THE SOCIAL-COGNITIVE DEVELOPMENT OF CHILDREN WITH SEVERE LEARNING DIFFICULTIES

A thesis submitted for the degree of Doctor of Philosophy

by

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June 1995

Abstract

This thesis focuses upon the abilities of children with severe learning difficulties to contemplate the psychological states of other people, what is often referred to in the literature as 'mindreading' (Whiten and Perner, 1991).

The first section contains a review of the literature on children's developing understanding of the mind and their conceptual representational abilities. This is followed by two studies investigating non-learning disabled children's abilities to attribute first-and second-order false belief. The first of these uses an adaptation of the Sally-Anne test (Baron-Cohen, et al., 1985). The second study uses an original false belief story scenario, which involves children in drama. The researcher uses a technique called 'split-briefing' to provide children with first-hand experience of first-and second-order false belief.

Simplified versions of the two false belief story scenarios are then used with children with severe learning difficulties to investigate their abilities to represent first-and second-order false belief. The relationship between children's scores on belief attribution tasks and their scores on tests of non-verbal intellectual reasoning (Ravens Coloured Matrices) and receptive language ability (TROG) is also examined in this study.

The third section outlines the findings of a questionnaire-based study examining parental reports of spontaneous internal state use by two groups of children: non-learning disabled children aged 1-5 years and pupils with Down's Syndrome aged 4-19 years with severe learning difficulties. 'Internal state language' is language which refers to intentions, cognitions and feeling states (Bretherton and Beeghly, 1981).

This is followed by a further investigation of internal state language among a group of students with severe learning difficulties. This study uses a series of playlets written by the author to provide students with an interactive, participatory medium in which to draw their attention to people's internal states.

The thesis concludes with a final statement on research into the social-cognitive development of children with severe learning difficulties, with recommendations for future research and intervention.

to Charlotte and Angela

Acknowledgements

I am indebted to all the children, parents and staff that I have worked with over the past few years in connection with this study.

I am also grateful to the Lady Allen of Hurtwood Memorial Trust for a travelling grant which enabled me to visit American research workers and to discuss with them the educational implications of their findings.

I wish to thank my supervisors Sarah Sandow and Mark Roberts for all their interest, enthusiasm and support. I am very grateful for all that they have taught me.

Finally, I should stress that the roots of this thesis go back many years. Particular thanks are due to the children of Rectory Paddock School who inspired my interest in social cognition. Without them, this thesis would not be as it is, or perhaps would not have been at all.

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Preface

This thesis is perhaps best seen as a research journey into relevant ways of finding out about children's social-cognitive awareness, particularly their understanding of psychological states. Throughout the thesis, there is a movement of enquiry from non-learning disabled children to learning disabled children. The author believes that an improved understanding of the social-cognitive abilities of non-learning disabled children has informed, focused and refined his work with children with severe learning difficulties. The experimental work begins using what might be described as more conventional research methods and ends up with more interactive and participatory styles of enquiry. It is felt that these different approaches were appropriate to the tasks in hand. In teaching, a teacher's methodology and style depend upon what it is he or she wants to teach and what is to be achieved. For both teachers and researchers, perhaps, those who employ a mixture of methods have a greater chance of realising their aims.

Chapter 1
Children's social-cognitive development

1.I What is social cognition?

Social cognition is a person's knowledge and understanding of themselves and other people. Flavell (1977) states that "Social cognition means cognition of human objects and their doings. It includes perception, thinking and knowledge regarding the self, other people, social relations, social organizations and institutions, -in general, our human, social world." (page 49).

This thesis centres upon children's growing understanding of people's psychological states, i.e., both their own and other people's beliefs, desires, intentions and feeling states. Much of young children's understanding of the mind comes with the emergence of language. Durkin (1986) writes, "the availability of vocabulary about mental and personal properties is central to the development of social understanding", (page17). However, significant development in young infants' social-cognitive awareness takes place prior to speech; indeed, it is proposed that their social-cognitive development provides the foundation for language and communication. Macnamara (1972) states:

> "Infants learn language by first determining, independent of language, the meaning which a speaker intends to convey to them, and then by working out the relationship between the meaning and the language." (page 1).

The young child <u>first</u> understands the speaker (by means of social cognition) and <u>then</u> comes to understand the accompanying speech. Infants understand their mother's angry facial expression and intonation of voice before they infer the meaning of the word "No!". The development of language in the human race generally must have followed a similar sequence: ".....inferential communication had to exist before external languages developed: human external languages are of adaptive value only for a species already involved in inferential communication." (Sperber and Wilson, 1986, page 68).

The experimental work described in chapters 4 and 5 concerns children's abilities to 'mentalise', i.e., their developing abilities to represent and predict other people's intentions, beliefs and desires. This work commences with non-learning disabled 3-and 4-year-olds and moves on to similar work with older children with severe learning difficulties. However, the following few pages focus upon the social-cognitive development of the younger child. This is important, for it reveals the tutorial environment in which children's social-cognitive awareness is fostered, i.e., within social interaction. For the very young child, dynamic participatory social exchanges with care-givers provide the foundations for later social-cognitive development. It is easy to lose sight of this essential principle, that children's social-cognitive awareness develops through social interaction, in partnership with more expert adults and other family members and friends. It is this principle which guides the author's work with children with severe learning difficulties in the penultimate chapter.

The roots of social cognition are buried firmly in social interaction. Forgas (1981) states:

> "Cognition, when taken as a domain concerned with all processes of knowing, is intrinsically, inevitably and profoundly social. Our knowledge is socially structured and transmitted from the first day of our life." (page 2).

In the first few weeks of life children begin to see people as perceivers and agents. This awareness culminates in children's recognition that people are able to perceive and respond to relevant information in similar ways to the way that they themselves respond. Joint visual attention, or what Scaife and Bruner (1975) called 'shared reference', is one of the earliest examples of this: the child first becomes aware that other people perceive objects or events in the environment, begins to follow their line of gaze, and becomes aware that their attention to things and people in the environment is, in some way, significant. The important point here is that joint attention is 'modelled' by the care-giver. Schaffer's (1984) research indicated that the majority of episodes of joint attention arise as a result of the mother monitoring the infant's line of gaze. Butterworth (1991) states that adults closely monitor the focus of infants' attention and

adjust their own gaze to maintain shared experience. He notes that care-givers vocalise at appropriate moments when they see that the infant is attending to a particular object or event. Children's early social-cognitive understanding is mediated by the mother, but the infant's participation in this process is critical, - the tutorial environment can only operate under conditions of reciprocity.

Hobson (1993) calls this early person understanding 'intersubjective relatedness', what he defines as early "experience of affectively patterned, intersubjectively co-ordinated relations with other people." (page 5). He believes that infants are "prewired" to relate to and experience other people in 'special ways'; that they are innately disposed towards another person's attitudes to what he or she regards as socially significant (see pp. 36 &39 of this thesis).

Very young infants have been shown to be engaged with and affected by care-givers' expressions of feeling; 3 month-old children have been shown to perceive and react to the affective attitude expressed in another person's facial, vocal, and other bodily gestures. Brazelton et al (1974) traced 4-week old infants' strongly differentiated relations to objects (small cuddly toys) and people in relaxed face-to-face contact. Their videotaped observations of mother-infant interaction revealed predictable patterns of interpersonally regulated 'affective attention'. The young infants' eyes and face would brighten as they looked at the mother, and their bodies would typically extend towards her. When the mothers responded by smiling, the bodily movements of the four week-old infants became more active and there were often fleeting smiles and vocalisations.

There is evidence of motor-affective responses by infants at even earlier ages. Meltzoff's studies of imitation by newborn babies (Meltzoff and Moore, 1983; Meltzoff, 1990; Meltzoff and Gopnik, 1993) indicated that infants under two days old showed widened eyes and mouths in imitation of people showing surprised expressions, tightened mouths accompanied by furrowed brows when shown sad expressions, and lip widening when shown happy faces.

Walker's (1982) research presents further evidence for young infants' sensitivity for and responsiveness to other people's emotions. She presented 5-and 7-month-old infants with two filmed facial expressions side-by-side, accompanied by a single vocal expression matched to the emotion expressed by only one of the faces. The infants were consistently observed to increase their looking time to the facial expression corresponding with the emotion expressed by the voice.

The work of Stern (1977,1985) and Trevarthen (1977) focussed upon the finely tuned patterns of face-to-face co-ordination between care-givers and their infants. Their extensive research illustrates how infants in the first few months of life make an active attempt to establish harmony in their interactions with care-givers. An important dimension to their research, like Brazelton's, is that the young infant appears to perceive and relate to 'persons' very differently than to 'objects'; there is what Hobson (1993) calls 'interpersonal linkage of subjective experience'.

Haviland and Lelwica (1987) asked mothers of 10-week-old infants to express a range of affective states in their facial and vocal expressions with their children. They found that the infants responded to and often mimicked their mothers' emotional states, for example, in response to expressions of joy, the infants also demonstrated expressions of happiness and interest, with a decrease in mouthing. This was contrasted with an increase in mouthing and other signs of distress when mothers showed expressions of sadness.

The work of Sorce et al. (1985) also demonstrated young infants' awareness and response to the affective states of their care-givers. They placed12-month-old infants on the 'shallow side' of a 'visual cliff' and positioned their mothers, holding an attractive toy, on the opposite, 'deep side'. Under a number of conditions, the experimenters were interested to see if the infants were willing to cross a perspex surface, situated over what looked like a sudden drop, towards their mothers. When noticing the 'visual cliff', the majority of infants spontaneously looked at their mothers' faces. When the mother expressed a happy face, 74% of the infants crossed to the deep side; when the mother posed a fearful expression, none of the infants ventured across. When the mothers posed an angry face, only 11% of the infants crossed the cliff; 78% actively

retreated back to the shallow side. This study suggests that infants aged 12 months seemed to actively seek out their mothers' affective expressions, relate this to their current situation, and respond accordingly with feeling and action.

Hornick et al's research (1987), reminiscent of the work of Bandura, indicated that 12-month-old children's play behaviour is influenced by their mothers' expressions of emotion. Hornick and his colleagues showed how infants' motivation to play with toys was affected by maternal facial, vocal and gestural expressions. Infants played less with toys towards which the mothers showed disgust and more with the toys which parents had expressed positive feelings for.

These studies show that it is through finely tuned relations with the care-giver that children first learn about 'person-related' meanings (Hobson, 1993), and that it is their early engagements with other people's emotional attitudes towards people, objects and events that constitute the building blocks for children's understanding of psychological states. Hobson states that it is through the experience of "reciprocal, affectively patterned interpersonal contact" that a young child comes to learn about minds. He adds that it is from this starting point that children follow a "social developmental pathway" to the time when they acquire concepts about people's internal states.

The role of social interaction as the foundation for children's social-cognitive development is, of course, central to Vygotskian theory. Vygotsky's social-semiotic view of cognitive development is encapsulated by the following quote:

> "any function in the child's cultural development appears twice or on two planes. First it appears on the social plane, and then on the psychological plane.....First it appears between people as an interpsychological category and then within the child as an intra-psychological category." (Vygotsky, 1934, p163)[1].

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[1] Although Vygotsky can be firmly aligned with the 'social interactionist' theorists, like Mead and Hobson, his views on the role of language as a 'tool' for self- regulation set his work slightly apart. Mead saw language in a different way, as a catalyst for 'arousing' what Hobson calls 'interpersonal relatedness'.

Central to Vygotsky's view that cognitive development needs to be seen as closely tied to its social context is his theory of a zone of proximal development. This is the distance between a child's actual developmental level and his or her potential developmental level under the guidance of more expert adults or in collaboration with more competent (usually older) peers. The 'expert' intervention is seen to be at a level beyond the child's existing level so that it provides some challenge, but not too far ahead so that it is incomprehensible, i.e., within the ZPD. According to this theory, the child is seen to learn by *jointly* constructing her own understanding of the world.

Bruner's theory of 'scaffolding' (Bruner, 1975) is closely related to Vygotsky's ZPD: adults are described as erecting 'scaffolds' on which children are helped to 'climb' to higher levels of understanding. As with Vygotsky's ZPD, effective scaffolds are the ones constructed so that the child is not asked to climb too far too quickly. Bruner's original reference to 'scaffolding' was in mothers' interpretations of their young child's actions, particularly their inferences as to their infants' intentions. Bruner writes:

> "Mothers most often see their role as supporting the child in achieving an intended outcome, entering only to assist or reciprocate or 'scaffold' the action. 'Scaffolding' refers to the mother's efforts to limit, so to speak, those degrees of freedom in the task that the child is not able to control-, holding an object steady while the child tries to extract something from it, screening the child from distraction, etc." (Bruner, 1975; p.12).

The term 'scaffolding', as it is now used, refers to many different types of strategies that an adult uses in order to help children's learning efforts through supportive interventions, all aimed to ensure that children achieve goals which they may have been unable to realise unsupported, e.g., 'communicative ratchets' in language, where adults gradually increase the demands placed on language (Bruner, 1983), 'scaffolding' in reading, etc.

1.2 Children with severe learning difficulties

Children with severe learning difficulties are seen to experience developmental delay in most areas of development, e.g., language, cognition, social and emotional development. Many of these children experience 'global' developmental delay, i.e., a general retardation in most areas of development; others may be seen to have 'peaks and lows' in their development, i.e., their abilities in some areas seem to be more developed than in others. It is likely that that their social-cognitive development is similarly delayed. The foundations of learning-disabled[2] children's social-cognitive learning are likely to have been disrupted. In the early few months of life, young infants with severe learning difficulties are not going to enter into the reciprocal social-cognitive patterning described above on an equal footing as non-learning disabled infants. Indeed, the lack of responsiveness on the part of the young child with cognitive and/ or sensory impairments to the mother's attempts to engage the child in 'mutual' exchanges has been shown to disrupt the bonding process and has led to reduced expectations on the part of the mothers of Down's Syndrome children (Berger, 1990; Cicchetti and Beeghly, 1990). Berger states that the majority of infants with Down's Syndrome are able to enter into reciprocal interactions with their parents soon after birth; however, for many parents, the "ever present, if not always manifest, feelings of sadness, inner conflict, and doubt on the part of the parents seem to be among the difficulties coloring the early interactions." (Berger 1990, page 137).

In some schools, teachers working with children at very early developmental levels recognise the importance of 'bonding' and 'intersubjectivity'. Nind and Hewett's (1994) approach to 'intensive interaction' draws upon research into care-giver-child interaction to allow children to experience some of the reciprocal social patterning that they may not have been (developmentally) ready for in their early years. In 'intensive interaction', the child is allowed to take the lead, and interaction centres upon 'dialogues of imitation, rhythm, repetition and expectancy (Hewett and Nind, 1992).

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[2] For brevity, 'learning disabled' refers to severe learning disabled children.

The rationale behind Coupe-O'Kane's Affective Communication Assessment (Coupe et al 1985) draws upon research into care-giver-infant interaction. This provides the structure by which teachers working with children at pre-intentional levels of communication can interpret their affective responses to various stimuli (e.g., like, dislike, want and reject) and place meaning on them; to respond to them as if they are communicative signals. Harris (1994) emphasises the importance of teachers treating children's actions as having social significance, so that children can begin to see their actions as "elements within the web of meaning" (page 38).

There has been little research into the social-cognitive development of children with severe learning difficulties. In this thesis, the author investigates one aspect of children's social-cognitive awareness, their ability to 'mindread' (Whiten, 1991), that is their ability to appreciate the psychological states of others. In order for the author of this thesis to investigate this aspect of learning-disabled social-cognitive awareness, it was first necessary for him to learn more about non-learning disabled children's understanding of the mind. The next chapter begins with a theoretical perspective.

Chapter 2
Children's developing 'theories of mind'

2.1 Introduction

This chapter focuses upon one area of children's social-cognitive development; their ability to 'mindread' (Whiten, op. cit.). This relates to children's abilities to contemplate the psychological states of others in order to predict and understand behaviour. This aspect of children's developing social-cognitive awareness is often referred to as children's 'theory of mind' (Premack and Woodruff, 1978) or 'folk psychology' (Dennett, 1978; Olson, 1988). Astington (1991) calls it a "common-sense", or "belief-desire psychology", because it provides explanations of behaviour and makes predictions about people's actions by appealing to their beliefs and desires, to what people think, know, expect, want, intend, hope for, etc.

The chapter begins with a definition of "theory of mind". The peculiar properties of mental states are then outlined as are some of their functions in terms of relating them to one's own and other people's behaviour. The term 'theory of mind', for some authors, is viewed as a misrepresentation; Johnson (1988), Harris (1989) and Hobson (1993) do not share the view that children's ability to 'mentalise' involves the construction of a theory. They propose that children's knowledge of human behaviour is derived from their own phenomenal experience. This experiential approach is central to the development of this thesis, for it places social-cognitive understanding within a participatory framework, i.e., children learn about other people's psychological states through the process of social interaction and on the basis of interpersonal and affective experience. This emphasis upon of 'learning about people, through people' informs the experimental work with children with severe learning difficulties in chapter 6.

Johnson and Harris's theory of 'simulation', Hobson's (1993) views about 'interpersonal subjectivity' and Nelson's (1981) 'scripted knowledge' all provide an alternative perspective to the 'theory of mind' or 'computational' orientation to the way children develop psychological understanding.

2.2 Mental States and "Theory of Mind"

Premack and Woodruff (1978) were among the first authors to coin the term "theory of mind". They used the term in their investigations into the appreciation of intentionality among chimpanzees. The authors write that an organism or person is said to have a "theory of mind" if:

> "…. he imputes mental states to himself and others (either to conspecifics or to other species) as well. A system of inferences of this kind is properly viewed as a theory, first, because such states are not directly observable and second, because the system can be used to make predictions specifically about the behavior of others....Purpose or intention is the state we impute most widely; several other states are not far behind, however. They include all those designated by the italicised term in each of the following statements: John *believes* in ghosts; He *thinks* he has a fair chance of winning; Paul *knows* that I don't like roses; She is *guessing* when she says that; I *doubt* that Mary will come; Bill is only *pretending*." (page, 515).

Wellman (1990) discusses the non-observability of mental states and describes such ascriptions of mental states as 'inferences'. He writes:

> "In part, mental states cannot be simple empirical generalizations because there is no set of observable activities in self or other that consistently correlates with inferred mental states. There are no actions inevitably connected to having a desire, no consistent introspectable state of conviction essential to having a belief. If no neutral observational or experiential data dictate the inferences of mental states, what does? Observation and experience play their parts but, in addition, some intervening conceptual filter seems to stand between observation or experience and knowledge of mind, a theoretical lens that organizes the latter out of the former." (Wellman, 1990: pp94-95).[3]

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[3] Hobson appears not to have such problems with unobservable mental states. He writes "I suggest children's understanding of unobservable mental states is not so mysterious once one sees that they begin by understanding mental states that are observable" (Hobson, 1993: p.122).

Whiten and Perner (1991) state that the process of mental state attribution is tied inextricably with actions in two ways. Firstly, they state that attributions are made on the basis of observations of behaviour in social contexts, and secondly, the utility of the mental attribution is testable through its predictive power. Whiten and Perner (1991: p.11) state that 'theory of mind' can be regarded as a type of theory, in so far as it is "an elaborate system of theoretical constructs, generating testable predictions on which it stands or falls".

There has been great interest in whether such a system of theoretical constructs can be extended to animals (see Bryne and Whiten 1991, Cheney and Seyfarth, 1991, Gomez, 1991, Whiten, 1993) or indeed computers (see Shultz, 1991 and Schmidt and Marsella, 1991).

Premack and Woodruff (1978) were not only the first researchers to articulate whether children's understanding of the mind amounts to a 'theory', but were the first to investigate 'theory of mind' in primates. They were interested in the question of whether chimpanzees can impute states of mind to others and use this ability to predict behaviour. To investigate this, the authors showed an adult chimpanzee, "Sarah", a series of videotaped scenes of a human struggling with a variety of problems, e.g., a man struggling to reach a banana hanging from the ceiling. After the video, the chimpanzee was shown some photographs of the man engaged in a continued action, one of which was a solution to the problem, i.e., in the example above, the man stepping onto a box. The hypothesis was that if the chimpanzee knew that the man wanted/ desired the banana then she would predict that he might step onto a box in order to reach it. The chimpanzee passed on 21 out of 24 of the trials. However, there seems to be a methodological problem in this experiment. In the abstract, Premack writes that with each videotape, the chimpanzee was given several photographs. This is rather misleading, because close examination of the procedure shows that after each video, the chimpanzee was given a choice of two photographs, one of which provided the solution to the problem. The authors write that the left-right position of the correct alternatives was counterbalanced over problems and over trials, but this does not seem to eliminate the 50% chance rate of success. It may have been preferable to have presented a choice of four

photographs instead of two. Whether it was valid to claim that the chimpanzees were imputing mental states to the man is outside the concern of this thesis. However, the authors themselves speculate that the chimpanzee could have been led to the correct response by "associationism" rather than by imputing the human's mental state. Associationism refers to the chimpanzee's familiarity with the sequences, i.e., when the chimpanzee was shown an incomplete sequence that she might recognise, she might have chosen the element that had the effect of completing the sequence.

Other more recent studies, referred to above, offer some compelling examples of primates in the wild exhibiting examples of behaviour such as might suggest that they have at least a rudimentary understanding of the minds of animals, especially in their own species.

Central to Premack and Woodruff's concept of 'theory of mind' and the distinction between the mental world and the physical world is 'intentionality' in relation to mental attitudes. Brentano (1874/1973) maintained that all phenomena are either physical or mental, and that mental phenomena have certain unique qualities. He wrote that mental state terms such as believe, desire, expect, hope, pretend, imagine, etc., are all directed to something (their intentional content), e.g., a person believes that something, intends to do something, etc. Thus, mental processes are internal processes that are directed to the external world. This quality of directedness has been called "Intentionality" (Dennett, 1978; Searle 1983). Brentano stated that propositions predicated by mental state terms do not have the same logical properties as any other type of propositions. Their main unusual logical properties are:

1) Non-entailment of existence or non-existence, e.g., "I believe in God" can be true without entailing that God actually exists, 2) Non-entailment of truth or falsehood, e.g., "John believes that I am rich" can be true even if I am, in fact, poor. The content of mental states as expressed in embedded "that..." clauses ("x thinks that...", "x pretends that...", etc.,) are seen to have special logical status, i.e., they are independent of states of affairs in the external world in terms of existence, truth and reference, and this is highly significant to Perner's theory (see page 76 of this thesis). 3) Referential opacity, e.g., (Dennett's example, 1983) "Suppose

you think your next-door neighbour would make someone a good husband and suppose, unbeknown to you, he's the Mad Strangler. Although in one, very strained, sense you could be said to believe that the Mad Strangler would make someone a good husband, in another more natural sense you don't, for there is another, - very bizarre and unlikely- belief that you surely don't have, which could better be called the belief that the Mad Strangler would make a good husband. The third unique quality of mental state terms is the facility that they offer the beholder to take "the intentional stance" (Dennett 1987) i.e., - attributing mental states to other people (and oneself) allows us to explain and predict their actions (and our own). Dennett (1978) provides the following example: "Why did the man stand under the tree? Because he thought it was raining and he wanted to stay dry and he believed the tree would shelter him." So, only reference to the man's beliefs explains his actions, not the fact of whether it was raining or not, or whether the tree would in fact shelter him. Dennett emphasises that the predictive power of this form of explanation is highly reliable. He calls such mental state attribution explanations "folk psychology". Dennett writes:

> "We use folk psychology all the time, to explain and predict each other's behaviour; we attribute beliefs and desires to each other with confidence, - and quite unselfconsciously- and spend a substantial portion of our waking lives formulating the world, - not excluding ourselves- in these terms.....Every time we venture out on a highway, for example, we stake our lives on the reliability of our general expectations about the perceptual beliefs, normal desires and decision proclivities of the other motorists." (Dennett 1978, page 569).

Olson (1988) states that a "theory of mind is a set of explicit and interconnected concepts for representing those representational states". He sees children as having to go through three stages of development before they acquire a folk psychology. He sees the infant as being at the first stage, describing him as "essentially behaviouristic", i.e., behaviour is to be explained without recourse or appeal to intentional states. Olson describes the child's next stage as "intentional". He writes, "children who have learned to talk, to make assertions and requests, may be credited with the corresponding intentional states: If they ask for x, they desire x,

if they say that p, they think that p, and so on." He adds that at this stage, they may not, yet, think of their utterances and actions in terms of mental or representational states. At the third stage, Olson sees the child acquiring a folk psychology, that permits them to think of their own and other's talk and actions in terms of mental states. Olson writes that it is then that the child begins to see his utterances as expressions of belief and begins to distinguish beliefs from utterances, to distinguish beliefs from reality, etc.

Dennett (1978) calls these beliefs, desires, etc., about other people's beliefs, desires, (e.g., "I think that Jim's deceiving me") second-order beliefs/ desires, and says that they are dependent on second-order representations[4]. Dennett writes that third-order mental states, e.g., "I think that Mary thinks that John thinks...." require third-order representations, and so on. Miller (1970) called this "recursive thinking" (see page 80 of this thesis). The author of this thesis believes that second-order representations are a critical ingredient in the ability to think and reason about the content of our own minds and the minds of others. This will be expanded upon in the light of experimental evidence presented in chapters 4, 5 and 6.

Happé (1994) gives a compelling account of the consequences of not being able to represent the beliefs and intentions of others. She writes that everyday sophistications such as deception and bluff would be incomprehensible. She writes that the inability to impute mental states to others would have a devastating effect on one's sociability, e.g., one could not "read between the lines" of conversations, guess and anticipate what the listener wants to hear, know what not to say, know to avoid embarrassing remarks, know not to repeat what the listener already knows, etc.

These pragmatic features of language are part of a person's metalinguistic awareness. This, in the opinion of the writer, is an aspect of recursive thinking which has been neglected in the literature. Metalinguistic knowledge (knowledge of language) involves reflecting upon or adopting

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[4] Other authors (e.g., Perner and Wimmer, 1985) would call this first- order belief. In the author's experimental work in chapters 4, 5 and 6, Dennett's example would be taken as first- order belief.

a stance towards the functions of language. Cazden (1983) defines metalinguistic knowledge or awareness as "the ability to make language forms opaque and attend to them in and for themselves."

According to Gopnik and Wellman (1994), our everyday conception of the mind is a formulation of a succession of naive theories, what they call a 'theory theory' which makes significant developments during a person's first 5 years of life. Gopnik and Wellman propose that children's understanding of the mind is a theory, involving very similar theoretical constructs to those held by adult scientists. They substantiate this as follows:

1) Children's theoretical understanding involves general constructs about the mind that go beyond any direct evidence. By this they refer to the distinction between layers of experience and the theories themselves.

Gopnik and Wellman distinguish between two methods of organising experience, firstly using 'empirical topologies and generalisations', which are the 'orderings, partitionings, and glosses of evidence and experience' and secondly using theoretical structures. Gopnik and Wellman state that theoretical structures contrast with empirical topologies and generalisations, in that theories propose theoretical constructs-'abstract entities' and these provide causal explanations that account for 'evidential phenomena'. This brings us to their second criterion.

2) Children's theoretical constructs feature prominently in explanation.

Gopnik and Wellman propose that theoretical constructs are designed to explain empirical phenomena and that these theoretical explanations are typically phrased in vocabulary quite different from evidential vocabulary. One such difference is their 'abstractness'. They state that 'theories postulate abstract entities and laws that explain the data'. Gopnik and Wellman add that theoretical constructs work together in systems characterised by lawlike structures and this 'coherence' further distinguishes them from empirical generalisations.

3) Children's theoretical constructs allow them to make predictions about behaviour in a wide range of circumstances, including perceptions about behaviour they may have never experienced and incorrect predictions.

Empirical generalisations allow predictions, but Gopnik and Wellman state that these predictions are not far removed from the evidence itself. They propose that the 'abstractness' and 'coherence' of theories permit predictions about a wider variety of evidence than empirical generalisations, including evidence that played no role in the theory's initial construction. Gopnik and Wellman use theory from medicine as an analogy. They state that medical theory allows us to predict that antibiotics will inhibit many bacterial infections, including some that were unknown when the theory was formulated. Medical theory also allows us to predict that such drugs will be ineffective against viral infections, even when the symptoms of viral infections may be identical to bacterial ones.

Gopnik and Wellman state some of these predictions may be incorrect because theories go beyond the evidence, and because theories are never completely right-some of their predictions may be falsified.

4) Children's theoretical constructs lead to distinctive interpretations of evidence.

According to Gopnik and Wellman, theories produce interpretations of evidence, not 'descriptions and topologies of evidence and generalisations about it'.

5) Children's theoretical constructs are 'defeasible' and 'dynamic'.

By this Gopnik and Wellman mean that theories are open to defeat or revision via evidence. They say because of this defeasibility, theories change due to the accumulation of counter evidence, the creation of auxiliary hypotheses, and the formulation of alternative models to the original theory. This means that there may be a transition from one set of theoretical constructs to another.

In summary, Gopnik and Wellman propose that all the above characteristics of theories ought to apply to children's understanding of mind, 'if such understandings are theories of mind'. They state:

> "Children's theories should involve appeal to abstract unobservable entities, with coherent relations among them. Theories should invoke characteristic explanations phrased in terms of these abstract entities and laws. They should also lead to characteristic patterns of predictions, including predictions about new types of evidence and false predictions. Finally, theories should lead to distinctive interpretations of evidence; a child with one theory should interpret fundamental facts and experiences differently than a child with a different theory. This distinctive pattern of explanation, prediction, and interpretation is among the best indicators of a theoretical structure." (Gopnik and Wellman, 1994, page 262).

Gopnik and Wellman refer to the wealth of experimental work (reviewed in the next chapter) on children's representational abilities to justify their contention that children's understanding of the mind is theoretical. They propose that children's understanding utilises a succession of theories, and that changes in children's theories of mind can be described as a gradual transition from one view of the mind to another. They state that the 2 year-old child has an early theory of mind including a conception of mental states, such as desires and perceptions, but this understanding does not extend to the existence of representational mental states, namely beliefs. Gopnik and Wellman regard the 3 year-old child as being in a transitional stage in her theory of mind. They see children of this age beginning to understanding representational aspects of their notions of perception and desire and developing a 'non-representational account of belief'. Several researchers propose that children understand representations of desires and perceptions earlier than representational aspects of beliefs. Indeed, as Gopnik and Wellman demonstrate, desire and perception can be construed either nonrepresentationally or representationally, - when a person is satiated with something, e.g., after a glut of strawberries, he may temporarily no longer desire them, but the strawberry itself has not changed for the person as an object of desire. In the same way, experimental work in appearance/ reality tests children's

understanding of the representational nature of perception (see page 59 of this thesis). When children see the same object through different coloured filters, their perceptions of these objects may change, but the perceived objects remain the same.

In Gopnik and Wellman's third phase of children's developing theories of mind, 4 year-olds reorganise their central explanatory theory. They 'begin to realize that what actors think, - their representation of the world rather than the world itself- inevitably determines their actions' (page 264). Along with several other researchers (Flavell, 1988; Forguson and Gopnik, 1988; Perner, 1993), Gopnick and Wellman state that this is when the child develops a 'representational model of the mind', - when psychological functioning is mediated by representations. Gopnik and Wellman state:

> "Desires, perceptions, beliefs, pretences, and images all involve a fundamentally similar structure, a structure sometimes described in terms of propositional attitudes and propositional contents. These mental states all involve representations of reality, rather than realities themselves. In philosophical terms, the child's view of the mind becomes fully intentional." (page 273).

Significant to Gopnik and Wellman's thesis is children's reformulation of their theory of mind. They propose that the 4 year-old child's 'representational model of the mind' provides her with new predictions, explanations, and interpretations, but it also eventually "provides a revised view of the very phenomena that were accounted for earlier by the desire-perception theory." (page 267).

This third phase of children's developing theories of mind, when they are between 4 and 5 years of age, accounts for their emerging ability to understand 'false belief' (see page 64 of this thesis) which involves an understanding that people's cognitive relations to the world may differ in significant ways even when both their ultimate beliefs and the objects in the world remain the same.

2.3 Simulation and experience-based models of the mind

Johnson (1988) believes that children's early understanding is intuitive, not theoretical. He says that children's understanding is limited to practical knowledge and action and what the child understands is his own phenomenal experience. Johnson interprets Wellman and Estes (1986) findings that children become aware of what can or cannot be done with thoughts and real objects (e.g., thoughts of biscuits and real biscuits) as not appealing to a theory, but to intrinsic, first-order knowledge of what thoughts and things are. Johnson believes that children have experiences with representational states, just as they have experiences with perceptual states. He adds that from such experiences, they simply discern that representational states are not among the things that they can perceive. Thus Johnson believes that the mentalism of children has its roots in the structure of experience and the structure of experience provides a wealth of information for differentiating overt and covert intentional states. According to Johnson, intentional states are not abstract and inferred, but are directly experienced.

Central to Johnson's "experience based model of the mind" (Johnson, 1988a, 1988b) is his theory of simulation which he believes enables children to predict the behaviour of different people in different situations. Johnson writes : "By simulating the status of people in the world, children are able to make generative predictions from their own simulated states in the absence of any abstract theory." (Johnson 1988b, page 49). Johnson cites Gordon's (1986) description of simulation, that in order for the child to understand how someone will think, feel, act, etc., he need not access some theoretical principles for deduction, but simply imagines himself in their situation and directly "reads off" his own experience. This can be seen as the antithesis of the "theory of mind" view, which states that in order to predict human behaviour, one needs to impute people's mental states. Johnson sums up the difference in standpoints quite neatly: he writes that in order to predict a person's behaviour, "there is no need to...project ourselves into someone's mind, we need only to project ourselves into their situation. And there is no need to abstract some general rules or laws; these are inherently given by

the structure of our own experience, i.e., the actual structuring of the situation by our minds." (Johnson 1988a, page 2).[5]

There are two fundamental constructs in his model: intentionality and affordance. Johnson uses the term "intentionality" in the same manner as Dennett and Searle i.e., intentional states are psychological modes with properties of "direction of fit" and/ or a "direction of causality". The direction of fit can be two-way: either the person adapts or fits the mind to the properties of the world, or, he is orientated to fit the world to the goals of the mind. So, intentional actions are mind-caused acts directed toward fitting the world to the intentions of the person (or animal), whereas perceptual modes, such as seeing, are world-caused experiences directed toward fitting the mind to real properties of the world. Johnson proposes that mind-caused and world-caused experiences are integrally related. He writes, "seeing a ball, touching a ball, or remembering a ball all mark experiential modes of apprehending a ball. In each case the self and the object are distinct, yet integrally related: It is the self which sees, touches and remembers, but it is the ball that has the properties that are seen, touched and remembered." (Johnson 1988a, page 5).

This brings us on to Johnson's second fundamental construct: affordance, taken from the work of Gibson (1950). Affordance is the object side of the intentional relation described above. Johnson writes (1988a) that people's intentional experiences with the world are organised with reference to the subject, but are not subjective. He states that in seeing an object, the person discerns the "seeable properties of objects" (Johnson,

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[5] This is very similar to Chandler and Helm's (1984) idea of social role-taking. There seems to be a distinction, here, between simulation and empathy. Empathy is about having an affinity with another person's experience, being able to place oneself into his or her situation and understanding how he or she feels, thinks and acts (often referred to as 'putting oneself into another person's shoes'). A man may be walking along a busy road and correctly attribute anger to a person driving a car who is stopped at a pedestrian crossing waiting for an elderly person to cross. But the man may not empathise with the driver; indeed, he might find it difficult to relate to the driver's feeling of anger, because he would not see himself becoming angry in this situation.
Johnson's quotation also relates to the problems some adults have in moving beyond projecting themselves into another person's situation to an actual consideration of another person's mindset, e.g., 'If I knew I was going to be hanged if I was caught, I wouldn't commit a murder'. (I am grateful to Sarah Sandow for this point).

1988a, page 6), in wanting an object, the person discerns its desirable properties, etc. He writes, "In discerning affordances, the child is immediately provided a handle for thinking about how a given objective property in the world will be perceived by a subject." (Johnson 1988a, page 6). Johnson adds that the 2 year-old child begins to understand that a given object affords other people the same experiences as himself and conceives the objective properties of persons in terms of affordances: hands afford picking up, eyes afford seeing, etc. At around this age, Johnson proposes that children's experience expands beyond having perceptual experiences of the world, towards having and creating representational experiences: thinking, believing, pretending, etc. And as stated above, Johnson believes that children become capable of imagining people in situations with different affordances, and reading off their experiential consequences.

Forrester (1992) makes a valuable point about Gibson's theory of 'affordances'. He states that "affordances *offer*, or have *potential* for, sets of actions; they do not cause or require them" (Forrester's italics). He writes:

> "There is an intrinsic relation between perception of an environment and action within it. It is the affordance that is perceived, defined, that is, as those behaviours which can be entered into with respect to the environment. To detect affordance is to detect meaning, based here upon a concept of information where information is interlinked with both perception and action." (Forrester, 1992: p. 63).

This alerts us to the importance of the relationship between people and affordances; people determine their meaning. Affordances may be properly regarded as cultural phenomena, and their significance can only be determined through and by the process of social interaction. Affordances can only be recognised as dynamic formulations of perception and action. This seems to highlight an 'experiential' rather than a theoretical model of the mind-where emphasis is placed upon intuitive and exploratory activity (what Forrester calls "the complementary and reciprocal nature of action and perception") in socially meaningful contexts.

In his experimental work with students with severe learning difficulties (chapter 6, study 4), the present author uses the medium of drama in an attempt to offer students dynamic formulations of perception and action. The methodology used is more interactive and reciprocal; the experimenter is more responsive to the students' understanding and there is an emphasis upon intuitive and exploratory activity. It is proposed that this way of working with young people with severe learning difficulties in a 'participatory' framework is more akin to the ways that people learn about the social world.

2.4 Mental simulation

Harris (1989, 1991, 1993, 1994), like Johnson, argues against the child acquiring a theory of mind. He proposes that children do not think in theoretical terms, but on the basis of 'working models' or 'concrete paradigms' that serve as a basis for prediction and explanation. Harris draws on Kuhn's concept of a 'scientific paradigm' (Kuhn, 1970), in which Kuhn defines a paradigm as a "concrete puzzle, - solutions which, when employed as models or examples, can replace explicit rules as a basis for the solution of the remaining puzzles of normal science." Harris (1994) states that this notion of a paradigm has similarities to young children's thinking. He writes, 'the child assimilates a new situation to a previously encountered instance or to a prototypical model of those instances, and then uses the instance or prototype to extrapolate forward to likely outcomes in the new situation. Similarly, the scientist assimilates the outstanding puzzles of normal science back to the paradigmatic exemplar.' (Harris, 1994: page 303).

Harris proposes that children make predictions about other people's actions, thoughts and emotions by engaging in 'imaginative enactment' or 'mental simulation'. According to his simulation account, children have privileged access to their current mental states. He states that privileged access is not available in the case of other people's mental states, and in order to identify or make predictions about their mental states, the child utilises a simulation strategy. Harris (1994) states that children must 'reconstruct in their imagination the causal sequences in which such mental states are embedded'.

Harris believes that children are equipped from birth with a working model of the other person. He proposes that the construction of all children's minds are similar, and that, provided that children have some awareness of their own mental states, and of the conditions that they face, "they can arrive at a set of generalizations about the links between situations, mental states, and action" (Harris 1991, page 300). According to Harris, these regularities allow the child to make predictions about other people by a process of 'analogy'. Harris states that these generalizations are supplemented by the process of simulation. Even predictions about novel situations can be entertained in this process. He writes:

> "Asked what someone will do, it is important for the child to consider the situation as conceived by the other person. That situation may not correspond to what the child wants or believes, either now or in the past. Effectively, therefore, the child is required to make a prediction about a novel situation. However, so long as the child mimics the conditions that obtain for the other person, - imagines the desires and beliefs that the other person brings to the situation- the analogy between the self and the other person can be re-established." (Harris, 1991: page 300)[6].

These points were borne in mind by the writer when he devised the narratives for children with severe learning difficulties in chapter 6. He wanted to provide dramatic contexts which the children could relate to, in order to facilitate children's appreciation of different characters' internal states.

Hobson (1993) sees this process of analogical reasoning as problematic. He says that this presupposes that children can conceptualise their own mental states prior to and as a precondition for ascribing similar mental states to others. Hobson is unsure of whether children can engage in such self-reflection, in their identification of their own thoughts, feelings and intentions, before they ascribe similar mental states to others. He

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[6] Children's predictions about novel situations by 'analogical modelling' may only be possible if the child can identify him/herself with the other person.

believes that children would need to have some way of checking that they are correct in identifying that their own mental states are the same as those at work in the other person. Hobson writes:

> "...there must be behavioural criteria for at least some mental states, in order that I can reach agreement with others about how to apply mental state concepts to 'my own case'. For agreements in judgement and correcting to be possible, there have to be 'public' criteria for the mental states that (sure enough) correspond with particular kinds of subjective experience." (Hobson 1993, p.113).

Hobson proposes that his theory of interpersonal engagement and personal relatedness offers the child such 'public' criteria. (This is described in detail on page 39). However, Hobson concedes that such analogical reasoning, as reflected in the simulation account, must afford the child some understanding and ability to predict other people's behaviour. He believes that because the young child can see that other people have bodies similar in make-up to their own, and that they behave and utter sounds in similar ways, then it is probable that children infer that other people have minds-and can therefore draw an analogy from their own experience, and conclude that other people are similar in being subjects of experience. He writes:

> "...Once I have made the inference that people have minds, I can judge what people feel, think, and so on from what they say, or from 'cues' provided by their bodily expressions and behaviour. I can even take the role of the other person and imagine myself in the other's shoes. Then I shall understand at least the kind of thing the person is thinking, feeling, and so on." (Hobson, 1993: p.112).

Harris (1989) proposes that mental simulation depends on the capacity to engage in two successive steps: 1) to entertain imagined premises such as having a particular desire or belief and, 2) to simulate the actions, thoughts or emotions that would ensue if one were to actually have those desires or beliefs. The product of such a simulation can then be attributed to other people who do possess the desires or beliefs that have been simulated. Thus, according to Harris, by 'feeding in' another person's desire or belief into the child's planning system, it becomes possible to

derive an 'as if' output, - what Harris (1994) regards as a 'hypothetical plan of action, which can be used as a prediction of the person's likely behaviour'.

Harris (1989) believes that when children imagine other people's mental states, they do so against a background of "default settings". He sees the default setting as the current state of the world and the current state of the self. He writes, "Unless the child or animal engages in a mental simulation that involves the temporary conjuring-up of an imagined desire that is different from what the self wants, the default setting corresponding to what the self wants will be operative. Similarly, unless the subject conjures-up a state of affairs that does not correspond to the current state of the world, the default setting corresponding to the current state of the world will be operative" (Harris 1991, page 284).

Harris states that the greater the number of default settings that require temporary suspension, the more difficult the simulation. Harris believes that in the initial step of simulation (1 above), it is often easier to imagine a state of desire that one does not have than a state of knowledge or belief that one does not have (see also Perner, 1988). Harris states:

> "Imagining a desire that one does not have may simply require imagining a different intentional stance toward current reality, (e.g., "This container has milk in it. I do not want it. He does. I can imagine how he feels"). Similarly, imagining another person's beliefs may also simply involve imagining a different intentional stance toward the same facts, ("This container has milk in it. I know that it does. He does not know that it does. I can imagine his ignorance"). However, it may also involve setting aside the facts as one knows them, and conjuring-up a different set of make-believe facts. ("This container might have milk in it. I know that it does not. He believes that it does"). This brief analysis shows how a simulation may simply call for a change in the default setting specifying one's intentional stance toward current reality. Alternatively, it may require a change in the default setting specifying the current state of the world as well as one's current intentional stance." (Harris 1991, page 284).

In his later writings, Harris (1993, 1994) tends to regard this temporary suspension of one's intentional stance as a process of 'overwriting'. In his discussion of the difficulties children experience in tests of false belief, e.g., predicting that in a story, a protagonist will look for a chocolate where she put it, rather than where, unbeknown to her, it had since been moved, Harris describes the process of overwriting. He states:

(In standard false belief tests) "a more sophisticated simulation strategy is to feed in not just the doll's desire, but in addition, the now contrary-to-fact situation (i.e., the chocolate in its original location), which the doll 'witnessed' before its departure. If these twin inputs are fed into their own planning system (and allowed temporarily to overwrite facts within the knowledge base), children will pass the false belief task because on this simulation the desired chocolate is to be found (contrary to fact) where it was in the first place." (Harris 1994, page 298).

