively young chronological age range in relation to the SLD group, is that this may be viewed as a less valuable comparison because of the vast developmental changes which occur between 5 and 12 years concerning language, cognition, social experience and personal factors such as self confidence, all of which impact on pragmatic competence and task performance.

This issue will be referred to again in the final section of this chapter on methodological considerations and directions for future research.

5.4.1.C. The influence of task demand

A further issue of method discussed in the next section will be the influence of an experimental design. The present study incorporated procedures to enable exploration of students' responses and from this exploration, proposals have been made concerning the processes underlying pragmatic comprehension; in particular relating to the need and ability of children in the different groups to make plausibility judgments and to seek alternative referents. However, an area of weakness in these proposals could be seen to be with the interpretation of children's plausibility judgments when asked by the experimenter to make a choice. Here it was found that SLD students made a significantly greater number of responses where they knew both the literal and non-literal interpretations but selected the literal interpretation in favour of the non-literal one, when asked to make a choice.

This is the least reliable aspect of the procedure which may be seen as particularly vulnerable to subject bias, for example, the influence of wishing to please the experimenter; that is, students may have selected the picture that they thought the experimenter would like them to choose or may have simply made a chance guess, rather than basing their selection on plausibility judgment. This problem does not present itself so strongly with the other kinds of responses studied, since here there was a range of possible ways of responding and no clear 'wrong or right' answers. However, in asking for a choice between two alternatives, the influence of task demand as outlined above is potentially stronger. In defense, it may be argued that such bias could equally apply to all students, and certainly an awareness of the need to consider context to determine plausibility should serve to 'over-ride' any influence of bias or chance response. However, the difficulties with this aspect of the task requirement should be noted.

Having discussed the findings of the present study and their implications, this chapter will now look ahead to consider methodological issues and directions for future research in the field.

5.5. METHODODOLOGICAL CONSIDERATIONS AND DIRECTIONS FOR FUTURE RESEARCH

5.5.1. Introduction

This part of the chapter will first consider general aspects relating to methodology and will then focus more specifically on how future research may explore and develop further the findings relating to pragmatic meaning comprehension revealed by the present study. The following issues will be covered:

- (i) the generalisation of findings beyond the experimental condition;

- (ii) the measurement of language age in the secondary school years;
- (iii) the difficulties surrounding language age matching;
- (iv) ways of extending the exploration of the nature of difficulty with pragmatic meaning comprehension, in terms of the two levels of pragmatic analysis identified by the present study;
- (v) differences between different special needs groups;
- (vi) explanation of why pragmatic meaning comprehension should pose particular difficulties to SLD students.

5.5.2. The Generalisation of Findings Beyond the Experimental Condition

This study utilised a quasi-experimental method incorporating steps to isolate as much as possible the effects of the independent variable, specific developmental language disorder on the comprehension of pragmatic meaning, related to non-pragmatic meaning, in the later stage of communication development. The

difficulty with this kind of design, however, concerns the generalisability of findings. That is, although attempts were made to focus children's attention on times in everyday communication when they might hear the utterances presented in the study, the utterances were not presented in a naturally occurring communicative context.

To reduce these problems, future study may usefully consider ways of retaining, as much as possible, the control of extraneous variables, whilst using a communicative context closer to the student's everyday experiences. For example, it may be possible to design an experimental method as part of a controlled classroom activity, where the teacher reads a script requiring the student to carry out an action of some kind to illustrate comprehension (or non comprehension) of a multiple meaning utterance.

This type of method has been used with young primary school children in a play-based assessment (Kerbel, Grunwell and Grundy, 1996). Here, the child is instructed to make a film using miniature toys and has to carry out a series of actions in response to a script containing idioms. This kind of method needs some adaptation to make

it age appropriate for secondary school students, however, it does have the advantage that the child acts from his/her own resources, rather than being provided with a multiple choice array, which could serve falsely to assist comprehension, in relation to more naturally occurring communicative contexts.

5.5.3. The Measurement of Language Age in the Secondary School Years.

A further difficulty revealed in studying secondary-school-aged students lies with the lack of standardised language assessment based on British, secondary school age, normative data. This enables only a very limited and rather narrow estimate of language age. The present study was also hampered in this respect by economy of time, bearing in mind the requirements of completing the experimental procedures; however, even if more time were available the difficulty would have remained because of the paucity of standardised assessment in this area.

This difficulty needs to be resolved to allow more thorough research into the language difficulties of this older age group. For example, comparisons between children with specific pragmatic language difficulties

(semantic-pragmatic language disorder) and those with more broad ranging language difficulties will only be possible if more adequate standardised assessments are developed to give an accurate language profile, to allow allocation of students into these different subgroups.

5.5.4. Other difficulties with Language Age Matching

A further difficulty with language age matching relates to the resulting differences in chronological age between the SDDL and language age match group.

In the present study, the focus of the presentation and discussion of results has been on those findings that showed statistically significant differences between the SDDL students and the two non-language-impaired comparison groups. However, an article by Plante, Swisher, Kiernan and Restrepo (1993) emphasises that a lack of statistically significant difference between an SDDL group and a language-age-matched comparison group does not mean that the two groups are alike in the dimension being studied, because of the potential effects of the difference in chronological age. Where SDDL students performed significantly less well than the language-age- matched comparison group this point of

methodology is not an issue. However, where the SDL D and language-age-matched groups' performance differed, but not to a statistically significant degree, it cannot be stated that there are no effects of language disorder (Plante et al, op cit). The chief concern here, for the present study, in the MMC procedure, is with the type of response where the literal and non-literal interpretation were judged to both be plausible given the context, (type 5 response) thus reflecting a level of uncertainty in pragmatic interpretation and the 'pragmatically plausible but incorrect' (type 7) response. These were the only two responses where a statistically significant difference was not found between the SDL D and language-age-matched comparison group, although the SDL D students did less well here.

The considerable difference in the chronological age range between the SDL D group (eleven years eleven months to fourteen years ten months) and the language-age-match group (five years ten months to fourteen years ten

months) was noted in the methodology chapter of the study. A decision was taken to attempt to address this issue by also including a chronological age match comparison group and considering all three groups together. An alternative method would have been to statistically control the effect of language age by methods of covariance. However it was anticipated that problems may occur in using this method.

Howell (1992) for example, states that the use of this procedure becomes more controversial when there are different covariate means. This problem may be overcome by adjusting the performance means statistically, to represent a best guess as to what these would have been if there was no difference on the covariate. The controversy arises here, because in doing so an experimenter is making an artificial manipulation, which does not represent a true state of affairs.

Further, since analysis of covariance is a parametric statistical procedure, based on the assumption of normality of variance, it was believed an inappropriate method on these grounds also, because it was anticipated at the outset of the study that as one of the groups was language disordered, it was unlikely that all three groups' responses would be normally distributed.

However, the disadvantage of using two comparison groups and considering all three groups together is that those differences between the SLD and language age match groups which were not significantly different in statistical terms may not have carried sufficient weight.

5.5.5. Ways of Extending the Exploration of Pragmatic Comprehension Difficulties in Terms of the Two levels of Pragmatic Analysis Suggested

The present study indicated that the difficulties for SLD students in comprehending pragmatic meaning occurred at two levels; one concerning metacommunicative knowledge and the second concerning analysis of how linguistic and non linguistic context impinges upon language.

This distinction is an important one because the knowledge/skill areas underpinning the two levels of analysis are different. The metacommunicative level is more concerned with aspects of sociocognition, the knowledge of how people use communication to convey their intentions to others beyond the literal sense and how they expect their communication to be interpreted. The language level of analysis is more concerned with skills/knowledge in the linguistic domain.

Although the present study indicates difficulties for SLDL students at both levels of analysis and has revealed some insights into the way in which SLDL and non-language-impaired children respond in comprehending pragmatic meaning, it stops short of examining precisely where the difficulties lay and is unable to comment upon which aspect provides the greatest difficulty for the SLDL group. In part, the difficulty here is with the interdependent nature of the two levels of analysis, for example, it has been proposed that analysis at the language level to determine implausibility affects the metacommunicative analysis of multiple referents. Future study may usefully explore these facets further and attempt to tease out a little more where the difficulty lay for SLDL students and other special needs groups.

For example, in the present study, although the examination of students' spontaneous comments as they completed the procedures implied that non-language-impaired students' metacommunicative knowledge was in advance of that of the SLDL students, the possibility that SLDL students' lack of comment occurred as a result of their language difficulties in the expressive domain could not be ruled out. In order to be more conclusive here, it is clear that the SLDL students need assistance

to enable them to express any understanding of the metacommunicative function of an utterance. This could be achieved, for example, by asking SLD students more specific questions relating to the purpose of using these forms of communication, perhaps with a multiple choice format to reduce the effect of expressive language difficulty. Incorporating this dimension of methodology would also enable a more comprehensive view of non-language-impaired children's metacommunicative knowledge, since the present study was limited to studying the comments made spontaneously by the students.

Considering further the language level of analysis, future study could also usefully be developed to confirm the suggestion of the present study that the degree of semantic plausibility/syntactic congruity of multiple meaning items in the literal sense affects pragmatic interpretation. This could be achieved by including a range of items with varying degrees of semantic plausibility/syntactic congruity in the literal sense.