Harris sees children's improvement in their ability to accurately represent false belief between the ages of 3 and 5 years as being due not to a revised theory of mind but to an increasing ability to improve the accuracy of their simulation, particularly, he states when such simulations demand temporary overwriting of facts. Harris states that the difficulty of false belief tasks lies in the demand that children must imagine, not just an intentional stance that is not their own current stance, but a situation that they know to conflict with what they currently take to be the case. Harris states that they must imagine a story character believing in a reality that conflicts with what they know to be reality. He states "an accurate simulation can only be achieved by feeding in as input a counterfactual reality and allowing it temporarily to overwrite what is known to be the case" (Harris 1994, page 299).

Harris's account of the conceptual difficulty of false belief brings to mind Flavell's (1985) argument. Flavell states that children's difficulty with many first-order belief attribution tasks, such as false belief and appearance/ reality, rests with their difficulty in appreciating simultaneously two alternative and contradictory models of reality.

In summary, Harris believes that children make predictions about other people's actions, thoughts and emotions by running a simulation. The child imagines having the desires and beliefs of others and projects him- or herself into their situation and 'reads off' his or her own experience[7]. Harris states that a simulation calls for a working model of the other person, but not a theory.

The next chapter examines how appearance/ reality and false belief tests involve difficult simulations. According to Harris (1989), these tasks require a double adjustment to the default setting: 1) that reality must be set aside, 2) that a non-existent reality must be conjured up, 3) that the current mental stance toward that non-existent reality must also be set aside, and 4) the substitution of a different stance.

2.5 Interpersonal Relatedness

Hobson (1993: p. 5) believes that children develop a conceptual grasp of the nature of minds through their "experience of affectively patterned, intersubjectively co-ordinated relations *with* other people" (Hobson's italics). He proposes that children begin with innately constituted propensities and capacities to relate to and experience other people in what he regards to be 'special ways'. He believes that infants are "prewired" to relate to people in ways that are "special to people" (as opposed to infants' relations with objects), and that it is through the experience of "reciprocal, affectively patterned interpersonal contact" that a young child comes to learn about people with minds. He states that it is from this starting point, that children follow a "social developmental pathway" to the time when they acquire concepts about people's internal states.

Hobson believes that it is out of what he calls the "primary forms of relatedness" that children develop "perceptual", "cognitive", "conative", and "affective" psychological functions. His theory rests upon the

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[7] It is feasible that for some children with severe learning difficulties whose thinking may rely more upon visual spatial than audio- sequential domains, simulation may represent an important channel of human understanding. For children who are unable to think in words, observing how people react in certain situations, paying particular attention to facial expression, body language, etc., may represent important sources of information processing within the social sphere.

distinction between Buber's (1958) I -Thou (interpersonal) and I -It (person-with-things) relations. Hobson sees the I -It developmental line as roughly incorporating the sensori-motor abilities as described by Piaget. In the I -Thou developmental line, Hobson sees the infant perceiving and responding to 'person-related' meanings, which in turn facilitate 'psychological connectedness' with others. Hobson proposes that through social interaction, for example in sharing experiences between infant and care-giver, there is the potential for cross-linkage between the I -It and the I -Thou pathways. He believes that when these pathways become integrated, important channels for person-person-object interaction open up. This affords the infant valuable opportunities to relate to another person's relation with the world. Hobson states that these more elaborate modes of intersubjective relatedness are soon to launch the infant into a cognitive revolution. He writes:

> "Through new-found capacities to relate to another person's relation to the world, and through the ability and propensity to assume another's attitude and psychological stance towards a visually-specified and shared environment, the infant begins to learn 'through other people'." (Hobson 1993, p.155).

An important component of Hobson's theory of interpersonal relatedness is his discussion of the way infants take a certain stance or set of attitudes towards other people's attitudes. He states that typical instances of infant behaviour which demonstrate 'intersubjective relatedness', e.g., joint-attention, sharing, showing, etc., are "manifestations of the infant's attitudes towards another person's attitudes towards the world and herself." (Hobson, op. cit.: p. 116).

In the same way that Leslie (1987) talks about children's developing representations and 'metarepresentations', the latter being children's ability to represent the mental representations of others and herself, Hobson discusses the significance of attitudes and 'meta-attitudes', 'meta-attitudes' being the child's psychological engagements with other people's attitudes. He writes:

> "I believe there is a great deal in an infant's capacities to perceive and react to the bodily-expressed attitudes of other people, that

lead the infant towards an understanding of what it means to communicate and to 'share', what it is to be a 'self' with attitudes of one's own, and what are the implications for a human being's capacity to 'represent' the world in different ways." (Hobson op. cit., p.209).

Hobson believes that the infant's appreciation of and attitudes towards people as centres of consciousness have been undervalued in developmental research. He states that 9-month-old infants "have the requisite forms of attitude well before they can conceptualise the nature of mental states. These infantile attitudes are the source of interpersonal understanding; it is not that understanding or 'theory' comes first" (page 122).

2.6 Script or event based knowledge

Nelson's work on children's development of script knowledge seems to fit in with Johnson and Harris's contention that young children's understanding of the mind is intuitive and based on experience. Nelson (1978, 1981) proposes that representations of personally experienced events constitute young children's primary knowledge base and this enables them to impose some predictability on the world, to behave appropriately, and to interpret and predict other people's behaviour. Nelson (1981) believes that children's knowledge of the social world is script based and probably remains at this level into adulthood. She defines a script as a "general event representation derived from and applied to social contexts. It is basically an ordered sequence of actions appropriate to a particular spatial-temporal context, organized around a goal." (Nelson 1981, page 101).

Nelson notes that a script can also be about a non-social sequence of actions, e.g., getting dressed, but she maintains that even this routine derives from social experience. Her research indicated that 3 year-old children's script knowledge is "general in form, temporally organized, consistent over time and socially accurate". Nelson believes that young children's script knowledge is acquired from experience and is in fact "a kind of map or model of experience". She says that young children's scripts are learned within contexts that are highly structured for them by

adults. The child's part in the script is determined, and he or she must learn the script, particularly his or her part in it, e.g., what he or she does at lunchtime.

Nelson believes that the automaticity of the way children can engage in scripted activities frees processing space for concentration on non-routine or problematic issues. She writes:

> "Basically, scripts serve as a guide to routine encounters with the world. They enable the individual to predict what will happen next in a familiar situation, to infer unstated propositions in a given context, and when well established, to run through a sequence of actions and interactions more or less automatically. In other words, scripts tell people what to do in familiar situations, thus freeing them from constantly attending to the ongoing action. The cognitive space so gained can be used in the consideration of elements of the situations that are problematic, - variations from the routine, obstacles to the completion of a goal, negotiations between individuals engaged in an activity together, problem-solving activities of all kinds." (Nelson 1981, page 104).

Other authors have looked at the functions of children's script knowledge. French et al (1985) examined children's scripts in relation to discourse. She regards children's scripted knowledge as shared knowledge, and when children's shared knowledge forms the focus of conversation, a number of shared presuppositions are called into play, reducing the need for the explicit negotiation of meaning and allowing for rich interpretation of a partner's statements. For example, her research indicated that children's "kitchen" scripts in the play school Home Corner provided children with opportunities to practise their emerging communication skills without having to rely entirely on their own and their partners' linguistic abilities to sustain interaction.

Of particular interest to nursery school teachers are the results of one of French et al's studies examining communicative interaction of 2-5 year-old children. French et al., (op. cit.) found that the complexity, duration, and cohesiveness of children's interaction varied as a function of the type of play being engaged in, which in turn varied as a function of the

physical setting in which the play occurred. The authors found, as in some of their earlier studies, that the longest, most cohesive interactions took place in the kitchen corner.

According to Nelson (1981), through scripts, children acquire expectations about the structure of common events, and, in order for children to interpret and predict other people's actions, they search for a general plan to fit the situation. However, this is not to say that children are not also predicting other people's behaviour in terms of their desires and beliefs. It seems plausible that both ways of understanding behaviour may be regarded as complementary and that children's scripted knowledge may offer them greater cognitive space to consider other people's mental states.

2.7 Conclusion

This chapter has reviewed some theoretical (and philosophical) perspectives concerning children's ability to 'mindread', i.e., appreciate other people's psychological states. It was established that, according to some authors, the ability to attribute mental states with propositional content to others has been called a 'theory of mind' because it involves the person postulating the existence of mental states and then using these to explain and predict another person's behaviour. Some authors prefer to talk about 'folk' or 'common-sense' psychology and others object to the word 'theory' being used at all.

The next chapter reviews a number of experimental paradigms which investigate children's abilities to represent other people's psychological states.

Chapter 3
Young children's understanding about the mind

3.1 Introduction

It was stated earlier that analysis of non-learning disabled children's social-cognitive development should precede, and hopefully inform, understanding and investigation of the social-cognitive development of children with severe learning difficulties. This chapter looks at children's representational abilities, in particular the way children understand their own beliefs and desires and those of other people. Children's ability to 'mentalise' clearly involves representation of other people's psychological states. The chapter includes a review of significant research into children's representational abilities, particularly in relation to belief, often called 'metarepresentation'. It also briefly examines children's abilities to represent other people's desires and intentions.

Much of children's early representational ability is evident in their early behaviour, i.e., such as can be inferred from what they spontaneously say and do, e.g., in their play. The chapter begins with Leslie's (1987, 1988 and 1993) hypothesis that pretend play demonstrates children's first manifestation of second-order representation, or "metarepresentation". More 'experiential' perspectives on play are then considered. Johnson (1988) and Harris (1989) are critical of Leslie's claims that metarepresentation is necessary in order to engage in symbolic play.

Other evidence of children's understanding about the mind is inferred from their behaviour in experimental paradigms. Children's early perceptual perspective-taking abilities are described within the framework of Flavell's (1981) model of perceptual role-taking. Children's conceptual role-taking abilities are reviewed in more detail, as success in tasks which tap children's understanding of 'appearance/ reality' and 'false belief' depends upon first-order belief attribution (Wimmer and Perner, 1983) or second-order representation (Dennett, 1978; Pylyshyn, 1978; Johnson-Laird, 1983; Leslie, 1987, 1988).

The child's ability to make first-order belief attributions, e.g., the ability to distinguish one's own beliefs from another person's beliefs, is seen by

the author of this thesis to be critical for the child's social-cognitive development. The argument which the author wishes to develop is that children's failure in many of the tasks reviewed in this chapter may be more due to the tasks' computational complexity than to deficiencies in children's representational abilities (i.e., their insufficiently developed 'theories of mind').

The main aim of what is to follow, then, is to examine critically the experimental methodology of many of these belief attribution tasks. This will prepare the reader for the author's experimental work, the first part of which attempts to reduce the inferential demands of a first-order belief attribution task (study 1, chapter 4). The author's second study provides an original story scenario in which to explore mainstream children's second-order belief attribution through drama. The third study investigates the same metarepresentational abilities of children with severe learning difficulties (chapter 5). The fourth study is a questionnaire-based investigation of the spontaneous use of internal state terms by non-learning and learning-disabled children (chapter 6). The fifth study provides a participatory framework in which to explore learning-disabled children's representational abilities. This final study places greater emphasis on the importance of dynamic and participatory aspects of social-cognitive contexts (Forrester, 1992).

The impetus behind exploring more participatory contexts in which to explore children's social-cognitive understanding, for example drama, arises from the author's dissatisfaction with the plethora of research studies utilising rigorous 'test' methodologies to investigate children's representational abilities. In most of the recent studies, the researcher sets a rigid procedure in which children either pass or fail a series of belief questions. It is proposed that an alternative framework, in which children actively (and equally) participate in the procedure, may offer researchers new methods of investigating children's social-cognitive understanding; perhaps more importantly, it may offer practitioners working with children who may have developmental delay in metarepresentational abilities, strategies with which to help develop their social-cognitive awareness. The author believes that, in special education, there still exists a divide between research and practice. The author's empirical work with children with severe learning difficulties

described in chapters 5 and 6 is an attempt to provide a basis on which teachers may intervene in developing children's social-cognitive awareness.

3.2 Children's symbolic play

Piaget (1952) regarded the onset of representational thought at the end of the 'sensorimotor' phase (viz. when the child is between 18 months and 2 years) as marking a major change in the child's cognitive functioning. He saw representational thought as enabling the child to go "beyond the present, extending the fields of adaptation both in space and time....it evokes what lies outside the immediate perceptual and active fields" (page 41).

Piaget regarded imitation and play as two forerunners to symbolic function. In imitation, children made their actions conform to the real world; in play, they made the real world conform (in their minds) to the demands of their imagination.

Vygotsky emphasised the importance of pretend play in children's developing representational abilities. Vygotsky (1978) wrote, "When a young child uses a stick as a horse, the child's action is inspired and regulated by his or her own ideas more than by the properties of the stick itself." (p.108).

Leslie (1987 and 1988), believes that early pretend play is a primitive manifestation of a child's theory of mind. Leslie proposes that pretence involves first-order representations. He cites a 2 year-old who watches her father pretending to fill a cup with (pretend) water and sees him upturn the cup; if she then pretends to clean the carpet, then she is attributing a mental state of pretence to her father. To understand pretence, according to Leslie, the child must have the capacity to appreciate simultaneously two alternative models of a situation. When a child picks up a banana and talks to it as if it were a telephone, she is seeing it one way and thinking about it in another. Leslie writes that underlying object substitution and some other forms of pretence is a primary representation of the object:-

> "a veridical representation based on current perception and a meta-representation, - a representation of the object decoupled from its normal meaning." (Leslie 1987, page 417).

The idea of "decoupling" is central to Leslie's hypothesis because it prevents representational abuse. He states that given that the primary purpose of representation is to accurately represent the world, then pretence threatens to undermine this, e.g., when a child sees someone pretending that a banana is a telephone, he or she could come to confuse a banana with a telephone. He writes that decoupling "suspends the normal reference, truth and existence implications of expressions in the language of thought and renders internal representations opaque." (Leslie 1987, page 417).

Leslie describes three manifestations of pretend play, which bear a striking resemblance to Brentano's (1874/1973) three ways in which statements about the content of people's beliefs, knowledge, desires etc., are detached from the external world in terms of reference, truth and existence (see page 24 of this thesis). Object substitution is the first manifestation, and according to Leslie allows a child to represent a banana as a telephone; the word "telephone" is detached from its usual referent and is used to refer to a banana. Leslie's second form of pretence: attributing pretend properties to an object, e.g., a doll's face is said to be dirty, involves non-entailment of truth or falsity, (the pretence that "the doll's face is dirty" is neither true nor false). His third form of pretend play, pretending that absent objects are present, involves non-entailment of existence, e.g., the pretence that "the doll is eating the cake", does not entail that the cake exists. Leslie proposes that this parallel between pretence and statements referring to mental states is explicable in terms of a common underlying mechanism, namely the use of second-order representations.

Johnson (1988) is strongly critical of Leslie's model of pretence. He maintains that the child's differentiation between representational states and reality is not limited to pretence, but is essential to the young child's developing representational capacities as a whole. He cites the following example:

> "...when a parent points to a picture in a book and says "dog", how does the infant know that the referent is the animal and not the picture itself, or even more basically, how does the child know that the acoustic sound "dog" refers to anything at all? The entire representational edifice, including any ability of the child to pretend, talk about, remember or imagine something not present is dependent on the child's awareness that representations are not reality. Failure to understand such distinctions would leave the child hopelessly confused: Life would be a hallucination; all things imagined would be taken as real." (Johnson, 1988a, page 12).

Johnson states that infants are evidently not so confused and says that his or her differentiation of representational states from reality does not demand some metarepresentational capacity, but is given by experience itself. He justifies this by the following two reasons. Firstly, he proposes that the structure of experience is "irreducibly intentional". He states that just in the same way as the child experiences his seeing as being about something, so does he experience words, pictures and pretence as being about something. Johnson says that in this way, children know that pretending that a banana is a telephone is about telephones, not bananas, in the same way that they know that seeing a dog is about a dog, not a dog percept, or that the word "dog" is about a dog, not the sound "dog". (Johnson, 1988a, pages 12-13).

Secondly, he draws on Gibson's theory of "real world affordances" (Gibson, 1979). Johnson says that representational states are readily distinguishable from their referents in terms of their real world perceptible affordances. He maintains that a picture of a dog affords real information about a dog, yet is not a real dog. A child pretending to be a dog affords information about the behaviour of dogs, but considerably less about the way a dog actually looks. The word "dog" affords referring to dogs and beckoning dogs, but unlike a picture, the word does not in itself provide information about dogs; words have to be learned and the meaning associated with the word. Johnson writes that "young children should be readily able to differentiate signs from things in the same way that they differentiate things from things, directly on the basis of their affordances." (Johnson 1988a, p.13).

Forrester (1992) is also sceptical of Leslie's metaphor of 'de-coupling'. He states that in Leslie's playtime 'banana-telephone' example, what is overlooked is the fact that for the child the banana only attains representational status through the responses and reactions *from other people* to her use of it as a telephone. Forrester states that when the child puts the banana to her ear (perhaps in imitation of how other people have done this with different objects) what is significant is the reaction of people around the child. He writes, "what is significant is the fact that others around the child point this out, that is laugh and so on, in a way which *socially produces* the status of banana as a justifiable representation of a telephone" (Forrester's italics, Forrester,1992: p.24).

This is reminiscent of Hobson's (1993) theory of 'interpersonal relatedness', where children's grasp of conceptual representation is developed through their experience of "affectively patterned, intersubjectively co-ordinated relations with *other* people" (Hobson's italics, page 5).

Forrester's work emphasises the effect that social interaction has upon children's representational abilities. He seems to be saying that children learn about people through people, - they learn about the way people act, the way that they think, through participation in the process of social interaction. It is this acknowledgement of the *social* aspect of social cognition that guides the author's experimental work in chapter 6.

In his account of simulation theory, Harris (1989) does not see a single decoupling mechanism at work in children's pretence, but potentially, an adjustment to the default setting, - which, as was described on page 37, is set at the assumed state of the world. Object substitution or attribution of pretend properties in play requires the child to first set aside reality or make a single adjustment to the default setting, e.g., the simulation of "a cup is empty" becomes "a cup contains (pretend) tea" or "this is a stick" becomes "this is a (pretend) horse". Harris believes that this single adjustment to the default setting in pretend play is not problematic for the 2 year child.

Although Harris rejects Leslie's theory of decoupling, his description of the way children adjust default settings in simulation does have

similarities to Leslie's 'decoupling' mechanism. Both theories propose that in pretence, children must 'set aside current reality', i.e., they must adopt a different intentional stance towards reality, for example, when pretending an empty cup is full of tea.

Harris (1992) proposes that children will occasionally slip back into the default setting during pretend play. He describes the puzzlement on children's faces when mothers may take pretend episodes rather further than children expect. For example, when the child knocks over a cup containing pretend tea, the mother may invite the child to wipe up the (imaginary) mess. At this point the child may become confused and look for tangible signs of spilled tea. In this example, Harris would see the child as slipping out of the pretend mode-where the child falls back on the default setting (current reality) and interprets his mother's comment as a reference to that reality, which induces him to look for real tea instead of pretend tea.

In the present author's experimental work (investigation 1, study 1) the author makes a modification to the procedure in his replication of the Baron Cohen (1985) traditional false belief task in an attempt to prevent the young subjects from 'slipping back to the default setting' (Harris 1992). This is found in the second trial, when unlike in the Baron-Cohen task, the experimenter refrains from making Mike transfer the marble into his shirt pocket (which, from the child's perspective, makes an unnecessary allusion back to reality), and instead makes him place it under the table (which keeps the action within the pretend scenario). This minor modification in the change of location is to prevent the temporary suspension of the pretend scenario, when the child may slip back to reality, what Harris calls 'the default setting'.

In Harris's example of the spilled tea, he states that children are most likely to slip out of pretend mode if the mother's intonation of voice (in her request to clear up the pretend spillage) does not indicate that she is still in pretend mode, in other words, if the mother does not indicate to the child that her comment is a continuation of the pretend episode. In experimental contexts, Dias and Harris (1988) found that young children could be prompted to adopt the make-believe mode if the experimenter

expressed significant statements or questions using a dramatic intonation of voice.

In the author's experimental work with both young mainstream children (chapters 4 and 5) and children with severe learning difficulties, he emphasises the 'pretend' intonation of voice when he manipulates the puppets. He also uses a sinister intonation of voice when he gives an anticipatory prompt of future foul play in investigation 3 (page 102), "She (Sally) can't see or hear what's going to happen next." It will be seen that intonation of voice and body language are given great emphasis in the drama work with children with severe learning difficulties in chapter 6. This is to facilitate children's engagement with the 'narrative mode of thought', (Bruner 1986).

Harris's example above also brings to mind the difficulty young children have in making the meaning-message distinction, e.g., in appreciating irony. It is feasible that the representational flexibility in many exchanges between mother and child in pretend play may offer the young child valuable opportunities to 'take communications as cognitive objects and critically analyze them' (Flavell, 1981). In the example above, if the child is to continue in the pretence in response to the mother's instruction to clear up the imaginary milk, the child must not construe the mother's words simply in terms of their linguistic meaning. The child must interpret what the mother intends to mean in reference to her mental state, i.e., she is pretending that the overturned cup contained milk.

3.3 Children's perspective-taking abilities

Children's visual perspective-taking abilities have been researched thoroughly over the years. Although these representational abilities do not necessitate an understanding of the mind, they are generally viewed as forerunners to conceptual perspective-taking abilities (Flavell 1986, etc.,). Pillow (1989) proposes that level 1 perceptual perspective-taking skills, i.e., children's ability to infer what objects are perceptible to another person, may be sufficient for rudimentary level 1 conceptual perspective-taking, i.e., children's ability to infer what another person does or does not know.

Flavell conducted numerous seminal studies on young children's perceptual perspective-taking. He postulated the following four levels:

Level 0: when "internal psychological processes like seeing are simply not yet objects of cognition" (Flavell 1981).

Level 1: when the child starts to develop the ability to represent symbolically the visual experiences of himself and other observers. However, at this level, he can only represent which objects each person sees.

Level 2: when the child begins to represent how different observers see objects, in terms of their orientation or arrangement vis-a-vis one another.

Level 3: when the child can represent the apparent shape and size of objects viewed by different people. This development occurs quite late, probably not until the child reaches 8 years.

Masangkay, Flavell et al (1974) used a picture task in which the experimenter held a card vertically between himself and the child. A picture of a dog was stuck on one side of the card and a cat on the other. After the child had inspected both sides of the card, he or she was asked questions such as "Do you (I) see a cat or a dog?" Their results showed that all children from 3 to 5 1/2 years demonstrated the level 1 ability correctly. However, in a level 2 task, the same children were shown a profile picture of a turtle mounted on a card placed horizontally between the child and experimenter. The child was asked, "Do you (I) see the turtle rightside-up (upside-down)?" Children did not respond correctly until they were 4 1/2 years old. A much reported problem with this task is the linguistic difficulty of the terms 'rightside-up' and 'upside-down'. Also, it might have been preferable to use the same pictures in each task, i.e., the dog and cat. Flavell et al. (1981) subsequently attempted to sort out the problematic variables in the experiment and found evidence in support of the level 1 - level 2 distinction.

A problem with Flavell's earlier studies centres on what he actually considers as symbolic representation-in this case, representation of a visual perspective. In some of his earlier studies, Flavell was reluctant to

accept language as a means of symbolic representation. His studies showed a strong bias towards the visual response mode. Ives (1980) found that 89% of 3 year-olds and 92% of 5 year-olds could describe verbally which side of an object (front, back or side) could be seen from a particular position of a camera, whereas only 38% of 3 year-olds and 51% of 5 year-olds could select an appropriate picture. In a more complex task using five possible views with 5 year-olds, the experimenter spoke the five possible verbal descriptions. 83% were correct with the verbal mode of response, but only 47% were correct with the visual response mode, (Ives 1983).

Several other writers have been interested in children's understanding of visual perception. Hughes and Donaldson (1979) found that most of their 3 1/2 and 4 1/2 year-olds could successfully hide a doll from model policemen who were positioned around an arrangement of intersecting walls. Hobson (1980) obtained similar results. Thus children of both these ages were demonstrating Flavell's level 2 abilities-earlier than children in Flavell's studies.

3.4 Conceptual perspective-taking

More recently a similar level 1-level 2 distinction has been applied to conceptual perspective-taking abilities. Taylor (1988) describes the two levels:

Level 1: refers to the ability to infer what another person does or does not know. More precisely, Taylor says children at this level "have difficulty separating their own knowledge or interpretation of what they see from the perceptual information that is given in their environment. Children at this level would understand that if someone does not see an object, then that person does not know about it ; however, they would tend to believe that if two people both see an object or event, their knowledge or interpretation about it is identical." (page 208).

Level 2: refers to understanding that different interpretations of the same information are possible.

Understanding perception as a source of knowledge is critical in conceptual perspective-taking tasks, and difficulties with the level 1 distinction may be an important underlying cause of children's failure in false belief tasks. Children's difficulties with this level 1 distinction prompted the author to provide a perceptual control question in the procedure of his second investigation (study 1, page 98) and a perceptual prompt during investigation 3 (study 1, page 102). The intention was to eliminate this possible variable for children's failure to predict a story character's behaviour according to her first-order false belief.

The results of several studies have shown that level 1 conceptual perspective-taking abilities appear between the ages of 4 and 6 years. Mossler, Marvin and Greenberg (1976) showed children the same videotape twice, first with the soundtrack turned on while their mothers were absent, and then with the soundtrack turned off in their mothers' presence. Almost all the 3 year-olds claimed that their mothers knew information that was available only in the audio portion of the recording, but the majority of 4 and 5 year-olds and all of the 6 year-olds understood that their mothers were not aware of this information. In another study, Marvin et al. (1976) found that 4 year-old children could also keep track of who has learned a secret depending on who was whispering to whom and whose eyes were covered in a three-person interaction.

Hogrefe et al. (1986) put 3-6 year olds into real-life situations or read them stories in which another person or story character was excluded from certain information. They found that about 50% of their 2/3 year-olds and about 80% of their 4 year-olds were able to understand that another person was ignorant of a fact known to the child.

Wimmer, Hogrefe and Perner (1988) argue that prior to the age of 4 or 5, children have little understanding of the origins of knowledge. According to their view, children younger than this do not understand the connection between perceptual experience and knowledge and do not use information about a person's past perceptual experience to assess that person's knowledge. Their two studies explored children's understanding of perception and communication as sources of knowledge. Two children sat facing each other on opposite sides of a table. In each trial, one child served as subject and had to assess the other child's knowledge

and his or her own knowledge of the content of a closed box placed in the middle of the table. In each plain-coloured box was a familiar object. The specific questions were: "Does (name of other child) know what is in the box or does she/ he not know that?" and "Do you know what is in the box or don't you know that?" Before these questions were asked, either the other child or the subject had informational access to the content of the box. One kind of access was visual perception i.e., either the other child or the subject looked in the box. The other kind of access was verbal information. Here the experimenter looked into the box and then informed one of the children by whispering the content in the child's ear. As the two children were facing each other, the subject was fully aware of whether the other child did or did not look into the box and of whether the other was or was not informed of its contents. Although most 3 and 4 year-olds were able to report their own knowledge or ignorance, they often claimed that the other child did not know what was in the box even though they had seen the other child look in the box a moment earlier. (This could have been an egocentric response, of course.) Wimmer et al. propose that the correct assessment of the child's own knowledge indicates the mere functioning of perception and communication as origins of knowledge, while the correct assessment of the other's knowledge would indicate an understanding of these origins. Thus Wimmer et al. propose that most 3 year-olds and some 4 year-olds do not understand how informational access induces knowledge. It is worth noting that their findings do not imply that perception and communication are not functioning as sources of knowledge and belief in the young child; they merely show that young children do not understand from where and how they got their beliefs.

A point made by Flavell (1985) is relevant when looking critically at the methodology used in Wimmer et al's study (and in others where the child has to represent another child's visual perspective or knowledge inferred from the other's visual perspective). He states:

"....our own perspectives produce clear signals that are much louder to us than the other's, and they usually continue to ring in our ears while we try to decode the other's. It may take considerable skill and effort to represent another's point of view

accurately through this kind of noise, and the possibility of egocentric distortion is ever present." (Flavell 1985, page 46).

This represents a serious consideration when evaluating the findings of many perceptual and conceptual role-taking investigations. This point is returned to later.

A study by Gopnik and Graf (1988) also investigated children's understanding of perception as a source of knowledge. 3, 4 and 5 year-old children learned about the contents of a drawer in three different ways: they saw the contents, were told about them, or inferred their identity from a clue. Children were then asked, immediately and after a short delay, how they knew about the contents. Gopnik and Graf found that 3 year-olds had difficulty identifying the sources of their knowledge, while 5 year-olds did not. The 3 year-olds who could correctly identify the source immediately had difficulty remembering the source after a delay. Explicit training in identifying sources was found not to improve the 3 year olds' performance.

In contrast to Wimmer et al.'s findings, Pillow (1989) found that both 3 and 4 year-olds did understand that perceptual experience is a source of knowledge. In his first experiment, 3 and 4 year-old children sat individually facing each other across a table. The experimenter introduced a puppet and familiarised the child with a bag full of different coloured toy dinosaurs. The experimenter then took a dinosaur out of the bag, concealing it in his hand, and put it in an opaque plastic container, where it was hidden from view. Next, either the child or the puppet looked into the container. When the puppet looked, the Experimenter said, "(Puppet's name) is going to look in here." The role of the viewer alternated between the child and puppet from one trial to the next. On each trial, children were questioned about their own knowledge of the hidden dinosaur's colour, the puppet's knowledge, their own ability to see the dinosaur, and the puppet's ability to see it. Half of the children in each age group were asked the pair of knowledge questions before the pair of perception questions on each trial and half received the perception questions first. The hidden object was a toy dinosaur for the first two trials and a toy car for the last two. Results showed that performance for perception and knowledge questions did not differ significantly by age.

Therefore data for the two groups were combined. Of the 16 children who received the perception questions before knowledge questions, 15 assessed their own knowledge correctly and all 16 assessed the puppet's knowledge correctly. Of the 16 who received the knowledge questions before the perception questions, 15 assessed their own knowledge correctly and 15 assessed the puppet's knowledge correctly. The close parallel between the children's pattern of responses to the knowledge and perception questions suggest to Pillow that both the ability to report what objects another person can or cannot see (level 1 perceptual perspective-taking) and the ability to attribute knowledge or ignorance to others on the basis of recent perceptual experience (level 1 conceptual perspective-taking) are present at 3 years of age. He also proposes that his study provides no evidence for a developmental lag between these two abilities.

Pillow's second study (op. cit.) replicated these findings. He asked 3 year-olds to indicate which of two puppets would be able to tell them a hidden object's colour. One of the puppets had looked at a hidden object and one had not. Although Pillow did not reach the level of performance he achieved in his first experiment, the 3 year-olds chose the correct puppet more often than would be predicted by chance. Thus the results of his two experiments suggested to Pillow that understanding of perception as a source of knowledge is present by 3 years of age.

The literature seems to indicate that level 1 conceptual perspective-taking abilities appear to develop between the ages of 3 and 5. The age at which level 2 conceptual abilities are acquired rather depends on the abilities required in the task. However, the literature indicates that level 2 competence appears later than level 1.

Generally speaking, studies of level 2 abilities have focused on children's understanding that a person with only partial information about some event or object is likely to interpret that information differently than does the child who possesses more complete information. Taylor, (1988) expanding on the restricted view work done by Chandler and Helm (1984), found that 4 and 5 year-olds often claim that a naive observer shown a small, uninformative part of a picture, will know what a picture is. That is, "they appear to be poor at evaluating the information available from a particular perceptual experience and over attribute

knowledge on the basis of uninformative perceptual access." (Pillow 1989, page 121).

In Taylor's studies, children from 3 years to 8 years were shown three pieces of information about animals depicted in line drawings: (1) their identities, e.g., a giraffe, (2) what they are doing, e.g., sitting down, and (3) personal information, e.g., the giraffe's name. They were then questioned about another person's knowledge of each type of the above information with (1) no part of the animal visible, (2) with a tiny edge of one line visible, (3) with a small, non-descript part of the animal visible, (4) with two small non-descript parts of the animal visible, and (5) with an uninformative part of the picture visible. The results of her study indicate that, prior to 6 years, the majority of children failed to indicate that a naive observer would not know the animal's identity when shown an uninformative region of the picture. 4, 5, and 6 year-olds attributed action and personal knowledge to the observer less frequently than they did identify knowledge. 8 year-old children performed near ceiling to all questions. A subsequent training study involving 4 and 6 year-olds indicated that, following training designed to make them aware that there may be many interpretations for the same information, 4 year-olds' performance on the original perspective-taking task improved relative to that of controls. Relevant here, are Pillow's (1989) studies of young children's development of beliefs about selective attention. Pillow found that 6 year-olds, but not 4 year-olds, believe that listening selectively to one message implies not listening to and not obtaining complete knowledge of other messages occurring at the same time. Pillow takes this belief to indicate that the older child has a conception of listening as a psychological activity that influences the reception of information from the environment. In contrast, Pillow found that the 4 year-olds seemed to regard their focus of attention as having little or no consequence for the acquisition of information. Thus Pillow concludes that most 4 year-olds do not conceive of listening as a psychological activity, that they "will have full knowledge and understanding of audible messages reaching their ears, as if the occurrence of audible events by itself guarantees full knowledge of those events". (Pillow 1989, page 125).

Pillow draws a similarity to Chandler and Boyes's (1982) claim that young children have a "copy theory" of knowledge: "Children seem to

proceed as though they believe objects to transmit, in a direct line of sight fashion, faint copies of themselves, which....impress themselves upon anyone who happens in the path of such 'objective' knowledge". Chandler and Boyes claimed that until the age of 6 years, the child adheres to his or her copy theory of knowledge where he or she regards knowledge and beliefs as products of perceptual information passively received from the environment. At 6 years and older, Chandler and Boyes see the child as having a "constructivist" theory of knowledge, when he or she realises that psychological processes may also contribute to one's knowledge and beliefs. However, while not disputing the general transformation of the child's developing metacognitive abilities, the 4 year-olds' correct performance on appearance-reality tasks and false belief tasks suggests that the 4 year-old must have a more sophisticated conception of the mind than a mere copy theory.

3.5 Children's understanding of Appearance and Reality

Another level 2 conceptual perspective-taking task widely reported in the literature concerns children's distinction between appearance and reality. Flavell has been studying children's understanding of this distinction for 20 years. He has found that 3 year-olds do not understand how something can look different from what it really is. For example, children were shown a sponge which had been designed to look like a rock. On its first presentation, the children succumbed to its rock-like appearance (as indeed adults did). Once they handled it, and discovered it was really a sponge, they then said that it looked like a sponge. However, 4 year-olds did not do this, they said that it looked like a rock.

Flavell (1986) discusses the significance of the appearance/ reality distinction in children's social-cognitive development. He describes the distinction as "....probably a universal outcome in our species. This knowledge seems so necessary to everyday intellectual and social life that one can hardly imagine a society in which normal people would not acquire it..... Knowledge about the distinction seems to presuppose the explicit knowledge that human beings are sentient, cognizing subjects..... It is part of the larger development of our conscious knowledge about our own and other minds." (pages 1-2).

Over the years, Flavell has tried to make the task simpler. For example, if a white card is placed under a blue filter, 3 year-old children will say it looks blue and really is blue, even when they see the white edge sticking out. Flavell (1985) found that training in appearance/ reality knowledge did not improve children's performance. Flavell also found that the same error patterns were present in a cross-cultural replication in China (Flavell et al., 1983) using Chinese children of the same age.

It seems puzzling that 3 year-old children have difficulty with appearance/ reality when at 2 1/2 years, their pretend play demonstrates an ability to differentiate between real and pretend identities, e.g., making a banana serve as a make-believe telephone. When one considers that 3 year-olds can distinguish between real and mental entities, e.g., the child appreciating the difference between someone having a biscuit and someone thinking about a biscuit (Wellman and Estes, 1986), children's difficulties with appearance / reality seem even more curious (and seem to indicate that the experimental context may be suspect). However, Flavell identifies the basis of the child's difficulty with the appearance/ reality distinction as being his limited capacity to appreciate simultaneously two alternative and contradictory models of reality. Flavell writes that, to solve an appearance/ reality task such as the rock task, the child has to attribute:-

> "...mutually incompatible and contradictory properties and identities to the same object at the same moment in time. As adults, we easily resolve the seeming contradiction by identifying one representation of its property or identity with its present appearance and the other with its reality. We identify the one with what we see and the other with what we know. This resolution is easy for us because we are all well aware that people are sentient, cognizing subjects who have internal representations of external things and can represent singular things in multiple ways. Although we are aware that external objects themselves cannot simultaneously be two different things at once, we are also aware that we can represent them as simultaneously looking like the one thing ('that's what it looks like') and really being the other ('that's what it really is')." (Flavell 1986, pages 1-2).

Flavell et al's later study (1989a) supports this hypothesis. In this study, Flavell et al compared the competencies of 5 year-olds and adults on the appearance/ reality task. The authors found that, although the 5 year-olds could pass the standard task, they were not as sensitive to the distinction between appearance and reality as adults are, and that they required more prompts to access and use this distinction. Some additional questions were included in this study. The procedure was as follows for the appearance and reality of a cut-out white butterfly that looked red behind a red filter: a) appearance -"when you look at the butterfly, does it look red or does it look white?", b) reality -"for real, is the butterfly really and truly white or really and truly red?", c) right now, for real-"Right now, for real, is the butterfly red?" (as the child looked at it behind the red filter). Flavell's results showed that the 5 year-olds, even after having been alerted to the appearance/ reality distinction and after having correctly answered appearance reality questions, were still more likely than adults to give an affirmative answer to question c) above. Flavell proposes that this may be because the 5 year-olds construe the situation sequentially and on a single, undifferentiated level. This means that for the 5 year-old, the butterfly "is" red now (in response to question c), not white (the "is" meaning neither appearance nor reality specifically), whereas it was white before and will be white again when the filter is removed. On the other hand, Flavell writes, the adults can conceive the butterfly as simultaneously red in appearance right now and white in reality right now (as well as at other times-whereas the child would tend to think of it only sequentially, as red now and white at other times). The adults construe the situation hierarchically, on two levels simultaneously, - the butterfly both looks red (one level) and really is white (another level), - both of these being true simultaneously. Flavell proposes that this is precisely what the 5 year-old is unable to do. This gives convincing support for the view that children find it difficult to appreciate simultaneously two alternative and contradictory models of reality. We shall see in the next section how this representational problem has great bearing on why young children fail false belief tasks.

An additional study by Flavell et al. (1989) indicated that 3 year-old children could appreciate the appearance/ reality distinction using tactile tasks. In this study, the children were shown an ice cube and a wet towel (the children had seen the experimenter dip the towel into water). The

children were asked, "Is this ice-cube cold?" or "Is this cloth wet?" Most of the children spontaneously touched the object before answering. Then the experimenter put an insulated finger glove on one of the child's fingers and asked him or her to simultaneously touch the ice with the gloved finger and with his or her other hand. As the child did this, the experimenter asked, "Really and truly, is this a cold ice-cube?" and "Does this ice-cube feel cold to this finger?" (the gloved finger). The children were scored as having passed a task if they correctly answered both of the task's two questions. Of the 36 3 year-old children, 29 (81%) passed the appearance/ reality task, - a much better performance than 3 year-olds had shown on visual appearance/ reality tasks in previous studies.

Flavell et al., (1989) proposed that tactile experiences might be easier than visual perceptual experiences for young children to reflect upon and differentiate for the following reasons: 1) In the tactile mode, the child has the sense that the experience is taking place "out there in one's hand rather than up here in the head region, the place where one's senses or the cognitive self resides" (page 202). 2) The child can see his or her own hand touch the object. Thus, according to Flavell, the child can see his "subordinate experiencer", i.e., his hand, contact the object and can witness the resulting sensory experience almost as if he were an outside observer. The child cannot observe and reflect upon his own visual experiences in the same way. 3) In this experiment, the child simultaneously touches the object with gloved finger and ungloved hand. Flavell proposes that these two simultaneous but different experiences may lead the child to do a kind of level 2 perceptual perspective-taking evaluation within the self. This within-self perspective-taking may help the child distinguish between the two experiences and may highlight the appearance/ reality distinction. 4) When the child touches the object, the object causes a tactile experience by making direct physical contact with the "subordinate experiencer" (the hand). The "executive experiencer" or "cognitive self" also sees this contact occur just before or just as the resulting sensation is experienced. Flavell, citing Piaget, says this is the prototypical causal sequence in which object a causes effect b in object c by contacting c directly. Flavell writes that, in contrast, the way an object causes a visual experience of that object is much more mysterious -as one cannot see either one's eyes or anything that makes direct physical contact with them. Flavell proposes that the more easily attributable

causal effect in the tactile case may make the distinction between the nature of the object and the nature of one's experience easier for the child.

Although it is not mentioned in this article, it seems plausible that when the child simultaneously touches the single ice-cube with gloved finger and ungloved hand, he is made aware that the ice-cube cannot be two different things at once. The child may then realise that a single object can be represented simultaneously as feeling one way and really being another.

Johnson (1988), who, at the beginning of this chapter, proposed that children's model of the mind was "experience-based" is predictably critical of the significance that Flavell places on the appearance/ reality distinction. He proposes that at level 2 conceptual perspective-taking, the child merely becomes aware that phenomenal experiences of objects, what something "looks like", exist autonomously from the reality of the object itself. Johnson implies that he would apportion greater significance to Flavell's appearance/ reality tasks if the distinction contained therein constituted a new awareness of truths which are not experience-dependent. Johnson writes that such truths are not assessed in Flavell's tasks. He writes:

> "The real color of an object, for example, is determined experientially. The same is true for other such items, such as a sponge that looks like a rock, or a candle that looks like an apple. The child's task in such cases is not to distinguish between appearance and underlying reality, but between a real appearance and mere appearance. What the level 2 child understands is not that the mind mediates the apprehension of reality, but that there are different experiences of the world, some which give reality, and some which give the mere appearance of reality." (Johnson, 1988a, page 20).

Das Gupta and Bryant's (1989) studies of 3 and 4 year-old children's abilities to make causal inferences about sequences of events offer an alternative reason why 3 year-old children fail the appearance/ reality test. Gupta and Bryant tested children's ability to use the difference between an object's initial and final state to work out what happened to it

in the meantime. For example, if a child sees a photograph of a dry but unbroken cup and then the same cup wet and broken, if he or she infers that the cup has been put into liquid or liquid has been poured over it by choosing a correct photograph showing a possible causal agent, then the child is making a genuine causal inference. The results of Das Gupta's studies indicated that 4 year-olds but not 3 year-olds could use the difference between an object's initial and final state to work out what had happened to it. Das Gupta and Bryant propose that the 3 year-old children's difficulties with causal inferences may well explain their poor performance in appearance/ reality tasks. These tasks necessarily involve a transformation and therefore an initial and a final state. The authors write that the child can only appreciate the appearance/ reality distinction if he or she can reason about the difference between the two states and about what has caused that difference. For example, in the white butterfly and red filter task described above, in order for the child to appreciate that the butterfly's real colour is still white, he or she must understand that causal sequence and be able to infer what would happen if the filter were taken away. Das Gupta and Bryant's study suggested that precisely this sort of reasoning is particularly difficult for the 3 year-old child.

3.6 Children's understanding of false belief

In chapter 2, it was established that Premack and Woodruff (1978) were among the first authors to coin the term 'theory of mind'. They defined a 'theory of mind' as the ability to impute mental states to oneself and others. Wimmer and Perner (1983) devised the first false belief test, - a test which they believed provided strong evidence for children's ability to conceive mental states. This task is significant, for the conceptual demands contained within it have influenced a great many research studies investigating young children's representational abilities. Many of these tasks and variations are described below, for they have great influence upon the author's own empirical work with mainstream children and children with severe learning difficulties.