5.5.6. Differences between Different Special needs Groups. Explanation of Why Pragmatic Meaning Should Pose Particular Difficulties for SLD students.

The implications of developing a methodology to further tease out the two levels of pragmatic analysis proposed, in terms of locating where difficulties arise, would not only enable comparison of performance between non-impaired and impaired groups but also between different special needs groups. This in turn may have implications for the development of more adequate intervention strategies, to home in on the particular needs of students.

For example, study of students with autism (Happe, 1994), who have particular difficulties with the pragmatic domain of language, showed that they perform similarly to the five year old subjects in the present study, in that they justified the plausibility of the literal interpretation rather than consider alternative meanings. For example one student explained the figure of speech 'frog in your throat' by claiming that the man must have swallowed a frog; another explained a joke about using a banana as a telephone by saying that 'some cordless

telephones are made to look like fruit'. This suggests that for students with specific pragmatic difficulties in the context of autism, it may be that it is the aspect of metacommunication concerning multiple reference and comprehension monitoring which poses greatest difficulty. This may (or may not) also be true of SLD students, but because they did not make spontaneous justification of their choices, it was not possible to assess this within the confines of the present study's methodology.

A further line of enquiry which has only been speculated upon in this study, is on **why** SLD students are not able to develop the necessary language and metacommunicative knowledge required to understand MMC. For example, is there a difficulty because of a primary problem with language/communication, as an inherent part of a specific language disorder? Is there a difficulty because of cognitive requirements underpinning metacommunicative knowledge? Does the difficulty arise because of the cognitive/language requirements within the process of learning multiple meanings, such as problem solving and questioning? These questions are hard to answer because of the intrinsic nature of language, cognition and social cognition, and particularly, as outlined at the outset of

this study, in the pragmatic domain of language (Roth and Spekman 1984; Bates, 1986).

However, one type of method which may go some way to answering these kinds of questions is to compare the performance of those students diagnosed as specific language disorder with those assessed to have a more global developmental delay. For example, preliminary, small scale study by Anderson (1989) indicated differences in performance between SLD students and students with moderate learning difficulties (MLD), in that MLD students were more able to make use of context to understand idioms. If such findings were replicated on a broader scale, with further examination of the students' metacommunicative and pragmatic language abilities, this may suggest differences relating to aspects of language and cognition underpinning specific language disorders and the kind of language impairments which form part of a more global developmental delay.

A method which more precisely differentiates the two levels of pragmatic analysis proposed in comparing the performances of different special needs groups may also go some way to explaining why there should be differences between the different groups. For example, could MLD

students have a better developed metacommunicative awareness which enables them to compensate for the difficulty with language analysis ? Or is it that the language analysis poses greater difficulties for SLD students; that is, are they as aware of the need to use context as MLD students, but less able to make the correct analysis of the language context ?

Answers to these questions would enable further insight of how SLD students and other groups understand this very important aspect of communication, which forms such a central part of their everyday living experience.

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APPENDICES

A: Scripted commentary for the MMC procedure

B: Worked example of a record sheet, MMC procedure

C: Scripted commentary for the IME procedure

D: Worked example of a record sheet, IME procedure

E: Data, MMC procedure

F: Data, IME procedure

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APPENDIX A

Scripted commentary for the MMC procedure

SCRIPTED COMMENTARY FOR THE MMC PROCEDURE

Now we are going to think about things people say in everyday conversation and we are going to try to think about what they mean. Like your mum or your teacher might say something and you have to work out what they mean, don't you? We are going to do it with pictures.

PRACTICE ITEM

These four pictures are all about a boy called John trying to do his spellings. *(point to picture A)* Here he's not very happy, is he? *(point to picture B)* Here he's O.K. *(point to picture C)* Here he's O.K., he's got a tube of glue on his desk, see? *(point to picture D)* Oh dear, the glue has gone all over him and his spelling book.

Now we're going to hear a tape and on this tape you will hear something about John. You have to work out what it means and point to these pictures. You can point to as many pictures as you like – one, two, three, or all four. If you don't know what it means, I want you to point to this picture here. *(point to puzzled*

character) **How does he look?** (*Elicit puzzled, unsure, like he doesn't know*)
Right, so if you don't know, point to him. O.K.? **Right, well there's a lot to remember there so we're going to have a practice. I'll play you the tape first and on this tape, you will hear something about John. It's going to be something you might hear your teacher say.**

(The tape is played)

One day, John was trying to do his spellings. He needed some help because he was stuck with his spellings.

(The tape is paused)

What do you think she meant there. Do you know? (*If the student takes a while to respond, suggest the tape is played a second time*)

O.K., so you thought she meant that one (or those two/three). That's fine, you can point to as many pictures as you want to, one, two, three, or all four. Now, what if you don't know what she means, what would you point to then? That's right, (point) the puzzled chap.

ITEM 1

Now let's turn over the pictures and see what's next. (*point to picture A*)
This is Joe. Here look at what's happened to him, (*point to picture B*)
now he's got free. (*point to picture C*) **Here he's busy working at the office and** (*point to picture D*) **here he has got no work to do.**

Now I'm going to play the tape about Joe and on the tape you will hear something about him. It's going to be something you might hear your mum or dad say.

(The tape is played and repeated if required)

Joe's little sister was having a birthday party. Joe wanted to go, but he couldn't because he was tied up all day.

(The tape is paused)

What did she mean? Do you know?

ITEM 2

Now let's turn over and see what's next. Here we have four roads. (*point to picture A*) **There is a lorry on this road – look** (*point to side of lorry with jam jar*), (*point to picture B*) **there's just one car on this road,** (*point to picture C*) **there's lots of cars on this road and** (*point to picture D*) **look what's on this road – do you know what it is?** (*Elicit jam – for example, say it looks like it's got strawberries in it*)

Now I'm going to play the tape. You're going to hear something a teacher says. Her name is Mrs Blue. It's something your teacher might say.

(The tape is played and repeated if required)

Mrs Blue was late for school. She said, 'I'm sorry I'm late, the road was jammed solid this morning'.

(The tape is paused)

What did Mrs Blue mean? Do you know?

ITEM 3

Now let's turn over the pictures and see what's next. This is Fred and Susie. (point to picture A) Here Fred is telling Susie off. (point to picture B) Here they're standing together and Susie's a bit small, and (point to picture C) here they are again only Fred's a bit small and (point to picture 4) here they're holding hands and they're happy.

Now I'm going to play the tape and it's something Fred says about Susie. It's going to be something you might hear your mum or dad say.

(The tape is played and repeated if required)

Fred said, 'I've been getting very short with Susie recently'.

(The tape is paused)

What did Fred mean? Do you know?

ITEM 4

O.K. let's turn over. Here we have four bedrooms. (point to picture A) This is a tidy bedroom, (point to picture B) this is a messy bedroom, (point to picture C) this bedroom is in a funny place, but it is tidy (point to picture D) and this bedroom is in a funny place too, (indicate pig) but it is tidy.

Now I'm going to play the tape and it's something a mum says about her little girl. This mum's name is Mrs Yellow, but it's something your mum might say about you.

(The tape is played and repeated if required)

Mrs Yellow was talking to her friend. She said, 'Do you know, my little girl's room is a real pig sty'.

(The tape is paused)

What did Mrs Yellow mean? Do you know?

ITEM 5

Here we have four different Williams. (*point to picture A*) **This William is jumping up in the air,** (*point to picture B*) **this William is finishing his dinner – can you see what he’s been eating?** (*Elicit beans – for example say, something you have on toast, little orange things in tomato sauce*) (*point to picture C*) **This William hasn’t had anything to eat and** (*point to picture D*) **this is the baby William – and you know little babies like this only have milk.**

Now I’m going to play the tape. It’s something Mrs Yellow says to William. It might be something your mum or teacher says to you.

(The tape is played and repeated if required)

Mrs Yellow was pleased to see William. She said, ‘Hallo William, you’re full of beans today’.

(The tape is paused)

What did Mrs Yellow mean? Do you know?

ITEM 6

This is Bob and Mary. (*point to picture A*) **Here they look happy,** (*point to picture B*) **here they don’t look happy,** (*point to picture C*) **here they are sitting on the window sill and,** (*point to picture D*) **oh dear!**

Now listen to the tape. It’s something Mrs Yellow says to Bob and Mary, but it might be something your mum would say to you.

(The tape is played and repeated if required)

Mrs Yellow saw Bob and Mary. She said, ‘Oh dear, have you two fallen out with each other?’

(The tape is paused)

What did Mrs Yellow mean? Do you know?

ITEM 7

Here we have four pictures of Sam. (*point to picture A*) **Here he is dressed very tidily** (*point to picture B*) **but look at his clothes here** (*point to socks*). (*point to picture C*) **Now he’s dressed very tidily again. He’s got his maths book and his sums are all right.** (*point to picture D*) **Here he’s dressed very tidily – he’s got his maths book and his sums are all wrong.**

Now you’re going to hear something Sam’s teacher says to him, but it might be something your teacher says to you.

(The tape is played and repeated if required)

Mrs Blue said, ‘Well Sam, if you want to pass your test, you’ll have to pull your socks up’.

(The tape is paused)

What did Mrs Blue mean? Do you know?

ITEM 8

This is Mrs Orange with a little boy. (point to picture A) Here Mrs Orange is driving and the little boy is asleep. (point to picture B) Here they are again and this time – do you see what the little boy's doing? Mrs Orange looks happy. (point to picture C) Here's Mrs Orange again; this boy here (point to boy with water pistol) is being naughty, but Mrs Orange can't see him and (point to picture D) oh dear, look what's happening here.

Now let's listen to the tape. This is something Mrs Orange says about one of these boys.

(The tape is played and repeated if required)

Mrs Orange was talking to her friend. She said, 'Do you know, that little boy drove me round the bend this morning'.

(The tape is paused)

What did Mrs Orange mean? Do you know?

ITEM 9

Here we have a robber. (point to picture A) Here he's stealing a necklace, but the lady has come in. (point to picture B) Here he's got away, (point to picture C) here he's fallen out of the window, look at his hands (point to picture D) and again here but this time he's been saved.

Now I'm going to play the tape. This time it's something you might hear on the news.

(The tape is played and repeated if required)

There was a robbery yesterday, but luckily the man was caught red handed.

(The tape is paused)

What did the newsreader mean? Do you know?

ITEM 10

Here we have some pictures of pens. (point to picture A) Here there are lots of pens on the desk and on the floor. (point to picture B) Here there are just two pens on the desk, (point to picture C) here there are lots of pens and they are all on the floor and (point to picture D) here there are lots of pens and they are all on the desk.

Now we're going to hear something Mrs Blue says to the children in her class, but you might hear your teacher say this.

(The tape is played and repeated if required)

Mrs Blue said, 'You'll have to use pencils today, the pens in this class are very thin on the ground'.

(The tape is paused)

What did Mrs Blue mean? Do you know?

ITEM 11

Here are four classrooms. Have a look and see what's going on in each one. *(point to picture A)* **Here,** *(point to picture B)* **here,** *(point to picture C)* **here,** *(point to picture D)* **here.**

Now let's listen to the tape. This is something Mrs Blue says about the children in her class.

(The tape is played and repeated if required)

Mrs Blue said, 'The children in this class are getting carried away'.

(The tape is paused)

What did Mrs Blue mean? Do you know?

ITEM 12

These are all pictures of Peter. *(point to picture A)* **Have a look here,** *(point to picture B)* **here,** *(point to picture C)* **here,** *(point to picture D)* **here.**

Now this is something Peter's teacher says about him.

(The tape is played and repeated if required)

Mrs Blue said, 'Do you know, Peter was completely beside himself this morning'.

(The tape is paused)

What did Mrs Blue mean? Do you know?

ITEM 13

Here we have Joanna. *(point to picture A)* **Here she looks happy,** *(point to picture B)* **Here she doesn't look happy,** *(point to picture C)* **here she's just got up,** *(point to picture D)* **and here she's just got up and, oh dear! This is water.** *(point)*

Now let's listen to the tape and hear what Mrs Blue says about Joanna.

(The tape is played and repeated if required)

Mrs Blue said, 'I think Joanna got out of the wrong side of the bed this morning'.

(The tape is paused)

What did Mrs Blue mean? Do you know?

ITEM 14

This is Mrs Blue with Emma and Emma's spelling book. (*point to picture A*) **Here Mrs Blue is carrying Emma.** (*point to picture B*) **Here, well you can see what's happened here.** (*point to picture C*) **Here, Emma doesn't look very happy and** (*point to picture D*) **here she's O.K.**

Now, let's listen to the tape. This is something Mrs Blue says about Emma.

(The tape is played and repeated if required)

Mrs Blue said. 'I think I really threw Emma with that spelling test'.

(The tape is paused)

What did Mrs Blue mean? Do you know?

'Forced choices'

(This is only required for items where the child pointed to more than one picture to interpret the meaning.)

Rewind the tape to the appropriate counter setting.*

Now I want to go back to the bits in the tape where you chose two (or more) pictures. Now that was O.K., because I said you could, didn't I? But this time, I'm only going to let you point to one picture. I shall play you the tape and I want you to think about what I mean and this time, just choose one picture.

(The tape is played and replayed if required)

What did she mean? Do you know?

Exploring the 'don't know' responses

A) CHECK FOR COMPREHENSION OF NON-PRAGMATIC MEANING

Return to the pictures where the student made a 'don't know' response and say:

Now I want to go back to these pictures. Show me (*item 1*) **tied up** (*item 2*) **jam** (*item 3*) **someone short** (*item 4*) **a pig sty** (*item 5*) **beans** (*item 6*) **people falling out of something** (*item 7*) **someone with their socks up** (*item 8*) **someone driving around a bend** (*item 9*) **red hands** (*item 10*) **thin pens** (*item 11*) **someone being carried away** (*item 12*) **a boy standing beside someone** (*item 13*) **the wrong side of the bed** (*item 14*) **throwing.**

B) ELICITING THE STUDENT'S EXPLANATION OF THEIR 'DON'T KNOW' RESPONSES

Return to the pictures where the student made a 'don't know' response and say:

Now I want to go back to these pictures. I am going to play you the tape that goes with these pictures again.

(The tape is played)

Now last time you pointed to the puzzled picture because you did not know what the person on the tape meant and that's fine. But can you tell me why you didn't think it was this one? *(point to non-pragmatic meaning)*

APPENDIX B

Worked example of a record sheet, MMC procedure

CA: 12.0
LA: 8.11

MULTIPLE MEANINGS IN CONTEXT ASSESSMENT RECORD SHEET

Please ensure that you use the scripted commentary in the Manual (pages 00 to 00) when administering the MMC Assessment.

Practice item	stuck	*[A, D, B, C]	First response (use 'DK' for 'don't know')	** 'Forced choice' (where student initially selected two items)	*** Non-pragmatic meaning check (where student initially made a 'don't know' response) (Mark ✓ or X)	**** Student's comments
	stuck	*[A, D, B, C]	A			
1	tied up	[C, A, D, B]	C			
2	jammed	[C, D, B, A]	CD	D		
3	short	[A, C, D, B]	A			
4	pig sty	[B, D, A, C]	B			
5	full of beans	[A, B, D, C]	B			
6	fall out	[B, D, A, C]	B			
7	pull socks up	[D, B, C, A]	D			
8	drive round the bend	[D, B, C, A]	B			
9	(caught) red handed	[A, D, B, C]	A			
10	thin	[B, C, D, A]	C			
11	carried away	[B, C, A, D]	C			
12	beside oneself	[A, C, D, B]	C			
13	wrong side of the bed	[B, D, A, C]	D			
14	threw	[C, B, D, A]	B			

- * The first bracketed letter refer to the picture representing a pragmatic interpretation (Type 6), the second letter refers to the picture representing a non-pragmatic – a literal interpretation (Type 1), the third letter refers to the inaccurate pragmatic response (Type 7), and the fourth letter refers to the inaccurate non-pragmatic interpretation (Type 3). The 'forced' choice examples must only be assessed on completion of all 14 items (Types 2 and 5).
- ** The non-pragmatic meaning checks and the student's explanation of their 'don't know' responses (Types 2 and 5).
- *** The non-pragmatic meaning checks and the student's explanation of their 'don't know' responses (Types 4 and 8) must only be assessed on completion of all 14 items.
- **** Enter student's comments as to why they did not select the literal non-pragmatic interpretation here. Also enter any other comments they make.

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APPENDIX C

Scripted commentary for the IME procedure

SCRIPTED COMMENTARY FOR THE IME PROCEDURE

Audio-only condition

Now you're going to hear a tape of two people talking – it's Wendy and a friend called Lesley. First they're going to say hallo to you, so you can hear their different voices.

(The audiotape is played)

Lesley: Hallo, I'm Lesley and this is my friend Wendy.

Wendy: Hallo, I'm Wendy. In the tape you're going to hear, Lesley will say something to me and I will say something back to her. I want you to listen carefully to me.

(The tape is paused)

PRACTICE ITEM

So I want you to listen carefully to both Wendy and Lesley, but especially listen to Wendy because I'm going to ask you a question about her. So let's have a practice. Here comes the first one.

(The tape is played)

Lesley: Wendy, I hear you're moving house.

(The tape is paused)

So that was Lesley, now listen to what Wendy says.

(The tape is played)

Wendy: Yes, it's really good news. I'm very happy to be moving. *(tone of voice / facial expression to convey sadness)*

(The tape is paused)

How do you think Wendy was feeling about moving house? *(indicate to response choice pictures)* **Fine, ready for the next bit of tape?**

ITEM 1

(The tape is played)

Lesley: Wendy, are you feeling O.K.?

(The tape is paused)

So that was Lesley, now listen to what Wendy says.

(The tape is played)

Wendy: Yes, I'm feeling great thanks. I'm fine. *(tone of voice / facial expression to convey sadness)*

(The tape is paused)

How do you think Wendy was feeling? *(pause for student's response: replay tape if necessary – this applies to all items in this section)*

O.K., let's listen to the next one.

ITEM 2

(The tape is played)

Lesley: Wendy, I think I will go to that party.