The original Wimmer and Perner false belief task utilised dolls and toys and proceeds as follows. A doll called "Maxi" puts some chocolate in cupboard x and goes away. In his absence, his mother moves the

chocolate to another cupboard, - cupboard y. Then Maxi comes back, hungry for his chocolate. The subject is asked where Maxi will look for the chocolate. Wimmer and Perner found that most 3 year-olds predict that the boy will look in the new place, cupboard y, where the chocolate actually is. These children did not appreciate Maxi's false belief. In its original form, Wimmer and Perner found that only 57% of 4-6 year-olds passed the test.

Several authors have written about the complexity of this task (Wellman and Bartsch 1988, Chandler et al, 1989, Leslie and Roth, 1993) and several adaptations of the original experiment have appeared over the last decade. Baron-Cohen (1985) simplified the scenario for use with autistic children. He found that compared to control groups of Down's syndrome and non-learning-disabled children matched for mental age and linguistic ability, the group of autistic children had striking difficulty predicting a puppet's actions based on a false belief. The performance of Baron-Cohen's non-disabled 4 year-olds was better in his simplified version than Wimmer and Perner's 4 year-olds in the original task. Baron-Cohen's task lends itself well to experimental work with children with learning difficulties because it makes few demands on children's expressive language difficulties. Children can respond to the control and experimental questions by pointing. It is this false belief task which is used in the author's empirical work with mainstream children and children with severe learning difficulties (chapters 4, 5 and 6).

In his experimental work, the author investigates further some of the adaptations to the false belief task applied by Perner, Leekam and Wimmer (1987). Perner et al. (1989) tried to help 3 year-olds attribute false beliefs to others by having them actually experience a false belief themselves in real-life. In one of their experiments, they used a technique developed by Hogrefe, Wimmer and Perner (1986). Perner et al. showed 3-year-olds a well-known sweet packet and asked them what they thought it contained. Not surprisingly, they answered, "Smarties." They were then shown that the packet actually contained a pencil. After this, most of the children were able to remember and report what their own false belief had been and that it was false. Despite this, when asked what their friend would think when he saw the box, nearly half of them were unable to predict the false belief they themselves had just experienced and said

instead, "A pencil." These results might be taken to indicate that understanding representational change (change in one's own belief) precedes understanding that others' beliefs may differ from one's own.

In a similar study, Gopnik and Astington (1988) found different results. They found that understanding representational change was more difficult than attributing false belief. Their results also indicated that questions concerning the other person's belief were significantly easier than the questions concerning the subject's own belief. They also found that children's success rate in questions concerning appearance/ reality improved at an age when they were also succeeding in false belief and representational change. The children's performance in reporting their own previous false belief was very different in the two studies. Perner et al (op cit.) found that 72% of their 3 year-olds succeeded whereas in Gopnik's study only 20-47% succeeded, depending on the task materials. Gopnik and Astington believe that Perner et al's subjects may have been helped by a control memory question that did not appear in their own study. This question, "Can you remember what's inside here?" had to be responded to correctly ("a pencil") before the child's data were included in the study. Also Gopnik and Astington point out that in Perner et al's study, the "but" in the following question, "But what did you think was in here?" gave a clue that the required answer was not "a pencil". However, despite these clues, it is worth noting that as many as 8 out of 27 of Perner's 3 year-olds still said that they had thought there was a pencil in the box.

Gopnik and Astington's study is interesting because it indicates close correlation between the development of children's understanding of representational change, appearance/ reality and false belief. Their results show that development in these three areas progresses more or less concurrently between the ages of 3 and 5 years. The correlation between development in these areas is not surprising when one examines the similar conceptual demands of the three tasks. Understanding representational change, appearance/ reality and false belief all involve the ability to consider two alternative conflicting representations of the same object or situation. Flavell puts the child's representational difficulty in this way:

"...young children assume as we do that each thing in the world has only one nature or 'way that it is' at any given moment but, unlike us, do not understand that each thing may nevertheless be mentally represented in more than one way. This assumption together with this ignorance of representations may lead them to believe that things and the way they are described must stand in one-to-one relationship to each other. That is, in many situations, at least, they may assume (a) that things can only be characterized in one way (because they have only one nature), and (b) that one characterization can only characterize one thing or type of thing." (Flavell 1988, pages 253-254).[8]

Placing children in contexts in which they directly experience false belief, e.g., the 'smarties' task described above, is central to the development of the author's experimental work in studies 2, 3 and 4. In the studies reviewed above, this approach to investigating children's ability to attribute false belief was not shown to significantly improve their performance. However, in these studies, and most of the others reviewed in this section, the experimenters provide children with rigid experimental contexts in which children's understanding of false belief is tapped only by a series of test questions. Typically, children are first asked control questions (usually testing their understanding of memory and reality conditions) and then they are asked the experimental question, the (false) belief question. Investigations of this type represent test situations; children either pass or fail (usually in two trials). The limitations (and strengths) of the research methodology and the experimental contexts offered to young children in many of these studies

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[8] Flavell (1988) states that this representational difficulty can be seen in children's communication monitoring. Young children often tend to think that one verbal message can only characterise or refer to one thing. Consequently, they may have difficulty understanding that some messages may be referentially ambiguous (see Whitaker and Robinson, 1987; Beal and Flavell, 1985). Young children often fail to make the meaning/ message distinction, i.e., they fail to realise that they may be interpreting the speaker's message differently from how the speaker intended (Donaldson, 1978). Also as speakers, young children often fail to realise that their listeners may interpret their message differently than they intended. So, similar to conceptual perspective- taking tasks, children's difficulties with communication monitoring may be to do with their incomplete understanding of mental representations; they may not be aware that people may be interpreting or representing the same thing (in this case, the message) in two or more different ways.

are discussed in chapters 4 and 6. At this point, the author will introduce an alternative research methodology, which offers the researcher and subjects greater flexibility and reciprocity. The author will describe a different experimental context, where the intention is to provide children with an intervention-based study, where the emphasis does not solely rest upon testing children's understanding of false belief, but also upon intervention with the aim of facilitating children's understanding. It will be seen that the experiential approach used in the 'Smarties' task can represent a powerful agent to children's understanding of false belief. Providing a learning context in which children experience false belief first-hand, and then encouraging them to reflect upon these beliefs, perhaps with the help of video re-enactment, may be a useful participatory context in which to investigate children's growing understanding of metarepresentation. These ideas are investigated further in chapters 4, 5 and 6.

The representational complexity of the false belief task should not be underestimated. The metarepresentational demands contained in it are perhaps the reason why Dennett (1978) believed that understanding false belief constituted a 'litmus test' of a person's theory of mind. Dennett argued that in such tests, it is possible to distinguish unambiguously between a child's (true) belief and the child's awareness of someone else's different (false) belief. In order to pass the traditional false belief task, the child has to represent both his knowledge of the world (the object is in location x, not in location y) and the deceived actor's false belief (the object is in location y).

Perner, Leekam and Wimmer (1987) believe that it is the metarepresentational demands of the task that cause children's difficulties, and at the heart of the problem is their inability to assign conflicting truth values to a single proposition.

Zaitchik (1990) also believes that this may be the root of the problem in the false belief task. Her research indicated that children's difficulty in assigning conflicting truth values to a proposition about the world is not specific to mental representations. She designed a "False Photograph" task in which a puppet takes a photograph of an object in location x, and then another puppet moves the object to location y. 3, 4 and 5 year-old

children were then asked, "In the picture (the children were shown only the back of the photograph), where is the object?" Comparing this task to a similar false belief task, Zaitchik found that photographs were no easier to reason about than beliefs.

In one of a series of experiments, Zaitchik ruled out the variable that children had problems with the representational nature of photographs. Zaitchik proposes that the representational complexity in the photograph task i.e., the child must represent both his knowledge of the world and the deceived actor's false belief, is the same in the photograph task as the belief task. In the former, the photo is at odds with the child's current perceptual representation of the world. The photo assigns truth to the claim which the child's own perceptual representation denies. Zaitchik maintains that the child understands the representational nature of photos, but does not or cannot use this knowledge in the case where the photo conflicts with the child's own perceptual representation of the true state of affairs. In this case, Zaitchik says, the child's reasoning collapses.

Leekam and Perner (1991) used the Zaitchik's photo task with autistic and 3-and 4-year-old non-disabled children. A Polaroid picture was taken of a doll dressed in blue. While the photograph developed, the doll's clothes were changed to green. Before the developed photograph was shown to the children they were asked "What colour is the doll in the picture?" Children's responses to this question were compared to a similar question about a person's false belief, who, as in the photo version, saw the doll dressed in blue, but missed the change to green. The 3-and 4-year-old children found the two questions equally difficult; however, surprisingly, the autistic children found the photograph question easier[9]. These results were replicated by Leslie and Thaiss (1992) and Charman and Baron-Cohen (1992). The latter study used drawings instead of photographs.

Moses and Flavell's study (1990) gives further weight to the argument that children's poor performance in false belief tasks is due to their failure to understand the representational nature of the mind, in particular, that they fail to realise that a single state of affairs in the world can be

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[9] Perner (1993) provides some possible reasons why autistic children should find this question easier.

represented in different, apparently contradictory ways. This study is significant in a number of ways. It deals with the issues of informational access and inference and indicates that these factors do not pose major difficulties for children in false belief tasks. Moses and Flavell hypothesised that children might perform better on false belief tasks if they could reason backwards to the belief from its effect, e.g., a character's actions and reactions. The standard false belief tasks require children to make forward-looking predictions from the causes of a belief, e.g., what a character has or has not seen, to either the character's belief or the character's action. Moses and Flavell also thought that children would perform better if the character's lack of perceptual access to the critical event, e.g., someone moving an object from location x to location y was highlighted. In their study, forty-eight 3 year-olds were shown two video recordings in which a character acquired a false belief by not having had perceptual access to a critical event. In a perception condition, the only belief cue available to the child was the character's lack of perceptual access, e.g., the main character, Cathy, finds crayons in a bag and goes out to get some paper. Meanwhile, a clown enters, hides the crayons in a drawer and substitutes rocks in the bag. In an action condition, belief cues were available from the character's actions as well as from perceptual access, e.g., when Cathy returns, she walks over to the bag and is just about to open it when the video stops and the experimenter asks his questions. In a surprise condition, belief cues were available from the character's reaction of surprise following violation of expectation, as well as from access and the character's actions, e.g., Cathy walks over to the bag, opens it and says, "Hey, there are rocks in here!" with strong facial expressions of surprise and a surprised tone of voice. In this condition, the experimenter even rewinds the tape back to the point at which Cathy was about to walk towards the bag, and then plays it forward to the point at which she was about to open the bag. Memory questions were asked in all conditions to check the child's knowledge of critical aspects of the stories. The results of these experiments showed that the majority of 3 year-olds were unaffected by the considerable clues and failed to attribute false belief to the protagonists. The children's performance in the surprise condition was slightly better than in the standard task but it was still no better than chance. The authors' explanations for the young children's difficulties in these tasks remain the same as in as in Flavell's earlier studies (Flavell 1985, etc.,). They

believe their failure rests in their inability to conceive beliefs as representations which may diverge from reality.

Moses and Flavell state that children need a tight correspondence between beliefs and the true state of affairs in the world. Evidence from the children's justifications of their answers in this study showed that the most common error was to refer in some way to reality. Children would say Cathy thinks there are rocks in the bag because there are rocks in the bag, or because the clown put the rocks in the bag. Moses and Flavell write, " It was as though, for these children, the real state of affairs constituted a reason for the protagonist's belief. These children appeared to hold the view that beliefs must necessarily accord with reality." (page 939).

Forguson and Gopnik (1988) support this argument and provide the following commentary on the Moses and Flavell study:

> "The difference between the 3 year-olds and the 4 year-olds might be summarised as follows: The 4 year-olds have developed a representational model of the mind. This model construes the relation between the mind and external reality as mediated by mental representations: mental states with contents that have satisfaction conditions in the external world. Some of these states are satisfied (roughly: the world is as it is represented as being); some of them are not. The world is independent of our thought and experience; but it is represented in thought and experience. To think about or experience is always to represent mentally, whether or not it is always the case that the content of one's experience or thought constitutes accurate (or adequate) information about how things stand in the world." (page 236).

Russell et al.'s (1991) 'window task' also demonstrated 3-year-old children's difficulty in inhibiting their responses to the immediate perceived reality. Russell presented children with a competitive game in which they have to win as many sweets as they can by deceptively directing a competitor (the experimenter) to an empty box. The children, but not the experimenter could see which box was empty and which was full by looking through small windows in the boxes. Russell et al. found

that 3-year-old children persistently pointed to the box containing the sweet despite repeatedly losing it.

Wellman and Bartsch's (1988) study paints a more optimistic picture of 3-year-old's representational model of the mind. They created three scenarios similar to the false belief task. Wellman and Bartsch's tasks required the child to consider two contradictory beliefs, i.e., the child believes the object is in location x or in both locations and the protagonist believes it is in location y, and the protagonist's action has to be predicted on the basis of his or her belief, not the child's. For the "Not Own Belief", the "Discrepant Belief" and the "Inferred Belief" tasks, 3 year-olds were correct 63%, 82% and 88% respectively (study 3). In study 4, Wellman and Bartsch provided a simplified false belief task. They reduced the inference requirement in this task. (In Wimmer and Perner's original task, the child is never told the protagonist's belief, - Maxi thinks the chocolate is still in the original cupboard. Instead, the child must infer the protagonist's belief from perceptual access). Wimmer et al., (1988) believed that this inference requirement was central to the child's difficulty with false belief . To test this hypothesis, Wellman and Bartsch created an "Explicit False Belief" task where the child was told the protagonist's belief, e.g., "Jane is looking for her kitten. Her kitten is really in the playroom, but Jane thinks the kitten is in the kitchen. Where will Jane look for her kitten?" However, in spite of this reduction in inferential demands, only 16% of Wellman's 3 year-olds, 31% of his 4 year-olds and 86% of his 4 1/2 year-olds passed the test. The children's performance was well down on their performance on the "Not Own Belief", "Discrepant Belief" and "Inferred Belief" tasks. This led Wellman and Bartsch to propose that children fail false belief tasks, because, from the perspective of the 3 year-old, these tasks present a conflict between desire reasoning (Jane wants her kitten and it is in the playroom, therefore Jane will look in the playroom) and belief reasoning (Jane believes the kitten is in the kitchen, therefore Jane will look in the kitchen). Wellman says that in such situations, 3 year-olds predict on the basis of desire. He says they do so not because they have no conception of belief, but because for them belief and desire are in conflict and they weight desire over belief in arriving at a prediction. Wellman and Bartsch state that when there is no conflict, young children can include

belief in their reasoning, e.g., in his "Inferred Belief" and "Discrepant Belief" tasks. They explain their argument as follows:

> "In those tasks (Inference and Discrepant Belief), while reality (desired objects are located at Location 1 and 2) is discrepant from belief (the character believes the objects are only at Location 1), there is no direct contradiction between reality and belief. Hence, there is no conflict between belief and desire reasoning, beliefs augment or focus desires. In those circumstances, therefore, 3-year-olds consider and appropriately incorporate belief information. Similarly, in our Not Own Belief task, even if the child him or herself thinks the object is at Location 1, he or she can predict the character's action on the basis of the character's belief (the character thinks it is at Location 2), because the child does not know where the object really is. Given that ignorance, there is no contradiction between desires and beliefs to contend with, and belief information simply and appropriately augments the desire information (he wants the object, he thinks it's at 1: he'll look at 1)." (page 271).

In a later study, Bartsch and Wellman (1989) reinforce their argument that young children fail false belief tasks because of a conflict between desire and belief. Their study also indicated that children have an awareness of false belief much earlier than reported in previous research. In this study, as in the one conducted by Moses and Flavell, Bartsch and Wellman investigated children's ability to reason backwards-i.e., explaining actions in terms of beliefs and desires. Traditional false belief tasks, as we have seen, involve children reasoning forwards-i.e., predicting from beliefs and desires to actions. Bartsch and Wellman also wanted to rule out the possibility that young children's understanding of belief is not that at all, but perhaps merely being an understanding of desire. In their first experiment, sixty 3 year-old children were asked to explain why story characters performed simple actions. The stories were classified as being of three types: Neutral, Anomalous Desire, and Anomalous Belief. Examples of each story type are taken from the original extract:

Neutral: Here's Mary. Mary is going to buy an ice-cream at the Grocery Store. Why do you think Mary is doing that? Anomalous Desire: Here's Jane. Jane hates frogs. But Jane is looking for a frog under the piano. Why do you think Jane is doing that? Anomalous Belief: Here's Jane. Jane is looking for her kitten. The kitten is hiding under the chair. But Jane is looking under the piano. Why do you think Jane is doing that?

Nine stories were presented in total and each story was accompanied by a drawing. After the explanation question ("Why do you think Jane is doing that?"), when a response did not refer specifically to a desire or belief of a protagonist, the experimenter prompted the subject by asking either a desire prompt, "What does (Jane) want?" or a belief prompt, "What does (Jane) think?", depending on the story type. If a false belief was mentioned, the experimenter asked a reality question, e.g., "Where is the kitten, really?" to ensure story comprehension.

Children's explanations were coded as being one of three general types: (1) referring to psychological causes, including the protagonist's desires, beliefs or other psychological constructs, (2) referring to non psychological causes, or (3) no explanation attempted. Of course, Wellman was interested in explanations referring to psychological causes. Wellman found that a substantial majority of the unprompted explanations of 3 and 4 year-olds referred to psychological states. For 3 year-olds, 60% of their psychological explanations specifically mentioned beliefs and desires; for 4 year-olds the figure was 69%. Further analysis of children's unprompted explanations showed that belief comprised 10% and 15% for 3 and 4 year-olds respectively and desire explanations comprised 28% and 34%. This supports other researchers' findings that children acquire a rudimentary understanding of desire earlier than they acquire a rudimentary understanding of belief (Flavell, 1988; Forguson and Gopnik, 1988; Perner, 1988, Wellman 1990, 1993).

It is interesting that 65% of 3 year-olds and 82% of 4 year-olds gave at least one false belief explanation. 15 (of 23) 3 year-olds generated 25 false belief explanations, and all but one of the 25 involved an explicit mention of "think" or "thought". Bartsch and Wellman (op. cit.) found that 12 of the 25 false belief attributions occurred prior to a prompt. Bartsch and Wellman's results suggested to them that earlier studies may

be revealing not a difficulty with false belief per se but a more limited difficulty with predictions via false belief. This prompted their second experiment which would lend support to their hypothesis if young children could explain actions via false belief although fail to correctly predict actions based on false beliefs.

In their second experiment, 3 year-old children were given both false belief explanation and prediction tasks. Both prediction and explanation tasks involved stories in which a puppet searched for an object in one of two containers. For example, each child was first shown a bandaid plaster box and a similar, but unmarked, white box, and was then shown that in fact the bandaid plasters were only in the white box and not in their usual container. The boxes were then closed and a puppet who had cut himself was introduced. In prediction tasks, the child was simply asked to predict in which box the puppet would look. In explanation tasks, the puppet started to look in the marked but empty box and the child was asked why the puppet was looking in that box. If the child failed to respond or mentioned only something other than the puppet's beliefs, the experimenter prompted with: "What does (Bill) think?" If a false belief was mentioned, the child was asked a reality question. Bartsch and Wellman's results indicated that children performed well on explanation tasks, even when they failed the prediction tasks. 16 of 24 three-year-olds passed the explanation task while only 6 passed the prediction task. Bartsch and Wellman say that this study supports their earlier findings (Wellman and Bartsch 1988) that children fail false belief tasks because they present a conflict between desire reasoning and belief reasoning. Given this conflict, 3 year-olds predict on the basis of desire. They do not fail because they have no concept of belief. Wellman and Bartsch propose that the reason desire wins out is to do with the young child's strong allegiance to the maxim that, in general, people act in order to satisfy their desires. Wellman and Bartsch say that young children are disinclined to suppose that an actor will act in a manner to thwart his or her own desires-which the actor may be seen to do through the eyes of a 3 year-old in the prediction task. Bartsch and Wellman write:

> "When children are invited to explain actions by referring to false beliefs, the child does not have to propose that the actor will act in contradiction to his desire. Instead, the child simply has to accept

that such an action has in fact been produced and then sensibly explain it. The child resorts to belief to provide an explanation of this state of affairs." (Bartsch and Wellman 1989, page 959).

Moreover, Wellman and Bartsch propose that conceptually, predicting from information about a false belief is more difficult than explaining an action due to a false belief. They write:

"Generally speaking, predicting an action requires an examination of the relevant desire and relevant beliefs. In a false belief prediction task, consideration of the character's desire leads to a prediction that the character will do what is necessary to satisfy that desire, but consideration of the relevant (false) belief leads to an opposite prediction. For example, if I know only that Joe wants candy and that candy is in the cupboard, I will probably predict that he will look in the cupboard. If I know further that Joe (wrongly) believes the candy is in the refrigerator, I must reverse my prediction. Therefore, in the case of predicting from false belief, it becomes necessary for the reasoner to weigh these conflicting predictions appropriately, allowing the belief information to overturn the prediction from the desire information. Deciding between conflicting possible actions may be the source of the young children's difficulties with predicting via false belief." (Wellman and Bartsch 1988, page 260).

Wellman and Bartsch's findings indicate that young children's understanding of false belief occurs at an earlier age than suggested in previous studies.

Following Wellman and Bartsch's study, Perner (1989, and later 1993) examined the representational status of desire and belief. He proposed that before the age of 4 years, the child interprets mental states as relating to situations directly; only later does the child re-conceptualise them as relating to representations of situations. Perner believes that it becomes necessary to bring in representations as stand-ins for situations in order to understand cases of misrepresentation, because there it becomes necessary to differentiate between content and reference. According to Perner, this explains the child's late understanding of false belief and

appearance-reality. Central to Perner's argument is his distinction between "thinking of" and "thinking that". The following extract taken from Perner illustrates his distinction:

> ".....1) You think of me lying on a Mediterranean beach. 2) You think that I am lying on a Mediterranean beach. The difference between these sentences is important..... The difference arises because "think of" and "think that" relate you to two different situations. "Think of" in sentence 1) relates you only to the situation where I am lying on a Mediterranean beach (content). "Thinking that" in sentence 2) relates you to two situations: to the situation of me lying on a Mediterranean beach as the content of your belief and to the real situation of me sitting in rainy England as the referent of your belief." (Perner 1991, page 146).

In Perner's example above, he draws the distinction between content and referent. Perner believes that the referential use of mental terms is marked by "that" and that if the child cannot conceive of mental states as representations, he or she cannot understand "thinking that". He says in this case the child has a theory of "thinking" but can at best assimilate "thinking that" to "thinking of". Perner says the child's inability to understand "thinking that" "....provides the basis for understanding why children find wants so much easier to understand than belief. Understanding most relevant behavioural and emotional implications of desire does not need the understanding of "that". For belief this understanding is essential." (Perner 1991, page 149).

Perner writes that in some of the published research involving "thinking", (and he cites Wellman and Bartsch's (1988) Discrepant Belief Story; see page), the child only has to interpret "thinking" as "thinking of", not "thinking that". Perner states that such tasks can be easy or difficult depending on whether "think" has to be interpreted as a mental representation, "thinking that" (belief) or simply as a relationship to a situation, i.e., "thinking of" (expressing a thought with the implication of interest or preference i.e., desire). Perner writes that if all instances of "think" are replaced by "think of" in Wellman and Bartsch's Discrepant Belief Story, it would read as follows (Perner's emphasis):

Look there are bananas in the cupboard and bananas in the refrigerator. Jane wants a banana. Jane only *thinks of* the bananas in the cupboard; she doesn't *think* (much) *of* the bananas in the refrigerator. Perner is not surprised that the majority of 3 year-olds said that Jane would look for bananas in the cupboard (the correct response), - but challenges that this is an attribution of a belief-based response. Perner states that the only one of Wellman and Bartsch's tasks that cannot be correctly responded to in terms of interest or preference (desire) is the Explicit False Belief story-in which only 16% of the 3 year-olds passed. In this task, the children have to interpret information about the protagonist's "thinking" as "thinking that" which pertains to belief. Thus Perner proposes that children's performance on conceptual role-taking tasks depends on whether the attributions of mental states have to be construed as mental representation i.e., belief, (and possibly intention) or whether it is sufficient to understand them as a relationship to a situation i.e., thought and desire. Perner argues that children begin to understand false belief at around four years because at this age that they begin to understand more about representation (Perner, 1991, 1993).

3.7 Children's understanding of second-order beliefs

In the false belief studies reviewed so far, investigations have centred on children's ability to distinguish their beliefs from someone else's beliefs, e.g., "Sally thinks the marble is in the box, but I know that it is, in fact, in the basket." This reasoning is called first-order belief attribution (Wimmer and Perner, 1983) or second-order representation (Dennett, 1978; Pylyshyn, 1978; Johnson-Laird, 1983; Leslie, 1987).

Children's second-order belief attribution has received less attention in the literature. To the author's knowledge there have been no studies which specifically investigate the second-order representational difficulties of children with severe learning difficulties (apart from studies in which children with Down's Syndrome are matched with mainstream and autistic children). Second-order belief attribution would include the construction: "John thinks that Mary thinks that the ice-cream van is in the park", (Perner and Wimmer, 1985). Second-order beliefs are often referred to as 'nested' beliefs (Dennett, 1983), 'recursive' or 'self-

embedded' thinking (Miller et al., 1970) and 'metarepresentation' (Leslie, 1987, 1993).

Flavell (1968) called this reasoning "Level 2 perspective taking". Flavell's two levels were as follows:

Level 1: the ability to think about another person's thoughts about an objective event,

Level 2: the ability to think about another person's thoughts about a third person's thoughts about an objective event.

Flavell et al (1968) investigated children's ability to achieve second-order belief attribution by observing their strategies in deceptive games. In one game, Flavell paired children against each other to win money. Subject X was the hider and subject Y the guesser. Subject X had the choice of either hiding a nickel under a cup marked "A" or a dime under a cup marked "B". (A dime is worth more than a nickel). The object of the game was for subject X to deceive subject Y about where a coin was hidden. If subject Y guessed the correct cup, he or she could keep the coin. Subject X could keep the coin if his opponent failed to find it. The strategy on the part of subject X (while his opponent closed his eyes) was to empty the cup that he thought subject Y was going to choose. So, if subject X thought that his opponent would go for the largest payoff, i.e., choose the dime under cup "B", then he would put the nickel under cup "A". However, if subject X thought that his opponent would suspect his strategy, i.e., that he would hide the nickel under cup "A", then he would hide the dime under cup "B". The child's two levels of reasoning are shown below:

Step One-Subject X: "I think he will go for the dime under cup B; so, I will put the nickel under cup A."
Step Two-Subject X: "I think he will think that I will think that he will go for the dime under cup B; so, I will put the dime under cup B."

Flavell failed to elicit evidence of level two, or second-order belief attribution in children below the age of 11 years. However, as Flavell (1977) points out, reliance on introspective reports for evidence about

children's reasoning abilities may lead to underestimation of children's competence.

Perner (1979) criticises the methodology of Flavell's game studies, because of what he describes as their "circular" nature. Perner proposes that children's higher-order reasoning cannot be distinguished from lower-order reasoning. In the example above, a further step in the child's reasoning, which would represent step 3), would bring subject X back to hiding the nickel under cup "A", as in step 1), and the cycle of reasoning would start all over again.

Miller et al (1970) investigated children's second-order belief attribution, which they called "recursive" or "self-embedded" thinking. In their study, children aged between 6-12 years described embedded "think-bubble" cartoons involving non recursive and recursive thinking. Miller et al found that children's understanding of non recursive and recursive thinking progressed sequentially across mastery of 4 types of reasoning:

1) thinking about contiguous people (social objects) e.g., "The boy is thinking of the girl and father" (non recursive),

2) thinking about action between people (e.g., talking) e.g., "The boy is thinking that the girl is talking to father", (non recursive),

3) thinking about thinking (one-loop recursion) e.g., "The boy is thinking that the girl is thinking of father" (recursive),

4) thinking about thinking about thinking (two-loop recursion) e.g., "The boy is thinking that the girl is thinking of father thinking of mother" (recursive).

Miller et al found that, in response to the cartoons, the 10-12 year-olds used one-loop and two-loop recursive descriptions with a 60% and 35% success rate respectfully. Landry and Ruth's study (1980), which used Miller's cartoons, replicated these findings. Miller et al., like Flavell, concede that, as they presented children with a verbal production task, they may have underestimated the children's ability to reason recursively. The authors also were aware of the linguistic complexity of the task,

especially the 2-loop recursion, which they say occurs infrequently in real-life.

Eliot et al (1979) found improved performance on a non-verbal version of Miller's test. Children were given a description and were asked to point to the corresponding think-bubble cartoon. Perner and Wimmer (1985) propose that the children's responses in Miller's and Eliot's studies do not demonstrate an understanding of beliefs beyond a syntactic exercise of matching embedded sentences with embedded think-bubble cartoons. Perner and Wimmer's study offers a more ecologically valid demonstration of children's second-order belief attribution by predicting a story character's behaviour. In their study, successful belief attribution does not demand elaborate verbal skills and first-and second-order belief attribution can be differentiated. Perner and Wimmer's studies (op. cit.) demonstrated that many of their 6 year-olds and the majority of 7 year-olds were able to mentally represent second-order beliefs. A basic story framework ran through all of their 6 studies. An overview is provided below:

John and Mary go to the park. Mary wants to buy an ice-cream from an ice-cream van. Mary has no money. The ice-cream man says he will be in the park all afternoon. Mary goes home to get some money. John stays in the park and sees the ice-cream man drive off. The ice-cream man says that he is going to the church to sell ice-creams. On the way to the church, the van passes Mary's house. The ice-cream man tells Mary that he is going to the church. Mary goes to the church to buy an ice-cream. Meanwhile, John goes to Mary's house. Mary's mum tells John that Mary has gone to buy an ice-cream. Belief Question: Where does John think Mary has gone to buy an ice-cream?

Perner and Wimmer stated that correct answers could only be given to this question if children had formed a mental representation of John's second-order belief, because reasoning based on first-order beliefs or reality would have led to the wrong answer.

Baron-Cohen (1989) used an adaptation of this scenario with non-handicapped, autistic and Down's Syndrome children matched for mental age and linguistic ability. Baron-Cohen found that 90% of the non-

handicapped 7 year-olds passed the second-order belief question on two trials. This is consistent with Perner and Wimmer's results. None of Baron-Cohen's autistic children passed on both trials. These subjects had previously passed the Sally -Anne false belief test, i.e., the first-order belief attribution test. These results give further weight to Baron-Cohen's hypothesis that the autistic child has a specific developmental delay in his or her theory of mind (Baron-Cohen et al, 1985; Baron-Cohen, 1993; Leslie, 1987; Leslie and Frith, 1988; Perner et al, 1989; Perner 1993).

3.8 Conclusion

This chapter has reviewed some of the experimental studies investigating young children's representational thinking. Much of children's development in this area is implicit in their behaviour; 2-year-old children's pretend play is one of the earliest manifestations of representation. In the next chapter, children's representation of psychological states will be examined further, in particular, their spontaneous language relating to psychological states.

In contrast to observing children's behaviour in naturalistic contexts, this chapter has reviewed evidence about children's understanding of the mind from their behaviour in experimental settings. Findings from many of these studies have indicated that at about 4 years of age, children begin to understand something about the representational nature of the mind; that is, similar to pictures, people's thoughts and beliefs are only representations of reality, not reality itself. 3-year-olds, on the other hand, have a basic awareness of the existence of minds and thoughts, but are seen to be more as 'desire psychologists' rather than 'belief-desire psychologists' (Wellman, 1990, 1993). 3-year-old children make reference to people's desires to explain behaviour; 4-year-olds make reference to people's beliefs and desires to explain and predict behaviour. In the vast majority of studies reviewed, 4-year-olds seem to understand appearance/ reality, representational change and (first-order) false belief; 3-year-olds have an incomplete and fragile understanding of these things. The majority of 6 and 7 year-old children understand second-order false belief.

It has been proposed that a preliminary step to investigating the representational abilities of children with severe learning difficulties is to examine in depth the same abilities of the non-learning disabled child. In chapter 4, the author's first study investigates the abilities of mainstream children to represent first-order false belief. The methodology and experimental contexts utilised in the author's empirical work have been informed by the review of experimental work in this chapter. In the first investigation, he replicates the Baron-Cohen 'Sally-Anne' task (Baron-Cohen et al., 1985), and then makes a number of modifications to it with the intention of reducing the information-processing demands (investigations 2 & 3). Children's responses to these modifications are analysed to look for improved performance in attributing first-order belief. In the second study, the author introduces his own false-belief story scenario, which utilises the experiential component of the 'Smarties' task (Hogrefe et al., 1986). The author uses drama and a method of 'split-briefing' to enable children to directly experience false-belief. Children's abilities to represent both first-and second-order false belief are examined within the medium of drama. This experimentation with mainstream children guides the author's subsequent work with children with severe learning difficulties. The author's research with mainstream children reveals avenues of research which offer potential for work with children with severe learning difficulties. The author's final study follows a questionnaire-based study looking at the internal state language of non-learning disabled children and children with Down's Syndrome with severe learning difficulties. Implications from this research provide the impetus for the final study. Here, children with severe learning difficulties are provided with an interactive context in which they are encouraged to talk about people's internal states.

Chapter 4
Working with mainstream children on False Belief tasks

4.1 General Introduction

The preceding chapter reviewed a wealth of experimental literature indicating that children aged below 4 years experience great difficulty in representing another person's false belief. In the majority of the false belief tasks, children have to simultaneously represent two people's different conceptual views of a single state of affairs. In order to successfully represent another person's false belief, children have to simultaneously represent both their own knowledge of the world (e.g., the object is in location X, not in location Y) and the deceived actor's false belief (the object is in location Y). Children's ability to represent the actor's wrong belief is seen by several authors as providing evidence for their capacity to conceive mental states and therefore their possession of a 'theory of mind'.

This chapter describes two major studies. The first study consists of 3 investigations examining 3, 4 and 5 year-old children's understanding of first-order false belief. The second study consists of a single investigation into 6 and 7 year-old children's understanding of both first- and second-order false belief. The researcher uses two different false belief story scenarios in each study. The two studies differ in a number of ways, although both studies fall within a quantitative paradigm of educational research. The major difference between the two studies is the researcher's intentions and the type and degree of participation of the children. In study 1, the intention of the researcher is to examine 3, 4 and 5-year-old children's understanding of first-order false belief in a replication of Baron-Cohen's false belief task. He then offers different groups of children two further modifications of the false belief task in an attempt to simplify the task and facilitate children's understanding of a story protagonist's first-order false belief. In the three investigations in study 1, the children play a relatively passive role in the proceedings. Different groups of children observe a version of the false belief story scenario and answer a series of control and experimental questions. The researcher draws a number of conclusions from the children's responses

to these questions. The researcher keeps a tight rein on the procedure; consistency of presentation and questioning between subjects is maintained and there are few opportunities for deviation, in terms of probing and asking children to justify their responses to questions or probing further into their line of reasoning. The experimenter is very directive and the children very passive. The limitations of this type of research are discussed in the conclusion.

In the second study, the researcher's intention is also to investigate children's understanding of false belief: first-and second-order false belief. In this study, children also answer control and experimental questions about story protagonists' false beliefs; however, in this study some of the children actually play the characters in the story scenario. Children are involved in a role-play context and it will be seen that, using a dramatic technique called 'split-briefing', some of the children are put in a situation where they actually experience false beliefs. The experimental procedure is much more interactive: 6- and 7-year-old children are asked a series of belief questions which tap their understanding of false belief, but the aim was to encourage them to talk about their beliefs, desires and intentions in a debriefing session after the role-play. It will be seen that this aspect of the research, which represented perhaps the greatest potential in terms of children's vicarious learning, was not fully utilised because all the group members correctly appreciated each other's different conceptual viewpoints. This was confirmed in children's responses to first-and second-order belief questions during debriefing and in a subsequent video presentation of the false belief story scenario.

The research with mainstream children described in this chapter served as a platform for the researcher to learn about how young children demonstrate social-cognitive abilities in an experimental context. The researcher used this to formulate learning contexts and teaching strategies to facilitate social-cognitive understanding in children with severe learning difficulties. This is the focus of the next chapter.

Study 1, Investigation 1-3

The series of studies in the first investigation fall within a strict quantitative approach. Children are involved in test situations where the researcher manipulates the experimental context according to his hypothesis and looks at the relationship between two or more variables (in this case, independent variables), e.g., does the provision of perceptual prompts improve children's ability to predict a story character's behaviour according to her false belief (study 2)? Children either pass or fail the researcher's control and experimental questions. Using statistical analysis the researcher attempts to show that there is a significant relationship between the two variables, which in turn supports or rejects his hypothesis.

As stated earlier, in these three investigations, the children play a relatively passive role in the task. The researcher is concerned with consistency in the way he presents information and the way he asks questions. There is a need to keep strictly to a specified procedure. The researcher is not at liberty to wander from his brief, the only flexibility he has to respond intuitively to the child is in a short acclimatisation period before the task, where the researcher and child familiarise themselves with each other and with the materials. After this, the researcher keeps to his procedure and controls the situation to fulfil his intentions. He presents children with a short story involving puppets or real actors. He provides a commentary of the action (this is also significant; the story scenario in the second investigation contains narrative and therefore is more dynamic) and at given points in the action, he asks the children a series of control and experimental questions. The researcher accepts the children's responses, - they are either right or wrong, and he does not provide feedback on their answers; this is beyond his remit. Indeed, the researcher's intentions probably remain a mystery to the children (and perhaps to many of the staff). When setting up research within a quantitative framework, the researcher may have some good reasons for not fully communicating his intentions to the subjects (or indeed the staff working with them), e.g., to prevent the children informing their peers what the experimenter is looking for, or to inhibit staff working with the children on similar activities. The researcher's most immediate concern is to use the experimental context to support or refute his hypothesis, to

interpret his findings, and in the longer term communicate these findings to a wider audience through writing a report and publication.

Study 2

In contrast to study 1, the researcher's intention in the second investigation is also to ask children a series of control and experimental belief questions. However, in addition to this, his intention is to provide children with a story scenario in which they can participate and learn about their own and other people's beliefs and intentions. This is afforded by taking video-recordings of individual children's responses to questions between scenes, as the story develops (as some of them actually experience false belief first-hand). The intention was to use these video-recordings as a catalyst for discussion during debriefing after the role-play. In this investigation, then, the research may be seen to include features of both quantitative and qualitative research. There are a number of general and specific questions relating to a hypothesis, i.e., -will children's involvement in drama facilitate their understanding of first-and second-order belief? and more specifically, as tested by control and experimental questions, will the method of 'split-briefing', where children are placed in contexts where they have first-hand experience of false belief, facilitate their understanding of first- and second-order belief?

In addition to these interests, the experimenter's intention was to provide the pupils with a learning context, i.e., to help any children who were seen to find difficulty appreciating the different conceptual viewpoints of their peers, particularly their mental states which involve second-order belief attribution. This was to be achieved in discussion during debriefing, when video-recordings of children's responses to questions which represent their different conceptual and perceptual viewpoints at significant points in the drama could be played back to the children to help them 'decentre'.

4.2 Study 1: Children's ability to predict behaviour according to first-order beliefs

4.3 Introduction

The first study consists of three separate investigations which focus on 3- and 4-year-old children's ability to answer questions of first-order belief attribution. In order to successfully answer these questions, children have to differentiate their own beliefs from the false beliefs of story characters, e.g., "Sally thinks that the marble is still in the box, but I know that it is really in the basket". The first study is a slight adaptation of Baron Cohen's (1985) false belief task. The study uses a larger sample of children than the Baron-Cohen investigation. The aim of this study is to compare the performance of children from the present larger sample size with the results from Baron-Cohen's original study.

In studies 2 and 3, modifications are made to the original task in an attempt to improve children's performance. Study 2 substitutes real people for dolls and provides children with two 'perceptual' prompts. Study 3 attempts to simplify the false belief task by significantly reducing the inferential demands.

4.4 Investigation 1: An adaptation of the 'Sally-Anne' False Belief task.

Baron-Cohen's 'Sally-Ann' false belief test (Baron-Cohen, 1985) was designed for use with autistic children to investigate their understanding of other people's mental states. Compared to the original Wimmer and Perner (1983) task, the story scenario appears simple, the memory demands relatively light and the linguistic complexity limited (children can hypothetically respond to the memory, reality and belief questions non-verbally by pointing, although this is not mentioned in the methodology). Baron-Cohen used 27 pre-school children and found that 85% of his 4 year-old children could successfully predict a doll's behaviour on the basis of her false belief (Sally will look in the basket) and not on the basis of their own belief (the marble is now in the box). Baron-Cohen found that his Down's Syndrome children (linguistic and

cognitive ability matched to the non-learning disabled 4 year-olds) performed remarkably close to the pre-school children (86%), but only 20% of his autistic sample (again matched) passed the task.

The aim of this study is to use the same story scenario with a slightly modified procedure. This version makes 3 small changes to the original study:

1) The present study uses glove puppets instead of small dolls. This allows the experimenter to effect the transfer of the marble more easily and naturally; in the Baron Cohen task, the experimenter's manipulation of materials is more explicit, i.e., the use of dolls (which do not have the limbs to hold the marble) forces the experimenter to use his own hand to transfer the marble from one receptacle to the other. This may give the impression that it is the experimenter who effects the transfer (and therefore is controlling the action), and not the doll. Arguably, from the child's perspective, the experimenter's use of glove puppets may engender the same impression of experimenter control. (This is discussed later).

2) In this study, different sex puppets were used instead of the same sex dolls in the original study. It is proposed that different sex puppets are easier for children to identify and differentiate during the task.

3) In the description of the Baron-Cohen task, during the second trial, the experimenter transfers the marble to a different location, namely the experimenter's shirt pocket. Similar to item 1), if the child has to enter into the pretend story scenario to attribute beliefs to puppets (in order to pass the test, the child has to do this to appreciate Sally's false belief), it seems that placing the marble in the experimenter's pocket causes a temporary transition between the pretend world and the real world. It also suggests that the experimenter may be in collusion with Mike. For these reasons, in the second trial, Mike takes the marble out of the box and puts it out of view under the table.

In summary, the aim of this study is to try to replicate Baron-Cohen's findings with the adaptations described above and using a larger sample.

4.5 Subjects

Seventy-three children from a Primary School in the London Borough of Bromley participated in this study. Thirty-three children were from two first-year infant classes (mean age = 5;3, range = 4;9 to 5;8) and forty children from the school play group (mean age = 4;4, range = 3;2 to 4;11). Overall, 42 boys and 31 girls took part.

4.6 Materials

Two glove puppet protagonists, Sally and Mike. Two small receptacles: a plastic box with lid and a ceramic egg which divides horizontally in half, and a marble.

4.7 Background

The experimenter made 3 afternoon visits to each class prior to the research to familiarise himself with the children and vice-versa. The experimenter joined in regular classroom activities and took the classes for music sessions to build up a rapport with the group. When he began his experimental work, he left time to join in regular classroom activities for the last 30 minutes.

The experimental work took place in a quiet alcove in the classroom, divided from the main area by a curtain. Children were collected individually from the main classroom area by the experimenter. The experimenter made audio recordings of each session.

4.8 Procedure

The procedure is a slight adaptation of the original Baron Cohen 'Sally-Ann' experiment. The children are shown the plastic box and the egg. The experimenter talks to the child about where he got them from, what they are usually used for, asking the children what they could put in them, etc., to familiarise and settle the child. He lifts the lid of the box and divides the egg to show that there is nothing inside them. The experimenter shows the subjects the two glove puppets and tells them their names. He invites the children to say "hello" to each puppet and

shake each puppet's hand. The experimenter checks that each child knows which doll is which. He says to the children:

Identification Command: "Show me Sally" and then "Show me Mike."

The experimenter then manipulates the dolls and materials and provides a commentary as follows:

"Sally and Mike are playing together in the classroom. Sally has a marble and she puts it into a plastic box and closes the lid. Then Sally goes out into the playground." (The experimenter removes Sally from the scene and places her behind his back). "When Sally is gone, Mike takes the marble out of the box and puts it into the egg." (The egg divides in half. When the upper half is in position, it is not possible to see inside).

The experimenter then asks two control questions, the first to check for memory:

Memory Question: "Where did Sally put the marble in the beginning?"

The experimenter then asks the second control question, to check that the child knows where the marble really is:

Reality Question: "And, where's the marble now, really?"

The experimenter then brings back Sally and as he does so, he asks the critical Belief Question:

Belief Question: "When Sally comes back, where will she look for the marble?"

The experimenter then repeats the procedure a second time to establish consistency of the children's responses. In the second trial, the procedure is the same except that instead of Michael transferring the marble to the egg, he puts it under the table, on the floor.

4.9 Results

If the children respond by stating that Sally will look "in the box" or point to the previous location of the marble, then they pass the Belief Question because they have appreciated the doll's false belief. If the children respond by saying that she will look "in the egg" or point to the marble's present location, then they fail the Belief Question by not taking into account the doll's belief.

In order for the child to pass or fail the Belief Question, they must have passed the preceding control questions, the Name, Memory and Reality Questions. If children fail to respond correctly to the control questions, they are removed from the analysis.

Six children from the school play group were distracted by the materials during the task. The experimenter was unable to redirect their attention back to the task and therefore had to abandon the procedure. Distractions included taking the marbles out of the receptacles, interfering with the puppets and the intrusion of other children. A further seven children from the play group failed one or more of the control questions (name, memory or reality questions). This left 27 children from the play group who passed the control questions of both trials.

One child from a reception class failed a control question on both trials. She was therefore removed from the analysis leaving 32 children from the reception classes who passed the control questions on both trials.

This left a total of 59 children (36 boys and 23 girls) from the original sample of 73 children who had passed the control questions and responded to the Belief Questions. These children were divided into 3 broad age groups: 3 year-olds (age range 3;2 to 3;10, mean age = 3;7, n = 10); 4 year-olds (age range 4;0 to 4;11, mean age = 4;7, n = 28) and 5 year-olds (age range 5;0 to 5;8, mean age = 5;3, no = 21). As would be expected, the 3-year-olds had the largest proportion of children who were eliminated from the sample because they were distracted from the task or they failed one or more of the control questions. This meant that the 3-year-old sample was rather small, - 10 children. The researcher had involved all the available 3-year-olds in the play group, so he could not

increase the size of this sample. (It would not have been acceptable to involve 3-year-olds from another play group).

Table 1 shows the numbers and percentages of 3-, 4-and 5-year-olds passing the belief questions on both trials.

Chi-square analysis revealed no sex differences in children's responses x = 1.32, n = 59, df = 1, p = 0.25

Table 1 Numbers and percentages of 3-,4- and 5-year-olds passing the Belief Question on both trials in study 1

	age range	mean age	number	pass BQ	% pass BQ
3 years	3;2-3;10	3;7	10	5	50
4 years	4;0-4;11	4;7	28	18	64
5 years	5;0-5;8	5;3	21	18	86

4.10 Discussion

Wimmer and Perner (1983) devised the first false belief story scenario. This task was criticised for its complexity both in narrative structure and plot (Chandler et al, 1988; De Gelder, 1990). Wimmer and Perner found that none of their 3 year-old children (age range 3;1 to 3;9) could pass a belief question indicating that they could predict a character's behaviour according to her false belief. In the Baron-Cohen 'Sally-Ann version the author collapsed his sample of children into a single group (age-range 3;5 to 5;9, mean 4;5) so it is not possible to make a direct comparison of the performance of his 3 year-olds and the 3 year-olds in this study. However, even though there were only ten 3-year-olds in the present study, 50% of them were able to successfully attribute first-order beliefs to story characters compared to no 3 year-olds in the Wimmer and Perner study (in response, of course, to a different false belief task).

Baron-Cohen reports that 85% of his group of twenty seven 4 year-olds (which represent, in fact, a mixture of 3, 4 and 5 year-olds; children ranging from 3;5 to 5;9, mean age 4;5) passed his Belief Question on two trials. When the complete sample of fifty- nine children in the present study are collapsed into roughly the same age range (3;2 to 5;8 mean age 4;8), 70% of the children passed the Belief Question on two trials. This

represents a slightly poorer performance of the children in the present study compared to Baron-Cohen's children. However, a direct comparison cannot be made because 1) the present study represents a slight adaptation of the Baron-Cohen procedure, and 2) a much larger sample of children is used (when the age ranges are collapsed, there are over twice the number of children in the present study).

In investigation 1, it is proposed that there may be a number of methodological and conceptual difficulties which may militate against children demonstrating their true ability to attribute first-order belief, i.e., in this context, successfully predicting Sally's behaviour according to her false belief. The first difficulty may be to do with experimenter control. Although it has been proposed that the substitution of dolls by glove puppets may, from the child's perspective, reduce the overall impression that the experimenter is directing the sequence of events, this element of experimenter control may still represent to the child a serious distraction from a pretend scenario. We shall see that children must enter (wholeheartedly) into the pretend scenario in order to answer the belief question from Sally's perspective. An analogy to this difficulty is when mother and young child are involved in pretend dialogue and mother slips out of pretend mode (or when the child thinks that mother has slipped out). Young children may find temporary suspension of pretence (by the interference of reality) problematic. For example, when mother and child enter into pretend dialogue, if mother invites the young child to wipe up an imaginary mess of pretend tea, the child may interpret this as a reference to reality and struggle to maintain the pretence[10]. It is possible that the experimenter's manipulation of materials and his overall control may, from the child's perspective, represent a distracting interference of reality and may lead to similar suspensions of pretence.

It is possible that the way the experimenter controls the sequence of events may also make it difficult for children to differentiate between Sally's knowledge base (Sally thinks that the marble is in the box) and the experimenter's knowledge base (the experimenter knows that the marble is in the egg). The child is aware that the experimenter is controlling

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[10] Harris (1992) would see this as the child slipping out of the pretend mode, - where he or she falls back on the default setting of current reality (see page 50 of this thesis).

Sally. When she sees him bringing Sally back, she may have difficulty differentiating his state of mind from Sally's state of mind. She may assume that because the experimenter knows that the marble has been moved, then Sally will also know. This may prompt the child to answer the Belief Question from the experimenter's perspective rather than Sally's.

Another related difficulty is the powerful influence that the experimenter has on children's responses. Donaldson (1978) wrote about how young children provide the answers that they think the experimenter wants to hear. It could be that if someone else other than the experimenter who was seen to manipulate the sequence of events, rather like the 'Naughty Teddy' episode to which Donaldson refers (McGarrigle and Donaldson, 1974), then 'experimenter bias' may be reduced.

Yet another factor which may make it difficult for children to engage in the make-believe world of the story (and in fact, from the child's perspective may make it less plausible) is the absence of narrative. The fact that the experimenter provides a commentary on the sequence of events (in addition to his manipulation of the action) may reinforce to the child that the story characters are under his control; they are not masters of their own destiny[11]. This may have an influence on the way children engage with the story scenario when they are asked the Belief Question.

Perhaps the greatest potential difficulty in using puppets or dolls in an experimental context such as this is if children do not consider them to be 'thinking' or 'perceiving' entities. It is feasible that children regard puppets as inanimate objects which are not capable of thought or perception. If this is so, then a belief question about a puppet's conceptual or perceptual viewpoint may be confusing for a child, or dismissed by the child as unrealistic[12].

One way of eliminating all the potential difficulties described above is to substitute real people for puppets, who may not be considered to be under such explicit experimenter control; who may be seen to be more

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[11] This aspect of narrative, the illocutionary force of characters speaking for themselves, is discussed in investigation 3.

[12] The way that young children engage spontaneously in pretend play with dolls suggests that this is unlikely.

autonomous[13] and who, necessarily, will be regarded as having thoughts and perceptions.

Finally, another potential difficulty in the pretend scenario is that when the experimenter removes Sally from the scene and puts her behind his back, the child may think that she can still hear and perhaps see the ensuing action. After all, the puppet is still within a few feet of Mike. If this is the case, then the child may consider that Sally is aware of the marble's transfer and what the experimenter considers as an incorrect response to the Belief Question (Sally will look in the egg), from the child's perspective, will be the correct response. In study two, the experimenter will provide two perceptual prompt questions ("Nina has gone right away. Can Nina see us? Can Nina hear us?"). These questions are considered to be prompt questions because they may emphasise to the child that the assistant taking Sally's part in study 2 has gone right away and therefore is not witness to the marble's transfer. These perception prompt questions represent two further control questions. Children must answer these questions correctly before their responses to the Belief Question can be considered for analysis.

4.11 Investigation 2: Substitution of real actors in place of puppets in the false belief task

This study uses the same false belief framework as the previous study. The principal differences are1) that people take the place of dolls (the experimenter and an assistant), and 2) two perceptual prompt questions are included before the name, memory, control and belief questions.

4.12 Subjects

Forty-eight 3-and 4-year-old children participated in this study. None of these children had participated in the previous study. The children were taken from a parallel play group in the same school. The children's ages ranged from 3;0 to 4;9.

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[13] It will be argued later that in most experimental contexts, children probably believe that the experimenter is in collusion with his or her assistants.

4.13 Materials

The same plastic box, ceramic egg and marble as used in the previous study.

4.14 Background

As in the previous study, the experimenter made 3 afternoon visits to the play group prior to the research and engaged in similar activities with the children to familiarise them with his presence. In this study, the experimenter used an assistant in the procedure. This person was a familiar person to the children in the play group. She was a paid worker in the play group and was a parent of one of the children. The experimenter and assistant worked in an adjacent classroom (two classes had been knocked into one) which had its own door. This area was divided from the adjacent area by a curtain. The experimenter and assistant had sole use of this area.

The experimenter made audio recordings of each session.

4.15 Procedure

Children were collected individually from the main classroom area by the experimenter and assistant. The child sits opposite the experimenter and beside the assistant. The experimenter first checks that the child is familiar with the assistant's name. He says, "This is Nina. You know Nina, don't you?" He then shows the child the box and the egg as in the previous study. Before the action begins, the experimenter asks the first control question, the Name Question. He says:

Name Question: "I want you to watch and listen carefully.... (pause, the experimenter falters as if he has forgotten the assistant's name) What is this lady's name?...."Yes, Nina is going to show you something...."

The assistant takes a marble out of her pocket, saying, "In my pocket, I've got a marble. I've got to go back to the other children for a while, so I'm going to put it in the box for safe keeping." The assistant puts the marble in the box, closes the lid and leaves by the classroom door. She closes

the door behind her. The experimenter then poses the two Perception Questions. He asks in a low voice,

Perception Question 1: "Now, Nina has gone. Can she see us?"
Perception Question 2: "Can Nina hear us?"

The experimenter then says, "Now that Nina has gone, I'm going to take her marble out of the box and put it in the egg." He does this and then asks the following memory, reality and belief questions:

Memory Question: "Where did Nina put the marble in the beginning?"

Reality Question: "Where is the marble now, really?"

The experimenter then points to the door and asks:

Belief Question: "When Nina comes back, where will she look for the marble?"

The assistant comes back and the scenario is repeated, as in the previous study, with the experimenter putting the ball under the table.

4.16 Results

Four children did not complete the task because they were distracted by the materials or were in some way uncooperative. None of the children failed the Name Question or the Perception Questions. Sixteen children failed one or more of the Memory or Reality Questions. This left 28 children who passed all the control questions on both trials and who responded to the Belief Question.

The remaining sample consisted of 17 boys and 11 girls (age range 3;0 to 4;9, mean age 3;11).

Table 2 shows the percentages of 3 and 4 year-olds passing the Belief Questions on both trials.

Chi-square analysis revealed no sex differences in children's responses, x = 3.37, n = 28, p = 0.067.

Table 2 Numbers and percentages of 3-, and 4-year-olds passing the Belief Question on both trials in study 2

	age range	mean age	number	pass BQ	% pass BQ
3 years	3;0-3;11	3;6	14	9	64
4 years	4;0-4;9	4;5	14	11	79

Although the sample size and the age-ranges of the 3-and 4-year-old children were not matched in both studies, more 3-and 4-year-olds passed the belief questions in study 2 than in the previous study. 64% and 79% of 3-and 4-year-olds respectively passed the 2 belief questions compared to 50% and 64% of 3-and 4-year-olds in study 1. Table 3 provides a comparison of the results from the two studies. Study 2 utilised real people instead of puppets and included two perception control questions. The 4-year-olds ability to respond to belief questions in study 2 appears to be better than similar aged children in study 1.

Table 3: Combined results of 3-and 4-year-old children passing the Belief Questions in studies 1 and 2.

	age range	mean age	number	pass BQ	% pass BQ
3 year-old puppet	3;2-3;10	3;7	10	5	50
3 year-old people	3;0-3;11	3;6	14	9	64
4 year-old puppet	4;0-4;11	4;7	28	18	64
4 year-old people	4;0-4;9	4;5	14	11	79

Applying a Chi-Square Test and a Fisher's Exact Test to the combined and separated performance of 3-and 4-year-old children in studies 1 and 2 indicates that the substitution of real people for dolls and the inclusion of perceptual prompts did not significantly improve children's ability to answer belief attribution questions. A Chi-square test of the 3 and 4 year-olds' performance across studies 1 and 2 shows X = 0.844, df = 1, p =

0.358. A Fisher's Exact Test[14] (One-Tail) on the 3 year-olds' and the 4-year-olds' performance across studies 1 and 2 shows p = 0.389 and p = 0.282 respectively.

4.17 Discussion

Statistical analysis of the performance of 3-and 4-year-old children in studies 1 and 2 indicates that there appears to be no significant difference in children's ability to predict the behaviour of characters according to their false belief. In other words, when children are provided with perception prompt questions and are then asked to predict the behaviour of real people (investigation 1) children did not perform significantly differently from similar aged children responding to questions about puppets without perception prompt questions.

In the first study, the size of the 3-year-old sample was seriously diminished by children being distracted by the materials and failure of the control questions. Statistical analysis is limited and with a sample size of less than 12 any findings should be regarded as tentative. Even though a comparison of the results of the 3-and 4-year-old children in studies 1 and 2 indicate a trend towards improved performance in the second study, the Chi-Square and Fisher's Exact Test measures the discrepancy between the actual results and those expected by chance. In this case, it seems that the difference between the two sets of results was caused by chance factors rather than the independent variable, i.e., the provision of perception prompts and the use of real people.

4.18 Investigation 3: Reducing the inferential demands of the false belief task

In the previous studies, success on the false belief task requires that the child correctly infers that because Sally or the assistant did not see Mike or the experimenter transfer the marble from the box to the egg, she

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[14] The Fisher Exact test was used in comparing samples age for age because the xx tables consisted of 2 rows and 2 columns with small expected frequences.

(Sally or assistant) does not know that the marble has changed locations. Wimmer et al (1988) speculated that this inferred-belief demand may be the basis of children's difficulties with the false belief task. In this study, the procedure is adapted in an attempt to reduce the inferential demands of the task. This is done in two ways. Firstly, after Sally has left the scene, the experimenter substitutes the perceptual prompt questions in study 2 with a perceptual prompt statement: "Sally has gone right away. She can't see or hear what's going to happen, next." It is proposed that in addition to providing the child with a perceptual prompt, this statement serves to heighten children's expectations that something is about to happen which warrants close attention. Secondly, the experimenter hopes to reduce the inferred-belief requirement by explicitly telling the child about Sally's unchanged state of mind. When Mike takes the marble out of the box and puts it in the egg, the experimenter points in the direction of Sally and says, "Sally did not see that. She thinks that the ball is still in the box."

In this study, the researcher will only include 3-year-old children in his sample. This is because of the shortage of 4-year-olds in the parallel play group. It is proposed that any differences of performance attributable to changes in the experimental design will be shown by this age-group.

In summary, the hypothesis to be tested in this study is that heightening the child's expectations of ensuing foul play and making explicit to the child Sally's perceptual and conceptual viewpoint ("Sally did not see that" and "Sally thinks the marble is in the box", respectively) will improve children's performance in the false belief task.

4.19 Subjects

Twenty-six 3-year-old children from a play group in the same school (14 boys and 12 girls). These children had not participated in the previous 2 studies. The children were aged between 3;1 to 3,11 years.

4.20 Materials

The same marble, plastic box, egg and puppets as study 1.

4.21 Background

The same number of preliminary visits as in the previous two studies. As in study 1, the experimenter worked alone in a quiet, curtained off alcove connected to the main classroom.

The experimenter made audio recordings of each session.

4.22 Procedure

The procedure follows along identical lines as experiment 1 up to the point when the experimenter removes Sally. This time, he gets up and takes Sally away from the scene and puts her 5 metres away, around the corner of another alcove. The experimenter then says as he sits down, "Sally has gone right away. (In a rather sinister voice) "She can't see or hear what's going to happen next." Mike transfers the marble from the box into the egg. The experimenter then points in the direction of where he put Sally and says, "Sally did not see that. She thinks the ball is in the box." The control and belief questions follow and the scenario is repeated as in study 1.

4.23 Results

Of the 26 in the original sample, 2 children did not complete the task because they were distracted by the materials or were in some way uncooperative. 12 children failed one or more of the Memory or Reality Questions. This left 14 children who passed all the control questions on both trials and who responded to the Belief Question.

The remaining sample consisted of 6 boys and 8 girls (age range 3;0 to 3;11, mean age 3;7).

Table 4 shows the number and percentage of 3 year-olds passing the Belief Questions on both trials in study 3.

Table 4 Number and percentage of 3-year-olds passing the Belief Question on both trials in study 3

	age range	mean age	number	pass BQ	% pass BQ
3 years	3;0-3;11	3;7	14	5	36

Compared to the previous two investigations (the mean ages are comparable), the successful responses of the 3-year-olds to the belief questions in this study is surprisingly low; 36% pass rate compared to 50% and 64% in studies 1 and 2 respectively. Table 5 provides a comparison of the performance of the 3-year-old children in all three studies. However, we are reminded of the low sample size in study 1; replication of these experiments with larger samples would need to be undertaken to attach greater weight to these findings. Chi-square analysis of the performance of the 3-year-olds in studies 1, 2 and 3 confirms the need to be cautious about the significance of these results ($X = 2.29$, $df = 2$, $p = 0.32$).

Table 5 Combined results of the 3- year-old children passing the Belief Questions in studies 1, 2 and 3.

	age range	mean age	number	pass BQ	% pass BQ
3 year-old study 1	3;2-3;10	3;7	10	5	50
3 year-old study 2	3;0-3;11	3;6	14	9	64
3 year-old study 3	3;0-3;11	3;7	14	5	36

4.24 Discussion

Results of the 3-year-old children's performance in this study suggest that providing children with a perceptual prompt statement ("Sally has gone right away. She can't see or hear what's going to happen, next") and making explicit to the child Sally's perceptual and conceptual viewpoint ("Sally did not see that" and "Sally thinks the marble is in the box", respectively) did not improve children's performance in the false belief

task. In fact, results indicate a trend that children may perform worse in false belief tasks when offered these perceptual and conceptual clues.

It is possible that such prompts may in fact overload the child with additional information which may be distracting to the child. Alternatively, the child might wonder why the experimenter is supplying such explicit information; the child may think that there is some kind of a catch, and the answer that the experimenter wants to hear is not the most obvious one.

These questions, and others, would need to be considered if and when the same trends were observed following a replication of the same experiment using a larger sample of children. For the statistical analysis of the results of this study when compared to the previous two indicate that the perceptual and conceptual prompts given to children in this experiment did not significantly improve or impede the performance of children's ability to answer the false belief question.

4.25 Conclusion

The three studies described above suggest how resilient the generic false belief prediction task is to facilitation. The manipulations to the experimental procedure in the three studies, i.e., using real people instead of puppets and the provision of perceptual and conceptual prompts do not appear to make the tasks easier for young children. If children are going to fail the belief question in study 1, they would be likely to fail the belief questions if they were involved in studies 2 or 3. This imperviousness to simplification seems to support the general findings from similar adaptations of the false belief task reviewed in chapter 3.

The intentions of the researcher in this first major study was to try to facilitate children's first-order belief attribution by adapting and simplifying the task. His hypotheses in studies 1-3 were rejected by statistical analysis. This was disappointing, for, as stated elsewhere in this thesis, the researcher felt that the traditional false belief task was underestimating or indeed masking children's true ability to attribute first-order (false) beliefs to others. The researcher had hoped that reducing

some of the inferential demands would ease the representational demands and enable the younger children in the sample to demonstrate their ability to successfully predict a character's behaviour according to her false belief.

In his work with the children in studies 1-3, the researcher was struck by the potential that a false belief story scenario affords to talk about characters' mental states, - their beliefs, desires and intentions. What was common to all three studies was the researcher's frustration with the constraints of a test situation. When children responded incorrectly to the belief question, the researcher often wanted to intervene, to sensitively invite the child to justify his or her response and then perhaps to talk about the different belief perspectives of the different characters. The researcher's teaching background heightened this feeling of frustration; working within a test situation necessarily led to missed learning opportunities.

The author's recognition of the potential of the false belief task when used outside a test situation in a teaching context motivated the researcher to devise a more interactive way of working with children using a new story scenario. The aim of the second study would be to investigate children's understanding of first-and second-order false belief, but within a context which would allow the participants to learn about the different perceptual and conceptual viewpoints of their peers. Study 2 was devised to offer the researcher opportunities to 'scaffold' (Bruner, 1975) children's understanding of the different belief perspectives of characters in a false belief story scenario.

4.26 Study 2: Children's ability to predict behaviour according to first-and second-order beliefs

4.27 Introduction

This purpose of this investigation is to use drama as a medium in which to encourage children to mentalise, i.e., to understand and predict people's behaviour by appreciation of their mental states. In particular, the storyline and questions used in this study encourage children to attend

to and predict their peers' behaviour according to first-and second-order beliefs.

Drama is an area which has been neglected in the plethora of past and present research into children's developing 'theories of mind'. In the same way that theatre appeals to our 'folk psychology', drama may be regarded as a powerful medium within which to encourage children to appreciate the mental states of others. It is proposed that drama can provide young children with an ecologically valid medium in which they can experience false belief, and then talk about their own and other story characters' beliefs, desires and intentions during a group debriefing. A dramatic technique called 'split-briefing' is used to place children in contexts where they experience false belief first hand. It is proposed that simulation of false belief in this manner offers a potentially more powerful method of investigating children's understanding of false belief than in the more contrived experimental scenarios such as the one described in the previous study.

In this study, the researcher seeks to investigate and, where appropriate, intervene to facilitate 6-and 7-year-old children's understanding of their own beliefs and those of their peers. This can be achieved using video-recordings of individual children's interviews, when children are asked a series of belief questions between scenes and during intervals. These video-recordings can be used in a debriefing session when the children are encouraged to discuss their states of mind at critical stages of the plot.

Previous research (such as that reviewed in chapter 3) has indicated that children of 6 and 7 years are able to attribute first-and second-order beliefs. However, to the author's knowledge, there have been no studies which have used role-play to involve children directly in a story scenario. It is hypothesised that the technique of 'split-briefing', where children actually experience false belief (first-hand) may be a powerful medium in which to focus children's attention upon their own belief perspectives and those of other people. The advantages of using video-recordings of both the action on stage and of individual interviews is that, during debriefing, it allows the researcher to question, reinforce, and focus the children's attention on the different states of mind of the characters at critical stages in the plot, e.g., when Mike is 'off stage' during scenes 2, he still thinks

that the marble is in the vase, when in fact Sally, unbeknown to him, has moved it from the vase to a dish on a sideboard. For children who might find belief attribution (especially, second-order false belief) difficult, freeze-framing of video at critical points can offer the researcher valuable opportunities to help children appreciate the conceptual perspectives of others.

A pre-recorded video presentation of the same story (created by the researcher specifically for this investigation) will be shown to the children the following week. This video shows the entire action and can be stopped by the researcher at critical points (and replayed if necessary to provide memory prompts) to allow the researcher to ask each child the whole range of control and belief questions. It will become clear that when the children are involved in drama, either as actors or observers, at specific points in the action, they are asked selected questions. The pre-recorded video presentation allows the researcher to ask the subjects the complete range of questions. It also allows him to check individual children's responses for consistency.

4.28 Subjects

A group of eight 6-and 7-year-old children (4 boys and 4 girls) participated in this study. These children attended the same primary school as the children from the previous study.

4.29 Background

The researcher, assistant and a video-cameraman were introduced to the group by the classroom teacher a week before the experimentation. On this occasion, the researcher and his assistant did some introductory drama work with the group to familiarise themselves with each other. 'Warm-up' activities were filmed and included some role-play and improvisation to orientate the children towards future work. The school hall and stage were made available for use. The school was very well equipped for drama. The stage was prepared with all the necessary fixtures and props, for example a door was placed to one side of the stage, boxes were covered with painted cloths to represent a television, etc. On the second week, the session commenced with some brief 'warm-

up' activities. The main experimental work then commenced as described below. The main action and the interviews were video-recorded.

4.30 Procedure

The children were given a brief introduction to the casting arrangements and the setting in which the drama was based.

Five of this group were asked to assume the roles of the story characters and three of them were observers. Figure 1 gives a summary of the story scenario and the memory, reality and belief questions (asked individually).

Figure1: Summary of Doll's House Story

Scene 1

Sally and Mike are playing marbles in the living room. One of the marbles rolls under the sofa. Mike finds a large, 'special' marble under the sofa. They both claim that it is their marble and argue about who should keep it. Sally snatches the marble from Mike and puts it in her toy box. They continue to argue.

(Enter Mum). Mother comes in to see what the noise is all about. She tells them off and sends Sally out to play in the garden and asks Mike to clear up the mess in the living room. (Exit Sally and Mum). While Mike is alone, he takes the marble out of Sally's toy box and hides it in a vase on the window-sill. (Exit Mike).

Experimenter 1's questions to Mike (off stage, during interval)

Memory Question: Where did Sally put the marble in the beginning? (box)
Reality Question: Where is the marble now, really? (vase)
1st order Belief Question: When Sally comes back later to get the marble, where will she look for it? (box)

Experimenter 2's questions to observers:

Memory Question: Where did Sally put the marble in the beginning?
Reality Question: Where is the marble now, really?
1st order Belief Question: When Sally comes back later to get the marble, where will she look for it?

Scene 2

(Enter Sally). Sally comes into the living room with some flowers. She is very surprised to see the marble in the vase. She realises that Mike has taken the marble out of her toy box and hidden it in the vase. She takes it out of the vase and puts it in a dish on the sideboard. But she is so engrossed in arranging the flowers, she forgets about the marble and leaves it in the dish on the sideboard. (Exit Sally).

Experimenter 1's questions to Sally (off stage, during interval):
Memory Question: While you were out in the garden, what do you think Mike did with the marble? (put marble in vase)
Reality Question: Where is the marble now, really? (dish)
1st order Belief Question: When Mike comes back later to get the marble, where will he look for it? (vase)

Experimenter 2's questions to observers:
Memory Question: When Sally was outside in the garden, what did Mike do with the marble?
Reality Question: Where is the marble now, really?
1st order Belief Question: When Mike comes back later to get the marble, where will he look for it?

Scene 3

Mum, Dad, Sally and Mike are watching television. (Enter Tom the cat). Everybody is so busy watching the television that they don't see what Tom the cat does. He jumps up onto the sideboard and knocks the marble out of the dish. The marble drops to the floor and rolls underneath a table.

Mum, Dad, Sally and Mike all go up to bed. Sally and Mike have forgotten all about the marble.

Scene 4

Sally wakes up in the middle of the night. She remembers that she has left the marble downstairs. She goes downstairs to get the marble.

Experimenter 1's questions to Sally (during briefing, before scene 4):
Memory Question: Where will you look for the marble? (dish)

Experimenter 2's questions to observers:
1st order Belief Question: Where will Sally look for the marble? (dish)
Reality Question: Where is the marble, really? (under table)

As she gets half-way across the living room floor, she hears a noise behind her. She turns around to see Mike

watching her from the doorway. Mike has also got up in the middle of the night to get the marble.

Experimenter 1's question to Mike (during interval, off stage):
1st order Belief Question: When you were watching Sally from the doorway, where did you think that she would look for the marble? (box)

Experimenter 2's questions to observers:
2nd order belief question: Where does Mike think that Sally will look for the marble?

But before Sally and Mike can say or do anything they see Dad coming down the stairs. He has heard a noise downstairs. He sees Mike and Sally in the living room. He tells them both off for being downstairs in the middle of the night and sends them straight to bed.

Scene 5 (described to children, but not acted)

Mike is laying awake in bed. He intends to get up early the next morning to get the marble. He wonders if Sally will get up earlier than him the next morning to look for the marble.

Experimenter 1's questions to Mike (off stage, after performance):
1st order Belief Question: If Sally does manage to get up before you tomorrow morning, where will she look for the marble? (box)

Experimenter 2's question to observers:
1st order Belief Question: If Sally does manage to get up before Mike the next morning, where will she look for the marble? (dish)
2nd order Belief Question: If Sally does manage to get up before Mike the next morning, where does Mike think that Sally will look for the marble? (box)

Sally is laying awake in bed. She also intends to get up early the next morning to get the marble. She wonders if Mike will get up earlier than her the next morning to look for the marble.

Experimenter 1's questions to Sally (off stage, after performance):
1st order Belief Question: If Mike does manage to get up before you tomorrow morning, where will he look for the marble? (vase)

Experimenter 2's question to observers:
1st order Belief Question: If Mike does manage to get up before Sally the next morning, where will he look for the marble? (vase)

2nd order Belief Question: If Mike does manage to get up earlier than Sally the next morning, where does Sally think that Mike will look for the marble? (vase)

First-and second-order belief questions require answers requiring first- and second-order belief attribution e.g., "Sally thinks the marble is in the box" (1st-order) and "Mike thinks that Sally thinks that the marble is in the box" (2nd-order).

The researcher and assistant 'split-briefed' the characters individually about their parts, scene by scene. Figure 2 provides an example of Sally's 'split-briefing' (appendix 1 contains all the characters' briefings). 'Split-briefing' means that characters were briefed on their part and only their part. Children were not given a script because of the unnecessary demands upon literacy and memory. However, the researcher and assistant gave them examples of the kind of things that they may say. The plot is considered to be simple enough to allow children to improvise and children had demonstrated their ability to do this in the 'warm-up' activities.

Figure 2 Briefing for Sally

You are playing marbles in the living room with your brother Mike. One of the marbles rolls under the sofa. When Mike looks for it he finds a big 'special' marble that you lost a few weeks ago. It's your marble, you bought it in the sweet shop down the road. Mike says it's his marble and that Daddy gave it to him. He must be mistaken. You start to fight over this marble. You don't want Mike to have it. You snatch the marble away from Mike and put it in your toy box which is in the corner of the living room. Mike continues to argue with you saying it is his marble.

Mum comes in to see what all the noise is about. She gets cross with you and Mike. She tells you to go out and play in the garden and tells Mike to clear up the toys on the living room floor. You go out into the garden to play.

Scene 2

You come back into the living room with some flowers that you have picked in the garden. You go over to the window-ledge to put them in a vase. As you are about to put them in, you are surprised to see your marble in the bottom of the vase. Mike has obviously taken it out of your toy box and hidden it there. You take the marble out of the vase and put it in a dish on the sideboard while you put the

flowers in the vase. However, you are so busy arranging the flowers that you forget about the marble. You leave the marble in the dish on the sideboard and go out in the kitchen to find Mum.

Scene 3

Later that day after tea, you are sitting with Mike, Mum and Dad watching 'Top of the Pops'. At the end of 'Top of the Pops' you and Mike have to go up to bed. You say goodnight to everyone and go up to your bedroom. You are very tired and you fall asleep quickly.

Scene 4

In the middle of the night you wake up. You suddenly remember about the marble. You get out of bed and creep downstairs to find it. As you get half-away across the living room, you hear a noise behind you. You turn around and see Mike watching you from the doorway. But before you are able to do or say anything, you both see Dad coming down the stairs. He has heard some noises downstairs and has come down to see what's going on. He sees you and Mike and tells you both off. He sends you both straight back up to bed.

Scene 5

You lie awake in bed thinking about your marble.

This method of 'split-briefing' offered a certain amount of realism to the plot. For, although each character had learned a little about the plot from the general introduction, that they were each to play a family member, or a cat, and that the scene began in the living room of a house, etc., they were still kept in the dark about what everybody was going to do. In this way, the children did not know about the other characters' intentions. However, another dramatic device was used, which increased the mystery and added further realism to the plot. When each actor had played their part, they were asked to go 'off stage', and sit behind a screen positioned at the other end of the hall, right away from the action. (The cameraman supervised them to ensure that they could neither see nor hear the other characters play their parts). This meant that not only did the characters not know about each others' briefings (so they were kept in the dark about the plot), but when they were 'off-stage', they did not know what each other would be doing. Unlike conventional actors, who have read the complete script and know about everybody's parts and roles, these

dramatists only knew about their own individual roles, and this knowledge was only built up scene by scene after their briefing.

This meant that individual characters had their own unique belief perspective according to what they did, saw and knew. (This did not, of course, stop them predicting what might be happening on stage in their absence; this added to the dramatic realism). These two dramatic devices ('split-briefing' and 'off staging') meant that the characters (especially Sally and Mike) would experience false belief first-hand. For example, Mike would genuinely think that Sally would think that the marble was still in the box. The observers, who watched all the action on stage, would have a very different assessment of each character's mental state; and they were asked individually a series of control and belief questions (see figure 1).

After the actors had played their parts (as they went off stage, and in some cases before they went back on), they were interviewed individually about their beliefs (see figure 1). The actors were interviewed again after the final act (their beliefs were expected to change as the events unfolded on stage). These interviews were video-recorded (as was all the live action 'on stage'). Then, all the characters came together to watch the video of the complete plot. Children were then encouraged to reflect upon their own false beliefs according to their ignorance of certain events at critical points in the plot.

The following week, the 8 children watched a video of the same story scenario performed by puppets. The experimenter stopped the video at critical points and asked the children to write down their answers to the complete range of control and belief questions. During the drama session, the actors were only asked specific control and belief questions. Only the observers were asked the complete range of questions.

4.31 Results

Figure 3 shows the actors' and observers' responses to the memory, reality and belief questions. The appropriate responses are shown in

brackets. The children's correct and incorrect responses are signified with a ✓ & ✗.

Figure 3: Children's responses to the memory, reality and belief questions in the drama session.

Scene 1

Experimenter 1's questions to Mike (off stage, during interval)

1. Memory Question: Where did Sally put the marble in the beginning? (box ✓)
2. Reality Question: Where is the marble now, really? (vase✓)
3. 1st order Belief Question: When Sally comes back later to get the marble, where will she look for it? (box ✓)

Experimenter 2's questions to 3 observers:

4. Memory Question: Where did Sally put the marble in the beginning? (box ✓✓✓)
5. Reality Question: Where is the marble now, really? (vase ✓✓✓)
6. 1st order Belief Question: When Sally comes back later to get the marble, where will she look for it? (box ✓✓✓)

Scene 2

Experimenter 1's questions to Sally (off stage, during interval):
7 Memory Question: While you were out in the garden, what do you think Mike did with the marble? (put marble in vase ✓)
8. Reality Question: Where is the marble now, really? (dish✓)
9. 1st order Belief Question: When Mike comes back later to get the marble, where will he look for it? (vase ✓)

Experimenter 2's questions to 3 observers:
10. Memory Question: When Sally was outside in the garden, what did Mike do with the marble? (put marble in vase ✓✓✓)
11. 1st order Belief Question: When Mike comes back later to get the marble, where will he look for it? (vase ✓✓✓)
12. Reality Question: Where is the marble now, really? (dish✓✓✓)

Scene 4

Experimenter 1's questions to Sally (during briefing, before scene 4):
13. Memory Question: Where will you look for the marble? (dish ✓)

Experimenter 2's questions to observers:
14. 1st order Belief Question: Where will Sally look for the marble? (dish ✔✔✖)
15. Reality Question: Where is the marble, really? (under table ✔✔✔)

Experimenter 1's question to Mike (during interval, off stage):
16. 1st order Belief Question: When you were watching Sally from the doorway, where did you think that she would look for the marble? (box ✔)

Experimenter 2's questions to observers:
17. 2nd order belief question: Where does Mike think that Sally will look for the marble? (box✔✔✔)

Scene 5 (described to children, but not acted)

Experimenter 1's questions to Mike (off stage, after performance):
18. 1st order Belief Question: If Sally does manage to get up before you tomorrow morning, where will she look for the marble? (box ✔)

Experimenter 2's question to observers:
19. 1st order Belief Question: If Sally does manage to get up before Mike the next morning, where will she look for the marble? (dish ✔✔✖)
20. 2nd order Belief Question: If Sally does manage to get up before Mike the next morning, where does Mike think that Sally will look for the marble? (box ✔✔✔)

Experimenter 1's questions to Sally (off stage, after performance):
21. 1st order Belief Question: If Mike does manage to get up before you tomorrow morning, where will he look for the marble? (vase ✔)

Experimenter 2's question to observers:
22. 1st order Belief Question: If Mike does manage to get up before Sally the next morning, where will he look for the marble? (vase ✔✔✔)
23. 2nd order Belief Question: If Mike does manage to get up earlier than Sally the next morning, where does Sally think that Mike will look for the marble? (vase ✔✔✔)
24. Reality Question: Where is the marble , really? (under table ✔✔✔)

As was expected, the actors' responses were correct to all control and belief questions. One of the 3 observers answered questions 14 and 19 incorrectly. His response to both these first-order belief questions was that Sally would look for the marble in the box. It is proposed that this child, who consistently gave the same answer, although at different times

(scenes 4 and 5), to essentially the same question probably experienced difficulty keeping pace with the plot. This is because he had answered the reality question (question 12 the marble is now really in the dish) correctly after scene 2. This suggests that by scene 4, he may have forgotten that Sally had transferred the marble from the vase into the dish. This indicates that one of the children in the sample had difficulty keeping up with the complexity of the plot. It is interesting that when the same child saw the puppet video presentation of the story, he answered questions 14 and 19 correctly. It seems the video had reminded him that Sally had temporarily put the marble in the dish.

After the drama activity, children participated in a debriefing session when they shared with each other what they had done and what they had thought at various stages in the plot. The experimenter, assistant and cameraman made limited input in this discussion as it was apparent from the children's answers to the questions during the experimentation and their discussion whilst they watched the same sequences of the video-recording that they had little difficulty appreciating each other's different belief perspectives.

The following week, children watched the puppet video presentation of the same story. The experimenter paused the video at certain points in the story and asked all the children to write down all their answers to the complete range of memory, reality and belief questions. All of the children answered all of the questions correctly.

4.32 Discussion

Findings from the majority of false belief experiments reviewed in chapter 3 indicate that children between the ages of 3.5 -4.5 years are able to predict the behaviour of a story character according to their false belief, i.e., children of this age are able to differentiate their own beliefs from the false beliefs of story characters, e.g., 'Sally thinks that the marble is still in the box, but I know that it is really in the vase.' This ability is described as successful first-order belief attribution (Wimmer and Perner, 1983).

Perner and Wimmer's (1985) study demonstrated that many of their 6 year-olds and the majority of 7 year-olds were able to mentally represent second-order beliefs, e.g., 'John thinks that Mary thinks that the ice-cream man is in the park' (when he is, in fact, in the churchyard; Perner and Wimmer, op. cit.). Baron-Cohen (1989) found that using a slightly adapted story 90% of 7 year-olds passed the second-order belief question on two trials. All the 7-year-olds who participated in this study were also able to successfully attribute first-and second-order beliefs.

This study used an original context in which to investigate children's ability to represent other people's mental states pertaining to false belief. Through drama, using a technique known as 'split-briefing' and 'off staging' children were placed in situations when they actually experienced false beliefs first-hand. During interviews, these children were able to correctly predict other characters' behaviour according to their false-beliefs. Observers were also able to attribute first-and second-order false beliefs to their peers. In a short debriefing session children were able to report on their false beliefs and justify their actions based on these beliefs. The children's 'ceiling' performance in the questions during interviews and their apparent ease in appreciating the belief perspectives of their peers, including second-order false belief attribution, meant that the debriefing session in this study had a relatively low emphasis. However, the smooth methodological and mechanical process of what had seemed a complex procedure had brought home to the researcher the potential of this type of work for children who may find such belief attribution difficult.

A puppet video depicting the same story scenario was also shown to the children. To the researcher's surprise, this puppet video was very popular with the children. The researcher thought that the puppets might be taken in rather a light-hearted manner by this age group; however, the children treated it seriously and appeared highly motivated by it. The 'picture search' facility of a video version would seem to have great application to children who had difficulty keeping up with the storyline, although this was not needed for anyone in this group of children. The children consistently responded correctly to first-and second-order questions when watching this video.

This study has shown the feasibility of using drama as a medium to explore children's social-cognitive awareness. It has the advantage of enabling children to experience first-hand false-beliefs and through video-recording, questioning and discussion to encourage children to see how these beliefs may not accord with reality. The children in this study were able to represent both their own and other people's first-and second-order beliefs and were able to answer the experimenter's belief questions with relative ease. However, there would seem to be rich potential in working in this way with people with learning difficulties, who may experience difficulty in representing other people's conceptual viewpoints. The relative ease in which the children in this study answered the memory, reality and belief questions meant that the plenary debriefing took on a low profile. However, for some children, encouraging them to talk about both their own and other people's belief perspectives would seem to have much potential. The experimental work with children with severe learning difficulties in chapter 6 seeks to investigate whether this is the case. However, before this, the focus of the next chapter is to discover whether the two false belief story scenarios and the belief questions contained therein, can be usefully employed with children with severe learning difficulties.

Chapter 5
Working with children with severe learning difficulties on false belief tasks.

5.1 General introduction

The previous chapter described two studies which investigated mainstream children's understanding of first-and second-order beliefs. The findings of these two investigations generally support the wealth of experimental literature indicating that four-year-old children are able to predict the behaviour of other people according to their first-order false beliefs, e.g., "Sally thinks the marble is in the box, but I know that it is really in the vase", and 6-and 7-year-old children are able to predict the behaviour of other people according to second-order false beliefs, e.g., "Mike thinks that Sally thinks that the marble is in the box, but I know that Sally thinks that it is in the dish". It is feasible that the technique of 'split-briefing' used in study 2, where children are involved in drama in order to make them actually experience false beliefs themselves, may facilitate children's understanding of second-order false belief at an even younger age than 6 years.

This chapter describes some work undertaken with children with severe learning difficulties. The experimental work is guided by the preceding work undertaken with mainstream children. The same two false belief story scenarios are used to investigate a group of children's understanding of first-and second-order false belief. There have been few published studies which examine the performance of children with severe learning difficulties on such conceptual role-taking tasks. Study 3 also looks at the efficacy of using two well-known psychometric tests to assess children's development in language and cognition, and investigates whether children's scores on these tests represent good indicators to children's performance on false belief tasks. It is the author's opinion that tests of mental age and receptive language will not predict children's performance on first-and second-order false belief tests, because tests like the Raven's Coloured Progressive Matrices (Ravens et al, 1988) and The Test for Reception of Grammar (TROG, Bishop, 1984) do not specifically measure children's social-cognitive abilities. However, it is feasible that these two developmental tests may represent good indicators

of children's performance on false belief tasks. In summary, the research questions to be investigated in the following study are 1) can children with severe learning difficulties predict the behaviour of story characters according to their first-and second-order false beliefs? and 2) do children's scores on Raven's Coloured Progressive Matrices (op. cit.) and The Test for Reception of Grammar (op. cit.) provide a good indicator of whether they will pass or fail first-and second-order false belief questions ?. More specifically, the second research question will consider whether children with severe learning difficulties who score beyond four years in cognitive and linguistic development (the age when 'normal' children start to 'mentalise') are seen to pass tests of first-order belief attribution, and children who score beyond 6 or 7 years are seen to pass tests of second-order belief.

5.2 Study 3: Using first-and second-order false belief tasks with children with severe learning difficulties.

5.3 Introduction

The review of experimental literature in chapter 3 and the experimental work undertaken by the author in the preceding chapter indicate that children between the ages of 3.5 -4.5 years are able to attribute first-order false beliefs to story characters, and children aged between 6-7 years are able to attribute second-order false beliefs. This study investigates the ability of children with severe learning difficulty to predict the behaviour of story characters according to first-and second-order false beliefs.

Some of the 'theory of mind' literature reviewed in chapter 3 has involved children with severe learning difficulties in experimental conceptual role-taking tasks, but in the majority of cases, participants have been children with Down's Syndrome, and their inclusion has been primarily for the purposes of comparison with autistic children. In relation to special needs, the 'theory of mind' literature has been preoccupied with the 'mentalising' abilities of children with autism. It should be noted that the autistic children involved in these studies were not attending schools for children with severe learning difficulties and were not regarded as children with severe learning difficulties. The

present investigation involves children with severe learning difficulties, including children with Down's Syndrome, in two false belief tasks used in the previous chapter.