Wendy: Oh you really make me laugh you do.

(The tape is paused)

How do you think Wendy feels about Lesley going to the party? *(student responds)*

O.K. let's listen to the next one.

ITEM 3

(The tape is played)

Lesley: Oh Wendy, I've asked my sister to the party.

Wendy: Oh that's really great. I'll be very happy to see her.

(The tape is paused)

How do you think Wendy feels about Lesley's sister coming to the party? *(student responds)*

O.K. let's listen to the next one.

ITEM 4

(The tape is played)

Lesley: Oh what a day! I couldn't see anything I wanted in the shops and I had to wait ages for the bus.

Wendy: Oh you poor thing you. I'll start to cry in a minute.

(The tape is paused)

How did Wendy feel about Lesley having a bad day? *(student responds)*

O.K. let's listen to the next one.

ITEM 5

(The tape is played)

Lesley: Have you got that tape I lent you?

Wendy: Oh yes, well I'm sad to say I broke it, sorry about that.

(The tape is paused)

How do you think Wendy felt about breaking Lesley's tape? *(student responds)*

O.K. let's listen to the next one.

ITEM 6

(The tape is played)

Lesley: Guess what, I've had some wonderful news, I'm off to America next week.

Wendy: Are you? I'm really happy for you.

(The tape is paused)

How does Wendy feel about Lesley going to America? *(student responds)*

O.K. let's listen to the next one.

ITEM 7

(The tape is played)

Lesley: You must be so cross.

Wendy: Well, I'm so angry, I'm going to hit you over the head in a minute.

(The tape is paused)

How is Wendy feeling? *(student responds)*

O.K. let's listen to the next one.

ITEM 8

(The tape is played)

Lesley: Look Wendy, I've bought you a new jumper.

Wendy: Thanks, it's lovely, I'm really pleased with it.

(The tape is paused)

How does Wendy feel about the jumper? *(student responds)*

O.K. let's listen to the last one.

ITEM 9

(The tape is played)

Lesley: Wendy, is there anything wrong, are you feeling all right?

Wendy: Yes, I'm perfectly happy, thank you.

(The tape is paused)

How is Wendy feeling? *(student responds)*

O.K. well done.

Audio-Visual Condition

(Note: Because the presentation of material and the response requirements are identical to the audio only condition, there is no practice item for the audio-visual condition.)

Now we're going to see Wendy and Lesley on video. And they've got another friend who is called Sarah. *(The video is played)* **Here they are. This is Sarah ... this is Lesley ... this is Wendy.** *(The video is paused)*

Now you're going to see and hear Sarah, Lesley and Wendy talking like in the cassette tape we just heard. I'll play the bit of video and then ask you a question. Look and listen very carefully.

ITEM 1

(The video is played)

Lesley: Wendy, are you feeling O.K.?

(The video is paused)

So that was Lesley, now listen to what Wendy says.

(The video is played)

Wendy: Yes, I'm feeling great thanks. I'm fine. *(tone of voice/facial expression to convey sadness)*

How do you think Wendy was feeling? *(student responds)*

O.K. let's listen to the next one.

ITEM 2

(The video is played)

Lesley: Wendy, I think I will go to that party.

Wendy: Oh you really make me laugh you do.

(The video is paused)

How do you think Wendy feels about Lesley going to the party?
(student responds)

O.K. let's listen to the next one.

ITEM 3

(The video is played)

Sarah: Oh Wendy, I've asked my sister to the party, is that alright?

Wendy: Oh that's really great, I'll be very happy to see her.

(The video is paused)

How do you think Wendy feels about Sarah's sister coming to the party? *(student responds)*

O.K. let's listen to the next one.

ITEM 4

(The video is played)

Lesley: Oh what a day! I couldn't see anything I wanted in the shops and I had to wait ages for the bus.

Wendy: Oh you poor thing you, I'll start to cry in a minute.

(The video is paused)

How did Wendy feel about Lesley having a bad day? *(student responds)*

O.K. let's listen to the next one.

ITEM 5

(The video is played)

Sarah: Have you got that tape I lent you?

Wendy: Oh yes, well I'm sad to say I broke it, sorry about that.

(The video is paused)

How do you think Wendy felt about breaking Sarah's tape? *(student responds)*

O.K. let's listen to the next one.

ITEM 6

(The video is played)

Lesley: Guess what, I've had some wonderful news, I'm off to America next week.

Wendy: Are you? I'm really happy for you.

(The video is paused)

How does Wendy feel about Lesley going to America? *(student responds)*

O.K. let's listen to the next one.

ITEM 7

(The video is played)

Lesley: You must be so cross.

Wendy: Well, I'm just so angry, I'm going to hit you over the head in a minute.

(The video is paused)

How is Wendy feeling? *(student responds)*

O.K. let's listen to the next one.

ITEM 8

(The video is played)

Lesley: Look Wendy, I've bought you a new jumper.

Wendy: Thanks, it's lovely, I'm really pleased with it.

(The video is paused)

How does Wendy feel about the jumper? *(student responds)*

O.K. let's listen to the last one.

ITEM 9

(The video is played)

Lesley: Wendy, is there anything wrong, are you feeling alright?

Wendy: Yes, I'm perfectly happy, thank you.

(The video is paused)

How is Wendy feeling? *(student responds)*

O.K. well done.

'Forced Choices'

AUDIO ONLY CONDITION

- (i) responses where the student selected two pictures

On completion of the IME audio only and audio-visual presentations, the assessor returns to the items on the audiotape where the student selected two pictures using the appropriate counter setting*.

In this bit of the tape you chose two pictures, but now I want you to listen again and choose one picture. (Repeat items as before)

- (ii) responses where the student selects neither the verbal or the non-verbal message

Return to the items on the audiotape where the student selected a picture to represent neither the verbal nor the non-verbal message.

In this bit of the tape you thought Wendy felt ____ and that's fine. Can you tell me why you decided on that one?

AUDIO-VISUAL CONDITION

- (i) responses where the student selected two pictures

Return to the items on the videotape where the student selected two pictures using the appropriate counter setting*.

In this bit of the tape you chose two pictures, but now I want you to choose just one picture. Look and listen again and think about how Wendy is feeling.

- (ii) responses where the student selects neither the verbal nor the non-verbal message

Return to the items on the videotape where the student selected a picture which represented neither the verbal nor the non-verbal message.

In this bit of the tape you thought Wendy felt _____ and that's fine, but can you tell me why you thought she felt that way?

Comprehension check: Vocabulary

We're going to think some more about feelings. We're going to do it with these pictures/words (remember?) (If using the dog pictures; Show me the happy dog, the angry dog, the sad dog.)

O.K., now I'm going to play a tape with some words on it. It's Wendy speaking again. (Do you remember – she was on that other tape we listened to?) I want you to think about each word that Wendy says and what it means. Don't think about the way Wendy says the word – she's just reading them out. I want you to think about the words themselves.

ITEM 1

(The tape is played; great; the tape is paused)

Now, is that word to do with happy, sad or angry? (indicate dog pictures / word template)

ITEM 2

(The tape is played: I'm going to hit you; the tape is paused)

Are those words to do with happy, sad or angry?

ITEM 3

(The tape is played: laugh; the tape is paused)

Is that word to do with happy, sad or angry?

ITEM 4

(The tape is played: sorry; the tape is paused)

Is that word to do with happy, sad or angry?

ITEM 5

(The tape is played: fine; the tape is paused)

Is that word to do with happy, sad or angry?

ITEM 6

(The tape is played: pleased; the tape is paused)

Is that word to do with happy, sad or angry?

ITEM 7

(The tape is played: cry; the tape is paused)

Is that word to do with happy, sad or angry?

Comprehension check: Tones of Voice

On the next bit of tape Wendy is going to say some more things and this time you have to think about how she *sounds* – does she sound happy, angry or sad?

ITEM 1

(The tape is played: I'm going to read you a story; the tape is paused)

How is Wendy feeling? Happy, angry or sad? (indicate pictures)

ITEM 2

(The tape is played: I think I'll wear the red dress tonight; the tape is paused)

How is Wendy feeling?

ITEM 3

(The tape is played: What would you like for dinner?; the tape is paused)

How is Wendy feeling?

ITEM 4

(The tape is played: I think I heard the doorbell; the tape is paused)

How is Wendy feeling?

ITEM 5

(The tape is played: It's time to say goodnight; the tape is paused)

How is Wendy feeling?

ITEM 6

(The tape is played: I think I'll have burgers for tea; the tape is paused)

How is Wendy feeling?

ITEM 7

(The tape is played: I'm just going down to the shops; the tape is paused)

How is Wendy feeling?

ITEM 8

(The tape is played: I'm going to put on some music; the tape is paused)

How is Wendy feeling?

ITEM 9

(The tape is played: Would you like a glass of orange?; the tape is paused)

How is Wendy feeling?

O.K., well done.

Comprehension checks: Facial expressions (and tones of voice)

Now we're going to watch a video. I want you to look and listen very carefully. There's a family in the video. First, let's see who's in the family.

(The video is played)

This is Sarah – she's the mum in the family.

This is Oliver.

This is Emily.

This is Wendy – she's the aunt in the family.