Baron-Cohen's original Sally-Anne test (Baron Cohen et al, 1985) used a group of Down's Syndrome children matched by mental and linguistic age to a group of 'normal' 4-year-old children and a group of autistic children . Baron Cohen found that 86% of the Down's group successfully predicted where Sally would look on the basis of where Sally should (wrongly) believe her marble to be (first-order belief attribution). 85% of the 'normal' four-year-old children were successful, but by contrast, only 20% of the autistic children were able to do this. This pattern of results has been replicated by other researchers using matched groups of Down's children, autistic children and 'normal' children. In these false belief studies, the Down's syndrome children in the control groups passed questions of first-order false beliefs if psychometric tests indicate that their language and mental age is equivalent to the four-year-old level (e.g., Baron-Cohen, 1989a, 1989c; Leekam and Perner, 1991; Leslie and Thaiss, 1992; Reed and Peterson, 1990; Leslie and Frith, 1988).

Similarly, other studies which have investigated autistic children's second-order belief attribution demonstrated that groups of children with Down's Syndrome whose mental and linguistic abilities were matched to groups of non-learning-disabled 7-year-olds, were able to appreciate the second-order false beliefs of story characters (Baron-Cohen 1989a; Ozonoff et al 1991; Wimmer et 1988).

The performance of the groups of matched Down's Syndrome children in these studies suggests that children with Down's Syndrome will pass tests of first-and second-order false belief if their linguistic ability and cognitive development is equivalent to around age 4 years for first-order belief attribution, and age 6/7 years for second-order belief. The present study seeks to investigate whether other topographies of severe learning difficulties conform to similar patterns of developmental performance in conceptual role-taking tasks as children with Down's Syndrome in previous studies. The hypothesis to be tested in this investigation is that children with severe learning difficulties should successfully predict story characters' behaviour according to first-order beliefs if their performance

in psychometric tests indicates that their mental age and linguistic ability are beyond 4 years. Similarly, children whose performance on psychometric tests indicate cognitive and linguistic levels to be less than 6 years, should be unable to correctly predict characters' behaviour according to second-order beliefs.

5.4 Subjects

27 children attending a school for children with severe learning difficulties in Greater London participated in this study. The sample consisted of 15 boys and 12 girls, aged between 8,2 and 18,9. There were 7 children with Down's Syndrome in the sample and one child with Prader Willi Syndrome. The other children were of unknown aetiology. None of the subjects was diagnosed as having autism.

5.5 Procedure

Children's non-verbal powers of intellectual reasoning were tested using the book form of Sets A, Ab, and B of Raven's Coloured Progressive Matrices (Raven and Raven, 1988). This is a standardised test of non-verbal mental age developed for use with people with physical disabilities, aphasia, and people with intellectual disabilities (Raven and Raven 1988). The procedure described in the manual was followed by the experimenter, i.e., children must pass the first five items of Set A to continue with the test. Unless the child is able to solve the first five items, he cannot be said to have understood the nature of the task. Children were helped by the experimenter on item A1 to orientate them towards the task.

Children's verbal understanding was tested using The Test for Reception of Grammar (T.R.O.G., Bishop, 1982). TROG is a multiple choice test which has been used to assess the receptive language of children with learning difficulties, hearing impairment, specific language disorders and cerebral palsy. Again, guidelines in the handbook were followed by the experimenter, scoring the child's responses in terms of the number of blocks passed, rather than the number of items correct. A block is passed when all four items are responded to correctly. The testing is stopped when five consecutive blocks have been failed.

Children's understanding of first-order belief attribution was tested using two story scenarios; the 'Sally and Mike' puppet false belief task adapted from Baron-Cohen (1985) used with mainstream children in Investigation 1, study 1 and the first two scenes of the doll's house video used with mainstream children in Study 2. The procedure used for the Sally and Mike puppet task was exactly the same as the one used in study 1, investigation 1. The same criteria for success was used in this study; children could only pass the two first-order belief questions if they responded correctly to the preceding Name, Memory and Reality Control Questions.

Children's understanding of first-order belief attribution was further tested by using the first two scenes of the doll's house video. These two scenes contain two first-order belief questions preceded by memory and reality questions. The 4 first-order belief questions in the first stage of this study are reproduced in figure 4. The lower case Roman numerals shown in brackets after the question number indicate whether the belief question is first-or second-order, i.e., question 1 (i) is a first-order belief question.

It should be noted that the level of difficulty of the belief questions in the two different stories is not meant to be similar. The author considers that the belief questions in the doll's house video are more difficult because the story plot is more complex and the language contained in the question is more advanced. However, a comparison of children's responses to belief questions across the two story scenarios provides information about the consistency of their ability to attribute first-order beliefs.

Stage 2 of the study involves only the children who successfully respond to the first-order belief questions shown in figure 4. Only these children proceed on to stage 2 of the study, where they are shown the rest of the doll's house video (scenes 3,4 and 5) and are asked additional first-order belief questions and second-order belief questions. Figure 5 shows the whole format of the doll's house video with the cut off point for children who did not successfully respond to all four belief questions.

Figure 4: First-order belief questions in both story scenarios in stage 1.

(puppet story first trial)
1st order Belief Question 1(i): When Sally comes back, where will she look for the marble?

(puppet story second trial)
1st order Belief Question 2(i): When Sally comes back, where will she look for the marble?

Scene 1 (doll's house story)
1st order Belief Question 3(i): When Sally comes back later to get the marble, where will she look for it? (box)

Scene 2 (doll's house story)
1st order Belief Question 4(i): When Mike comes back later to get the marble, where will he look for it? (vase)

Figure 5: Summary of Doll's House video story

Stage 1

Scene 1

Sally and Mike are playing marbles in the living room. One of the marbles rolls under the sofa. Mike finds a large, 'special' marble under the sofa. They both claim that it is their marble and argue about who should keep it. Sally snatches the marble from Mike and puts it in her toy box. They continue to argue.

(Enter Mum). Mother comes in to see what the noise is all about. She tells them off and sends Sally out to play in the garden and asks Mike to clear up the mess in the living room. (Exit Sally and Mum). While Mike is alone, he takes the marble out of Sally's toy box and hides it in a vase on the window-sill. (Exit Mike).

Memory Question: Where did Sally put the marble in the beginning? (box)
Reality Question: Where is the marble now, really? (vase)
1st order Belief Question 3(i): When Sally comes back later to get the marble, where will she look for it? (box)

Scene 2

(Enter Sally). Sally comes into the living room with some flowers. She is very surprised to see the marble in the vase. She realises that Mike has taken the marble out of her toy box and hidden it in the vase. She takes it out of the vase and puts it in a dish on the sideboard. But she is so engrossed in arranging the flowers, she forgets about the marble and leaves it in the dish on the sideboard. (Exit Sally).

Memory Question: When Sally was outside in the garden, what did Mike do with the marble?
Reality Question: Where is the marble now, really?
1st order Belief Question 4(i): When Mike comes back later to get the marble, where will he look for it?

.....(stage 1 cut off point for children who respond incorrectly to 1st order belief questions in previous puppet story and up to this point in this story).....

Stage 2

Scene 3

Mum, Dad, Sally and Mike are watching television. (Enter Tom the cat). Everybody is so busy watching the television that they don't see what Tom the cat does. He jumps up onto the sideboard and knocks the marble out of the dish. The marble drops to the floor and rolls underneath a table.

Mum, Dad, Sally and Mike all go up to bed. Sally and Mike have forgotten all about the marble.

Scene 4

Sally wakes up in the middle of the night. She remembers that she has left the marble downstairs. She goes downstairs to get the marble.

1st order Belief Question 5(i): Where will Sally look for the marble? (dish)
Reality Question: Where is the marble, really? (under table)

As she gets half-way across the living room floor, she hears a noise behind her. She turns around to see Mike watching her from the doorway. Mike has also got up in the middle of the night to get the marble.

2nd order belief question 6(ii): Where does Mike think that Sally will look for the marble?

But before Sally and Mike can say or do anything they see Dad coming down the stairs. He has heard a noise downstairs. He sees Mike and Sally in the living room. He tells them both off for being downstairs in the middle of the night and sends them straight to bed.

Scene 5 (described to children, but not acted)

Mike is laying awake in bed. He intends to get up early the next morning to get the marble. He wonders if Sally will get up earlier than him the next morning to look for the marble.

1st order Belief Question 7(i): If Sally does manage to get up before Mike the next morning, where will she look for the marble? (dish)
2nd order Belief Question 8(ii): If Sally does manage to get up before Mike the next morning, where does Mike think that Sally will look for the marble? (box)

Sally is laying awake in bed. She also intends to get up early the next morning to get the marble. She wonders if Mike will get up earlier than her the next morning to look for the marble.

1st order Belief Question 9(i): If Mike does manage to get up before Sally the next morning, where will he look for the marble? (vase)
2nd order Belief Question 10(ii): If Mike does manage to get up earlier than Sally the next morning, where does Sally think that Mike will look for the marble? (vase)

5.6 Results

Three of the children did not proceed to the false belief tasks after testing because they made errors in the first five items of Set A of the Raven's test. These same children also made erratic responses to the first blocks of the TROG assessment. The children were generally restless and distractible and did not respond well to the assessment situation. They were removed from the sample leaving 24 children-15 boys and 9 girls, aged between 8,2 and 18,9 years who proceeded on to stage 1 of the false belief tasks.

One child (subject 12) scored on the Raven's test but only achieved 2 blocks on the TROG. Success on only 2 blocks of this test means that the child does not achieve an age equivalent score. However, this child remained in the sample because of his relatively high mental age (5 years).

Table 6 shows children's responses to the memory, reality and first-order belief questions in stage 1 of the study. This table includes information on children's aetiology and sex and their mental and linguistic ages as measured by the Raven's and TROG assessments.

For statistical analysis, children scored one point for each correct response to the first-order belief questions in the puppet story (belief questions 1(i) and 2(i)) and the first two scenes of the doll's house story (belief questions 3(i) and 4(i)). Children could score a maximum of 4 points in total. Children's responses to the belief questions can only be interpreted as correct if they have responded correctly to the preceding memory and reality questions.

Table 6 Children's responses to memory, reality and 1st-order questions in stage 1.

Subj.	Sex	Aetio-logy	Chron Age	Mental Age	Ling. Age	Belief Q.1(i)	Belief Q. 2(i)	Belief Q. 3(i)	Belief Q. 4(i)	Total Score
9	f	Down's	9,1	3,6	4,0	✓✓✗	✓✓✗	✓✗✗	✗✗✗	0
4	m	unkn.	12,3	4,6	4,9	✓✓✓	✓✓✓	✓✓✓	✓✗✗	3
15	f	Down's	15,1	4,6-5,0	4,0	✓✓✗	✓✓✗	✓✓✗	✓✗✗	0
2	m	unkn.	13,8	4,6-5,0	5,0	✓✓✓	✓✓✓	✓✓✗	✓✓✗	2
14	m	unkn,	15,3	4,6-5,0	5,0	✓✓✗	✓✓✗	✓✗✗	✗✗✗	0
13	f	Down's	8,2	5,0	5,3	✓✓✓	✓✓✓	✓✓✓	✓✓✓	4
21	m	unkn.	10,0	5,0	4,9	✓✓✗	✓✓✗	✓✗✗	✗✗✗	0
8	m	Down's	15,2	5,0	4,0	✓✓✓	✓✓✓	✓✓✓	✓✓✓	4
1	f	Down's	15,1	5,6	4,3	✓✓✓	✓✓✓	✓✓✓	✓✓✗	3
10	f	Pr.Wil.	12,7	5,6	5,0	✓✓✗	✓✓✗	✓✓✗	✓✓✗	0
24	f	unkn.	12,7	5,6	5,3	✓✓✓	✓✓✓	✓✓✓	✓✓✓	4
12	m	Down's	18,9	6,0	0	✓✓✗	✓✓✗	✓✓✗	✗✗✗	0
6	m	unkn.	12,0	6,0	4,9	✓✓✗	✓✓✗	✓✓✗	✗✗✗	0
5	m	Down's	13,7	6,0	4,0	✓✓✓	✓✓✓	✓✓✓	✓✓✓	4
3	f	unkn.	16,3	6,0	5,9	✓✓✓	✓✓✓	✓✓✓	✓✓✓	4
16	m	Down's	13,2	6,0	5,0	✓✓✗	✓✓✗	✓✗✓*	✗✗✗	0
7	m	unkn.	10,0	7,0	5,3	✓✓✓	✓✓✓	✓✓✓	✓✓✓	4
18	f	Down's	15,9	7,0	4,9	✓✓✗	✓✓✗	✓✓✗	✓✗✗	0
20	f	unkn.	15,8	7,0-7,6	4,9	✓✓✓	✓✓✓	n/a**	n/a	n/a
17	m	Down's	18,9	7,0-7,6	5,0	✓✓✓	✓✓✓	✓✓✓	✓✓✓	4
23	m	unkn.	18,9	7,0-7.6	5,0	✓✓✓	✓✓✓	✓✓✓	✓✓✓	4
11	m	unkn.	9,4	7,6	5,0	✓✓✗	✓✓✗	✓✓✗	✓✓✗	0
19	m	unkn.	17,7	7,6	4,9	✓✓✓	✓✓✓	✓✓✓	✓✓✓	4
22	m	unkn.	10,1	7,6-8,0	6.0	✓✓✓	✓✓✓	✓✓✓	✓✓✓	4

Subject 20, (marked**) found great difficulty with the doll's house video due to her visual impairment. Although she responded correctly to the

questions in the puppet task, it was clear to the experimenter that she had difficulty seeing the events in the doll's house video. Her responses were therefore removed from the analysis.

10 out of the 23 children passed all four first-order belief questions in stage 1 and proceeded on to stage 2 of the study. All of these children gave correct and satisfactory responses to the memory and reality questions, including the memory question relating to belief question 4(i), which unlike the other control questions, made more demands on the children's expressive language (the other memory questions required only a one word response as to location. Memory question preceding 4(i) required a statement of the order that Mike had taken the marble and put it in the vase). For these children, responses to first-order belief questions remained consistent across both story scenarios.

Two children (subjects 4 and 1) correctly responded to 3 out of the 4 belief questions. Both these children made the same error on belief question 4(i); they responded that Mike will look for the marble in the dish. At this point in the story, this is where the marble really is (they gave the same response as they gave for the preceding reality). It is just possible that what these two children may have meant was that Mike would have first looked in the vase, then, realising that it was not in there, may have looked in the dish. This may have been the response that the children thought the experimenter would be looking for, in order that Mike would have found the marble. However, without probing during the procedure, this remains unclear.

One child (subject 2) passed both belief questions 1(i) and 2(i) in the Sally and Mike puppet task, but failed the two belief questions in the doll's house task. This child passed the memory and reality questions in the doll's house task, but responded to question 3(i) that Sally would look in the vase (the reality location), and stated that Mike would look in the box in response to belief question 4(i). This child has already demonstrated some ability to predict characters' behaviour according to first-order beliefs, so it suggests that, in terms of information processing, the doll's house video places more demands on the child to keep abreast of the plot.

One child's response to the belief question 3(i) in the doll's house video (child 16), revealed how it was possible to answer the belief question 3(i) correctly (marked with an *), when he has responded incorrectly to the preceding reality question (and answered correctly to the relevant memory question). This is because the child's response to all three questions could be the same, i.e., Sally put the marble in the box in the beginning; the marble was really now in the box (when in fact it had been transferred to the vase) and therefore when Sally comes back she will look for her marble in the box. This shows how what would appear to be a correct response to the belief question, can be a response which does not entail appreciation of Sally's false belief. This supports the methodological condition that in order to pass the belief questions, children must respond correctly to the previous memory and reality questions.

All of the 10 children who failed all four of the belief questions passed all the memory and reality questions on the Sally and Mike puppet task. However, only two of the 10 (subjects 10 and 11) passed all of the memory and reality questions relating to the belief questions in the doll's house video. This lends further support to the proposal that the doll's house video is more complex than the Sally and Mike puppet task. 6 of the 8 children who failed at least one of the control questions failed the memory question relating to belief question 4(i). This was the question which required more than a one word answer.

Children's performance on the belief questions was then examined in relation to their developmental ages in cognition and language as measured by the Raven's Matrices and the TROG assessments. The results shown in table 6 show a marginal trend toward better performance on behalf of the subjects who have higher mental and linguistic ages. The small number of children in this sample does not allow comparison of this group with any of the mainstream samples in the previous chapter. One would expect there to be a trend of better performance among the children with higher Raven's and TROG scores and this is generally reflected in table 6. However, only 7 out of the 13 children (54%) with mental ages of 6 years and above passed the first-order belief questions. 5 out of these 13 (38%) children failed all 4 belief questions in both tasks. All except one of these children (subject 12) had receptive language

scores of 4 years or above. (Subject 12 did not score on the TROG scale as he only passed two blocks on the test. Although he failed the belief questions, he passed the memory and reality questions relating to belief questions 1(i), 2(i) and 3(i)). All of the 5 children who failed the belief questions passed the memory and reality questions of the Sally and Mike puppet test. This suggests that their failure on this task was due to their difficulty in appreciating Sally's mental state. Only one of these five children (subject 11) passed all the memory and reality questions of the doll's house video.

Table 7 shows the performance of the 10 children who proceeded on to stage 2 of the study.

Table 7: Children's responses to first-and second-order belief questions in stage 2 (scenes 3,4&5 of doll's house video).

Subj	Sex	Aeti	Ch Age	MA	Ling Age	BQ 5i	BQ 6ii	BQ 7i	BQ 8ii	BQ 9i	BQ 10ii	/3 i	/3 ii
13	f	D.S	8,2	5,0	5,3	✗	✗	✗	✗	✗	✗	0	0
8	m	D.S	15,2	5,0	4,0	✗	✓*	✗	✗	✗	✗	0	0
24	f	unk	12,7	5,6	5,3	✓	✓	✓	✓	✓	✓	3	3
5	m	D.S	13,7	6,0	4,0	✗	✗	✗	✗	✗	✗	0	0
3	f	unk	16,3	6,0	5,9	✓	✗	✓	✗	✓	✗	3	0
7	m	unk	10,0	7,0	5,3	✗	✗	✗	✗	✓*	✓*	0	0
17	m	D.S	18,9	7,0-7,6	5,0	✓	✓	✓	✓	✓	✓	3	3
23	m	unk	18,9	7,0-7,6	5,0	✓	✓	✓	✓	✓	✓	3	3
19	m	unk	17,7	7,6	4,9	✗	✓	✗	✓	✓	✓	1	3
22	m	unk	10,1	7,6-8,0	6,0	✓	✓	✓	✓	✓	✓	3	3

4 out of the 10 children responded correctly to all memory, reality, first and second-order belief questions. The manner in which they all responded to the questions was much more confident than the other subjects. In addition to their successful responses to the first-and second order belief questions, for 2 of the children (subjects 17 &23), their non-verbal behaviour also indicated that they understood the false beliefs of the story characters. For example, these 2 children (boys) seemed to identify with Mike, and found it amusing that, in scene 5, when Mike lay in bed thinking about whether Sally would get up earlier than him in the morning and find the marble, they empathised with his mistaken feeling

of reassurance that Sally would not find the marble (question 8 (ii)), but were also amused that no-one would find the marble in the end (because the cat knocked it under the table).

One of these two children (subject 23) also drew it to the experimenter's attention that Mike probably would find the marble eventually after a thorough search of the room.

Child 19's responses to questions 5(i) and 7(i) suggest that, similar to subjects 13 and 5, he had difficulty remembering that Sally had left the marble in the dish. He responded "in the vase" to both questions, but responded correctly to the other first-and second-order belief questions which were not dependent on remembering this one change of location. So, although this child made 2 first-order belief errors, this was more likely due to demands on memory loading. His other responses to first-order belief questions indicate that he is able to appreciate first-and second-order belief.

It is possible that the complexity of the plot, particularly keeping track of the location of the marble, may have marred children's true ability to appreciate first-and second-order beliefs. Two of the children who failed all the first-and second-order belief questions (subjects 13 and 5) made the same errors. Their responses suggest that they may have found the events in scene 3 rather confusing, or that the delay between seeing Sally transfer the marble to the dish (scene 2) was too long in terms of memory loading before they were asked belief question 5 (i). Both children responded to this question that Sally would look in the vase for her marble. There is no memory question between these scenes, and the reality question relating to question 5 (i) offers no prompts to events in scene 2. Both these children responded correctly to this reality question. These two children gave responses of 'Don't know' to questions 7 -10.

Child 8's response to belief question 6(ii) "in the box", although correct, could not be regarded as a true second-order belief attribution because he gave the same (incorrect this time) response to belief question 5(i). Similarly, child 7's responses to belief questions 9(i) and 10 (ii) were consistent to his incorrect responses to 5(i) and 6(ii). Child 3's responses indicate that she is able to predict story protagonists' behaviour according

to first-order beliefs, but is unable to do the same according to their second-order beliefs. In fact she responded to the second-order belief questions as if they were first-order questions, e.g., she interpreted questions 5(i) and 6(ii) as the same, responding "in the dish" to both questions.

In summary, 5 out of the 10 children who proceeded to stage 2 of the study demonstrated that they were able to predict the behaviour of story characters according to their first-and second-order beliefs. In stage 2 of the study, there is a more noticeable trend towards better performance in the children who had higher mental and linguistic ages. Four out of the five subjects who passed second-order belief questions (subjects 17, 23, 19, & 22) had the highest mental and linguistic ages (mental ages of at least 7,0-7,6; linguistic ages of above 5,0). However, one girl (subject 24) passed all first-and second-order questions with a mental age of 5,6 and a linguistic age of 5,3.

5.7 Discussion

This study investigated the abilities of a group of children with severe learning difficulties to predict the behaviour of story protagonists according to first-and second-order false beliefs. 24 children and young people with severe learning difficulties aged between 9 and 18 years were assessed using the Raven's Coloured Matrices (Ravens, 1988) and the Test for Reception of Grammar (TROG, Bishop, 1982). Children then participated in stages 1 and 2 of the study; stage 1 investigated children's ability to predict story characters' behaviour according to first-order beliefs, and stage 2, story characters' behaviour according to second-order beliefs.

In stage 1, 10 out of the 24 children (42%) passed all of the first-order belief questions from the two story scenarios. 13 of the 24 children (54%) passed at least 2 of the 4 first-order belief questions in stage 1. 3 of the children made errors on the first 2 belief questions of the doll's house video, which makes far more demands on children's understanding of language and memory. Taking into account the demands of the second task, 54% of the sample would seem to be a more reasonable figure of those children able to successfully attribute first-order beliefs. All of the

children who could successfully attribute first-order false beliefs had developmental ages in both language and cognition as assessed by the Raven's and TROG of at least 4 years. This does seem to support the findings from the literature and the results from the experimental work with mainstream children in the previous chapter. However, there was only one child who participated in this study who was assessed as having a mental age below 4 years (subject 9), so further investigation involving children with scores of below 4 years in cognition and language would need to be done to add weight to this finding.

In stage 1 (first-order belief attribution), children's performance in relation to their developmental ages in cognition and language (as measured by the Raven's and TROG) indicated a marginal trend towards better performance by the children assessed as having higher developmental levels as shown by these tests. In stage 2 of the study, there is a more noticeable trend towards better performance in the children who had higher mental and linguistic ages. Four out of the five subjects who passed second-order belief questions had the highest mental and linguistic ages (mental ages of at least 7,0-7,6; linguistic ages of above 5,0). However, one girl passed all first-and second-order questions with a mental age of 5,6 and a linguistic age of 5,3. Subject 19, with a mental age of 7,6 and a linguistic age of 4,9, although not passing all first-and second order questions, nevertheless passed over half of the questions (including all of the second-order questions). 5 out of the 10 children who proceeded to stage 2 of the study demonstrated that they were able to predict the behaviour of story characters according to their first-and second-order beliefs.

One of the most interesting findings of this study was that only 7 out of the 13 children (54%) with mental ages of 6 years and above passed the first-order belief questions. 5 out of these 13 (38%) children failed all 4 belief questions in both tasks. Some children with mental ages of 7 years and receptive language ages of 5 years failed these tasks. In comparison to the performance of the mainstream children participating in similar first-order belief tasks, it is tempting to assume that when taking into account their developmental ages, the performance of children with severe learning difficulties in this study is significantly poorer. In investigation 1, study 1, 64% of 4-year-olds and 86% of 5-year-olds successfully answered questions relating to first-order belief. However, this assumption would depend upon the efficacy of the psychometric tests utilised in this study. The author of this thesis has serious misgivings

about the validity of using the Raven's Coloured Matrices to assess mental age in this type of task and about the way similar psychometric tests have been used in similar conceptual role-taking tasks in the 'theory of mind' literature. The use of TROG seems more appropriate because measures of children's receptive language are necessary to assess how well they can be expected to cope with the linguistic demands of the narrative and the questions asked.

The Raven's Coloured Matrices is a reputable test of non-verbal intellectual reasoning. However, it is proposed that this test (and perhaps other tests traditionally used to assess developmental levels in non-verbal intellectual reasoning) do not assess children's social-cognitive abilities. It is children's social-cognitive abilities which are drawn upon in the belief attribution tasks described in this and the previous chapter. This may explain why children with severe learning difficulties scoring at 6 years and above on the Raven's test can fail first-order belief attribution questions. The difficulty lies in finding any psychometric test which can really assess the type of social-cognitive learning which the young child acquires incidentally from interacting in the social world. It is likely that by the time the 'normal' child reaches the age of 4 years, family life has provided him or her with the natural context for learning to 'mentalise'. Toddlers in the 'terrible twos' demonstrate quite sophisticated social-cognitive awareness; they have learned much about how best they can get their own way, how they can manipulate people's behaviour and emotions. The child with severe learning difficulties may have missed much of this early incidental social-cognitive learning. This is discussed in the next chapter, when the author discusses the benefits of involving children with severe learning difficulties in conceptual role-taking activities and other contexts which focus their intention upon psychological states.

Children's success on belief attribution tasks depend more on their social-cognitive abilities than on intellectual reasoning. It was argued in chapter 1 that social-cognitive learning is more to do with learning from social interaction, i.e., learning from and about people. This type of learning is more difficult to assess by psychometric tests, although assessments tapping social cognition have been developed, many for the screening of autism, e.g.,The DSM-III-R (American Psychiatric

Association, 1987) and the Checklist for Autism in Toddlers (Baron-Cohen et al., 1992).

In conclusion, the Raven's test may have given the children with severe learning difficulties in this study rather optimistic mental age scores for the type of task presented. It is proposed that there are few psychometric tests available which can offer a reliable indication of children's social-cognitive development.

This study has demonstrated that the false belief tasks used with mainstream children have enabled children with severe learning difficulties in this sample to demonstrate their abilities to attribute first- and second-order beliefs to story characters. The results of this study have highlighted the difficulties of using existing psychometric tests to give meaningful base-line measures of mental age for children with severe learning difficulties in conceptual role-taking tasks. A clear relationship between children's performance in first-and second-order belief attribution tasks and their scores of mental age using the Raven's test was not reliably shown in this study. However, as expected, there was a general trend towards better performance among children with higher scores on the Raven's and the TROG assessments. This study has questioned the validity of using the Raven's test to predict children's performance in false belief tasks. This is due to the number of children with mental age scores of 6 years and above in this sample who failed first-order belief questions.

Chapter 6
Children's understanding of internal states

6.1 Introduction

Internal state language is language which refers to intentions, cognitions and feeling states (Bretherton and Beeghly, 1981). Analysis of children's understanding and use of internal state terms is of interest to the author of this thesis because it provides some indication of their developing social-cognitive awareness. Longitudinal studies of children's spontaneous use of internal state terms, often provided by parental reports of children's language in the home setting, have provided valuable analysis of the uses of such words and when they first begin to appear in children's language. These longitudinal studies are reviewed in the first section of this chapter. In addition, other studies are reviewed which investigate children's understanding of internal state terms in experimental paradigms.

So far in this thesis, the author has argued that analysis and review of existing research into the social-cognitive development of non-learning disabled children are both necessary and desirable for researchers planning to undertake investigative work with children with severe learning difficulties. The previous two chapters reviewed a number of studies investigating children's developing understanding of the mind and representational abilities. This prepared the reader for the author's own experimental work with mainstream children and then children with severe learning difficulties. This direction of research, - from mainstream to special, - has informed, guided and focused the author's work with children with severe learning difficulties. In this chapter, this procedure is maintained. It begins with a review of the literature into non-learning disabled children's understanding and use of internal states. This is followed by the author's questionnaire-based study investigating the spontaneous use of internal state terms by non-learning disabled children and Down's Syndrome children with severe learning difficulties. This study prepares the reader for the author's final study at the end of this chapter, where learning-disabled children's understanding of internal states is investigated further using drama.

6.2 Internal state language

In chapter 2, Premack and Woodruff were quoted as using the term 'mental states' when they proposed that a person can be said to possess a 'theory of mind' if "....he imputes mental states to himself and others." Here, Premack and Woodruff were concerned with 'cognitive' states, which, in this thesis, will be referred to as 'metacognitive' terms. Indeed, in Premack's example below, all the words that they designate in italics can be regarded as 'metacognitive' words, i.e., words relating to knowledge, -with the exception of 'pretending', which is a behaviour implying a mental state rather than a purely mental state in itself.

> "John *believes* in ghosts; He *thinks* he has a fair chance of winning; Paul *knows* that I don't like roses; She is *guessing* when she says that; I *doubt* that Mary will come; Bill is only *pretending*." (Premack and Woodruff, 1978, page, 515).

Other authors view states of mind rather more broadly as 'internal states', which include 'cognition'-the subset that Premack calls 'mental states'. 'Internal states' as used by Bretherton et al., (1986) include words relating to 'perception', 'physiology', 'affect', 'moral judgement/ obligation', 'cognition' and 'volition/ ability'. Scholnick and Hall (1991) classify internal state words into four semantic categories: 'cognition', 'affect', 'perception' and 'intentions and desires'.

Similarly to Premack, Bretherton et al (1981) used the term 'internal states' in reference to children's developing 'theory of mind'. However, their view of children's developing understanding of the mind puts more emphasis on language:

> "....young children progress to an explicit, verbally expressible theory of mind that begins to emerge at the end of the second year. At this stage in their development, children become capable of exchanging verbal information about internal states as experienced by themselves and by others." (page 356).

Bretherton and Beeghly (1982) write that during the preverbal stage an infant's theory of mind remains "implicit in behavior"; however, they state that the mastery of language renders it "increasingly observable and explicit." (page 907).

Bretherton et al (1981) cite certain authors who propose that infants demonstrate an awareness of other people's intentions when they develop intentional communication for instrumental purposes at the end of the first year (Bates et al. 1975, Bruner 1975). For example, Bates (1979) defines intentional communication as "signalling behaviour in which the sender is aware, a priori, of the effect that the signal will have on his listener, and he persists in that behaviour until the effect is obtained or failure is clearly indicated." (page 36).

Bretherton et al. write that implicit in Bates's definition is the fact that the infant recognises a partner's capacity to understand a message, i.e., the infant attributes an internal state of knowing and comprehending to the mother. However, they add that Bates's quotation is ambiguous as to how much the infant when "communicating intentionally" understands about the listener's mind. As Perner (1988) states, the ambiguity arises from the expression "effect on the listener" by which the infant judges the success of his communication efforts. Perner proposes that if the child judges success on a purely behavioural basis, then clearly an infant's intentional communication does not involve a 'theory of mind'. If, on the other hand, the effect <u>is</u> a particular state of mind in the listener, then intentional communication involves attribution of a mental state.

Bretherton et al. (op. cit.) are careful to state that they do not assume that young infants can reflect on their own or others' internal states, i.e., achieve second-order representation. It seems reasonable to expect that infants have beliefs, desires, and intentions, since they show surprise, frustration, etc., but that is very different from their understanding of belief and intention. In fact, Bretherton et al. state that they do not believe that infants can impute mental states to others; they write that "the young infant's theory of interfacible minds remains at first implicit and fairly rudimentary." (Bretherton et al 1981, page 340).

Children's contemplation of internal states is explored in greater depth towards the end of this chapter, particular in relation to the difficulties that children with severe learning difficulties may experience in reflecting upon people's psychological and affective states. Many of these children, who have developmental delay and/or impairment in language and communication, can be assumed to experience internal states, e.g., sadness, loneliness, frustration, etc., but they may not have the specific vocabulary to label and reflect upon these internal states. A person's lack of specific internal state vocabulary may prevent his or her access to internal states, in terms of the ability to reflect upon them, to develop and refine them. It is proposed that focusing children's attention upon their own and other people's internal states is a preliminary step to identification and labelling of them. The research which is described at the end of this chapter is an attempt to do just this. It uses drama as a strong visual medium in which to focus children's attention upon internal states.

There have been a few studies which have explored children's developing use of internal state language. Bretherton and Beeghly's (1981) longitudinal study showed that 30% of a sample of thirty 20 month old children were found to use verbal labels for fatigue, pain, disgust, distress, affection and moral conformity in appropriate contexts. Another study by the same authors provides additional information about the internal state language used by 3 year old children (Bretherton and Beeghly, 1982).

Shatz et al (1983) used the term 'mental states' in the same way as Premack, i.e., referring only to cognitive states. They used a method of convergent analyses of naturally occurring speech of one child aged from 2 years, 4 months to 4 years. To minimise the overestimation of the child's knowledge, they separated utterances related to mental state from mental verbs related to conversational use. Shatz et al recognised that the word "know" can be used as conversational pause fillers, e.g., "you know". They say the word "think", as in "I think I want a cookie", can be used to mitigate a demand, in other words, the word does not necessarily refer to a mental state. Shatz et al write that an utterance is classified as a mental state only if "the mental term is judged, with regard to its context,

to refer to the thoughts, memories or knowledge of the speaker, listener, or a third person".

Urmson (1963) discusses a wide variety of "parenthetical" uses of mental verbs. Such uses are said to modify the meaning of statements rather than to describe a person's psychological state. Urmson (1963) argues, for example, that terms such as "know", "believe" and "guess" can be used to signal the degree of reliability of statements, rather than anything necessarily mental. She says a statement such as "I believe it will rain", may function in a manner similar to "It will probably rain", signalling the likelihood of rain rather than describing any actual mental state. Limber (1973) said much the same about the word "think", stating that at about 2 years 6 months, the child uses the word "think" in a parenthetical manner, e.g., "I think I want grape juice" may be substituted by "perhaps" or "maybe".

Although Scholnick and Hall (1991) refer generally to 'internal', rather than 'mental' states, their distinction between semantic and pragmatic uses of internal states is useful. Like the authors above, Scholnick and Hall state that internal state words sometimes lose their 'internal content' in everyday speech and are used merely as 'pragmatic' devices. They talk about 'know' being used as an 'attention getter', e.g., "You know, Jack could play shortstop" (their example). They also describe 'conversational devices' and 'mannerisms' in much the same way as Limber, and 'hedges', which they refer to as conveying uncertainty, e.g., "It's going to rain, I think." Scholnick and Hall also identify certain 'attentional devices', as in the imperative function of words like 'look', e.g., "Look what I did", and in some uses of the word 'see' in questions, e.g., "You see that?"

Both Bretherton's and Shatz's studies showed that all children producing mental state utterances had previously produced mental verbs for conversational functions prior to the expression of mental state. Shatz et al's (1983) samples of one child's spontaneous speech from the age 2 years; 4 months to 4 years showed that no mental state verbs occurred before the age of 2 years 8 months. The authors examined language samples of 30 additional children using the same sorts of criteria applied to the earlier single subject study. The results produced utterances containing a mental verb rate roughly comparable to the single subject

study. No children were observed using mental state verbs before the age of 2 years, 6 months.

Johnson (1982) proposed that "children first acquire a simple interpretation of mental verbs with respect to overt acts and uses of language and only subsequently develop a more reflective understanding of the verbs as definitively mental descriptions." (page 449). Several other authors have found that children initially interpret mental states as referring to external states. Misciones et al (1978) found that children under the age of 4 years were unsystematic in their use of the terms "know" and "guess". They found that between the ages of 4 and 6 children increasingly used "know" to refer to correct choices of a hidden object's location and "guess" to refer to incorrect choices regardless of prior knowledge. Children stated that they "knew" the location of an object when their performance was correct, even when lacking any knowledge basis, i.e., when they simply guessed right. Misciones et al propose that only when the children reach 6 years of age can they differentiate "know" and "guess" on the basis of epistemic states rather than observable outcomes.

Similarly, Wellman and Johnson (1979) found that 4 year-olds often stated that a story character "remembered" when the character correctly judged the location of a hidden object, and "forgot" when incorrect, regardless of the knowledge basis of these performances. They found that both 5 and 7 year-olds used "remember" more appropriately to refer to the presence of prior knowledge accompanied by correct choice of the location. However, these same children tended to judge whether the character had forgotten solely on the basis of whether the correct location was chosen. Wellman and Johnson concluded that "remember" is understood earlier than "forget" and that the child progresses from understanding these verbs in terms of overt behaviours to understanding them in terms of inferred cognitive states.

Johnson and Maratsos (1977) found that 4 year-olds, but not 3 year-olds, understood the different implications of the verbs 'think' and 'know'. Moore et al (1990) found that children start to differentiate 'know' and 'think' with respect to the expression of certainty at around 4 years. The general finding is that young children may not understand the precise

meaning of these verbs, although they can use the verbs in natural situations. Olson and Astington (1987) state that even adults in ordinary conversation may not use mental terms precisely, saying, (Olson's example) "I knew that it would be a typical Hollywood movie", even though the speaker had no prior evidence for knowing[15]. (Olson and Astington 1987, page 400).

In Shatz's study (op. cit.), the strongest evidence that the young children cited did distinguish internal mental states and processes from external physical events and behavioural acts came from their production of contrastive utterances. In contrastive utterances, children explicitly contrasted the mental world with the real world by saying things like, "I thought there wasn't any socks, but when I looked I saw them," and "Before I thought this was a crocodile; now I know it's an alligator". Such contrastives occurred in children's speech at about 2 years 8 months. Contrastives in children's language are seen to be particularly significant. They are not just children's expressions of mental attitudes towards the things of the world but also their reflections on their former mental attitudes. Feldman (1988) writes:

> "Children.....move mental attitudes from an initial occurrence as comments about real-world events into a stipulative given where they themselves could be talked about. To do this, children could make use of a general recursion rule -that is, a procedure for standing back from a process (in this case a construal) in order to turn it into a product (a constructed mental object)." (page 128).

This brings to mind Flavell's (1981) view, referring to developing metalinguistic abilities, that children must be able to "take communications as cognitive objects and critically analyze them." (page 37).

Feldman's discussion about children standing back from a process shows how important language is in this process of reflection. This relates to what Scholnick and Hall (1991) believe is the function of internal state

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[15] It is possible, however, in Olson's example, that the speaker was trying to claim prior knowledge, in the sense of superior perceptiveness. (I am grateful to Mark Roberts for this point.)

language for an individual: an internal state vocabulary enables the person to gain access to his or her internal states, in order to "monitor and transform them". They state that language is thus the 'tool for monitoring'.

A study by Wellman and Estes (1986) shows that under certain circumstances young children can distinguish mental states from observable events. They found that 3 year-olds acknowledged that if someone is merely thinking about a biscuit, they do not really have a biscuit. If 3 year-olds are told one boy has a biscuit and another boy is thinking about a biscuit, they can tell you which biscuit can be eaten, shared, touched, etc. Other studies show how young children can understand the subjectivity of thoughts. In simple tasks they can state that they can 'see' their own mental images, but that others cannot (Estes, et al., 1989) or that while they may think that a particular biscuit tastes nice, another person may think that it is horrible (Flavell et al., 1990). Harris et al., (1991) also showed that young children can appropriately distinguish between real and mental entities in 'fantasy-reality' tests, investigating children's understanding of monsters, ghosts and witches.

Several authors have identified some possible factors which may facilitate young children's acquisition of mental state language. These studies have great significance for the present author's development of experimental work in chapter 6. Wellman (1985) proposes that both formal education and references to internal states in everyday speech may contribute to internal state acquisition. Bearison and Cassel (1975) found that children of parents who referred to needs, intentions thoughts, and feelings, when attempting to regulate their children's behaviour, performed better on a communication task than did children whose parents were more likely to refer to rules in such situations. Dunn, Bretherton and Munn (1987) analysed verbal communication about feeling states in naturally occurring conversations at home. The authors found an increase in explicit references to feeling states between 18 and 24 months both in children's speech and in maternal speech to children. They found that references to feeling states made by the mother and older sibling when the target child was 18 months were positively correlated with the target child's speech about feeling states at 24 months.

Flavell (1988) proposes that one of the ways young children develop a common sense psychology is the way their parents explain mental states to them, - drawing their attention to the wishes, hopes, and purposes of others.

Furrow et al (1992) also looked at the relationship between mental state use in mothers' and their young children's language. They found that children's mental term use mirrored that of their mothers and that mothers' use of mental terms for particular functions when their children were 2 years of age predicted their children's use at 3 years. The authors state that their findings suggest that the development of mental state language is fostered by the linguistic environment of the home. Moore et al. (1994) provide further evidence that maternal use of belief terms and the ways in which mothers direct children's attention to mental states has been shown to be a significant predictor to their children's future understanding and use of belief terms. Moore et al., found that mothers who use more belief vocabulary (e.g., know, think, guess, remember, etc.) when their children are two years of age have children who use more desire terms at that age (e.g., want, need, wish, prefer, etc.), more belief terms one and two years later, and have 4-year-old children who understand better the distinctions among belief terms.

Beeghly et al. (1986) investigated the frequency and type of internal state language used by mothers of Down's Syndrome children to their children. They analysed the internal state language used by mothers to their young non-learning disabled children, and compared this with the internal state language used by mothers to Down's Syndrome children. The analysis showed that mothers of children with Down's syndrome used proportionately far fewer internal state utterances than did mothers of the non-handicapped children -even when the children were matched for linguistic level or mental age. One category of the Down's mothers' internal state utterances which seemed particularly sparse were those relating to cognition, i.e., metacognitive language. Beeghly et al. speculate that mothers of Down Syndrome children may have used less internal state language "because they had overly pessimistic expectations for their children's linguistic and cognitive development". The authors add that "Insofar as children's linguistic environment affects children's acquisition of an internal state vocabulary, children with Down's

syndrome may be at some disadvantage in acquiring the verbal means needed to discuss intentions, motivations, cognition and feelings with others." (Beeghly et al 1986, page 259).

To the author's knowledge, there have been no follow up studies to see if Beeghly's findings are replicated with other groups of mothers of children with Down's Syndrome, or for that matter, mothers of other children with severe learning difficulties. Commenting on Beeghly et al's research, Hinchcliffe and Roberts (1987) considered it reasonable to infer that other groups of children with severe learning difficulties were likely to experience a similar disadvantage; if so, they suggested, children with severe learning difficulties "may be retarded not only by their own inherent cognitive impairments but also by a degree of deprivation in their language environment." (page 77).

There have been few studies investigating the understanding and use of internal state language among children with severe learning disabilities. Tager-Flusberg (1992) analysed spontaneous speech from a longitudinal study of language-acquisition in autistic and Down's Syndrome children. Children's references to internal states were categorised into four major categories: desire, perception, emotion and cognition. Down's Syndrome children's internal state language was found to make reference to all categories, but the autistic children made significantly less reference to cognitive states. This finding fits in well to the 'theory of mind' research undertaken with autistic children referred to in chapter 3, which has shown that autistic children are significantly less able to understand the representational nature of the mind than matched mainstream and Down's children. If autistic children generally find representation of epistemic states difficult, it follows that they are unlikely to use language relating to cognitive states (Tager-Flusberg, 1993).

Although it is interesting to note from Tager-Flusberg's longitudinal study that children with Down's Syndrome are able to use internal state language relating to the above four categories, little information is provided by the author about the Down's children in the sample. This was an American study and it is not clear how far the children with Down's Syndrome who participated can be regarded as having severe learning difficulties. Children with Down's Syndrome, like most children

with learning disabilities, have individual differences across a range of developmental areas. Some older pupils in Britain have been successful in passing GCSE's, passing their driving tests in later life and holding down jobs in the community. Other young people with Down's Syndrome experience severe developmental delay in most areas; some have profound learning difficulties.