(The video is paused)

Now we're going to look at the first bit of tape. You've got to decide how Wendy is feeling.

ITEM 1

(The video is played: Hallo, I think your Mummy's going to take you shopping; the video is paused)

How is Wendy feeling? *(indicate pictures)* **Happy, angry or sad?**

O.K. here's the next bit.

ITEM 2

(The video is played: Can you pass the butter, please; the video is paused)

How is Wendy feeling?

ITEM 3

(The video is played: It's time to clean your teeth; the video is paused)

How is Wendy feeling?

ITEM 4

(The video is played: I'm going to read you a story today Emily, it's about colours. . .; the video is paused)

How is Wendy feeling?

ITEM 5

(The video is played: Right, I'm going to read you a story and it's about numbers. . .; the video is paused)

How is Wendy feeling?

ITEM 6

(The video is played: Hallo, what are you two up to? I think it's about time you two went to bed; the video is paused)

How is Wendy feeling?

ITEM 7

(The video is played: Shall we watch the television now?; the video is paused)

How is Wendy feeling?

ITEM 8

(The video is played: Shall we go and play outside now, Emily?; the video is paused)

How is Wendy feeling?

ITEM 9

(The video is played: Would you like a glass of lemonade, Emily?; the video is paused)

How is Wendy feeling?

APPENDIX D

Worked example of a record sheet, IME procedure

SDLD
CA: 12.0
LA: 8.11

INCONSISTENT MESSAGES OF EMOTION ASSESSMENT RECORD SHEET

Please ensure that you use the scripted commentary in the Manual (pages 00 to 00) when administering the Inconsistent Messages of Emotion Assessment.

INCONSISTENT MESSAGES OF EMOTIONS

	Audiotape condition (audio only condition)	'Forced choice' (where student initially selected two emotions)	Videotape (audio-visual condition)	'Forced choice' (where student initially selected two emotions)	Student's comments
Practice item	✓				
* 1.S	H		S		
2.A	A		A		
3.A	A		A		
4.H	S		H		
5.H	S		H		
6.S	H		S		
7.H	A		H		
8.S	H		S		
9.A	H		A		you had a funny voice

COMPREHENSION CHECKS

Vocabulary	Tone of Voice		Facial expression		
** 1. great (H)	✓	**1.H	✓	1.H	✓
2. I'm going to hit you (A)	✓	2.H	✓	2.A	✓
3. laugh (H)	✓	3.S	✓	3.A	✓
4. sorry (S)	✓	4.A	✓	4.S	✓
5. fine (H)	✓	5.S	✓	5.A	✓
6. pleased (H)	✓	6.A	✓	6.H	✓
7. cry (S)	✓	7.A	✓	7.S	✓
		8.H	✓	8.S	✓
		9.A	✓	9.H	✓

- * The letters indicate the Type 6 pragmatic response
- ** The letters indicate the correct semantic response

APPENDIX E

Data, MMC procedure

- Appendices -

	T5	T6	T7	T8	T25	TOTPRAGS
1	3.00	5.00	.00	.00	5.00	8.00
2	.00	6.00	.00	2.00	1.00	8.00
3	.00	7.00	.00	.00	.00	7.00
4	.00	9.00	1.00	3.00	.00	13.00
5	10.00	3.00	.00	.00	10.00	13.00
6	2.00	1.00	.00	.00	8.00	3.00
7	1.00	9.00	.00	.00	2.00	10.00
8	1.00	4.00	.00	1.00	1.00	6.00
9	.00	3.00	.00	.00	.00	3.00
10	1.00	9.00	.00	4.00	1.00	14.00
11	6.00	1.00	.00	.00	7.00	7.00
12	2.00	3.00	.00	.00	2.00	5.00
13	1.00	10.00	2.00	1.00	1.00	14.00
14	4.00	2.00	.00	2.00	4.00	8.00
15	.00	5.00	.00	.00	1.00	5.00
16	1.00	1.00	.00	.00	1.00	2.00
17	.00	6.00	2.00	.00	.00	8.00
18	.00	10.00	2.00	.00	.00	12.00
19	5.00	.00	.00	.00	6.00	5.00
20	.00	1.00	.00	.00	.00	1.00
21	2.00	9.00	1.00	.00	2.00	12.00
22	.00	6.00	.00	1.00	.00	7.00
23	5.00	4.00	.00	.00	7.00	9.00
24	.00	11.00	.00	1.00	.00	12.00
25	.00	1.00	.00	.00	.00	1.00
26	3.00	1.00	.00	.00	4.00	4.00
27	.00	.00	.00	.00	1.00	.00
28	1.00	2.00	.00	1.00	5.00	4.00
29	4.00	6.00	.00	.00	4.00	10.00
30	2.00	4.00	.00	1.00	2.00	7.00
31	1.00	11.00	.00	1.00	2.00	13.00
32	1.00	5.00	.00	1.00	1.00	7.00
33	.00	5.00	.00	.00	1.00	5.00
34	.00	6.00	.00	1.00	1.00	7.00
35	.00	5.00	.00	.00	.00	5.00
36	.00	7.00	1.00	.00	.00	8.00
37	.00	12.00	.00	1.00	.00	13.00
38	5.00	3.00	.00	.00	6.00	8.00
39	.00	9.00	1.00	1.00	.00	11.00
40	5.00	5.00	.00	.00	5.00	10.00
41	4.00	4.00	.00	.00	5.00	8.00
42	2.00	7.00	.00	1.00	2.00	10.00
43	1.00	6.00	.00	.00	1.00	7.00
44	.00	3.00	.00	.00	.00	3.00
45	.00	6.00	.00	.00	.00	6.00
46	.00	4.00	1.00	.00	.00	5.00
47	.00	4.00	.00	.00	1.00	4.00
48	.00	4.00	.00	1.00	.00	5.00
49	3.00	.00	.00	.00	6.00	3.00
50	3.00	.00	.00	.00	3.00	3.00

- Appendices -

	T5	T6	T7	T8	T25	TOTPRAGS
51	3.00	.00	.00	.00	8.00	3.00
52	.00	.00	.00	.00	1.00	.00
53	.00	6.00	1.00	.00	.00	7.00
54	.00	6.00	.00	1.00	.00	7.00
55	.00	3.00	.00	.00	.00	3.00
56	.00	6.00	.00	.00	.00	6.00
57	.00	7.00	.00	1.00	.00	8.00
58	.00	6.00	.00	.00	.00	6.00
59	1.00	4.00	.00	.00	5.00	5.00
60	.00	5.00	.00	.00	.00	5.00
61	1.00	3.00	1.00	.00	1.00	5.00
62	.00	2.00	2.00	.00	1.00	4.00
63	.00	1.00	.00	1.00	.00	2.00
64	.00	4.00	.00	.00	.00	4.00
65	.00	14.00	.00	.00	.00	14.00
66	1.00	12.00	1.00	.00	1.00	14.00
67	1.00	13.00	.00	.00	1.00	14.00
68	1.00	10.00	.00	3.00	1.00	14.00
69	.00	14.00	.00	.00	.00	14.00
70	1.00	11.00	2.00	.00	1.00	14.00
71	.00	12.00	.00	2.00	.00	14.00
72	1.00	12.00	1.00	.00	1.00	14.00
73	.00	14.00	.00	.00	.00	14.00
74	1.00	12.00	1.00	.00	1.00	14.00
75	.00	14.00	.00	.00	.00	14.00
76	.00	13.00	.00	1.00	.00	14.00
77	.00	13.00	1.00	.00	.00	14.00
78	.00	13.00	.00	1.00	.00	14.00
79	.00	13.00	1.00	.00	.00	14.00
80	3.00	9.00	1.00	1.00	3.00	14.00
81	.00	12.00	.00	2.00	.00	14.00
82	1.00	12.00	.00	1.00	1.00	14.00
83	1.00	13.00	.00	.00	2.00	13.00
84	1.00	13.00	.00	.00	1.00	14.00
85	.00	13.00	1.00	.00	.00	14.00
86	.00	14.00	.00	.00	.00	14.00
87	1.00	12.00	.00	1.00	1.00	14.00
88	.00	13.00	.00	.00	.00	13.00
89	.00	13.00	.00	.00	.00	13.00
90	.00	12.00	1.00	1.00	.00	14.00
91	.00	12.00	1.00	.00	.00	13.00
92	2.00	10.00	1.00	.00	2.00	13.00
93	.00	14.00	.00	.00	.00	14.00
94	.00	14.00	.00	.00	.00	14.00
95	.00	13.00	.00	.00	.00	13.00
96	.00	14.00	.00	.00	.00	14.00
97	.00	13.00	.00	.00	.00	13.00
98	.00	13.00	1.00	.00	.00	14.00
99	1.00	9.00	1.00	1.00	1.00	12.00
100	.00	13.00	.00	1.00	.00	14.00

- Appendices -

	T5	T6	T7	T8	T25	TOTPRAGS
101	.00	13.00	1.00	.00	.00	14.00
102	.00	12.00	1.00	1.00	.00	14.00
103	1.00	11.00	.00	2.00	1.00	14.00
104	.00	13.00	.00	1.00	.00	14.00
105	3.00	10.00	1.00	.00	3.00	14.00
106	.00	13.00	.00	1.00	.00	14.00
107	.00	12.00	1.00	1.00	.00	14.00
108	1.00	12.00	.00	.00	1.00	13.00
109	.00	13.00	1.00	.00	.00	14.00
110	1.00	13.00	.00	.00	1.00	14.00
111	2.00	5.00	1.00	4.00	2.00	12.00
112	.00	13.00	.00	1.00	.00	14.00
113	.00	9.00	1.00	4.00	.00	14.00
114	1.00	12.00	.00	1.00	1.00	14.00
115	.00	13.00	.00	1.00	.00	14.00
116	.00	14.00	.00	.00	.00	14.00
117	.00	12.00	.00	2.00	.00	14.00
118	.00	14.00	.00	.00	.00	14.00
119	.00	12.00	2.00	.00	.00	14.00
120	.00	14.00	.00	.00	.00	14.00
121	.00	12.00	1.00	1.00	.00	14.00
122	.00	12.00	2.00	.00	.00	14.00
123	.00	14.00	.00	.00	.00	14.00
124	.00	13.00	1.00	.00	.00	14.00
125	1.00	12.00	1.00	.00	1.00	14.00
126	.00	11.00	.00	2.00	.00	13.00
127	.00	12.00	1.00	1.00	.00	14.00
128	.00	11.00	.00	3.00	.00	14.00
129	.00	11.00	.00	3.00	.00	14.00
130	1.00	1.00	.00	.00	1.00	2.00
131	.00	13.00	.00	1.00	.00	14.00
132	7.00	.00	.00	.00	7.00	7.00
133	.00	13.00	.00	1.00	.00	14.00
134	.00	13.00	.00	1.00	.00	14.00
135	.00	11.00	1.00	2.00	.00	14.00
136	.00	11.00	.00	1.00	.00	12.00
137	1.00	13.00	.00	.00	.00	14.00
138	.00	9.00	.00	1.00	1.00	10.00
139	.00	7.00	.00	1.00	.00	8.00
140	.00	14.00	.00	.00	.00	14.00
141	2.00	9.00	.00	2.00	2.00	13.00
142	1.00	9.00	.00	4.00	1.00	14.00
143	.00	13.00	.00	1.00	.00	14.00
144	4.00	10.00	.00	.00	4.00	14.00
145	.00	9.00	1.00	4.00	.00	14.00
146	.00	12.00	.00	1.00	.00	13.00
147	2.00	11.00	.00	1.00	2.00	14.00
148	.00	10.00	.00	3.00	.00	13.00
149	.00	13.00	.00	1.00	.00	14.00
150	.00	7.00	.00	4.00	.00	11.00

- Appendices -

	T5	T6	T7	T8	T25	TOTPRAGS
151	4.00	7.00	.00	.00	5.00	11.00
152	.00	14.00	.00	.00	.00	14.00
153	.00	11.00	.00	3.00	.00	14.00
154	.00	9.00	.00	1.00	.00	10.00
155	6.00	6.00	.00	.00	6.00	12.00
156	.00	10.00	.00	3.00	.00	13.00
157	.00	10.00	1.00	3.00	.00	14.00
158	.00	10.00	1.00	3.00	.00	14.00
159	.00	13.00	.00	1.00	.00	14.00
160	.00	11.00	.00	2.00	.00	13.00
161	.00	12.00	.00	2.00	.00	14.00
162	.00	12.00	.00	1.00	.00	13.00
163	5.00	6.00	1.00	.00	5.00	12.00
164	.00	10.00	1.00	2.00	.00	13.00
165	1.00	5.00	1.00	.00	1.00	7.00
166	6.00	4.00	.00	1.00	6.00	11.00
167	.00	11.00	1.00	2.00	.00	14.00
168	.00	8.00	3.00	.00	.00	11.00
169	.00	13.00	.00	1.00	.00	14.00
170	.00	13.00	1.00	.00	.00	14.00
171	9.00	.00	1.00	2.00	9.00	12.00
172	1.00	11.00	.00	.00	1.00	12.00
173	1.00	13.00	.00	.00	1.00	14.00
174	.00	6.00	.00	5.00	.00	11.00
175	2.00	9.00	.00	1.00	2.00	12.00
176	.00	13.00	.00	1.00	.00	14.00
177	9.00	2.00	.00	.00	9.00	11.00
178	1.00	8.00	1.00	3.00	1.00	13.00
179	2.00	5.00	.00	4.00	2.00	11.00
180	1.00	9.00	1.00	3.00	1.00	14.00
181	2.00	3.00	.00	.00	2.00	5.00
182	5.00	2.00	.00	.00	6.00	7.00
183	.00	7.00	.00	2.00	.00	9.00
184	.00	9.00	.00	.00	.00	9.00
185	7.00	3.00	.00	.00	8.00	10.00
186	.00	3.00	.00	4.00	.00	7.00
187	.00	12.00	.00	2.00	.00	14.00
188	1.00	6.00	.00	.00	1.00	7.00
189	.00	1.00	.00	.00	.00	1.00
190	3.00	8.00	.00	2.00	3.00	13.00
191	5.00	7.00	1.00	.00	5.00	13.00
192	10.00	.00	.00	.00	12.00	10.00
193	3.00	8.00	.00	2.00	3.00	13.00
194	.00	7.00	.00	2.00	.00	9.00
195	2.00	5.00	1.00	1.00	3.00	9.00
196	.00	2.00	.00	6.00	.00	8.00
197	.00	10.00	2.00	.00	.00	12.00
198	11.00	.00	2.00	.00	11.00	13.00
199	1.00	3.00	.00	1.00	1.00	5.00
200	.00	12.00	.00	1.00	.00	13.00

- Appendices -

	T5	T6	T7	T8	T25	TOTPRGS
201	1.00	9.00	2.00	1.00	1.00	13.00
202	.00	7.00	.00	2.00	.00	9.00
203	1.00	5.00	.00	1.00	1.00	7.00
204	.00	6.00	.00	2.00	.00	8.00
205	.00	9.00	1.00	.00	.00	10.00
206	1.00	2.00	.00	.00	2.00	3.00
207	1.00	12.00	.00	1.00	1.00	14.00
208	.00	8.00	.00	.00	.00	8.00
209	3.00	5.00	.00	.00	4.00	8.00
210	8.00	.00	.00	.00	8.00	8.00
211	.00	4.00	.00	.00	1.00	4.00
212	2.00	6.00	.00	.00	2.00	8.00
213	.00	4.00	.00	.00	.00	4.00

Number of cases read: 213

Number of cases listed: 213

APPENDIX F

Data, IME procedure

- Appendices -

TYP6	TYP7	TOTPRAG1	TYPLAV	TYP2AV	TYP3AV	TYP5AV	TYP6AV	TYP25AV T
5.00	.00	5.00	1.00	.00	.00	0	8.00	.
4.00	.00	4.00	1.00	.00	.00	0	8.00	.
8.00	.00	8.00	.00	.00	.00	0	9.00	.
6.00	.00	6.00	3.00	.00	.00	0	6.00	.
5.00	.00	5.00	.00	.00	.00	0	9.00	.
7.00	.00	7.00	.00	.00	.00	0	9.00	.
2.00	.00	2.00	3.00	.00	.00	0	6.00	.
5.00	.00	5.00	1.00	.00	.00	0	8.00	.
5.00	.00	5.00	1.00	.00	.00	0	8.00	.
6.00	.00	6.00	.00	.00	.00	0	9.00	.
8.00	.00	8.00	.00	.00	.00	0	9.00	.
6.00	.00	8.00	1.00	.00	.00	0	8.00	.
4.00	.00	4.00	3.00	.00	.00	0	6.00	.
8.00	.00	8.00	1.00	.00	.00	0	8.00	.
8.00	.00	8.00	1.00	.00	.00	0	7.00	.
7.00	.00	7.00	.00	.00	.00	0	9.00	.
9.00	.00	9.00	.00	.00	.00	0	9.00	.
1.00	.00	1.00	4.00	.00	.00	0	5.00	.
8.00	.00	8.00	1.00	.00	.00	0	8.00	.
4.00	.00	4.00	1.00	.00	.00	0	8.00	.
4.00	.00	4.00	4.00	.00	.00	0	5.00	.
1.00	.00	1.00	5.00	.00	1.00	0	3.00	.
.00	.00	.00	3.00	.00	.00	0	6.00	.
8.00	.00	8.00	.00	.00	.00	0	9.00	.
4.00	.00	4.00	3.00	.00	.00	0	6.00	.
3.00	.00	6.00	.00	.00	.00	1	8.00	1.00
8.00	.00	8.00	.00	.00	.00	0	9.00	.
6.00	.00	6.00	2.00	.00	.00	0	7.00	.
5.00	.00	5.00	2.00	.00	.00	0	7.00	.
2.00	.00	2.00	2.00	.00	.00	0	7.00	.
5.00	.00	5.00	.00	.00	.00	0	9.00	.
2.00	.00	2.00	.00	.00	.00	0	9.00	.
5.00	.00	5.00	.00	.00	.00	0	9.00	.
4.00	.00	4.00	.00	.00	.00	0	9.00	.
3.00	.00	3.00	2.00	.00	1.00	0	6.00	.
6.00	.00	6.00	1.00	.00	.00	0	8.00	.
2.00	.00	2.00	.00	1.00	1.00	0	8.00	.
9.00	.00	9.00	.00	.00	.00	1	6.00	2.00
3.00	.00	3.00	2.00	1.00	.00	0	9.00	.
6.00	.00	6.00	.00	.00	.00	0	6.00	1.00
6.00	.00	7.00	.00	.00	.00	0	9.00	.
5.00	.00	6.00	.00	.00	.00	0	9.00	.
.00	.00	.00	3.00	.00	.00	0	9.00	.
7.00	.00	7.00	.00	.00	.00	0	6.00	.
2.00	.00	9.00	1.00	.00	.00	0	9.00	.
9.00	.00	9.00	.00	.00	.00	0	8.00	.
7.00	.00	7.00	.00	.00	.00	0	9.00	.
4.00	.00	5.00	.00	.00	.00	0	9.00	.
6.00	.00	6.00	2.00	.00	.00	0	7.00	.
4.00	.00	4.00	4.00	.00	.00	0	7.00	.
						0	5.00	.