This prompted the author to investigate the use of internal state terms by a group of children with Down's Syndrome with severe learning difficulties and a group of non-learning disabled children, aged 1-5 years. This study is described below.

6.3 Study 4: The spontaneous use of internal state language by young non-learning disabled children and children with Down's Syndrome.

6.4 Introduction

To the author's knowledge, there have been few studies reported in the literature which have analysed the understanding and use of internal state terms among children with severe learning difficulties. Additionally, most of the longitudinal studies analysing the internal state language of non-learning disabled children have come from the USA. There may be some differences in use of internal state language among American and British native speakers. The word 'guess', used in the majority of instances by British speakers as a metacognitive term, is often used in a non-cognitive sense by American people-meaning 'suppose', e.g., "I guess we should go and get the shopping"[16]. For this reason, the first stage of the author's study is to invite parents of non-learning disabled children aged between 2-5 years to record their children's spontaneous use of targeted internal state terms, some relating to cognition. The author then repeats the procedure with parents of children with severe learning difficulties.

This study used parental questionnaires to investigate children's spontaneous use of 18 internal state words; 3 words relating to perception

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[16] British people do use 'guess' in this way, probably because of the influence of American culture.

('see', 'hear' and 'feel'), 3 words relating to intentions and desires ('mean', 'wish' and 'hope') and 12 words relating to cognition ('know', 'remember', 'think', 'wonder', 'believe', 'forget', 'guess', 'understand', 'dream', 'pretend', 'trick' and 'mistake'). The last 3 words-'pretend', 'trick' and 'mistake' have been put into this category because, although they may not strictly be classed as metacognitive words, depending on how they are used, they may imply a reference to a mental state (cognition). These words are shown in table 6. The main aim of the study is to investigate the use of internal state terms by a group of Down's Syndrome children with severe learning difficulties. However, as there have (to the author's knowledge) been few studies investigating the internal state language of British non-learning disabled children, it was decided to obtain data on young children aged between 2-5 years. This would allow certain comparisons to be made between the ways non-learning disabled and learning disabled children use internal state language.

6.5 The questionnaire

Parents of both groups of children were asked to report on their children's spontaneous use of 18 'target' internal state words. Longitudinal studies of children's language indicate that perception words are among the first category of internal state words used by the young child; metacognitive words are generally found much later in children's spontaneous speech (Shatz, 1983; Bretherton and Beeghly, 1982). Parents were sent a questionnaire containing a list of the 18 targeted words. Parents were asked to keep the questionnaire for a period of one month and write down examples of phrases and sentences in which their children spontaneously used any of the targeted internal state words. Parents were asked to place or pin the list of words in a convenient location, so that they had easy access to it (e.g., on a fridge, cupboard, shopping-board, etc.). The actual instructions relating to the list of words were as follows: "Does your child use, with understanding, any of the following words? Please give, alongside each word, example(s) of sentences and phrases in which your child uses any of these words". These examples of phrases and sentences in which these targeted internal state words were used provided the researcher with information about context and allowed him to assess whether the words were used with 'internal content', i.e., whether they were used in a semantic rather than pragmatic way (Scholnick and Hall,

1991). A semantic use occurs when the literal internal-state meaning of a word contributes directly to the intended meaning of the utterance containing it. In respect of the metacognitive words listed, consideration of the phrase or sentence in which the internal state word is used provides information about whether the word was used in a truly metacognitive way, i.e., whether it was used to convey something about knowledge itself. In this way, the pragmatic uses of the terms, of which examples were given on page ? above, could be identified and eliminated.

When analysing the questionnaires, a strict criterion of acceptance of internal state usage was implemented. If parents had indicated on the questionnaire that their child had used an individual targeted internal state word, but they did not provide the sentence in which it occurred, their response to this item was scored as a 'no'. If the parent had left a blank alongside an individual word, this nil response was also interpreted as a 'no'. These strict criteria were applied stringently in the data analysis so as not to give an optimistic picture of internal state use by children. If anything, these rigorous criteria for a 'yes' response (whether individual words could be counted as being used with 'internal content' by children) may have led to a slight underestimation of children's abilities to use internal state words.

The questionnaire also contained questions about the child's age and sex. It also asked whether the child in question had, as far as the parent knew, normal language development and general development. The parents of the non-learning disabled children were, in the main, friends of the author's undergraduate college students. These students distributed the questionnaires and collected them after a period of one month. Students were made aware of the importance of consistency between respondents in terms of how long they kept the form. In total, 112 questionnaires were given to parents of non-learning disabled children, and 86 were returned. 3 of the questionnaires were rejected due to illegibility or because the children referred to attended a special school. In total 83 questionnaire responses from parents of non-learning disabled children were analysed.

The questionnaires sent to parents of Down's Syndrome children contained some additional questions. Parents were asked if their child

had Down's Syndrome with severe learning difficulties. Parents were also asked if their child attended a school for children with severe learning difficulties. These questions helped to ensure that the group of children with Down's Syndrome were children who could be regarded as being within the range of severe learning difficulties; however, as was discussed earlier, defining this range is problematic. Within the special school population, there is a range of individual differences among children. In the author's experience, nearly all schools for children with severe learning difficulties have some 'borderline' children, who may be considered to be within the MLD (moderate learning difficulties) range. The Down's Syndrome children in this sample all attended schools for children with severe learning difficulties.

The covering letter of the questionnaire sent to parents of children with Down's Syndrome invited parents to respond to questions about their child's expressive language. These are reproduced below and are aimed to elicit a 'benchmark' measure of the child's expressive language (pre-verbal, one word/sign, two-word/sign, three-word/sign, four-word/sign and longer).

a) Is your child showing a response to your words/ signs but (at the present time he or she is) not yet <u>using</u> any recognisable signs or words?

b) Is your child, most of the time, using <u>single</u> words/ signs?

c) Is your child, most of the time, using <u>two</u> word/ sign combinations, e.g., "daddy car"?

d) Is your child, most of the time, using <u>three</u> word/ sign combinations, e.g., "Mum drinking tea"?

e) Is your child, most of the time, using <u>four</u>-element or longer structures?

The parents of the Down's Syndrome children in this study were the parents of children taught by teachers on the author's in-service course in the education of children with severe learning difficulties. Parental responses about their Down's Syndrome children referred to children

attending schools for children with severe learning difficulties in the West London area. Co-operation of teachers in this study gave an added check on parental responses to the child's expressive language referred to above. In all but 4 cases, the teachers agreed with the parents' response regarding their child's expressive language abilities (one-word, two word/ sign, etc.). These 4 questionnaires were removed from the analysis.

62 questionnaires were distributed to teachers on the author's in-service course. 51 were returned. 6 questionnaires were removed from the analysis because the children referred to on the form were shown to be pre-verbal. (This was the result of a misunderstanding; teachers were told that pre-verbal children were not intended to be included in the study). As mentioned above, 4 questionnaires were also removed from the analysis because the teacher did not agree with the parents' response to the expressive language question. This left 41 questionnaires in the Down's Syndrome children sample.

6.6 Results

Non-learning disabled children

Table 8 shows the percentages of non-learning disabled 2-, 3-, 4-and 5-year-old children who were reported to be using the targeted internal state words. As indicated above, the sentence or phrase in which the child used the word was analysed to ensure that the word was used with reference to 'internal content', i.e., for the metacognitive words, that the children's use of the word related to knowledge. Parents' examples of their children's use of the word 'feel' showed that children aged between 2 and 5 years used the word as a perception word and an emotion word ("You feel soft", and "Mummy feels poorly"). The only 1-year-old child who used the word 'feel' used it as a perception word ("feel wet", child aged 22 months). The word 'mean' can be used relating to 'intention', e.g., "I didn't mean to spill my drink" or in a metalinguistic sense, e.g., "I don't know what it (a word) means." In this study, both interpretations of the word 'mean' were accepted, i.e., relating to intention and metalanguage.

Table 8 Non-learning disabled children's use of internal state terms

	1 year	2 year	3 year	4 year	5 year
n=	12	29	18	12	12
age range	18-23 mth	24-35 mth	36-47 mth	48-59 mth	60-71 mth
mean age	20 mth	29 mth	41 mth	52 mth	67 mth
see	25	86	100	100	100
hear	0	69	83	100	100
know	0	38	89	100	100
feel	8	41	83	100	100
forget	0	7	72	100	100
remember	0	17	78	92	100
think	0	34	72	92	100
mean	0	10	61	83	100
pretend	0	17	72	75	100
dream	0	7	28	75	100
wish	0	0	28	75	100
underst.	0	0	39	67	100
hope	0	3	22	67	100
guess	0	0	28	58	100
trick	0	10	43	58	92
mistake	0	3	33	58	92
wonder	0	0	33	50	92
believe	0	0	11	58	92

1 year-old children

A small proportion of the 1 year-old children in the sample, all above 18 months, used two of the perception words, 'see' (25%) and 'feel' (8%). One of the children, aged 22 months used the word 'see' ("me see +point..."; and "feel wet"). Two other children were reported to use "see", one aged 20 months (also saying "me see +gesture") and another aged 22 months ("mummy see"). These constructions are similar to the 2 year-old children's use of the perception words, e.g., "me see moon" (2,4); "me hear da, da" (fire engine, 2,4); "I hear Lucienne" (2,4); "you feel soft" (2,5); "feel my hand, mum" (2,10); "It feels hot" (2,11).

2 year-old children

From this sample of 29 parents of 2-year-old children, the word 'hear' was heard by more of them (69%) than the word 'feel' (41%). In fact the metacognitive word 'know' appeared to be heard more by parents of 2-year-olds than the word 'feel'. As indicated earlier, the author was able to

differentiate explicit semantic uses of the word 'know' from pragmatic uses because he had the sentences and phrases in which young children used the word. However, the process of trying to differentiate mental from non-mental use, made the author realise how difficult a task this is. In order to ascertain, with any degree of certainty, that internal states are used with 'internal content', it seems the assessor would really need to be present when the child used the term. This is because then (and perhaps only then) can the listener fully appreciate the non-linguistic context which accompanies the child's internal state reference[17]. Nevertheless, examples of the 2-year-old children's use of the word 'know', in which they do seem to make reference to knowledge include, "Daddy knows how it works" (2,5); "I know this book" (2,11); "Yes, I know it's naughty" (2,7); "I know what it means" (2,7); "I don't know how to do this one" (2,7) and "I don't know where mine (sic) shoes are" (2,7). The youngest 2-year-old child reported to use the word 'know' was 2 years 5 months (example above).

The word 'feel' was reported to be used by 41% of the 2-year-olds. In the majority of cases it was used as a perception word, e.g., "Feel the dolly's hair, mummy" (2,7); "I feel sick" (2,5).

The word 'think' was reported to be used by 34% of the 2-year-olds. The youngest child reported to be using the word was aged 2 years, 4 months ("I think Daddy come home"). Other examples of the word 'think' include: "I think Tom's naughty" (2,7); "I think it's like Thunderbirds" (2,7);"I think it's cold" (2,9); and "I think teddy ate my sweet" (2,10). The word 'pretend' was reported to be used by 17% of 2-year-olds. The youngest child in the sample using it was a child aged 2 years, 7 months ("I'm just pretending to cook it"(2,). Other examples include, "Only pretend to drink it" (child drinking bath water, 2,7); and "I'm pretending it's a rocket" (referring to a pen, 2,8).

10% of the sample of 2-year-olds used the word 'mean' relating to intention. The youngest child was 2 years 7 months, who was reported as

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[17] This brings to mind Donaldson's views about 'embedded language', where young children's language is embedded in the flow of events which accompany it, i.e., the context (Donaldson, 1978). Donaldson states that the non- linguistic context of spoken language exerts a powerful influence on interpretation.

saying "I didn't mean it" (when the child bumped into her sister, child aged 2,7). Other examples include, "Didn't mean to spill my drink" (2,7) and "I didn't mean to" (2,10). 'Remember' was used by 17% of the sample and the youngest child who used the word was 2 years 5 months, reported as saying, "I can't remember her" (2,6). Other examples include, "I remember it" (2,5) and "remember this, daddy" (2,11). 'Forget' was used by 7% of the 2-year-olds, examples include "I forgot my car" (2,4) "I forget my lunch box" (2,7).

The word 'trick' is another example of a word which is difficult to assess in terms of its metacognitive content. Some parental references to the word referred to its use as a noun, where there may be a hint of metacognitive implication, for example, "I show you a trick". From this statement, it is not certain whether the word 'trick' is being used in a metacognitive sense, and so it was rejected. The following examples of children's use of the word as a verb were accepted as they imply a reference to someone's mental state, "I'm tricking you, daddy" (hiding his keys, child aged 2,7); "I hide your money, mum-I trick you" (2,7).

Only 1 child from the sample of 29 2-year-olds (3%) used the word 'hope' and 'mistake' (the same child). He was reported to have said, "He made a mistake" (the child's brother 2,6) and "I hope so" (in response to a question whether his brother is coming home). Two children were reported to have used the word 'dream'. Both children used the word as a noun, and again, it is difficult to assess whether it is being used in a truly metacognitive sense, "Had horrible dream, mummy" (2,7) and "I had a dream about a snake" (2,6). These examples were accepted because the children are referring to a (previous) state of mind.

None of the 2-year-olds in this sample were reported to use the words 'wish', 'understand', 'guess', 'wonder', or 'believe'.

3-year-old children

The words 'wish', 'understand', 'guess', 'wonder', and 'believe', which were not reported in the language of 2-year-olds, were reported to be used fairly infrequently by 3-year-old children. The word 'wish' was used by only 28% of the sample; references included "I wish it was mine" (3,0)

and "I wish I had a computer" (3,4). 'Understand' was used by 39% of the sample, e.g., "Do you understand me?" (3,0) and "My teacher got cross because she didn't understand that I wasn't being naughty" (3,4). Examples of the word 'guess' (28% of the sample) were used primarily as questions, e.g., "Guess what's in my hand?" (3,0) and "Guess what's in the box" (3,9). 'Wonder' was reported by 33% of the sample and included, "I wonder what's in there, now" (3,4) and "I wonder where he's going?" (3,4). Some uses of the word 'wonder' were rejected, e.g., "I wonder if you could help me" (3,0). This is an example of a pragmatic use of the word, rather than metacognitive use ('wonder' in this context suggests "Please can you help me").

'Believe' was reported to be used by only 11% of 3-year-olds, e.g., "You don't believe him, do you mum?" (3,4) and "All right, I believe you" (3,9).

References to the word 'dream' were still fairly scarce among the 3-year-olds (28%). However, a child of just 3 years is reported to have used the word, "I dreamed I saw some lions" (3,0). Another child is reported to say, "I only like nice dreams (3,9). 'Hope' is used by 22% of the sample, e.g., "I hope we can go swimming" (3,0) and "I hope we got (sic) dinner soon" (3,4). References to 'mistake' were reported by 33% of the sample, including, "I made a mistake, it was Tom not Bonnie" (3,11) - referring to two cats.

From the table, there is a noticeable increase in children's use of the following words between the 2-year-old and 3-year old children, - 'remember' (17% to 78%), 'forget' (7% to 72%) and 'pretend' (17% to 72%). Examples of the word 'remember' indicate metacognitive usage-, "I remember, you did that for my birthday" (3,1) and, "Do you remember when we had our photo taken?" (3,11). Examples of the word 'forget' include, "I forgot my doll" (3,3) and "Don't forget, now" (3,4).

'Pretend' was not only used as a verb, "Let's pretend we're in the Labyrinth" (3,0); "I only pretend cut hair" (3,1), but also as an adjective, "This is a pretend doggy" (3,0). It is possible that the onset of pretend play generally seen in young children's play at about 2 years, 6 months may explain children's increasing references to pretence when they are 3

years; engagement in pretend play may be thought to precede metacognitive reference to such activity-the 'doing' precedes the 'talking about the doing'.

The child's interest in pretence and deception around 2-3 years may explain why references to 'trick' become more common (43% of the 3 -year-olds). References are mainly verbs, and unlike in the 2-year-olds' utterances, the metacognitive implication is more clearly evident, e.g., "Let's do a trick on mummy" (hide something from her, child aged 3,1) and "He's not really a tree, he's trying to trick the children" (referring to a story, child aged 3,11).

4-and 5-year-old

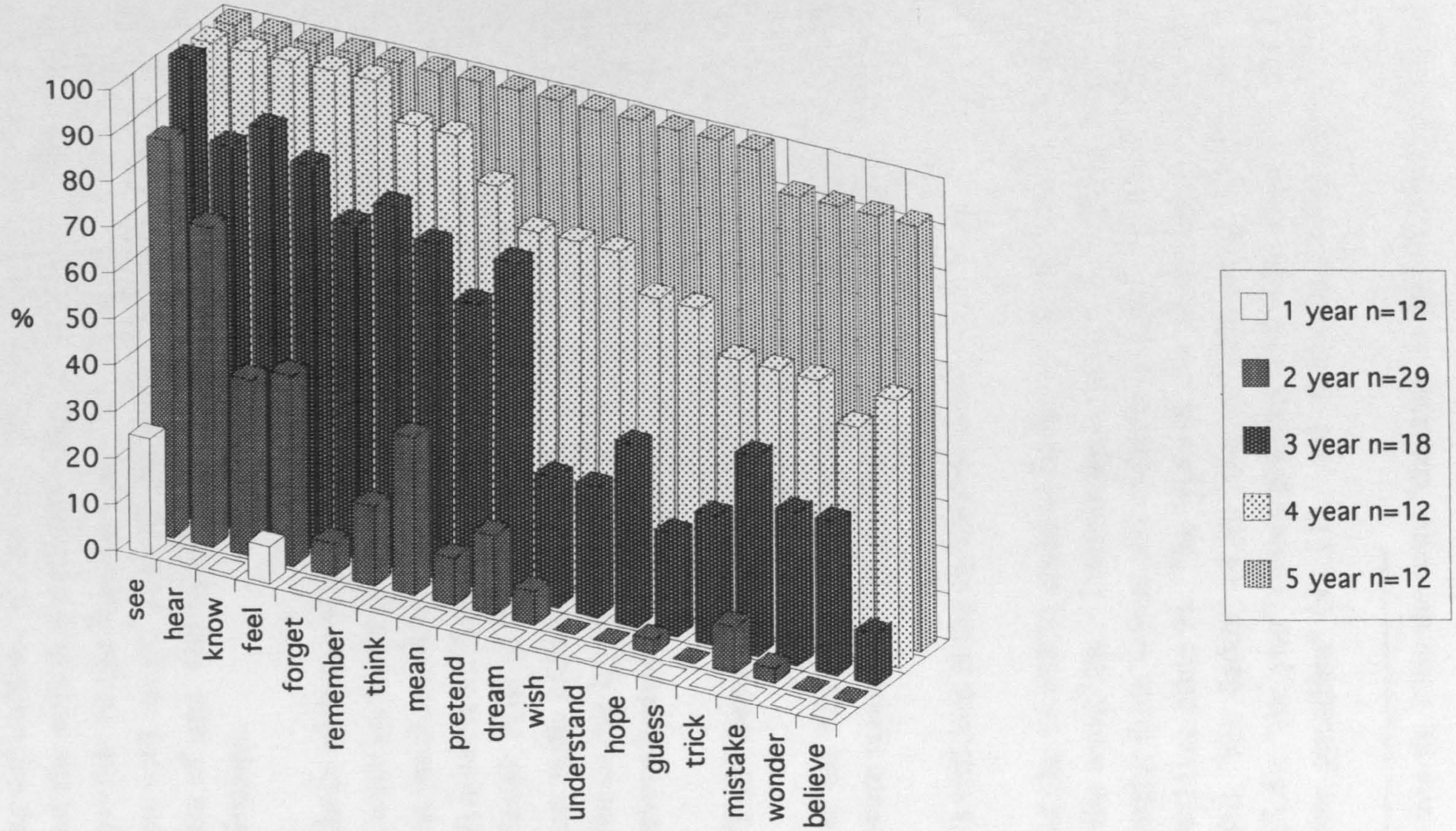
The words 'guess', 'trick', 'mistake', 'wonder' and 'believe' were reported to be used by just over half of the 4-year-olds, but most of the 5-year-olds were reported to be using these words and all the others.

6.7 Summary findings (non-learning-disabled children)

Figure 6 shows a graphical representation of internal state word use across the age range.

The words on the left-hand side of the graph are words which are reportedly being used by the children at an earlier age than the words on the right-hand side. Of course, the findings of this study relate to a relatively small number of children in each age range, therefore any findings must be viewed with caution. If parents fail to report children using certain internal state terms at certain ages it does not mean that individual children are not using those words: it means that they have not been heard to use those words over the observational period specified (one month). Again, this means that these findings should be regarded as tentative.

Figure 6: Spontaneous use of internal state words by non-learning disabled children



Down's Syndrome Children

41 responses from parents of children[18] with Down's Syndrome aged between 3 years, 3 months and 19 years, 3 months were analysed. All children in this sample were attending schools for children with severe learning difficulties. There was only one 3-year -old in the sample (aged 3,3) and she attended a nursery class in a special school. There were two 19-year-olds in the sample (aged 19,1 and 19,3). Pupils in schools for children with severe learning difficulties can stay at school until they are 19 years of age, and generally leave at the end of the term nearest their 19th birthday.

Only those children who were reported to be using a minimum of single words were included in the analysis. The groups of children described as being at the 3-and 4-plus word level were collapsed into one group. This was because of the low numbers of children in these 2 groups (six at the 3 word-level; nine at the 4-plus word level). This seemed acceptable as children with expressive language at the 3 to 4-plus word level are regarded as having relatively good language skills in schools for children with severe learning difficulties.

Down's children at the single word level

None of the 12 children at the single word/ sign level (aged between 3,3-12,1) were reported to be using any of the 18 internal state words.

Down's children at the two-word level

8 out of the 14 (57%) children at the two-word level were reported to be using the word 'see'. Interestingly, these were not the oldest children in the sample; three 4-year-old children and one 5-year-old child were using the word (see table 9). The types of 2-word phrases used by the children included, "see daddy" (4,4); "me see" (meaning "let me see", 4,9); "see dog" (5,4); "see you" (when playing hide and seek, 8,9; "see fish" (9,3) and "see grandma" (11,11). All of the examples above relate to the

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[18] For brevity, I use the word "children" to include young people up to age 19.

children referring to what they themselves could 'see'-people and animals. There were no reported references of Down's children referring to what other people could 'see', as was the case in one of the youngest non-learning disabled children (1,10) when she was reported to say "Mummy see". However, references to self perception by Down's children mirrored the majority of the examples of the word 'see' by non-learning disabled 1-and 2-year-olds.

Table 9 Internal state words used by Down's children at the 2-word level.

Age	4,1	4,4	4,9	4,11	4,11	5,4	6,4	6,9	8,7	8,9	9,2	9,3	9,3	11,11
Lang level	2	2	2	2	2	2	2	2	2	2	2	2	2	2
see	✔	✔	✔			✔		✔		✔			✔	✔
hear								✔		✔			✔	
kn.w														
feel										✔				
f.get														
rem.														
think						✔								
mean														
pr.d														
dr.m														
wish														
unds.														
hope														
gu.ss														
tnck														
mista														
won.														
belve														

Three of the children who were reported to use the word 'see' were also using the word 'hear' (21% of the sample). Examples of the use of 'hear' include, "hear Kimberly" (6,9); "hear bird" (8,9) and "hear daddy" (9,3). Only one child in the sample was reported to use the word 'feel' (perception) saying " feel cold" (8,9) and one other child used the word 'think' (metacognition), "think cat" (when seeing a squirrel, aged 5,4). This child's use of 'think' almost certainly shows metacognitive content. The only other target internal state word that this child was reported to have used was 'see'.

The results at the 2-word level do not show a clear relationship between age and internal state use. Table 9 shows that it is not the older children in the group who were reported to be using the most internal state

language. Three of the youngest children in the group were using the word 'see'. However, the children who were reported to be using more than one internal state word tended to be the older children; however, we can see one child aged 11 years who was reported to not be using any of the targeted internal state words. A much larger follow-up study would be needed with greater numbers of children in each group to investigate a correlation between internal state use and expressive language level and age.

Down's children at the three/ four plus-word level

All of the children in the sample at the 3/ 4 + word-level were reported to be using the word 'see'. 12 of the 15 children (80%) were using the words 'hear' and 'know'. In the majority of examples of the children's use of 'hear', children were referring to themselves, e.g., "Charlotte (meaning herself) hear baby crying" (4,2); "Can't hear you" (referring to herself, age 6,6); "I can hear the television" (7,6) and "I can hear the alarm" (7,9). However, there was one example of a child referring to other people's perceptions, e.g., "Can you hear it? Listen, Daddy", (15,5).

The same criteria of accepting only what appeared to be semantic uses of internal state terms were applied to the Down's examples as with those from the non-learning disabled reports. In the case of the word 'know', all the examples provided were accepted, e.g., "I know what to do", (16,4); "I know what you mean", (19,1); "I don't know how to do it", (7,9); and "I know that song", (7,6).

The examples of the children's use of the word 'feel', (used by 67% of the sample) were equally balanced between perception references and references to (own) feeling states. Examples of the former include, "Grass feels prickly", (4,2); "You feel it mum, it's wet", (15,5); "that feels too hot", (7,9); "it feels funny", (referring to touch, age 19,1); and "this dog feels soft" (16,4). Examples of feeling state references include, "I feel cold", (7,6); "it feels sore", (14,10); "I feel sick", (11,5); and "I don't feel well", (16,10).

'Remember' and 'trick' were used by 67% of the sample. As with the non-learning disabled children's use of the work 'trick', it is difficult to

ascertain the level of metacognitive implication in the Down's children's examples. In some examples, the meaning is unclear, as in "I'm going to play a trick on you", (19,1). Without further clues about the context, i.e., the type of trick referred to and what actually happened, it is difficult to determine the level of metacognitive implication. Other examples are more clearly identifiable as referring to deception, e.g., "I was tricking you", (after some dreadful joke, age 11,5) and "I'm going to play a trick on mummy and put glue on her seat", (7,6).

Some pragmatic uses of the word 'think' were not accepted, e.g., "I'll get my bike out, I think" and "I think so". Examples that were accepted include, "I think that boy likes me", (19,3); "think hard!", (15,5); "I think it will be roast dinner tomorrow", (7,6); and "I think you're horrible" (11,5).

'Pretend' and 'mistake' were used by 47% of the sample. Examples include, "Let's pretend we're witches and fairies", (11,5); "You pretend to be the baddie", (7,6); and "Don't worry mum, I'm only pretending", (to be cross, age 7,9); "I made a mistake" (looking at school work, age 11,5). References to the word 'dream' were made by 6 of the 15 children, e.g., "I dream about holidays in bed", (11,5); "I had a bad dream about ghosts", (8,1); and "I had a dream about school", (15,5). Two examples were rejected-"I was dreaming", and "dream in bed".

From the sample of children with Down's Syndrome, the word 'wonder' was reported to be used the least frequently (3 out of the 15 children; 20%). Four parents provided examples, but one was rejected as the word 'wonder' was used reciting a verse from a Nursery Rhyme. The three accepted uses were "I wonder what Nanny is doing", (16,4); "I wonder if grandma is coming for lunch", (11,5); and "I wonder what this is", (19,1).

Although age did not seem to be significant at the 2-word level, at the 3- to 4-plus word level, age seemed to have a more direct relationship to children's use of internal state terms. Table 10 shows the children's internal state use according to age. At the 3-to 4-plus word level, the results indicate a trend for the older children in the group to be using more internal state words than the younger children. This is not surprising, for if children's use of internal state language is related to their

exposure to such terms in their linguistic environments, as was proposed by Furrow et al (1992), Moore et al (1994) and Beeghly et al (1986), then the older children will have had greater experience of internal state reference. However, the table also reflects the individual differences typically seen in the development of children with severe learning difficulties (and perhaps, to a lesser extent, in groups of non-learning disabled children). One of the two children aged 7 years 6 months is reported to be using 12 internal state words; the other only 2. However, closer examination of the questionnaire responses of these two children does show that the child who was observed to use less internal state language was assessed by parents and his teacher as being at the 3-word expressive level; and the other child who used 12 internal state words was at the 4-plus word level. The examples of children's language from both questionnaires demonstrate the difference between the children in terms of maturity and linguistic expression. A larger sample of children at the 3-word and 4-plus word level would be needed to explore the relationship between increased internal state use and more developed linguistic expression (4-plus word as opposed to 3-word level). Limited numbers of children at the 3-and 4-plus word level meant that these two groups were collapsed into one group. However, table 10 shows that parental reports on the 6 children assessed as being at the 3-word level did show less internal state usage among these children than among the 9 children at the 4-plus word level. It is also noticeable that with the exception of one child, aged 8.1, it was the younger children in this sample who were assessed as being at the 3-word level.

6.8 Summary findings (children with Down's Syndrome)

Table 11 shows the results of all groups of children with Down's Syndrome. This shows that children with more advanced language abilities, as measured by parental and teacher's description of being at a 1-word, 2-word, 3-or 4-plus word level of expressive language, were using more internal state language relating to perception and cognition. Figure 7 shows a graphical representation of the results across language levels.

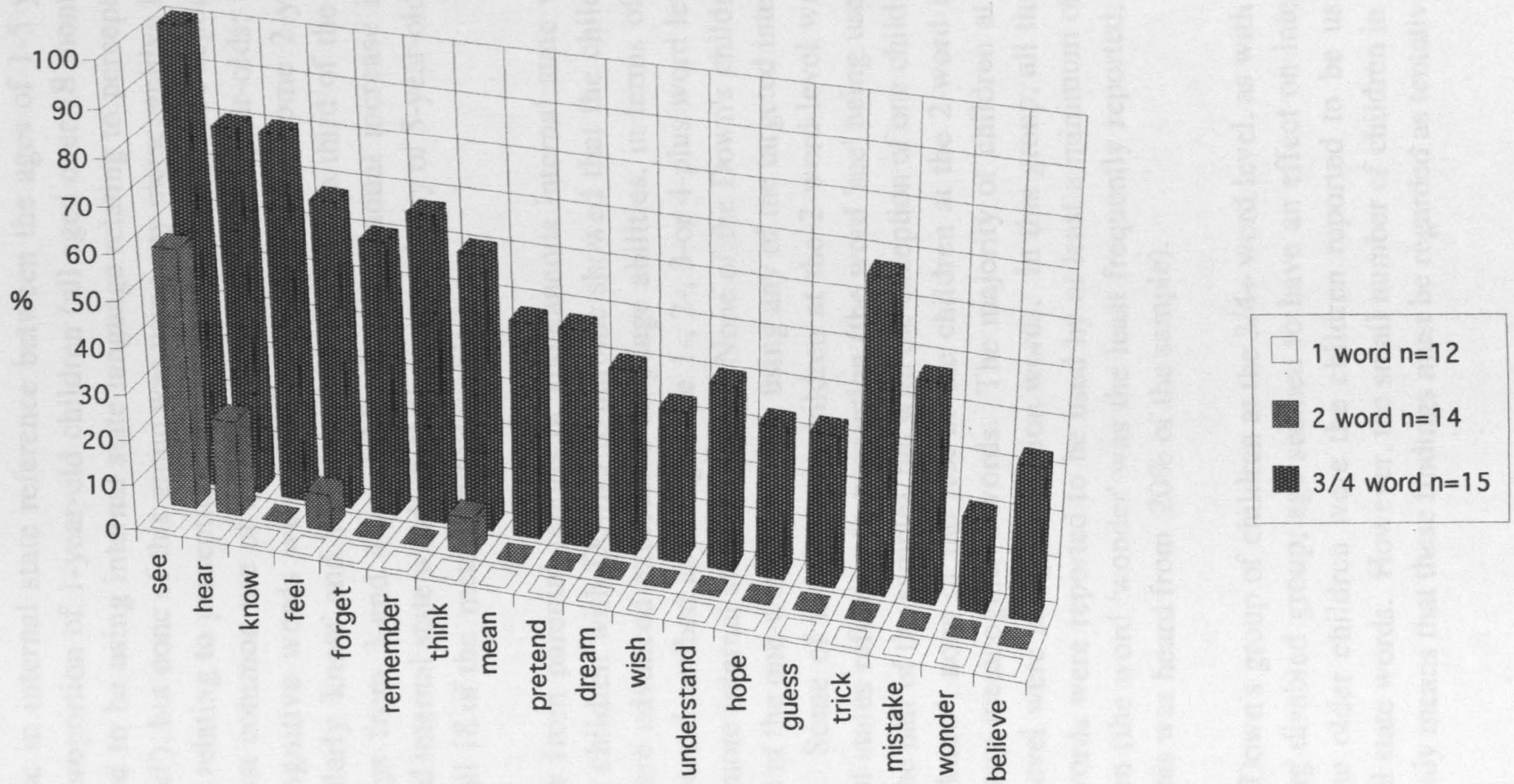
Table 10 Internal state words used by children with Down's Syndrome at the 3/4-plus word level.

Age	4,2	4,4	5,0	6,6	7,6	7,6	7,9	8,1	11,5	14,10	15,5	16,4	16,10	19,1	19,3
Lang level	3	3	3	3	3	4	4	3	4	4	4	4	4	4	4
see	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
hear	✔			✔		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
kn.w			✔	✔		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
feel	✔					✔	✔		✔	✔	✔	✔	✔	✔	✔
f.get			✔			✔			✔	✔	✔	✔	✔	✔	✔
rem.				✔		✔	✔		✔	✔	✔	✔	✔	✔	✔
think		✔				✔	✔	✔	✔		✔	✔		✔	✔
mean						✔			✔		✔	✔	✔	✔	✔
pr.d						✔	✔		✔		✔	✔		✔	✔
dr.m								✔	✔	✔	✔	✔		✔	
wish						✔			✔			✔		✔	✔
unds.									✔		✔	✔	✔	✔	✔
hope									✔		✔	✔		✔	✔
gu.ss									✔			✔	✔	✔	✔
trick				✔	✔	✔		✔	✔	✔		✔	✔	✔	✔
mista						✔			✔		✔	✔	✔	✔	✔
won.									✔			✔		✔	
belve									✔		✔	✔		✔	✔

Table 11 Down's syndrome children's use of internal state terms.

	1 word	2 word	3/4+ word
number	12	14	15
age-range	3,3-12,1	4,1-11,11	4,2-19,3
mean age	6,9	7,0	10,9
see	0	57	100
hear	0	21	80
know	0	0	80
feel	0	8	67
forget	0	0	60
remember	0	0	67
think	0	8	60
mean	0	0	47
pretend	0	0	47
dream	0	0	40
wish	0	0	33
understand	0	0	40
hope	0	0	33
guess	0	0	33
trick	0	0	67
mistake	0	0	47
wonder	0	0	20
believe	0	0	33

Figure 7: Spontaneous use of internal state words by children with Down's Syndrome



6.9 Discussion

In this study, parental reports of non-learning disabled children's spontaneous use of 18 internal state words indicated, not surprisingly, an increase in internal state reference between the ages of 1-5 years. A small proportion of 1-year-old children (all aged over 18 months) were reported to be using internal state language relating to perception ('see' and 'feel'), but none of this group was using any metacognitive language. Words relating to perception ('see', 'hear' and 'feel') were reported to be the most common use of internal state terms in 2-year-olds; however, metacognitive words were shown to be used by some 2-year-olds, particularly 'know' and 'think' (used by roughly a third of the sample). Findings from 3-and 4-year-olds show a gradual increase in use of targeted internal state words, with the vast majority of 5-year-old children using all 18 of the metacognitive words.

Results from parental reports of spontaneous internal state word use among children with Down's Syndrome showed that the children who had more advanced expressive language abilities, in terms of whether they were described as being at the 1-, 2-, 3-or 4-plus word level, were using more internal state language. None of the Down's children in the sample at the one-word level was using any of the targeted internal state words. Some of the Down's children at the 2 word-level were using internal states referring to perception (the word 'see' being used by just over one half of the sample), but with the exception of one child using the word 'know', none of the rest of the children at the 2-word level was using any metacognitive words. The majority of children at the 3/4+ word level were using perception words. In this group, all the internal state words were reported to be used by at least a minimum of 3 of the children (the word 'wonder' was the least frequently reported, but even then, this was heard from 20% of the sample).

In the Down's group of children at the 3/4+ word level, as with the non-learning disabled group, age seemed to have an effect on internal state use; the older children were the children reported to be using more internal state words. However, the small number of children in groups in this study means that these findings must be regarded as tentative.

Comparison of the data on spontaneous use of internal state terms by non-learning disabled children and children with Down's Syndrome reveals some interesting preliminary findings. Figure 8 shows a graph of internal state use by the 3-year-old non-learning disabled group and the Down's children at the 3/4+ word level. The internal state words on the 'x' axis are ranked in descending order of percentage use according to the findings of the non-learning 3-year old group. If one places a ruler vertically at the mid-point of the graph, alongside the word 'mean' on the 'x'-axis, it can be seen that consistently less of the Down's group are reported to be using the internal state words on the left hand side of the graph than the non-learning disabled 3-year-olds ('see' to 'mean'). However, after the word 'mean', with the exception of the word 'wonder', this trend is reversed for the words on the right hand side of the graph, - there are more Down's children reported to be using these internal state words than the non-learning disabled children. This could be because the words on the right hand side of the graph have been shown to be the words less frequently heard among the 2-, 3-and 4-year-olds from the mainstream sample (the reader might like to refer back to figure 6). The words on the right hand side of this graph (figure 8), i.e., 'trick', 'understand', mistake', 'wonder' 'dream' 'wish', 'guess', 'hope' and 'believe' are the words which are heard less in the sample of non-learning disabled children; even the 5-year-olds were not all using the words 'trick', 'mistake', 'wonder' and 'believe'. The reason why there may be proportionately more Down's children at the 3/4+ word level using these (more difficult[19]) words (the words towards the right hand side of the graph) may be because they are much older than the non-learning disabled sample; their ages run from 4 years 2 months to 19 years 3 months. These older Down's students would be expected to have had more experience of what may be regarded as the more 'difficult' internal state words (in terms of hearing them being used), and therefore more of them would be expected to be heard using them. In fact table 10 shows that it is the older Down's children who are using more of the internal state terms. The majority of non-learning disabled 3-year-olds are reported to be using the words on the left-hand side of figure 8, from

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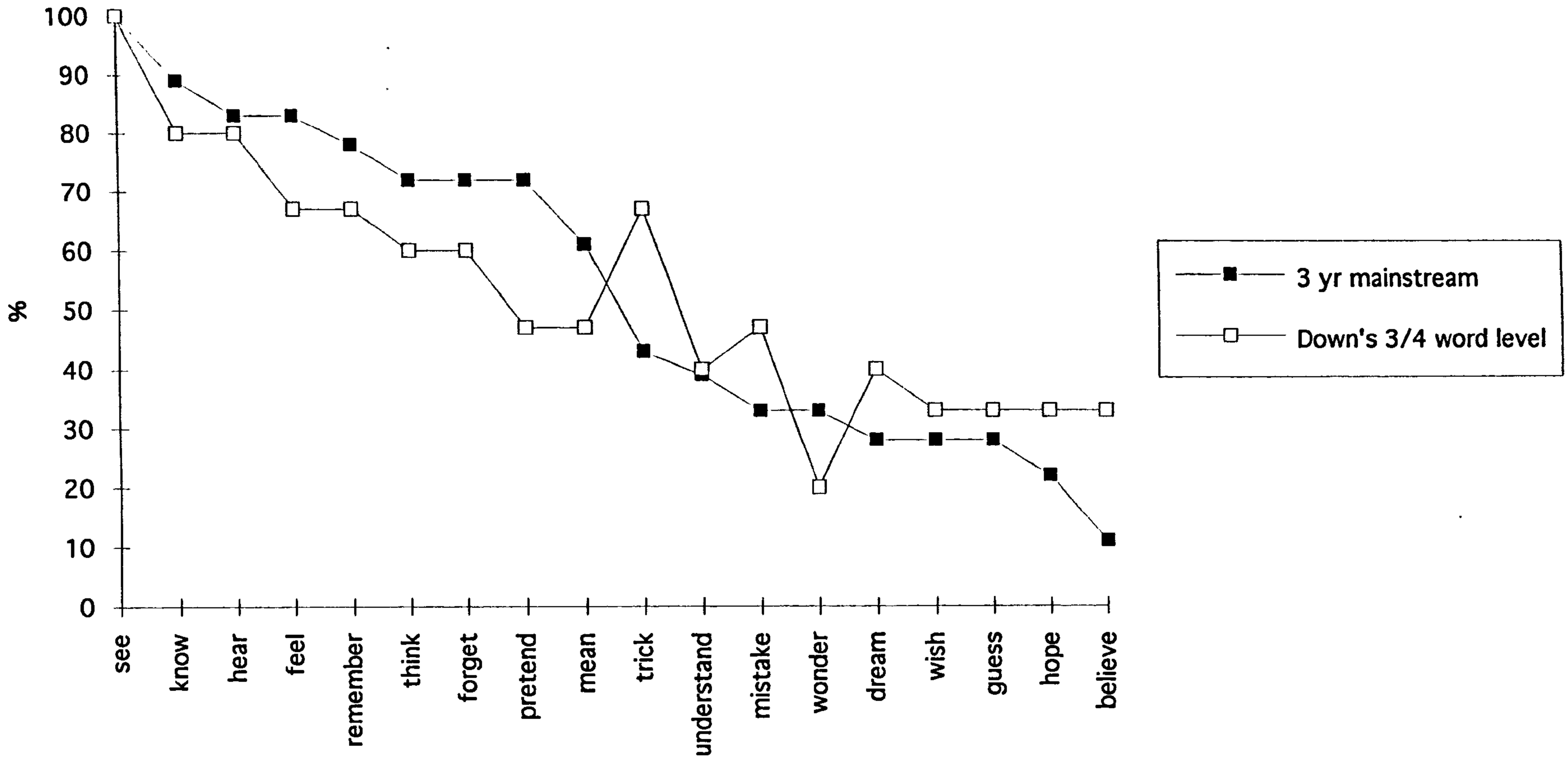
19 'Difficult' and 'easy' are used here for convenience, - it is not proposed that findings from this study enable individual words to be rated in terms of complexity (e.g., metacognitive complexity) or age of acquisition.

Figure 8: Internal state language of non-learning disabled 3 year-olds and Down's children at 3/4+ word level



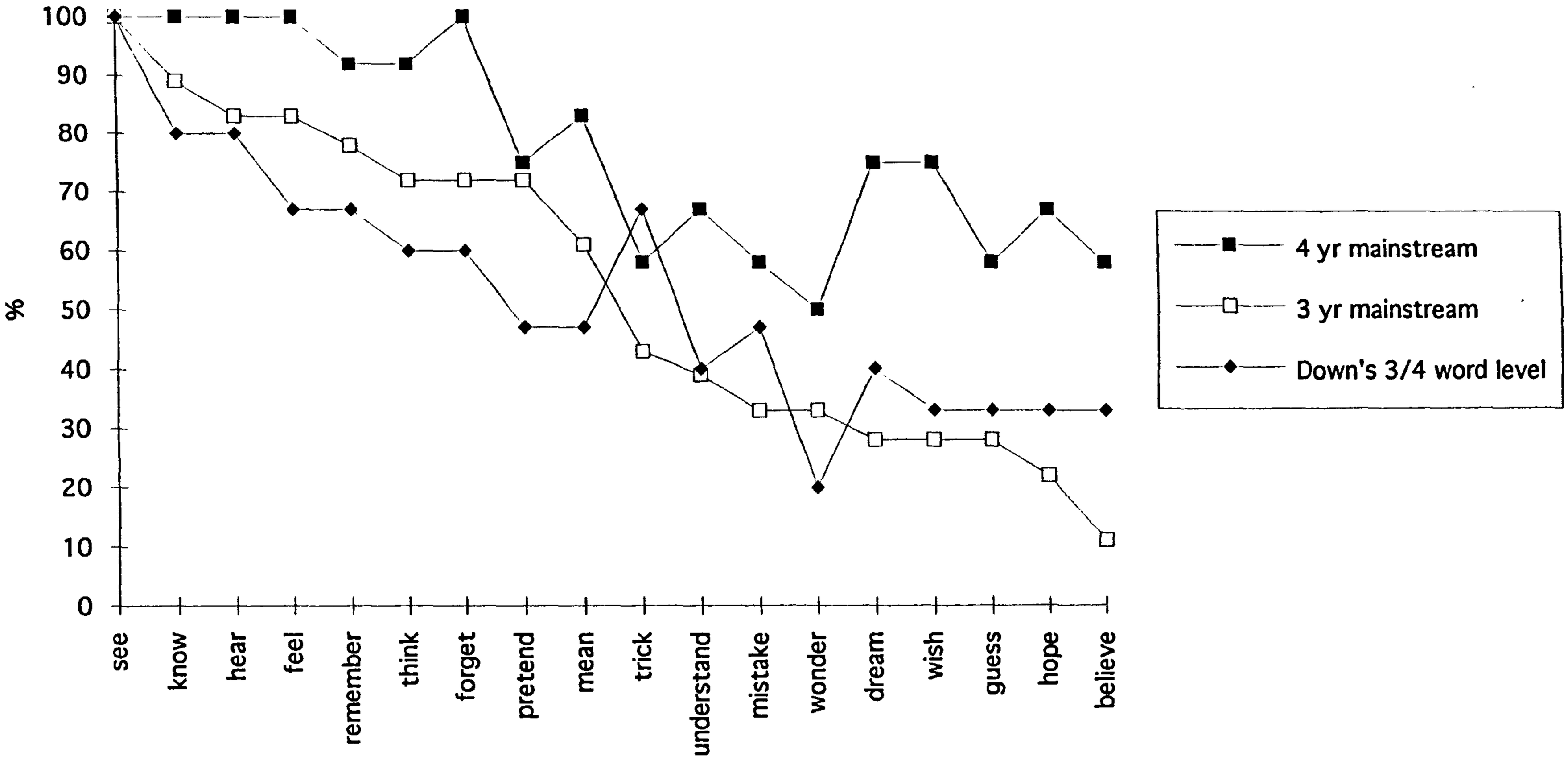
'see' to 'mean' and then there is a drop from 61% ('mean') to 43% ('trick') and then a steady decline in proportions of children using 'understand' to 'believe'. It is proposed that more non-learning disabled 3-year-olds may be using more of the 'easier' words on the left-hand side of the graph than the Down's group because the younger Down's children aged 4,2-7,6 (who are also reported to be at the 3-word level rather than the 4-plus word level) are bringing down the general percentage score of the Down's group.