	TOTPRAG1	TOTPRAG2
151	7.00	9.00
152	9.00	9.00
153	9.00	9.00
154	9.00	9.00
155	9.00	9.00
156	9.00	9.00
157	9.00	9.00
158	9.00	9.00
159	9.00	9.00
160	9.00	9.00
161	9.00	9.00
162	9.00	9.00
163	8.00	9.00
164	8.00	9.00
165	9.00	9.00
166	8.00	9.00
167	8.00	9.00
168	8.00	9.00
169	9.00	9.00
170	9.00	9.00
171	7.00	9.00
172	9.00	9.00
173	9.00	9.00
174	8.00	9.00
175	9.00	9.00
176	9.00	9.00
177	9.00	9.00
178	9.00	9.00
179	9.00	9.00
180	9.00	9.00
181	9.00	9.00
182	4.00	9.00
183	7.00	9.00
184	6.00	9.00
185	9.00	9.00
186	8.00	9.00
187	9.00	9.00
188	7.00	9.00
189	6.00	9.00
190	7.00	8.00
191	8.00	8.00
192	6.00	6.00

Number of cases read: 192

Number of cases listed: 192

APPENDIX G

Pilot study

3.6. THE PILOT STUDY.

3.6.1. Aims of the pilot study.

The pilot study was designed as a small scale version of the main study, using the procedures which had been trialled during pre-piloting. The aim was to examine whether the methodology designed for the main study would be likely to indicate differences between the specific developmental language disorder group and the two comparison non-language-impaired groups.

3.6.2. Subjects

A total of nine children took part in the pilot study, three who were diagnosed as having specific language disorder, three who were matched with the SLDL children for language age (LA) and three who were matched with the SLDL children for chronological age (CA). Details of language age, chronological age and sex of subjects are included in table 3.16.

It can be seen that the sex ratios in the groups are different. This did not reflect the aim to achieve similar sex ratios in each of the groups. However, the

	CHRONOLOGICAL AGE	LANGUAGE AGE	SEX
SDLD GROUP			
SUBJECTS			
1	12.1	10.8/10	MALE
2	12.5	10.2/4	MALE
3	13.3	7.2/4	MALE
LA CONTROL			
SUBJECTS			
1	10.10	10.8/10	FEMALE
2	9.6	10.2/4	FEMALE
3	7.0	7.2/4	MALE
CA CONTROL			
SUBJECTS			
1	12.1		MALE
2	12.5		FEMALE
3	13.3		FEMALE

TABLE 3.16. Pilot study subjects

matching of language age and the selection of subjects according to the criteria relating to language disorder/non language disorder was given priority. From the group of subjects available and in the time allocated it was unfortunately not possible also to achieve groups of a similar sex ratio.

3.6.3. Procedure

The materials used and procedure followed in the pilot study were identical to that of the main study as outlined earlier in this chapter.

3.6.4. Results of the Multiple Meaning in Context Procedure.

3.6.4.A A Review of the Response Type Categories

The number of responses, out of a total of fourteen, were categorised into each response type. It should be noted that the students' responses to the practice item were not considered in this categorisation. In order to clarify the nature of the different types of responses, examples are included in brackets relating to the item 'the road was jammed solid this morning'.

TYPE 1: NON-PRAGMATIC. The subject selects one picture only, which represents a meaning rendered implausible by the context (a picture of a road covered with strawberry jam)

TYPE 2: NON-PRAGMATIC. The subject selects two pictures, reflecting the literal and the pragmatic (contextually implied) meaning but when asked to choose only one, selects the literal interpretation: that is, (s)he is aware of a pragmatic meaning but rules it out in favour of a literal interpretation. (The subject selects the picture of strawberry jam on a road and a picture of a traffic jam, and when asked to make a choice, selects the strawberry jam.)

TYPE 3: NON-PRAGMATIC. The subject makes a literal interpretation which is incorrect: that is (s)he selects a picture which is not only implausible given the context, but is also incorrect in terms of the literal meaning (the subject selects a picture of a lorry transporting strawberry jam).

TYPE 4: NON-PRAGMATIC. The subject makes a 'don't know' response (the puzzled character) because s(he) does not

know the literal or the pragmatic interpretation (checked in a second presentation of items).

TYPE 5: PRAGMATIC. The subject selects the pragmatic and literal interpretations (the strawberry jam and the traffic jam) and when asked to choose one, selects the pragmatic interpretation (the traffic jam).

This type of response reflects a level of pragmatic competence but less certainty than the type 0 response below.

TYPE 6: PRAGMATIC. The child selects one picture only which represents the contextually implied meaning and matches speaker intention (the traffic jam).

TYPE 7: PRAGMATIC. The subject rejects the literal meaning and selects a picture which is plausible in terms of the context, but is incorrect (The picture of one car on a road)

TYPE 8: PRAGMATIC. The subject makes a don't know response (puzzled character) because s(he) does not know the pragmatic interpretation, but rules out the literal

interpretation nevertheless. (Subjects understanding of the literal meaning is checked in a second presentation.)

A comparison of subjects' responses will now be made. The focus of these comparisons will be on the number and type of pragmatic responses (as opposed to non-pragmatic responses) to reflect the focal interest of the study.

3.6.4.B. Comparison of Responses and Interpretation of the Results

Comparisons between the three subject groups, for each response type, are outlined below. It should be noted that the differences between the three groups were not tested for statistical significance because of the small numbers involved.

The Total Number of Pragmatic Responses

The total number of pragmatic responses was calculated by adding response types 5, 6, 7 and 8. Although the type 6 pragmatic response was viewed as the most accurate response in line with speaker intention, the interest of the study is in pragmatic competence overall and includes an examination of students' pragmatic comprehension when

they are uncertain (type 5 reponse) or unaware of the non- literal meaning of the item (type 7 and 8 response).

The number of pragmatic responses made by each subject, out of a maximum of 14, are presented in table 3.17.

	GROUP		
	SDL D	LA matched	CA matched
SUBJECT 1	5	13	14
SUBJECT 2	10	11	14
SUBJECT 3	5	8	14

TABLE 3.17. Total pragmatic responses out of a total of 14, made by each subject in each pilot study group. MMC measure.

Differences can be seen between the number of pragmatic responses made by the language disorder group in comparison with the two other groups. These differences are most obvious in comparing the SLDL group with the chronological age match comparison group, but are also apparent in comparing responses of the language age match group.

The indication of these findings is, therefore, that children with specific developmental language disorder do have greater difficulty with pragmatic meaning comprehension than the language-age-matched (LA) and chronological-age-matched (CA) students.

The difference between the SLDL group and LA comparison group is of particular interest, since this shows that even though the children scored equally well on the British Picture Vocabulary Scale, that is, the non-pragmatic meaning assessment, SLDL children still did less well in their comprehension of pragmatic meaning.

A further observation relating to this finding was that whereas there appeared a clear, positive, relation between the number of pragmatic responses and age (language age and chronological age) considering the two

(language age and chronological age) considering the two comparison groups together, this was not true in the SLD group. Therefore, whereas the language age and the chronological age of students in the comparison groups could be used to predict how well they would be able to understand pragmatic meaning, this was not possible for the SLD students.

The Number of Type 6 Responses

The number of type 6 responses reflected the number of times a subject interpreted the multiple meanings in terms of the pragmatic meaning only. This is viewed as reflecting the most accurate response, since it reflects the contextually implied meaning in line with speaker intention.

The number of type 6 pragmatic responses made by each subject, out of a maximum of 14, are outlined in table 3.18. There are again differences, comparing the language disorder group with the two comparison groups although the greatest difference occurred between the language disorder group and chronological age match comparison group. The relation between pragmatic response and age (chronological and language age) is

similar to those found in considering the total pragmatic responses.

	GROUP		
	SDLD	LA matched	CA matched
SUBJECT 1	0	10	14
SUBJECT 2	6	6	13
SUBJECT 3	4	0	11

TABLE 3.18. Type 6 pragmatic responses, out of a total of 14, made by each subject in each of the pilot study groups. MMC measure

The Number of Responses where Subjects Selected Pragmatic and Non-pragmatic Meaning as Plausible, Given the Context.

The number of these responses could be calculated by adding the number of type 2 and type 5 responses. The number of these two types of response, made by each subject, out of a maximum of 14 are outlined in table 3.19.

	GROUP		
	SDLD	LA matched	CA matched
SUBJECT 1	6	0	0
SUBJECT 2	4	5	0
SUBJECT 3	5	8	0

Table 3.19. Type 2 and 5 responses, out of a total of 14, made by each subject in each pilot study group. MMC measure

The interest here is whether SLD subjects were less able to reject the literal meaning when they were aware of the pragmatic meaning which, given the context, is clearly the more plausible of the two interpretations. The responses outlined in table 10 show that they clearly had more difficulties here than their chronological-age-matched peers, but not the language-age-matched children.

This finding is further explored in the next point in looking at which of the two interpretations subjects select when they are forced into making a choice.

The Number of Type 2 Responses

In making this type of response, subjects are aware of the pragmatic meaning but reject it in favour of the literal meaning, even though this is rendered implausible by the context. Therefore, despite having a knowledge of both kinds of meaning, subjects are unable to use a pragmatic strategy accurately to determine which of the two meanings is the most appropriate, given the context

The number of type two responses made by each subject, out of a maximum of 14, are outlined in table 3.20. Although the occurrence of this type of response is

infrequent overall, it is most frequent in the SDDL group, which indicated that even when SDDL children are aware of the pragmatic interpretation they may not judge it as the speaker's intention. It may be that more substantial differences of this kind will be uncovered in a larger scale study.

	GROUP		
	SDDL	LA matched	CA matched
SUBJECT 1	1	1	0
SUBJECT 2	0	0	0
SUBJECT 3	4	1	0

TABLE 3.20. Type 2 responses, out of a total of 14, made by each subject in each pilot study group. MMC measure

The Number of Types 3 and 7 Responses

Type 3 response category represents the type of response where subjects select a picture which has a meaning opposite or related in some way to that of the non-pragmatic meaning. The reason for including this kind of response is to ascertain whether subjects have difficulties in comprehending the non-pragmatic (literal) meaning.

None of the subjects made responses of this kind. Where they failed to make a pragmatic response they instead made a non-pragmatic response which was literally correct, but which was rendered implausible by the context. Therefore, the difficulty subjects had with comprehending MMC could not be accounted for by difficulties in comprehending non-pragmatic meaning.

The type 7 response category refers to the kind of response where subjects select a picture representing a meaning which is related to the contextually implied one, but is incorrect. This is considered a pragmatic response because the subjects are using a pragmatic strategy to reject the literal meaning and choosing an interpretation which is plausible given the context, but

incorrect. There was only one example of this kind of response, made by one of the subjects in the LA match comparison group.

Type 8 Response: the 'Don't Know' Response

This response category refers to that where the subject selects the picture of the puzzled character to indicate that they do not know the speaker's intended meaning and where a post test check shows that they do know the literal meaning. The type 8 response is therefore categorised as a pragmatic response and reflects an ability to use a pragmatic strategy to reject the literal meaning as implausible because of the context.

The number of type 8 responses made by each subject, out of a maximum of 14, are outlined in table 3.21. It can be seen that there were only a small number of type 8 responses, however, it is of interest that they occurred in the comparison groups only.

	GROUP		
	SDLD	LA matched	CA matched
SUBJECT 1	0	2	0
SUBJECT 2	0	0	1
SUBJECT 3	0	0	2

Table 3.21. Type 8 pragmatic responses, out of a total of 14, made by each of the groups in the pilot study. MMC measure

A summary conclusion pertaining to the above results will be made at the end of this chapter, having considered the results of the inconsistent messages of emotion procedure.

3.6.5. Results of the Inconsistent Messages of Emotion Procedure.

The number of responses, out of a total of nine, were categorised into each response type as reviewed in the next section.

3.6.5.A. A review the response type categories

TYPE 1: NON-PRAGMATIC. The emotion chosen is that represented by the verbal message, therefore the subject is not using the implied meaning created by the non-verbal message.

TYPE 2: NON-PRAGMATIC. The subject selects two emotions to reflect the verbal and non-verbal message and when asked to make a choice selects the emotion conveyed by the verbal message.

TYPE 3: NON-PRAGMATIC. The emotion chosen is represented by neither the verbal or non verbal message. Responses to the comprehension checks show that this is because the child has incorrectly interpreted the verbal message or has used the verbal message to make the interpretation.

TYPE 4: NON-PRAGMATIC. The subject makes a 'don't know' response. Comprehension checks show that they do not understand the verbal message (nor the non-verbal message).

TYPE 5: PRAGMATIC. The subject selects two emotions to reflect the verbal and non-verbal message and when asked to make a choice selects the emotion conveyed by the non-verbal message.

TYPE 6: PRAGMATIC. The emotion chosen is that represented by meaning implied by the non-verbal message, in line with speaker intention.

TYPE 7: PRAGMATIC. The emotion chosen is represented neither by the verbal nor the non-verbal message. The comprehension checks show that the child is able correctly to interpret the verbal message, but discounts it as being the speaker's intended meaning. By ruling out the meaning carried by the verbal message, the child is showing an awareness of meaning which goes beyond a one-to-one correspondence between word and meaning, although the interpretation is incorrect.

TYPE 8: PRAGMATIC. The subject makes a 'don't know' response . Comprehension check shows that the subject does understand the verbal message, but does not believe it to be the speakers intended meaning.

A comparison of subjects' responses will now be made. The focus of these comparisons will be on the number and type of pragmatic responses (as opposed to non-pragmatic responses) to reflect the focal interest of the study.

3.6.5.B. Comparison of Responses and Interpretation of the Results

The Total Number of Pragmatic Responses

As in the case of the MMC procedure, it had been planned to calculate the total number of pragmatic responses by adding the number of response types 5, 6, 7 and 8. However, all the pragmatic responses were in category type 6, that is, subjects selected one picture to represent the emotion conveyed by the non-verbal message.

The number of pragmatic responses made by each subject, out of a maximum of 9, are outlined in tables 3.22 and 3.23. It can be seen that, in the 'audio only'

condition, the SLDL subjects made observably less pragmatic responses. In the audiovisual condition, the difference in the responses of the SLDL and comparison groups was not as great as in the audio only condition. Two of the three SLDL subjects were able to improve their performance given the added visual information from facial expression.

	GROUP		
	SLDL	LA matched	CA matched
SUBJECT			
1	7	9	9
2	4	9	9
3	6	9	9

TABLE 3.22. Total pragmatic responses, out of a total of 9, made by each of the groups in the pilot study. IME measure, 'audio only' condition.

Appendices

	GROUP		
	SDL D	LA matched	CA matched
SUBJECT			
1	9	9	9
2	4	9	9
3	8	9	9

Table 3.23. Total pragmatic responses, out of a total of 9, made by each of the groups in the pilot study. IME measure, audiovisual condition.

A range of response was not achieved in either comparison group because all of the subjects in these groups were responding at ceiling level. It was therefore not possible to examine the relation between pragmatic response and increasing age here. However, the responses made in the SLD group did not show an association between chronological or language age and pragmatic response. This provided a further indication that in the SLD group a child's language age, represented by an assessment of non-pragmatic meaning comprehension, was not indicative of their pragmatic meaning comprehension.

Further, all subjects taking part in the study passed the semantic comprehension checks, relating to the types of verbal and non-verbal messages included in the IME. Therefore, the difficulties subjects had with pragmatic meaning comprehension could not be attributed to insufficient semantic knowledge.

3.6.6. Summary

As a pilot, this was necessarily a small scale study and the findings were restricted by the limited number of subjects. However, there was a clear indication, from both the MMC and IME procedures, that SLD students do

have relatively more difficulty with pragmatic meaning comprehension than non-pragmatic meaning comprehension, compared to language-age-matched and chronological-age-matched students. This was reflected not only in the fewer number of pragmatic responses made by the SDDL group but also by the finding, in the MMC procedure, that SDDL students were more likely to interpret the speaker's intention as the literal, non-pragmatic meaning, even when they were aware of the pragmatic interpretation. Conversely, in the comparison groups (but not in the SDDL group) students were able to use a pragmatic strategy to reject the literal meaning even when they did not know the contextually implied, pragmatic meaning. Furthermore, whereas there appeared to be a positive relation between non-pragmatic and pragmatic comprehension in the comparison groups, this was not true of the language-disordered group.

Although the pilot study provided confirmation that the procedures developed were sufficient to detect differences in the SDDL and comparison groups, it was evident that subjects' range of responses in the IME procedure did not cover the range of response categories developed. For example, none of the subjects selected two interpretations in the IME procedure, nor did they

make a 'don't know' response, even though the possibility of making this kind of response was made clear in the practice item. However, it was decided to continue to include these dimensions of the IME procedure (that is, the opportunity to select two pictures or to make a 'don't know' response) in the main study, because subjects had used these types of responses in the MMC procedure and it was believed that within the larger subject sample proposed for the main study, a greater diversity of response may be achieved in the IME assessment also.