However, when it comes to the more 'difficult' words on the right-hand side of the graph (figure 8), fewer 3-year-olds are reported to be using them. Further research would need to be undertaken using larger numbers of children in different age groups to ascertain whether these words do appear later in children's vocabularies and whether these words are more complex in terms of their metacognitive content.

Compared to the non-learning disabled 4-year-olds, far fewer Down's children were using the internal state words. Figure 9 shows the differences between these two groups. It can be seen that, although the numbers in each group are not the same, the internal state word use of the Down's children was closer related to the mainstream 3-year-old group. The disparity between internal state use of the mainstream 4-year-olds and the Down's children at the 3/4+ word level shows a less favourable picture of internal state use by the Down's sample. In schools for children with severe learning difficulties, children with language at the 3/4+ level may be considered to be the more able children in the school. Even these relatively able children are heard to use less internal state language than a group of mainstream 4-year-olds.

The paucity of internal state language among the Down's sample is even more surprising considering that some of the Down's children in the 3/4+ word level group would have been some of the older pupils in special schools (4 of them were over 16 years). However, three of the children in the Down's sample were reported to use all of the 18 targeted internal state words (ages 11,5 and 19,1). In the mainstream 4-year-old group there were also two children who were reported to use all of the 18 words (ages 4,5 and 4,7).

Figure 9: Internal state language of non-learning disabled 3&4 year-olds and Down's children at 3/4+ word level



The results from this questionnaire-based study provide some information on internal state word use among Down's children with severe learning difficulties. It has revealed the individual differences among children's ability to refer to internal states. It has shown that some of the children with relatively good language skills, generally the older ones, are able to use internal state language relating to perception and metacognition. It has also shown that, compared to the non-learning disabled 4 year-old children in this sample, the Down's children were reported to make far less use of the 18 targeted internal state words.

The next study investigates further the internal state word use of pupils with severe learning difficulties. This study introduces older students with severe learning difficulties to drama, with the intention of exploring their understanding and use of internal state terms.

6.10 Study 5: Using drama with children with severe learning difficulties to focus their attention on internal states.

6.11 General Introduction

Study 2, in chapter 4, demonstrated the potential of using drama to encourage mainstream children to experience first-hand mistaken beliefs and thwarted desires. This investigation involves children with severe learning difficulty in drama with the aim of focusing their attention on their own and other people's internal states. The author's questionnaire-based study, described above, indicated that Down's Syndrome children with severe learning difficulties were using internal state language relating to perception and cognition, but this was in the main limited to children with good language skills, i.e., children with expressive language at the 3/4+ word level. However, when comparing the parental reports of these Down's children's internal state language with reports from parents of non-learning disabled 4-year-olds, analysis showed that a much lower proportion of Down's children were using the targetted internal state words than the 4-year-olds.

The author's own experience of teaching children with special needs has indicated that, although many children with severe learning difficulties

can be assumed to have experienced states of emotion, for example, feelings of loneliness, frustration, jealousy, etc., they may not necessarily have the linguistic ability or the internal state vocabulary to express them, or indeed, in terms of receptive language, to attach a word to a feeling state. Hinchcliffe and Roberts (1987) suggested that this important area of language and communication may be neglected in the curriculum of children with severe learning difficulties because special schools have been too ready to imitate the curricula of mainstream schools. In mainstream schools, teaching the meaning of words relating to internal states is not seen as an explicit aim of the curriculum; children would be expected to develop that awareness incidentally, through ordinary daily life and social experience. Such incidental learning cannot be taken for granted in children with severe learning difficulties. Whether or not one agrees with Hinchcliffe and Robert's suggestion, it seems clear that the danger of social cognitive development being neglected in the education of children with severe learning difficulties is increasing, as special schools come under pressure to conform to the National Curriculum: Hinchcliffe (1994) points out that there is fleeting reference to internal state language in the National Curriculum Attainment Targets or Programmes of Study, again, because mainstream children develop such knowledge and understanding of internal states incidentally in everyday social interaction. It is also reasonable to assume that much of young children's early social-cognitive learning, particularly their understanding of internal state language, takes place in the home before children attend school (see Dunn 1988;1991). It was stated earlier that maternal use of belief terms and the ways in which mothers direct children's attention to mental states have been shown to be significant predictors of their children's future understanding and use of belief terms (Beeghly et al., 1986; Dunn et al., 1987; Furrow et al., 1992; Moore et al., 1994).

If it can be assumed that much of the young child's early social-cognitive understanding takes place in the home, then the pre-school child with severe learning difficulties may not be developmentally receptive to such learning, e.g., to parents' and siblings' use of internal state language. Indeed, the research referred to earlier by Beeghly et al (1986) suggests that mothers of children with Down's Syndrome may not use as much internal state language to their young disabled children, thus further diminishing their chances of acquiring such language. This means that

the children may be at some disadvantage in acquiring the verbal means needed to discuss intentions, motivations, cognition and feelings with others.

The study which follows investigates one possible way of giving children with severe learning difficulties a rich linguistic environment in terms of implicit and explicit reference to internal states.

6.12 Rationale

The experimental work detailed below attempts to explore the use of drama with a group of students with severe learning difficulties. The intention is to analyse the students' responses to dramatic contexts which attempt to focus their attention upon people's psychlogical states. In contrast to the experimental work undertaken with children reported so far in this thesis, this study adopts a qualitative research methodology. The researcher's intentions are to provide children with a dynamic learning context in which he improvises to the best of his ability to facilitate children's understanding of internal state language. The experimental context is interactive, where the emphasis is on researcher and children learning together. The approach acknowledges the importance of 'dynamic and participatory aspects' of social-cognitive understanding (Forrester, 1992), i.e., children learn about other people (their beliefs, desires and intentions) through participating in social interaction. It is through interaction with other people that children come to understand about their own and other people's mental states.

In debriefing sessions after drama, rather as in study 2, the experimenter explores the students' understanding of the inferred states of mind of the actors. The students are encouraged to relate instances in their own lives when they themselves have experienced similar feeling states, and when they have identified these internal states in other people. The aim of this work is to provide the students with dramatic situations which draw the students' attention to people's internal states; to make them consciously aware of both their own internal states and those of other people.

In this study, children with severe learning difficulty watch a series of dramatic plays which, in the first instance, are performed by the

experimenter and colleagues. The plays refer to short episodes of social interaction, in the main, between family members in the home. Often the scenes take place in situations of conflict, where the internal states of the story characters (both causal and intentional) are made explicit to the audience verbally and non-verbally, by strong facial expression, body language and intonation of voice. After each play, the experimenter talks to the children about what they have seen. He explores the children's understanding of the characters' intentions, desires and beliefs. Then the children themselves are gradually involved in the drama, playing some of the parts of the characters they have been introduced to. On some occasions the children are encouraged to improvise within the narrative structure, to change the course of events, or to provide their own version of the play's conclusion. Two of the plays that the children participate in are false belief stories. Here, the experimenter uses some of the techniques used previously with mainstream children in an earlier study (study 2). Children are 'split-briefed', that is briefed only about the part they are to play, and are left ignorant about other actors' intentions, desires or beliefs. This means that as the events unfold in the narrative, the children have a first-hand experience of false belief. For example, in narrative 10 (The Missing Marble), Janet, who plays a young sister, does not know that when she has left the room, her 'pretend' brother takes her marble out of her box and hides it somewhere else. This means that when Janet returns to collect her marble, she still thinks that it is in her toy box and is genuinely surprised at its disappearance. It is proposed that live simulations such as these, using drama, offer the researcher great potential to explore both the actors' and the observers' belief perspectives, i.e., their abilities to attribute beliefs according to what characters see, desire, intend and know.

The story narratives used in this study are original and were devised by the author for this experimentation. Many of these narratives represent contexts which reflect conflict situations. Dunn's observations of young children in the home suggest that situations of conflict and threatened self-interest are significant contexts in which young children develop an understanding of the social world, particularly their awareness of psychological states (Dunn,1991). The dramatic narratives, although brief, contain rich social interaction; they include characters deceiving each other, evading anticipated disapproval or trouble and pretence. The

narratives present characters who become jealous, envious, disappointed and embarrassed. They are visually very powerful; the actors (the researcher and colleagues) make explicit their feeling states, they give strong visual and auditory clues to their mental states (their intentions, desires and beliefs) by using strong gesture and facial expression and an exaggerated intonation of voice[20]. The language used in the dialogue is the kind of language used and heard in real life; it is deliberately not differentiated to the linguistic abilities of the children. In the author's experience, too much drama work with children with severe learning difficulties is unnecessarily simple and does not simulate real-life social interaction. In many ways, the narratives devised for this study resemble snippets of television "soaps", although the characters presented here are, in the main, children. However, there is a very important distinction between these narratives and television soaps. Soaps contain a melee of action, often with strands of different plots intermingled together, - a series of mini-plots often switching from one social context to another. For children with severe learning difficulties, differentiation of some of these sub-plots can be difficult[21]. The narratives described below are context rigid, i.e., they are free-standing and coherent. In the main the action is set within the home and involves characters in situations of

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[20] Many children with severe learning difficulties are very dependent upon these visual and auditory clues to meaning. This is because the majority of them have developmental delay in language and communication. Children who have difficulty understanding the spoken word will look for clues to the speaker's meaning by other contextual, auditory and visual clues.

[21] The author has successfully used short video extracts from popular television soaps to engage children with severe learning difficulties in discussion about the mental states of characters. However, the extracts selected by the author have been necessarily short, because there are few free- standing, coherent scenes in soaps which are free from interference of other sub- plots. In other words, the viewer's understanding of the intentions, desires and beliefs of the characters is dependent upon previous knowledge of the character. In the narratives designed for this study, children do not need to know much about the characters; they are not type- cast, the contexts in which the social interaction takes place are deliberately fixed. It is proposed that the inferential demands on the audience watching these short plays are less than for the viewer of television soaps. Another problem with using video extracts of television soaps is that they must really be used with children in school the following day from when they are screened. The more popular television soaps are broadcast two or three times a week. This means that the plot moves on rapidly and video- recordings of out of date extracts would be confusing to some children with severe learning difficulties because their knowledge of the current story line would interfere with the understanding of any previous action.

conflict, where the characters are trying to preserve their own interests, or are upset by a state of events. They are in the main short, but emotive. Each play has a clear beginning and an end and the experimenter introduces each one by briefly describing the main characters and setting the scene.

The content of the narratives owes much to Dunn's (1991) longitudinal observation of young children's interaction in the home. Dunn devised four categories of young children's behaviour which demonstrated their understanding of the psychological world (what can be called their social-cognitive awareness). She examined the natural domestic contexts which appeared to afford children with rich opportunities for learning about the mental world. She identified the following four categories of young children's behaviour and communication. The first concerned the social contexts in which children actively try to alter other people's psychological states, for example teasing behaviour, comforting, helping and joking. The second category included children's explicit references to psychological states, where young children begin to use internal state vocabulary (see p.139 of this thesis). The third category includes children's behaviour when they try to avoid some kind of disapproval, either from parents or siblings. Here, Dunn discusses young children's behaviour which deliberately thwarts others' intentions, children's excuses to evade trouble or punishment and their fibs and lies. Finally, under a general category of 'pretence', Dunn identifies contexts of children's pretend play as a window into children's awareness of psychological states.

The drama narratives in this study try to recreate some of the richness of this type of social interaction. The narratives are all set within the home and, as stated earlier, most of them involve some kind of conflict situation, for example a dispute, where a character tries to deceive someone, or manipulate another person for their own ends.

The contexts of the narratives and social interaction between the main characters evoke strong emotions. The characters make these feeling states explicit using strong imagery. In some plays, the characters communicate their states of mind directly to the audience by expressing aloud their desires, beliefs and intentions (e.g., narrative 2, line 147).

6.13 General and specific aims

The general aims of this study are a) to evaluate the potential of drama as a medium to focus children's attention upon their own and other people's internal states, and b) to investigate whether children's involvement in drama offers teachers/ researchers a more interactive and spontaneous means of investigating children's understanding of internal states.

These aims, for the purposes of this study, are peculiar to working with children with severe learning difficulties, although both the methodology and the story scenarios may be seen to be useful when working with other groups of children with special needs[22].

In addition to these general aims, the more specific aims of this study are as follows:

-to isolate and discuss instances when children, as a result of being involved in drama:

1) attribute internal states (desires, intentions and beliefs) to story characters,

2) successfully predict story characters' behaviour, according to their internal states, and,

3) generalise the meaning of internal state terms by identifying such internal states in themselves or other people in real-life situations.

These factors are analysed in the individual discussion sections, which follow each narrative.

In addition, the investigator seeks to analyse the type of internal state language used by the students. The students' internal state usage will be

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[22] These narratives may be useful when working with children with emotional and behavioural difficulties. Role- play (and the debriefing afterwards) may offer teachers a useful means of encouraging such children to think about the consequences of one's actions, to see the world from a different perspective and to talk about both their own and other people's internal states.

categorised into the following six sections (adapted from a previous study undertaken by the author, Hinchcliffe and Roberts, 1987). Table 12 shows the 7 categories of language relating to internal states and conscious awareness to be used in this study.

Table 12: Categories of words relating to internal states and conscious awareness.

Character and behaviour language (category1) -language used to describe people's character and behaviour by reference to their internal states, i.e., *greedy, honest, kind, cruel,* etc.
Attitude and emotion language (category 2) -refers to people's mental demeanour and feeling states, e.g., *happy, sad, cross, angry, frightened, jealous,* and *lonely.*
Perception Language (category 3)-language which expresses perceptual experience, e.g., *see, hear, feel* (physically), *smell* and *notice.*
Desire and volition language (category 4) -includes *want, (would) like, wish, need,* and *prefer.*
Metacognitive language (category 5) refers to states of knowledge or awareness, e.g., *know, think, believe* and *remember* (or the lack of such knowledge, e.g., forget, "I don't know", "I don't understand", etc.).
Truth-value/ Reality language (category 6) -concerns a person's ability to offer judgements about statements or beliefs, e.g., *right, true, wrong* (all referring to statements) and *pretend , joke* and *trick*. Included in this section are words relating to knowledge of the distinction between appearance and reality, e.g., *really* and *truly.*
Metalinguistic Language (category 7) includes words referring to the ways in which people use language, i.e., words which relate to language and its functions, e.g., words like *promise, persuade, apologise* and *lie.*

Adapted from Hinchcliffe, V. and Roberts, M. (1987) Developing social cognition and metacognition, in B. Smith (ed.) *Interactive Approaches to the Education of Children with Severe Learning Difficulties,* Westhill College, Birmingham.

Categories 6 and 7, Truth-value/ Reality language and Metalinguistic language may not refer directly to internal states; however, both categories include words which demonstrate social-cognitive awareness. Language relating to 'truth' and 'reality' is significant because it shows a person's ability to reflect both upon language, to "take communications as cognitive objects and critically analyze them", (Flavell et al., 1981) and

upon people's beliefs or states of mind. Included in this category are words relating to knowledge of the distinction between 'appearance' and 'reality'.

Metalinguistic language (category 7) includes words which relate to language and its functions. Awareness of the ways in which people use language is an important aspect of social cognition. Cazden (1983) defines metalinguistic knowledge or awareness as "the ability to make language forms opaque and attend to them in and for themselves", and this is a "special kind of language performance, one which makes special cognitive demands...." (page 303).

To the author's knowledge there have been few studies which have looked in depth at the frequency and type of internal state language used by children with severe learning difficulties. This study, which uses the medium of drama to encourage children to focus upon their own and other people's internal states, represents an opportunity to investigate the type of internal state language used by students with severe learning difficulties. It must be noted that the students' language cannot be regarded as truly spontaneous, because the experimenter has provided the stimulus of drama and is deliberately steering the students to talk about the characters' intentions, desires and beliefs[23]. However, it will be seen from the experimenter's language in the debriefings, especially in the beginning stages, that he is more interested in investigating the students' perceptions of what has happened in the drama narratives; he tries to use open-ended questions and rarely puts words into the students' mouths.

The investigation makes no claims for successfully teaching internal state vocabulary to members of the group; no pre-or post intervention tests will be conducted to assess whether such words are already within the vocabulary of the children involved, or whether intervention leads to the acquisition of 'targeted' words. Instead, the research described below attempts to meet the general and specific aims listed above. The research represents an attempt to provide students with contexts in which both adults and children can talk about how people's desires, beliefs and

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[23] The author's previous investigation did tap children's spontaneous use of internal state terms.

intentions guide their behaviour. It is not proposed that the following ways of working with children are exemplary, except in the strict sense of being examples of what might be done.

6.14 Subjects

9 students (5 girls and 4 boys) attending a school for children with severe learning difficulties in West London participated in this study. The students were aged between 15 and 18 years of age and were all in the further education unit of the school.

6.15 Procedure.

The work described below took place in a classroom. The experimenter was joined by two colleagues, both teachers, one of whom was on placement in the school. She was a familiar figure to the students and had a particular interest in drama. A welfare assistant also attended the drama sessions. The experimenter had met some of the students on previous visits to the school. He orientated the students to drama by talking to them about their favourite "soaps", favourite characters, etc. In total, the students observed (and later participated in) 11 short narratives. The procedure for all narratives followed the same pattern. At the beginning of each play, the experimenter spoke to the students about the characters to be played and briefly described the scene. In order to prevent confusion in the students' minds as to when the three adults were playing parts and when they were being themselves (teachers), the adults explained to the students that they would put on their jackets when they were playing a character. This may have provided some of the students with a valuable visual clue to understand when the adults were in and out of role. This is discussed later. It will be seen that this proved to be a useful stage device, and may have gently eased the students into the representational nature of role-play (in narrative 9, when the students were invited to play the parts of certain characters, they all asked to put on a jacket or a cardigan). When the adults put on their jackets, the students were told that they were going to act. At the end of the action, the adults took off their jackets, 'reverted back to teachers', and engaged the students in a debriefing on what they had seen (and later, what they themselves had been involved in).

In narratives 9,10 and 11, the students were invited to participate in the action. In narrative 10, which is a false belief story scenario, two of the students playing parts were 'split-briefed'. This meant that they were only briefed about the parts that they were to play. In this way, one of the students (Janet in narrative 10, line 817) was able to actually experience false belief, and the observers and fellow actors were able to see her acting according to her mistaken belief, in this context looking for a marble in the wrong location (where she had last put it). It was at points such as these that the experimenter was able to ask belief questions in a much more spontaneous fashion than in previous investigations.

In narrative 9, the students first watched the play being performed by the three adults. Three students were then invited to participate in a re-run of the story, playing the parts of the three adults. This was followed by another re-run, this time using three students to stand in for the adults. In this version, the three students were encouraged to improvise within the general story framework. The students' willingness and ability to improvise is discussed in relation to the appropriate narrative.

For ease of reference and to orientate the reader to the children's responses during and after drama, each play will be examined individually in the order in which they were presented to the students. The dialogues in each play and the complete transcriptions of the debriefings are included in appendix 2. Each narrative will contain an introduction, which alerts the reader to the specific intentions of the researcher, a results section and a discussion. The results and discussion sections will provide evidence of how the general and specific intentions of the researcher have been met. Where appropriate, this will include analysis of the students' statements which pertain to verbal and non-verbal evidence of their ability to 1) attribute desires, intentions or beliefs to story characters, 2) successfully predict characters' behaviour according to their perceived internal states, and 3) generalise the meaning of the internal states attributed to characters by relating these internal states to real-life situations.

The chapter concludes with a general discussion relating to the aims of the study. Specific instances of when and how students demonstrate

social-cognitive awareness in response to being involved in drama will then be used to evaluate whether drama represents a particularly useful medium in which to focus children's attention upon psychological states.

6.16 Narrative 1: The Party

Introduction

As mentioned in the procedure, the experimenter orientated the students towards this first narrative by talking to them about their favourite soaps, favourite characters, etc. He then spoke to the students about the characters to be played and briefly described the scene. In order to prevent confusion in the students' minds as to when the three adults were playing parts, and when they were being themselves (teachers), the adults explained to the students that they would put on their jackets when they were playing a character.

This first narrative is deliberately conceived to provide the students with a visually powerful story scenario to capture their attention. The aim is to present the students with a dramatic context in which they see a rapid build-up of excitement and expectation concerning a boy's desire to attend a friend's birthday party and an anticlimax of disappointment and dejection when his hopes are dashed. The experimenter's intention in this first narrative is to see how readily the students engage in the pretend story scenario. He also wants to discover if the students are able to identify and relate to a character's feeling of disappointment. Firstly, he is interested if any of the students use the term 'disappointed' to label the feeling state of the main character. He is also interested in whether the students are able to offer real-life examples of when they might have felt disappointed.

Results and Discussion

It was encouraging to see how quickly the students responded to the adults' change of role, from teachers to actors. From the students' perspective, it is possible that the visual clue of wearing jackets may have facilitated this transition. Evidence of the way some of the students enter

into the make-believe world of drama can be found towards the end of the first narrative, when Molly, David, Anna and Simon attribute a feeling of sadness to the principal character by saying "aaagh" (line 33 in appendix 2). Molly interjects and appropriately attributes a feeling of sadness to him.

In the debriefing, the experimenter begins by asking questions which invite the students to recap on the narrative's main events. The students' responses generally indicate a good understanding of the story structure. In line 77, the experimenter asks a question about how he felt when he realised that he would not be able to go to the party. David and Anna reaffirm their earlier attribution of sadness to the principal character (lines 80 & 82). It is proposed that Simon was teasing when he stated that the principal character would be 'happy' when he knew that he could not go to the party (line 83). His facial expression and intonation of voice suggested this. When the experimenter questions Simon's response, David denies that the principal character would feel happy.

The experimenter then probes whether any member of the group can provide the word 'disappointment' (line 88). Peter and David offer the word 'upset' (lines 91&92; David perhaps in imitation). It would be an assumption to suggest that the word 'disappointed' was not within their vocabulary (Peter uses it later, although it is just possible that he has learned the meaning of the word in this debriefing and then generalises it appropriately in response to another story context). Peter and David's proposal that the experimenter was 'upset' is appropriate in this context and therefore can be regarded as appropriate IS (internal state) attribution.

It is unclear whether any of the students know the word 'disappointment' at this stage. The experimenter tries to encourage a member of the group to offer an example of when they might have felt disappointed about something (line 100). However, the students were either reluctant to do so, perhaps because of shyness (this was the first narrative), because the word was unfamiliar, or because they were unable to generalise the term to real life. Molly's comments (lines 109 &111) lead the conversation off at a tangent; however, they serve to break the silence.

The students' responses to the experimenter's questioning in this first narrative suggest that some of the students may have some difficulty in accurately labelling actors' internal states. This may be because some of them may not have the relevant internal state words in their vocabularies. However, it should not be assumed that because a person does not have the necessary vocabulary to accurately refer to another person's (or their own) internal state, this means that he or she does not have some awareness about it. Most children with severe learning difficulties can be assumed to have experienced a range of internal states. Indeed, their learning difficulties may have heightened some affective states, for example, frustration in not being able to communicate something of great importance. The transcriptions of the students' comments show how some of the children find difficulty in expressing some of the 'targeted' internal states. They can be seen to use more generic terms, e.g., internal states which convey nearly the same meaning (e.g., David, line 80). It will be seen in later debriefings that this appears to be the case, that some of the students seem to have difficulty in labelling internal states (e.g., David in narrative 6, line 502), and in instances when the students use non-verbal expressions to communicate feeling states (e.g., when Molly stamps her foot to express a character's anger, narrative 3, line 293).

Table 13 shows the internal state language used by the students. The internal state words are shown in italics.

Table 13: Students' IS language in 'The Party'.

Molly/David/ Anna/ Simon:	Aaagh (sympathetically). (IS attribution-general)
Molly:	He's *sad.* (IS attribution-general)
Simon:	You were *asking* if you could go to Sally's party?
Anna:	*Ask* Dad.
David:	*Ask* him.
[Viv:	Right, 'cause I couldn't get there. Now how did I *feel*? How do you think I *felt* about that?]
David:	*Sad.* (IS attribution-general)
Ian:	*Sad.* (IS attribution-general)
Anna:	Very *sad.* (IS attribution-general)
[Viv:	What's a word that *means* I was looking *forward to* something... (pause).. and then I was *let down* (strong facial expression)? I was....?]
Peter:	*Upset.* (IS attribution-general)
David:	*Upset.* (IS attribution-general)
Molly:	*Ask* mum party.

Included in the table are instances of when the students attribute internal states to story characters, but they use non-specific internal state language, terms which do not accurately describe the feeling state of the character, they represent a more general representation of mood.

This type of internal state attribution is identified as 'IS attribution-general' and is shown in brackets. The experimenter's questions or comments are included in brackets, where necessary, to provide the reader with contextual information.

Table 14 shows the internal state language used by the experimenter.

Table 14: Adults' IS language in 'The Party'

Viv:	Right, 'cause I couldn't get there. Now how did I *feel*? How do you *think* I *felt* about that?
Viv:	Well, would I have *felt happy*?
Viv:	I *think* I would have *felt happy* if I had have been able to go to the party.
Viv:	What's a word that *means* I was *looking forward* to something... (pause).. and then I was *let down* (strong facial expression)? I was....?
Viv:	*Upset*, that's a good word. Anyone *know* what the word *disappointed means*? Have you heard the word *disappointed*? (silence)
Viv:	It *means* you were *looking forward* to something, and you would really *like* to do it, and then you can't do it (strong facial expression and gesture) and you become *disappointed*. (To Peter) You are absolutely right *upset* as well. Has anyone ever *felt disappointed*?... about .....anything? (silence)
Viv:	Anyone had something happen to them recently which has made them *disappointed*?
Viv:	Anyone? You *look forward* to something... and it doesn't happen?
Viv:	Yes, that's right, I *wanted* to go to a party.
Viv:	Yes, that's right. I *asked* mum if I could go to the party.

In summary, considering this was the first performance, the students engaged well in the dramatic process. This early engagement in drama, in what Bruner (1986) calls 'the landscape of consciousness', i.e., what story characters 'know, think, or feel, or do not know, think, or feel'

(p.14) may represent to them a powerful introduction to what Bruner calls the 'narrative mode of thought'. This will be expanded upon in the general discussion.

Some of their comments suggest that they related to the feeling state of the main character, but many of them lack the specific internal state vocabulary to accurately express 'disappointment'. It could be that this difficulty experienced by some of the students meant that they were unable to generalise their understanding of the word to a real life context. For, in this narrative, the students did not respond to the experimenters' attempts to encourage them to relate an occasion in their own lives, when they experienced disappointment.

6.17 Narrative 2: The Birthday Present

Introduction

The ability to appreciate our own and other people's internal states is critical to our understanding of human behaviour. Most people, most of the time, take account of the way people's inner psychological states affect their behaviour. But, because people's psychological states are covert and are not directly accessible to us, we can sometimes misjudge people's motives for behaving as they do, or incorrectly infer their internal states from their overt behaviour. People can deceive us and because none of us is truly telepathic, the best we can do is to infer the internal states of others, by appreciation of what they say or what they do. In everyday human interaction we are aware that people's behaviour in response to life events may not reliably indicate what they think about these same events. What people do and say in certain circumstances does not always provide us with reliable evidence about their inner psychological states. In this narrative, it is the experimenter's intention to explore the students' awareness of a contradiction between a character's overt behaviour (what he does and what he says) and what he is really thinking and feeling. The narrative presents the students with a context in which a character wishes to conceal his psychological states. The experimenter is interested in the students' reasoning about this character's intentions.

'The Birthday Present' provides a context within which to discuss why a person should conceal his true state of mind-in this case a boy suppressing his feelings of disappointment in not receiving a camera from his father for his birthday. As already mentioned, there is contradiction between the protagonist's non-verbal behaviour (his initial and fairly fleeting expression of disappointment when he unwraps his present to find instead of a camera, a glasses case, line 149) and what he says ("Oh, that's really nice.....it's just what I wanted, line150). In the introduction, the audience is told what the protagonist really wants for his birthday (lines 129-133). This is made even more explicit to the audience when the main character makes an aside to them as he unwraps his present with eager anticipation (line 147). The experimenter is particularly interested in whether the students can provide some reasons why the protagonist should disguise his internal state of disappointment.

Results and Discussion

During the action, it was evident from the exclamations of some of the students (line 151) that they were genuinely surprised when the main character unwrapped the present to find a glasses case. It is unclear from the video-and audio-recording exactly which students made this exclamation. Simon affirms that he was hoping to receive a camera (line166) and adds that he was 'disappointed' (line 168). This is interesting, because during the debriefing of the last narrative, none of the students had used the word 'disappointed' to describe the internal state of the character unable to go the birthday party. This shows how wrong it would have been to assume that the word was not in the students' vocabularies. Although Simon had attributed a feeling state of disappointment to the boy, both he and Peter remembered that the boy had said "that's nice" and "it was great" (lines 171&172) after he had opened the present to find the glasses case. Neither Peter nor Simon immediately responded to the experimenter's question (line 173) "why did he say that?" However, close examination of the video-recording suggests that, if the experimenter had given the students more time, they probably would have provided a reason earlier than they did (line 175). The experimenter asked them whether they thought that he really meant

what he had said. Simon, Peter, Anna and David simultaneously responded 'no' (line 177). Then Peter offers his reason why the main character concealed his true feelings-"to be kind" (line 180). (It is difficult to determine whether Simon and Anna also really thought this or whether they merely repeated Peter's answer). Peter's statement is significant, for he is attributing (in a predictive fashion) a demeanour of kindness to the boy by inference; and he does this by making sense of his behaviour. From what he had said already, it seems that he has appreciated the contradiction between the character's covert feeling state and his ostensive behaviour[24]. In response to seeing what the character does and says, Peter makes sense of the boy's behaviour; he has correctly deduced that he acted in this way so as to not offend his father. In this sense, Peter is both making sense of the boy's behaviour by appealing to the boy's inferred internal state, and predicting the father's probable state of mind if the boy did not conceal his true feelings of disappointment. This is a useful example to demonstrate how internal states are causally related to the physical world of behaviour. This causal influence can go in two directions, from mind to world and from world to mind (Wellman, 1993), i.e., mental states cause actions in the world and the world causes mental states. Peter's statements demonstrate that he (and, perhaps, also Anna and David) has some appreciation of the intentionality of the boy's behaviour (by calling upon his possible state of mind and his motives for acting in the way that he does). It is also quite probable that Peter can predict the father's probable state of mind (unhappiness) if the boy did not disguise his true feelings. In much of the experimental work described in earlier chapters, children were expected to predict story characters' behaviour from an appreciation of their mental state (Sally will look for the marble in the box because that is where she thinks it is). In this context, Peter makes sense of the boy's behaviour by predicting the possible effect of the boy's actions on the state of mind of the father. This direction of causal influence (mind to world) is more advanced than predicting behaviour by reference to mental states (world to mind).

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[24] Sperber and Wilson (1986) state that recognising the intention behind ostension is necessary for efficient information processing. They add that a person who fails to recognise this intention may fail to notice relevant information.

The experimenter attempts to makes such reasoning explicit to the rest of the group (lines 193-201) and then, with his colleagues, proceeds to act out an alternative ending to the play, in which the boy does not disguise his true feelings and consequently upsets his father. Here, Peter, Anna, Janet and Molly appropriately attribute a state of upset or sadness to the boy's father. In the drama, the father's strong body language and facial expression help to make this explicit.

Table 15 summarises all of the student responses which contain internal state language.

Table 15: Students' IS language in 'The Birthday Present'

Simon:	You were *hoping* to get a camera. (IS attribution-specific)
Simon:	You were *disappointed.* And he gave you a glasses case. (IS attribution-specific)
[Viv:	So why did I say it?]
Peter:	To be *kind.* (IS attribution-specific)
Simon:	To be *kind.* (IS attribution-specific/prompt)
Anna:	*Kind.* (IS attribution-specific/ prompt)
[Viv:	....because what would that do, if you said that?]
Peter:	*Upset* him. (IS attribution-specific)
Simon:	*Upset.* (IS attribution-specific/ prompt)
Molly:	*Sad.*

Close examination of the video-recording shows the wealth of internal state language used by the experimenter (and colleagues) in focusing the students' attention on the story characters' internal states. Table 16 contains all the adults' internal state references, both in the role-play and in the debriefing.

Table 16: Adults' IS language in "The Birthday Present'

Viv:	OK. Let's go back to the beginning of the story and *remember* what happened. Who was I playing in that story?
Viv:	Right, it was my birthday and I was *expecting* a birthday present. What was it that I was really *hoping* to get for my birthday?
Viv:	Yes, I was *disappointed*, wasn't I? What did I actually say to Dad?
Viv:	What I actually said was, "That's really nice, that's just what I *wanted.* Did I *really mean* that?
Viv:	It wouldn't be very *nice*, would it, if I was to say to Dad, (strong facial expression, directed to Keith) "Well, thanks a lot, Dad-you can keep that. (Throws the wrapping paper towards Keith) I don't *want* a blinking glasses case! What do I *want* a glasses case for?" I didn't say that, did I?
Viv:	(Nods) I *wanted* a camera, but, I didn't *want* to hurt Dad. I didn't want to *offend* him. There's lots of times in life when, perhaps, we don't say what we really *think.* I don't *know* whether that's ever happened to you-it's happened to me on my birthday on a few times, when, someone gives you something, or something happens and deep down you feel a bit *disappointed,* (pointing to Simon) as you said, but you don't actually say to someone, "that's not what I *wanted,* you can keep it"-because what would that do, if you said that?
Viv:	Oh, dad. What do I *want* a glasses case for? (pushes it away) I've got one of these, you *know* I've been *looking forward* to a camera. You could have at least bought me a camera for my birthday.
Viv:	In that version of the story, how do you *think* Dad *felt?*
Viv:	Yes, that wasn't very *nice*, was it? We may have done something like that, but we really should *consider* other people's *feelings,* shouldn't we?

6.18 Narrative 3: The Borrowed Cardigan.

Introduction

In this narrative, the two experimenters play brothers. One of them borrows his brother's cardigan without asking. Unfortunately for him, while he is wearing it, he spills tea down the front of it. Soon afterwards, his brother enters looking for his cardigan and sees his brother wearing it, with a large stain down the front of it. The props in this play are minimal; there is no cardigan, cup or wardrobe, and the stain is

imaginary. The actors use mime and strong visual and auditory clues, for example, one of the brothers adopts a very nervous voice and sheepish actions when he finally shows himself, wearing the imaginary stained cardigan. The other brother's anger is shown both in his voice and body language, when he shouts and stamps his foot.

In this play, the experimenter's intentions are threefold. First, he is interested to see how readily the students enter into a make-believe context which uses very few props. Secondly, he wishes to find out if the students attribute appropriate internal states to the two characters, e.g., anger, fear, shame, etc. Thirdly, the experimenter is interested to see if the students are able to relate any real-life experiences in which they can identify similar feeling states of anger, etc. in either themselves or in other people. In other words, can the students generalise the meanings of internal state terms to real-life situations? This was attempted in the first story narrative, 'The Party' (line102), when the experimenter invited any of the students to share an occasion when they had felt disappointment. None of the students offered an example from real life on this occasion, possibly because it was early in the proceedings.

Results and Discussion

There is evidence of the students' involvement in the dramatic context very early on in the action (see transcripts in appendix 2). The experimenter was holding up an imaginary cardigan, but this did not prevent Molly or David from entering into the pretence. Molly makes an anticipatory exclamation of possible trouble (line 236) when the brother declares that he is going to take it and wear it. David turns to the welfare assistant who is sitting next to him and suggests that he should have asked. After the misdemeanour, one of the brothers arrives looking for his cardigan. He invites audience participation by asking if anyone has seen it. Some of the audience deny that they have seen it, but others give away the location of the brother, who is hiding from him. In the debriefing, Janet, who has remained quiet up to now, demonstrates her understanding of the plot (lines 263&265). Anna's responses are interesting in that they show how effectively she uses gesture to compensate for her expressive language difficulties (lines 273&276).

The experimenter spontaneously uses the word 'embarrassed' (line 290) to describe why he hid from his brother (this word does not appear in any of the students' responses, afterwards). Molly's non-verbal response (line 293) to the experimenter's question about how one of the character's felt when he saw his brother wearing the cardigan is interesting. She expresses his internal state using a gesture (stamping her foot). It is possible that either Molly identified with the brother's anger, but could not find the word to express it, or perhaps she may not have the relevant internal state in her vocabulary to express his feeling (she does use the word 'sad' spontaneously later, which may be regarded as a very general approximation to the feeling state of anger. Later she does use the word 'cross', but only in repetition (line 306). Earlier, the author of this thesis proposed that many children with severe learning difficulties can be assumed to have experienced some internal states, at least in some rudimentary form. However, some of these children, perhaps like Molly, may lack the linguistic skills to express them. In the author's opinion, this is why intervention which helps to make children consciously aware of such internal states, by providing structured teaching contexts which highlight and help the children to identify and express them, can be seen to be beneficial for children with severe learning difficulties.

Returning to the analysis, Peter responds to the experimenter's question (line 294) by saying that his brother felt 'angry'. Simon mimics the brother's question when he sees the cardigan (line 295). Anna also provides the word 'angry'. The experimenter then tries to encourage the students to relate any real-life experiences in which they may have felt similar internal states. Simon is probably talking about a racing car in a computer game when he states that he became angry with his computer. David relates an experience when he became angry with one of his parents when asked to tidy up his bedroom. Table 17 includes all the students' responses which relate to internal state terms. The students' general and specific internal state attribution is included in parenthesis, as is their internal state generalisation. Table 18 contains the adults' internal state language.

In reference to the experimenter's intentions, many of the students demonstrated that, even with minimal props, they readily entered into the role-play situation. The students identified above were able to attribute

appropriate internal states to the two characters, one student using gesture and facial expression to express anger. Two of the students were seen to generalise the meaning of 'anger' to real-life contexts.

Table 17: Students' IS language in 'The Borrowed Cardigan'

Janet:	You nicked-took his cardigan without asking.
Molly:	(stamps her foot). (IS attribution-general)
Peter:	Angry. (IS attribution-specific)
Anna:	Angry. (IS attribution-specific/ prompt)
Molly:	Sad. (IS attribution-general)
Molly:	Cross. (IS attribution-specific/ prompt)
Simon:	I get very angry with the computer. (IS generalisation)
David:	I got angry in my house. About keeping my room. "I don't *want* to do it. It's not my job." (IS generalisation)
David:	I like a mess.
Simon:	I like mine in a tip. It's all over the place.

Table 18: Adults' IS language in 'The Borrowed Cardigan'

Viv:	Now, lets *think* back. What happened in that story? What happened in the beginning?
Viv:	Yes, I was *feeling* rather *embarrassed* about the fact that I had taken his cardigan. When Keith came and actually *saw* me wearing his cardigan, how did he *feel*?
Viv:	Yes, *angry*. How did you know he was *angry*.
Viv:	Why was he *angry*?
Viv:	Yes Molly, banged his feet. He was very *cross*. Did you *see* his face?
Viv:	So he was feeling very *cross*.
Viv:	Has anyone *felt* very *angry* recently?
Viv:	I got very *angry* this morning when I was driving my car. Someone pulled out in front of me and I had to stop very suddenly.
Viv:	You got *angry* with the computer?
Viv:	So you got *angry* when it didn't work properly?
Viv:	Tell me a bit more. Who gets *cross*?
Viv:	You get *cross* because you're asked to tidy up your bedroom?
Viv:	(laughs) I bet that goes down well. What do you *think* of that Margarita?
Margarita (exp.):	My mum sometimes asks me to tidy up my room and sometimes I get *cross*, because I *like* it in a mess.
Viv:	Well, that's *interesting*. (to David) Do you *like* your bedroom to be in a mess?
Viv:	That's a very good point. He *thinks* it's nice to keep your bedroom tidy because then you can find things.

6.19 Narrative 4: The Lie

Introduction

In this narrative, the main character accidentally breaks his mother's favourite vase and then lies to her by saying that their dog jumped up and knocked it off the table. In the debriefing, the experimenter investigates the students' understanding of the concept of lying. He does this by inviting them to provide real-life examples of when they or other people may have told a lie. So, working along similar lines to the last narrative, the experimenter is interested in whether the students can generalise the meaning of internal state words by providing examples from real life when they have experienced such internal states. From time to time, the experimenter substitutes the word 'fib' for lie in case the students are more familiar with this term[25].

In order to lie, a person must have a degree of metalinguistic awareness. Metalinguistics relate to language and its functions. Clearly, awareness of the ways in which people use language is an important part of their social-cognitive awareness. In terms of social-cognitive development 'lies' are an interesting linguistic act because they involve manipulating other people's beliefs intentionally. If a lie is meant as a genuine act of deception, the deceitful speaker must have some understanding of how his or her deceitful utterance will influence the listener's beliefs. Lies are probably the earliest spontaneous signs of a child's ability to attribute first-order beliefs to another person, 'I will say X to make her think Y'.

Dunn's (1991) anecdotal and observational data indicate that children start to lie and deceive from about the age of 2 years 6 months (although, at first, they may not be very good at it). Sodian and Frith (1993) state that a distinction must be made between 'genuine lies', i.e., false utterances that are made with the intention to deceive, and other forms of

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[25] Deception as it relates to lying may be regarded as a continuum, where the severity of the deceptive act may hypothetically be ranked in terms of its premeditation and social consequence. For example, a 'white lie' may be seen as less serious than a deliberate abdication of the truth for personal gain. 'Fibs' will undoubtedly be construed differently from lies. In this experiment, however, a 'fib' is seen as a synonym for a 'lie'.

deception, including mistakes, 'pseudo' lies and other forms of affective responses for manipulating behaviour which, rather than intentionally deceive, may serve to escape blame, or deny knowledge, e.g., saying that he or she didn't do something to escape blame or punishment. In the narrative described below, the boy's lie can be construed as a 'genuine lie', because, although the intention is to escape blame, there is a deliberate intention on the boy's part to alter his mother's state of mind. The boy does not intend to be truthful; he knows that what is being said is something false. His intention is to deceive the listener. This may be represented as A (the deceitful speaker) wants B (the listener) to (wrongly) believe X, or, in the story presented below: 'the boy wants his mother to (wrongly) believe that the dog broke the vase'.

The purpose of this narrative, like the others, is to encourage the students in the debriefing session to discuss why the characters behave in the way they do, what they think, feel and intend. More specifically, the experimenter is interested to find out the students' appreciation of the boy's intentions when he lies, and their general understanding of lies and deception. This is investigated further in later narratives.

Results and Discussion

The experimenter begins by inviting the students to relate the main events of the story. Simon establishes that the boy 'lied' (line 377). Anna, David and Janet (line 371) state that the boy had not told the truth. Simon offers an appropriate motive for the boy's lie, "because you did not want to get yourself into trouble" (line 376). David, in response to the experimenter's question of why the boy lies, refers to the broken vase. He states that if he were in that situation, he would "clear it up" (line 381). Peter states that he would "own up to it" (line 383, a metalinguistic expression). The experimenter involves his colleagues in the discussion (note Margarita and Viv's reference to 5 internal state terms, - cross, honest, upset, angry, believe, lines 389-399). David refers to a lie that his welfare assistant may have told (line 402. He refers to this again in narrative 7, line 587, when he intimates that his welfare assistant had told a lie saying that she had a sore throat to get out of something, - his precise meaning remained unclear).

David also refers to a recent event in a popular soap (lines 412-418, - unfortunately this was not followed up). Simon relates a lie he told recently at his grandmother's house (line 420-421). There may some confusion in Simon's mind about when a lie should be more appropriately construed as a joke. Lies and jokes are related, in that, whether lying or joking, the speaker does not intend to be truthful. However, there is a distinction on the basis of the speaker's intention concerning the listener's belief (Leekam, 1991). This distinction depends upon the second-order intentions of the speaker. Leekam writes, "for the deceitful speaker, the sole aim is to deceive the listener, whereas for the joking speaker the ultimate goal is not to deceive, but to be disbelieved. The speaker's intention to deceive is therefore defined in terms of what the speaker wants the listener to think. The deceitful speaker wants the listener to think that the statement is true while the joking speaker wants the listener to know that the statement is false," (page 160).

From what Simon says, it seems more likely that he is referring to a joke; however, this difference may be considered to be trivial. He later correctly identifies that the boy in 'The Birthday Present' told a "fib" to his father when he said that he liked his present.

Table 19 shows the internal state language used by the students in response to this narrative. It can be seen that the students were a little unforthcoming in their general discussion about 'fibs' and 'lies'; however, it must be recognised that this is a rather sensitive topic and, although there were two school staff members in the group, the experimenter and his colleague were not familiar adults to the students. As a result of this, midway through the debriefing, the experimenter and colleagues probably tried too hard to elicit from them references to the psychological states of the story characters. This meant that they themselves used a high proportion of internal state references. This accounts for the imbalance of internal state use between students and adults.

Table 19: Students' IS language in 'The Lie'

Simon:	You're *watching* television.
Molly:	*Looking* at TV.
Simon:	You said your dog did it? You *lied.* (IS attribution-specific)
[Viv:	Why did I tell a *lie*?]
Simon:	Because you didn't *want* to get yourself into trouble.
[Viv:	Okay, you'd clean it up... and then what would you do?]
Peter:	*Own up* to it.
Simon:	At my Nan's I told a *lie* then, I said someone has thrown a paper airplane out of the window and there weren't. (IS generalisation)
[Viv:	..... In a way, when Keith was my dad and he gave me that present.....]
Simon:	You told a *fib*.....(IS generalisation)

Table 20 shows the internal state language used by the adults in the debriefing. In retrospect, perhaps, the experimenter would have done better to have waited a little longer for responses to his questions and not diverted some of these questions to his colleagues.

Despite this imbalance of student/ adult internal state usage, the experimenter can be seen to have achieved his intentions: three of the students demonstrated a generalised understanding of the meaning of lies. One student provided a real-life example of when he had told a lie. Another student referred to a television soap in which a character had lied. He later intimated that his welfare assistant had lied on an occasion. All these examples show the students' metalinguistic awareness of what lying is.

In attempting to devise a narrative which offered students a context in which to discuss lies, characters' motives, etc., the researcher became aware of how complex people's deceptive behaviour is (in real life) and how the language which we use to describe deception has different shades of meaning in terms of the intentions and possible consequences of people's deceptive behaviour. It is only when we attempt to define or quantify it, that we realise how complex this is. In other words, all of us may have an incomplete understanding of the subtle components of deceptive behaviour. People's deceptive behaviour may be seen as placed at different points on a continuum, and this continuum may have 'fibs' and 'white lies' on one side and 'premeditated lies' on the other. It is likely to be with reference to people's intentions and motives, that we

determine where their deceptive acts are placed on this continuum. The salutary lesson from all of this is that it is not just people with learning disability who may find these things difficult to understand.

Table 20: Adults' IS language in 'The Lie'

Viv:	Now, let's *think* back. What was the first thing that happened?
Viv:	I wanted to watch television.
Viv:	Yes, I *lied*, didn't I? Because I said that Chappy the dog jumped up and knocked the vase off the table. Was that *true*, what I said?
Viv:	No, I told a *lie*.
Viv:	Why did I tell a *lie*?
Viv:	Yeah, I said the dog did it when I *actually* did it? What would you do if you were in that situation, what would you do?
Viv:	You'd *own up* to it. That's an interesting way of putting it-*owning up* to it.....do you *think* that Mum would have been that *cross*? Did I do the right thing by *lying*, do you *think*?
Viv:	Margarita, if you had *really* have been by mother, would you have been *cross* with me. What would you have said if I had gone out in the kitchen and said, "Mum, I've just had an accident, I've broken your best vase".
Margarita:	I don't *think* I would be *cross* if you were *honest* about it. I would be a little *upset*.....
Margarita:	....but I wouldn't be *angry* with you.
Viv:	Did you *believe* me, when I said that Chappy the dog had jumped up and knocked the vase off the table?
Margarita:	Not *really*.
Viv:	Has anyone told a little *lie* recently? I have.
Viv:	(to assistant) Have you told a little *lie*, a *fib*?
Viv:	Keith, have you told a *fib* recently?
Keith:	When I was at school the other day, somebody said to me, "How are you?" And I said, "I'm *fine*" and I wasn't, because I *felt horrible*. So that was a *fib*.
Viv:	Has anyone else told a *fib*?
Viv:	Did he tell a *fib*?
Viv:	Yes, because I said I really *liked* it and that's what I really *wanted*. I told that *fib* because I didn't *want* to *upset* him.

6.20 Narrative 5: The Doughnut.

Introduction

In this narrative, and the one following, the investigator is interested in the students' understanding of 'jealousy'. In this story, similar to 'The Birthday Present', the experimenter investigates whether the students can differentiate between a character's overt behaviour (what he says and

what he does; and his (inferred) mental and affective state (what he thinks and what he feels)[26]. The narrative involves two brothers. One of the brothers is praised and rewarded with a doughnut by his mother for helping her with the housework; the other brother looks on with extreme jealousy. The jealous brother makes out that he does not like doughnuts, when, in reference to the events immediately prior to this, it can be inferred that this is not the case; that he is just saying this. As in previous plays, the actors provide strong non-verbal clues to help the students 'see through' the protagonists' behaviour and make appropriate inferences as to their internal states.

Results and Discussion.

In the debriefing, after some revision of the main events, the experimenter asks if the students had noticed the jealous brother's facial expression. Anna states that he was 'upset' (line 460). This may represent another example of how some of the students may not have the appropriate internal vocabulary to accurately describe other people's feelings. In response to the experimenter's question 'Why?', Janet does use the word 'jealous' (line 462). Almost simultaneously, Simon affirms that he was 'jealous'. Janet responds to the experimenter's invitation to explain the meaning of 'jealous' by saying that "someone else gets something" (line 465). This is an appropriate response and it is a pity that the experimenter did not encourage her to expand upon this. However, her comment, as it stands, can be interpreted as being rather incomplete and it does show the difficulty that some of these students have in spontaneously providing a definition of an internal state word[27]. The experimenter then invites the students to remember exactly what the jealous brother had said. Simon states that he said that he did not like

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[26] This is rather more than what Donaldson (1978) calls the meaning/ message distinction ; however, a person's identification of a) the meaning/message distinction and b) an inferred contradiction between an overt behaviour and psychological states both draw upon social cognitive awareness.

[27] Hinchcliffe and Roberts (1987) propose that, for the student with severe learning disabilities, their difficulty in understanding and producing a definition of a word was not limited to internal state words. They stated that, generally speaking, pupils could by degrees, grasp the meaning of an unfamiliar word from a number of examples of its use, but, found great difficulty with the degree of abstraction involved in defining a word.

doughnuts, and then proposes that he did not really mean this; that he really would have liked one (lines 470&472). In retrospect, it was a pity that the experimenter did not encourage Simon to expand upon this; however, at the time, the experimenter felt that he had correctly inferred that the brother had said this because he was jealous. In other words, Simon had made sense of the brother's behaviour by appreciating his internal state. Tables 21 and 22 show the students' and the adults' internal state language, respectively.

Table 21: Students' IS language in 'The Doughnut'

Anna:	*Upset.* (IS attribution-general)
Janet:	*Jealous.* (IS attribution-specific/prompted)
Simon:	Because you were *jealous.* (IS attribution-specific)
Simon:	"I didn't *like* them".
Simon:	No, you *wanted* it.

Table 22: Adults' IS language in 'The Doughnut'

Viv:	Did you *see* my face?
Viv:	I was *jealous*? What does *jealous mean*?
Viv:	Right. Someone else gets something and you really *want* it... and you *feel jealous* about him having something. OK...you said I was *jealous* because I didn't get a doughnut, what did I actually say to him?
Viv:	*Do you think I meant* that?

The experimenter's intentions may be seen to be achieved; in response to the drama, one of the students spontaneously used the word 'jealous' to attribute an appropriate internal state to one of the characters and another student used the term after this. This student was able to infer that what a character said probably did not accord with what he really thought.

6.21 Narrative 6: The Sweetheart

Introduction.

This is a very short narrative, with very little dialogue. Understanding of the dramatic context is very reliant upon interpretation of the characters'

non-verbal behaviour. The narrative explores further the students understanding of 'jealousy'. The play portrays a character who becomes jealous of the attentions paid to a friend by a girl whom he admires.

Results and Discussion.

Some of the students' responses in the debriefing (except Simon's), demonstrate further that, although they understand the sequence of events and are able to relate in some manner to the main character's feelings of jealousy, they find it difficult to call upon the appropriate internal state word to accurately communicate this feeling state. David uses the word 'upset' (line 502), and Molly describes him as feeling 'sad' (line 503). The experimenter was surprised that Janet (or Simon), who used the word correctly in the previous narrative, did not offer the word 'jealous'. The experimenter even paused to look at Janet to encourage her to respond (line 504). Only after offering the initial letter 'j' did Simon provide the word (line 506). Anna correctly calls upon the word 'jealous', but this could be through repetition.

Tables 23 and 24 show the students' and adults' internal state language.

Closer inspection of the video does not help the experimenter to understand why Janet or Simon did not use the word 'jealous' in this context. It was assumed that this narrative represented a more familiar context, from the students' perspective, to attribute a feeling state of 'jealousy' than the previous narrative 'The doughnut' (which, arguably, may be more correctly identified as 'envy' rather than 'jealousy').

Table 23: Students IS language in 'The Sweetheart'

Simon:	You *thought* that she was going to kiss you. (IS attribution-specific)
Anna:	(points to Keith & Margarita) Say 'hi' like that (mimes embrace) and you *upset*. (IS attribution-general)
David:	*Upset*. (IS attribution-general)
Molly:	*Sad*.
Simon:	*Jealous*. (IS attribution-specific)
Anna:	*Jealous*. (IS attribution-specific/prompted)

Table 24: Adults IS language in 'The Sweetheart'

Viv:	I *thought* when she was coming towards me, she was going to kiss me.....and what did she do?
Viv:	Yes and kissed Keith. And how did I *feel*?
Viv (waits):	OK. I was *feeling* .....(waits) what was the word we talked about last time beginning with 'j'...
Viv:	Yes, I was *jealous* of Keith. What I really *wanted* was for her to come over to me and give me a kiss. But it didn't happen did it?

6.22 Narrative 7: The Broken Window

Introduction

This is another short narrative in which one of the characters feigns illness to avoid trouble. Two brothers are playing football when one of them kicks the ball through a window. Inside the house, when he meets his mother, instead of owning up to the accident, the boy pretends that he is ill in order to go up to his bedroom, to delay facing up to the possible consequences of his actions. The intentions of the experimenter in this play, are to explore further the students' appreciation of pretence and telling lies. In 'The Lie', the experimenter investigated the students' appreciation of a person's intentions when he told a lie to get out of trouble. In this play, the experimenter has similar intentions, first of all he seeks to find out if the students recognise that the boy is trying to deceive his mother into thinking that he is ill, and secondly, whether they appreciate why he does this. Similar to previous narratives, the experimenter also encourages the students to identify occasions in their own lives when they may have tried to deceive someone in an attempt to get out of trouble.

Results and Discussion.

At this point in the proceedings, the experimenter was aware that there was one student, Isha, who seemed to be engaged by the drama (he

laughed at appropriate points, and seemed to be interested in what his peers had to say), but he had not, by this time, said more than one word (narrative 3). The experimenter commenced the debriefing by encouraging him to participate. His answers in lines 542, 544 and 546 demonstrate that, in response to closed questions, he could identify the main sequence of events. He says very little after this, but it is significant that, although his language may have been developmentally less advanced than most of his peers, and he was not as forthcoming, he still engaged and participated within the dramatic process. In response to actors using minimal props, his responses indicate that he had an appreciation of pretence; he did not really see a window broken, but he was able to represent this in the make-believe world of drama and role-play. He was able to engage in what Bruner (1986) calls the 'narrative mode of thought'.

Janet takes over from him. She states that when the boy goes into the house, she says that he does not feel well (line 556). Anna states that he says he is unwell. In response to the experimenter's question about whether he was really feeling unwell, Peter states that he says this because he was 'trying to get out of it' (line 567). Here, to be absolutely sure of what Peter meant by this, the experimenter should have asked Peter about what he was trying to get of. Instead, the experimenter asks Peter how he was trying to get out of it. Peter answers: "by pretending that he wasn't very well," (line 569). It is clear that Peter not only recognises the deception, but also appreciates the motives behind the boy's deceptive behaviour.

For the benefit of the other students, the experimenter then invites Keith (one of the actors) to make explicit his intentions. It is proposed that encouraging actors to reveal their thoughts and intentions in this way following drama, may help some students to attend to how people's psychological states 'drive' behaviour and how an appreciation of their internal states can help to explain and predict behaviour.

Molly's single word utterance (line 574) serves to draw people's attention to the mother's probable internal state (if the boy had not been deceitful). Her one word statement, in response to Keith's preceding comments, offer some indication of her understanding of the events, and perhaps

more importantly, demonstrate how she has successfully predicted how the mother would react if/ when she finds out about the broken window. It is significant that Molly's statement was not influenced by what anyone else had said, for up to this point, no-one had mentioned the causal effect of the events upon the mother's future internal state.

Keith's affirmative comments recognise Molly's line of thinking (line 575) and the experimenter reinforces the belief structure of the story by saying that the boy was telling a 'fib' and pretending to be feeling unwell (line 580). Peter states that he was "putting it on" (line 582).

David's comments are interesting. The experimenter asks if any of the students, in real life, have ever pretended that they have been unwell. To his welfare assistant's amusement, David seems to refer to an occasion when she feigned illness (line 587). It is unclear exactly what he is referring to; however, what he does say indicates that he has some appreciation of the function of 'pretending' in the context of opting out of something. David's comment shows that he is able to generalise the internal state of pretence to a real-life context. (This relates back to what David was referring to in narrative 4, line 402).

Tables 25 and 26 contain the students' and adults' use of internal state vocabulary.

Table 25: Students' IS language in 'The Broken Window'

Janet:	Not *feeling very well.* (IS attribution-specific)
Peter:	By *pretending* that he wasn't very well. (IS attribution-specific)
Molly:	*Cross.* (IS attribution-specific)
Peter:	*Putting it on.* (IS attribution-specific)
David:	*Pretend* you got a sore throat. (IS generalisation)

Table 26: Adults' IS language in 'The Broken Window'

Viv:	And what do you *think* about that? Do you *think* that he wasn't *feeling* very well?
Viv:	By *pretending* that he wasn't very well. Right. What do you *think*, Keith?
Keith:	I was trying to get out of it, that's quite right. And I was *pretending*.
Keith:	*Cross*? Well I *thought* mum was going to be *cross*, that's *true*. I *thought* mum was going to be really, really *angry*, so I tried to get out of it.
Viv:	Yeah, he got out of it by saying that he didn't *feel* very well and he had a lay down upstairs. But we don't *think* that was *actually true*, we *think* that he was telling a *fib-pretending* that he wasn't very well.
Viv:	Yes, *putting it on*, that's right. Has anyone done this, *pretended* that they were unwell to get out of something, ...perhaps you may have been *worried* about something,... anyone done that?.....(David points to assistant)...I *know* I have.
Assistant:	I'm trying to *think* of the situation....
Assistant:	Oh, I was *pretending* to have a sore throat, was I, so I could have a sit down?
Viv:	I *remember* the first holiday I had, when I went away camping, I missed my mum and dad, because it was the first time I had gone away-I actually *pretended* that I wasn't very well-because I *thought* that maybe that would mean that they would send me home.

6.23 Narrative 8: The Missing Toast.

Introduction.

This narrative explores the students' understanding of a character's false belief. Children's understanding of false belief has been the focus of much of the experimental work in this thesis. This false belief story is very simple: a character makes himself some toast. He puts some bread in the toaster and then goes outside for a short time while it is browning. In the meantime his brother sees the toast in the toaster, helps himself to it and leaves the scene. The first brother then returns to find that his toast is missing. The students' appreciation of the character's surprise and his mistaken belief are explored in the debriefing. This is done in a relatively spontaneous manner; in a more spontaneous manner, perhaps, than in previous investigations. In this narrative, the students' understanding of

false belief is investigated almost incidentally. Most of the preceding narratives explored the students' understanding of characters' desires, beliefs and intentions. Their attention had been focused upon the various characters' internal states during debriefings, and it is proposed that, by this time, the students were used to predicting and explaining behaviour by reference to their internal states. This false belief scenario was deliberately set within a series of other narratives which encouraged students to discuss people's intentions, desires and beliefs. The intentions were to see how readily the students could represent the story character's false belief and justify his behaviour and expression of surprise in reference to his mistaken belief. Again, as in previous narratives, the actors used very strong clues to their mental states, e.g., the first brother's look of surprise was exaggerated when he discovered the toast was missing from the toaster.

Results and Discussion.

In this debriefing, there is further evidence of the students' difficulty in finding the right word to express a story character's internal state. Janet states that the first brother looked 'upset', when he returned to find his toast missing (line 631). This may be considered appropriate, however, in the context of this narrative, 'upset' does not conjure up quite the right image of the boy's state of mind. Similarly, Molly's response 'sad' (line 633) may also indicate her restricted vocabulary of internal state words, and even Peter's offering 'grumpy' (line 635) suggests a similar paucity of words on which he could draw. The experimenter provides a clue to the word 'surprised' by asking if the boy expected to find his toast missing. Simon correctly identifies the boy's false belief, saying that he "thought that it was there still" (line 638). This statement demonstrates first-order false belief attribution, because Simon was able to successfully differentiate the boy's (false) belief from his own belief (the reality condition), i.e., 'the boy thought that the toast was still in the toaster, but I know that it is not there because his brother has taken it' (see p67 of this thesis for the significance of this distinction). The experimenter provides the word 'surprised' to describe the boy's mental state. Simon immediately provides the justification (line 645). David also successfully represents the boy's mental state immediately prior to his discovery (line

651). This response of David's suggests that he was able to attribute first-order belief to the story character.

Tables 27 and 28 show the students' and adults' internal state language in this narrative.

Table 27 Students' IS language in 'The Missing Toast'

Janet:	You looked *upset.* (IS Attribution-general)
David:	*Upset.* (IS Attribution-general)
Molly:	*Sad.* (IS Attribution-general)
Peter:	*Grumpy.* (IS Attribution-general)
Simon:	You *thought* it was in there still.

Table 28: Adults' IS language in 'The Missing Toast'

Viv:	Again, let's *remind* ourselves what happened first of all.
Viv:	I was getting ready to go out.... and I *thought* I had time to make some toast.
Viv:	Did I *expect* my toast to disappear?
Viv:	I *thought* it was in there....yeah....so what had happened when I had gone out?
Viv:	So when I came back, I was *surprised*....
Viv:	....so the look that I had on my face was one of *surprise* . I was *surprised* about what had happened. Now, where did I *think* the toast was, when I came back?
Viv:	When I was outside, did I *know* that my brother had taken the toast out?

6.24 Narrative 9: The Dirty Coffee Cups

Introduction.

In this narrative, for the first time, the experimenter invites some of the students to directly participate in the role-play. However, before this, the intention is to see how readily the students attribute a demeanour of 'laziness' to a character whose verbal and non-verbal behaviour in role-play explicitly demonstrates this. There are two principal reasons why the experimenter wanted to directly involve students in role-play. The first centres upon the social-cognitive demands of role-play. It is

proposed that in order for a person to engage in role-play, i.e., to assume another role, he or she must have some appreciation of the assumed character's perspective. Role-play involves some degree of social cognition-at a rudimentary level it may involve an awareness of how another person behaves; at a more advanced level, it may involve an appreciation of how another person thinks. When experts are involved in role-play, for example at drama school, they can be said to 'live' the part that they take on: not only do they play the role of a character; they often become the character, they see the world from the character's perspective, and they may even try to think like the assumed character. For the novice role-player, role-play becomes more like pretence, very similar in fact to the way young children play 'mothers and fathers'. They may act in a mother-like fashion, they may say things that mothers typically say, etc. This type of role-play still involves representation; it still reflects the player's awareness of the way people behave, what they say, etc., in other word it still demonstrates the person's social-cognitive awareness.

If role-play involves improvisation, i.e., there is no script, greater demands are placed upon the player's representational abilities, for the player has to spontaneously respond (to what other players do and say) in a way that she perceives a mother would respond. Improvisation forces the player to play the part as she perceives best. Scripts, on the other hand, are perhaps more constraining on individual interpretation: the player has to assume the role as it is perceived by the script writer, although, when the player is in role (on the stage), she ultimately assumes ownership of this role, and plays it as she sees fit.

Of course, the representational demands of playing a role depend upon the role that a person is expected to play. If a person is to play a familiar role, e.g., a mother, in improvised role-play, it is feasible that the *assumed* characters' intentions, desires and beliefs (her internal states) are one and the same as the player's. In other words, the player may not have to attribute psychological states to the assumed (pretend) character that they themselves do not share[28]. The player may play the part of a mother, in the on-going context of a make-believe scenario, as if she was

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[28] This is very different from a person attributing internal states to a story character who does not share the same conceptual or perceptual viewpoint as they themselves have, as in the false belief story scenarios described in earlier chapters.

a mother. On the other hand, if a person is expected to play a less familiar role, for example, a role that is outside the player's experience, then the representational demands may be greater. For example, if a player has to play the part of a psychotic murderer, then the player must act, think, deliberate, etc. in a way which may be very different from his normal behaviour. The type of role does make different demands upon a person's representational abilities; however, it is proposed that any form of role-play involves social cognition, i.e., cognition about what people might do, what they might think, etc.

The second reason why the experimenter involves the students in role-play is to investigate how they engage within it. How readily will they participate? Is improvisation too ambitious for students with severe learning difficulties? How much adult help will they need? Are they able to use non-verbal as well as verbal communication, e.g., facial expression and intonation of voice? In addition to these questions, the experimenter is interested in how well they are able to respond to the challenge of portraying a 'lazy' character. In the narrative, they see a character who cannot be bothered to clear away his dirty coffee cups. The experimenter is interested to see if the students can use role-play to portray 'laziness' in a different way. This would provide an interesting insight into the students' understanding of this internal state.

Results and Discussion.

In the debriefing, Simon appropriately describes the main character's lazy demeanour by saying, "He couldn't be bothered to clear them up" (line 691). The experimenter focuses their attention on the main character's lethargic posture. Simon mimics this and Janet finally describes him as "lazy". Simon and Peter provide appropriate explanations of the term (lines 710 &711) and Janet calls Simon a "lazybones". Molly similar, to other occasions in previous debriefings, says that he is "sad" (line 717). This is rather curious, for whereas on previous occasions, her non-specific (general) use of 'sad' was appropriate to convey the mood of 'disappointed' (narrative 1, line 34) and 'upset' (narrative 2, line 223), on this occasion, her use of 'sad' does not capture the mood of the person. It is possible that 'laziness' as conveyed by the character's posture and

actions, is an unfamiliar abstract entity to Molly, or that the character's dramatic presentation of 'laziness' was not exemplary of her interpretation of the term (she may have understood 'laziness in a context more familiar to her)[29].

The experimenter then leads the students into gradual participation in role-play. He asks if there is another way to show someone to be lazy. Peter suggests someone 'staying in bed' (line 723). The experimenter suggests that someone can play this part, and Simon suggests that someone else could play the part of someone attempting to get him or her up. Janet suggests that this person could be the mother and she is trying to get someone up for work or school (line 735). The experimenter then invites participants and helps to set the scene. Molly (line 746) suggests that there should be a father involved. The experimenter then encourages them to plan some structure on which they can improvise (line 758) and helps with some of the general dialogue. Janet's suggestions about what she is to say show great imagination (lines 760&765). Their improvisation (lines 769-775) is coherent and shows great potential for future work in this area. Although it is short, the video recording of their action reveals their ability to use facial expression and intonation of voice (Simon's statement that he was not going to school was said in a very lethargic manner and Janet's instructions were very matriarchal). David's improvised solution to the problem was very spontaneous. His mime of filling a receptacle with water and throwing it over Simon was well executed (and very humorous) and provided further evidence of the students' ability to improvise and use mime. This work has shown how readily some of these students engaged in role play. As a small group, they were able to portray laziness in an appropriate way. It would be interesting to see how they could portray other internal states using drama.

Tables 29 and 30 show the students' and adults' internal state language.

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[29] It is also possible that she had become conditioned to respond 'sad' to all scenarios.

Table 29 Students' IS language in 'The Dirty Coffee Cups'

Janet:	*Lazy* (IS attribution-specific)
David:	*Lazy, lazy.* (IS attribution-specific/prompt)
Janet:	*Lazybones*! (pointing to Simon) He's a *lazybones.* (IS generalisation)
Molly:	He's quite *sad.* (IS attribution-general)
Janet:	*Lazybones*, get up.

Table 30: Adults' IS language in 'The Dirty Coffee Cups'

Viv:	What does it *mean* to be *lazy*?
Viv:	You just sit there, waiting for things to be done for you....I'm a bit *lazy* sometimes....*expecting* people to clear up after me....
Viv:	Is there another way that we can play a part and show that someone is *lazy*? Who would like to show a *lazy* person.....show someone being *lazy*?
Viv:	You *want* to play mum, all right come over here. Now, who *wants* to play someone being *lazy*?
Viv:	Good, you're going to do some *acting.*
Viv:	(to Janet) Now, you and dad can *think* about what you are going to say.
JViv:	Good, (to David) now, you could say something about Simon, you could say that he has been getting a bit *lazy*, lately....
Viv:	We're going to leave you (gesturing to Janet, David and Simon) to do some *acting* together. Have a go.

6.25 Narrative 10: The Missing Marble (1)

Introduction.

This is the second of the false belief narratives. The story scenario is the first two scenes of the doll's house story used in studies 2 and 3. In this narrative, like the previous one, some of the students are invited to participate. The experimenter chose the four most vocal students to play the main characters and Molly to play the mother (mainly because she would not have easily accepted not taking part). Janet was 'split-briefed', a technique used in study 2. This meant that she would genuinely experience first-hand a mistaken belief that the marble was not still in the box. It also meant that the students in the audience could answer the

belief question in reference to Janet's mistaken belief. If Janet did not know of the marble's transfer from the box to the vase (because she was actually out of the room when Simon moved it and she was not present when Simon was briefed), then the observers can genuinely respond to the belief question in reference to her real state of mind. The experimenter's intention is to ask the observers (the students who were not involved in the action) a first-order false belief question. This belief question corresponds to the first-order belief question in previous studies, i.e., "When Janet comes back, where will she look for the marble?". The experimenter also seeks to ask Janet a similar first-order belief question. This will be asked at the time when she finds the marble in the vase, "Where did you think it (the marble) was?" In context, this is a natural question to ask (she thought the marble was in the box) and the experimenter will invite her to report on her own, 'genuine' false belief.

In addition to investigating the students' responses to the two first-order belief questions described above, it is feasible that discussion centred upon the different perceptual and conceptual viewpoints of characters at critical times in the story may help to focus the students' attention on how appreciation of people's internal states can explain behaviour.

Results and Discussion.

The experimenter was struck by how well the students were able to improvise. The briefings were brief and gave minimal support in order not to constrain the students. Simon's opening lines where he refers to dropping the marble were spontaneous and feasible. Molly's three-word imperative, with facial expression and gesture, was impressive. The experimenter's memory, reality and belief questions to the audience were expressed as naturally as possible (and they felt this way as he said them). David responds correctly to all three (also using gesture, lines 803-809). Anna simultaneously responds correctly to the belief question (line 809). Inspection of the video-recording confirms this as simultaneous. This indicates successful first-order belief attribution on the part of David and Anna. Simon also responds correctly to the belief question and provides appropriate justification, "because she put it there" (line 812). Peter agrees with this (line 813). Janet's following actions then bear out their inferences. Janet's 'split-briefing' meant that she was unaware of what

had happened during her absence. When she sees the marble in the vase, she is genuinely surprised (line 818). In response to the experimenter's first-order question, Janet is able to identify her own previous false belief (line 822). She is also able to infer that her brother had moved the marble in her absence (line 824). It is proposed that even for the students who could correctly predict Janet's behaviour according to her false belief, actually hearing Janet report on her previous belief fulfils a valuable function, - it confirms their conception of Janet's state of mind which, up to that point, was speculative; it is not possible to directly access another person's beliefs and desires. Encouraging some students to infer their peers' mental states and asking others to make explicit their beliefs in contexts such as these may provide them with valuable practice in 'mentalising'.

Table 31 shows the successful responses of the students to the memory, reality and first-order false belief questions. It is proposed that involving students with severe learning difficulties in role-play is a useful medium in which students can explore their own beliefs (including false beliefs), desires and intentions and those of other people. This investigation has also shown again how readily this group of students with severe learning difficulties will engage in role-play.

Table 31: Students' successful responses to memory, reality and 1st-order false belief questions. in 'The Missing Marble' (1)

Viv:	Where did Janet put the marble in the beginning? (memory question)
David:	(points to toy box) In the games....✔
Viv:	In the toy box, yes... Where's the marble now, really? (reality question)
David:	(points to vase) In the vase ✔
Viv:	When Janet comes back (points outside) in a minute, where will Janet look for the marble?
Anna and David (simultaneously pointing to toy box):	
	In there. ✔(successful first-order belief attribution)
Simon:	(points to toy box) In there. ✔(successful first-order belief attribution)
Viv:	She will look in the toy box....why will she look there?
Simon:	Because she put it there? (justification)
Peter:	She put it there. (justification)

6.26 Narrative 11: The Missing Marble (2)

Introduction.

In this narrative, the students use glove puppets to tell a variation of the Doll's House story. The experimenter is interested in how the students relate to glove puppets; whether they would spontaneously manipulate them in a symbolic fashion, manipulating them 'in role' and treating them as thinking entities. Using glove puppets to tell a story with teenage students is not considered to be age-inappropriate. In other cultures, e.g., in India, puppets represent a familiar medium in which to recount stories, particularly folk-tales, among both children and adults. The staff of the school had no objections to using them, and the students appeared to have no misgivings.

In this session, the experimenter explores further the students' understanding of false belief. In a previous study (investigations 1 &3), he had used glove puppets in a rather more contrived manner, in experimental contexts which were more akin to test situations. In this study, the experimenter uses the puppets to investigate the students' understanding of false belief in a more spontaneous and interactive way. The puppet story builds upon the belief structure of the previous story. Both stories involve a character mistakenly thinking that a marble is located in the place in which she had previously left it. The puppet version of the false belief story offers the students who were able to appreciate the false belief of one of their friends in the previous narrative an opportunity to generalise this understanding to a puppet character. In this version of the story, the experimenter investigates some of the other students' understanding of false belief, particularly those who have been less forthcoming. In order to encourage the involvement of more students, the use of puppets offers a number of methodological advantages. Puppets take up less room than real actors, and the action is more tightly focused in terms of physical space. This means that the observers can get closer to the action. The students are in closer proximity to the experimenter, which means that he is more aware of their presence and their level of participation. In contrast to previous experimental work, in this narrative the students are encouraged to

control the puppets. This frees the experimenter to attend more closely to individual students' reactions. Allowing the students to manipulate the puppets may also engage their attention more fully.

The experimenter begins by giving the puppets to David.

Results and Discussion

In the first part, David recalls the main sequence of events from the preceding narrative. He correctly answers the memory and reality questions (lines 894-896). He then successfully responds to the first-order false belief question (line 902). Replaying the video-recording at the point when Anna returned (Keith had stayed outside with her until the marble was transferred), her facial expression indicated that she knew what had gone on in her absence with Sally. Anna manipulated the puppet so that Sally looked first in the box (line 910) and then looked in the tin. In retrospect, the experimenter could have asked the students why she looked in the box first of all to encourage them to provide some justification of Sally's behaviour.

In part two, the experimenter involves Danny who has been very passive up to this point. The experimenter varies the location of the transferred marble (putting it in Danny's pocket), then asks Molly the memory, reality and belief questions. Molly responds correctly to the memory question (line 933) and the reality question (line 935), but fails the belief question, offering the reality condition (line 939). Further investigations would need to be done to state with any conviction that Molly is unable to represent first-order false belief; however, it is feasible that this is the case.

It would have been very appropriate to have asked Nancy why Sally would look under the chair (after line 969) instead of allowing Betty to return physically demonstrate where she was to look. However, at this point, the end of the school day was approaching and the experimenter was running out of time.

Table 32 shows the students' responses to the experimenter's memory, reality and false belief questions.

Table 32: Students' responses to the memory, reality and false belief questions in 'The Missing Marble (2).

Part One	
Viv:	(to David) Now where did Mike put the marble in the beginning? (memory question)
David:	This one (points to box). ✔
Viv:	And where's the marble now, really? (reality question)
David:	Here (points to tin). ✔
Viv:	Now, who's going to get Sally?
Viv:	(to David) When Sally comes back, where will she look for the marble? (belief question).
David:	This one (points to the box). ✔
Part Two	
Viv:	(Turns to Molly) Molly, where did Mike put the marble in the beginning? (memory question)
Molly:	(points to box) There ✔
Viv:	And where's the marble now, really? (reality question)
Molly:	(points to Danny's pocket) Pocket. ✔
Viv:	Now let's ask Sally to come in.....(As Anna comes in with Sally, Viv asks question to Molly)...Now where will Sally look for the marble? (belief question)
Molly:	Pocket. ✖
Part Three	
Viv:	Now, Nancy, where did Sally put the marble in the beginning? (memory question)
Nancy:	(after pause) in box. ✔
Viv:	Yes, in the box....and where's the marble now, really? (reality question)
Nancy:	(points under the chair) Under the chair ✔
Viv:	(nods) And when Sally comes back in a minute, where will she look for the marble? (belief question)
Nancy:	(points under the chair) Under the chair ✖

The experimenter gave a copy of the video-recording to the teacher who was involved in some of the drama so that she could replay the video to the students, stopping it at critical points, and talking to the students about what they had seen and what they had said. According to this teacher, this revision of both the role-play and the debriefings provided the teacher and students with further opportunities to talk about internal states.

6.27 Summary findings

Table 33 shows the frequency and type of internal state language used by students in the debriefings in the first 9 narratives. Narratives 10, 11 and

12 are not included because of the different format used; student involvement in these narratives resulted in a different type of debriefing. The frequency with which each student uses the internal state words is shown in parentheses. The letter 'p', shown in parentheses, serves to indicate when the internal state word is prompted, i.e., when either another student or the experimenter uses the same word immediately prior to the student's utterance. It can be seen from table 33 that in response to the narratives and experimenter questioning in debriefings, the majority of internal state references from students related to 'attitude and emotion' language. None of the students used internal state vocabulary relating to 'truth-value/ reality' language. References to the other 4 types of internal states were fairly evenly distributed.

Table 33: The frequency and type of internal statewords used by students in debriefings in the first 8 narratives.

student	att./emot.	char./beh.	perception	desire/vol	metacog.	metaling.	truth/real
Simon	happy	nice	watch	want (3)	hope	lie (2)	
	disappoint -ed	kind (p)		like (2)	think (2)	fib	
	angry						
	upset (p)						
	jealous (2)						
Peter	upset	kind			pretend	own-up	
	angry				putting on		
	grumpy						
Anna	angry (p)	kind (p)					
	upset (2)						
	jealous (p)						
David	angry	lazy (p)		want	pretend		
	upset (2)			like			
Janet	jealous	lazy (2)	feel (unwell)				
	upset						
Molly	sad (5)		look				
	cross (p)						
	cross						

Table 33 represents the range and frequency of language relating to people's internal states in response to the stimulus of drama, the experimenter's line of questioning and his prompting of student

discussion towards psychological and affective concerns. In other words, this represents the students' internal state vocabulary when their attention has been focused upon social-cognitive entities. Table 34 shows the range of different words used by the 8 students during debriefings in the first 8 narratives.

Table 34: The range of different internal state words used by all students in debriefings in the first 8 narratives.

att./emot.	char./beh.	perception	desire/vol	metacog.	metaling.	truth/real
happy	nice	watch	want	hope	ask	
disappoint -ed	kind	look	like	think	lie	
angry	lazy	feel (unwell)		pretend	fib	
jealous				putting on	own-up	
upset						
grumpy						
sad						
cross						
8	3	3	2	4	4	0

It would seem, from first impressions, that the students' internal state language is fairly limited. However, it must be noted that both the narratives and the experimenter's questioning focused upon 'targeted' internal state terms, e.g., 'disappointment', 'jealousy', etc. Adult and student discussion centred upon fairly narrow topics relating to chosen internal state terms. In other words, there was not much licence for discussion about other psychological states. Even when the experimenter encouraged them to relate the meanings of 'targeted' words to everyday life (internal state generalisation), the students' language would still be expected to reflect the same terms. Table 35 shows the frequency and type of internal state words used by the experimenter and his colleagues during the debriefings. It can be seen that although the frequency of selected internal state terms was quite high (it was the intention of the experimenter and his colleagues to deliberately reinforce the 'targeted' internal state vocabulary), the range of internal state words is not extensive. Again, this is because discussion and questioning in the debriefings centred upon the 'target' internal state words.

Table 35: The frequency and type of internal state words used by the adults in the first 8 narratives.

att./emot.	char./beh.	perception	desire/vol	metacog.	metaling.	truth/real
feel (12)	nice (2)	see (3)	like (4)	think (25)	means (5)	really (3) (mean)
happy	honest	watch	want (15)	know (5)	ask (2)	true (3)
look fwd. to (4)	lazy (7)	feel (unwell 2)		surprise (4)	offend	actually (2) (mean)
let down				expect (3)	lie (6)	
upset (4)				act (2)	fib (7)	
disappoint -ed (7)				remember (2)	own up (2)	
feelings				hope	pretend(6)	
embarrass -ed				consider	put on	
angry (9)				interest	remind	
cross (9)				believe		
fine						
horrible (feel)						
jealous (5)						
worried						
14	3	3	2	10	9	3

6.28 General discussion

The research detailed above provided students with a series of dramatic contexts in which they could talk about people's desires, beliefs and intentions. Through the medium of drama, a group of students with severe learning difficulties were presented with a series of narratives. Each narrative and its debriefing has been analysed to present evidence of how the researcher's general and specific aims have been achieved. The general aim of this study concerned the potential of using drama as a medium to focus the students' attention upon people's internal states (both their own and other people's). It is proposed that the students in this study have been shown to respond to the 'narrative mode of thought' (Bruner, 1986). Even the less able students (for example Isha, in narrative 7) were able to respond to the actions of actors using very few props, to engage in the make-believe world of drama. Other students were shown to enter into what Bruner (1986) calls the 'the landscape of

consciousness', i.e., they demonstrated an awareness of what story characters 'know, think, or feel, or do not know, think, or feel' (p.14).

The second general aim concerned whether children's involvement in drama offers teachers/ researchers a more interactive and spontaneous means of investigating children's understanding of internal states. Evidence for this, perhaps, is more subjective. Reflecting upon the different ways the author has worked with pupils, the personal experience of the researcher leads him to conclude that the more interactive, dynamic approach adopted in this study allowed him to respond more intuitively to the social-cognitive awareness of the pupils. This way of working with pupils was his preferred way of investigation, and this may stem from his teaching background. It was felt that the more directive, researcher-led methodology utilised in studies 1, 2 and 3 did not permit the researcher to respond intuitively to the students' perspective[30]. In the test context, there were many occasions when the experimenter became frustrated (because of the need to stick to the procedure) when he could not follow up some of the children's responses. In this study, the experimenter begins by controlling the proceedings, but he very quickly transfers the balance of power over to the students. He first provides the stimulus by presenting the children with brief narratives set within drama, but he then allows the students to take the lead. The researcher improvises and interacts within the learning process as it develops. His intentions are clear. In this study he wanted to focus the students' attention upon people's internal states by encouraging them to relate to the characters' situation, and to help them become aware that people's behaviour relates to their psychological states; what people say and what they do depend upon what they desire, believe and intend. But the form and direction of his intervention are spontaneous and cannot be pre-determined. The researcher has to 'think on his feet', to improvise and read the situation, what Schon (1983) calls 'reflection within action'.

In many respects, in this type of research, the researcher's role becomes similar to the teacher's: he respects what the pupils have to say and he responds to their levels of awareness. It is proposed that the interactive

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30 The procedure in study 2 did have room in the debriefing for this 'reciprocity'; however, the children's ceiling response to the belief questions made this virtually redundant.

and flexible approach used in this study offered the researcher more opportunities to find out what students know about internal states. This allowed him to respond by building upon their existing knowledge and making them consciously aware of psychological states. It is feasible that the 'participatory' framework used in this study is more akin to the ways that people learn about the social world. One of the intentions was to provide dramatic contexts which reflect familiar conflict situations, where characters try to deceive, manipulate and serve their own interests.

It was agued that these live, dramatic narratives have a number of advantages over other narrative media, e.g., televised "soaps", videos and books. Narratives like the ones devised for this study can be 'purpose-written' for the task. They can be 'free-standing', i.e., the contexts can have fixed boundaries to help focus the children's attention on the salient information. They can be set within the experience of the student group and they can incorporate powerful non-verbal clues to facilitate children's understanding of both dialogue and plot.

In the results and discussion sections relating to individual narratives the author provided evidence of how the narratives and debriefings led to students' attribution of internal states to story characters, successful prediction of their behaviour according to internal states and generalisation of internal states. The narratives, to a greater and lesser degree, enabled the students to demonstrate their social-cognitive abilities in these three areas. It was evident from many of the debriefings that students could identify in some way with the internal states of story characters, but they appeared not to have the specific internal state vocabulary at their command.

Central to the development of this chapter is the author's belief that many children with severe learning difficulties may be disadvantaged by having limited internal state language. It is proposed that children may benefit from being involved in the type of activity described in this chapter, where they are exposed to rich social-cognitive language and where their attention can be focused upon people's psychological states.

The author has been careful not to *assume* that the students in this study did have limited internal state vocabularies, even though this is the

author's opinion. It would be incorrect to infer that on the occasions when students did not use specific and relevant internal state language (in response to the drama and the experimenter's questions), this was because they did not have such language at their disposal. Longitudinal observation of these students in naturalistic contexts over a long period of time would be necessary to ascertain the internal state vocabularies of these students.

However, on many occasions, students struggled to find specific internal state language, and instead used general internal state terms which did not quite capture the true psychological states of the characters (for example, Molly in narrative 3, line 293; Anna in narrative 5, line 460 and David in narrative 1, line 92). It is possible that drama represents a curriculum activity in which students attention can be focused upon internal states and the meaning of such language can be taught. The representational nature of drama and role play offers a medium in which this can be done. Indeed, the versatility with which David and Janet improvised in narrative 9, lines 769-776 and Simon and Molly in narrative 11 shows the potential of involving young people with severe learning difficulties in improvised role-play. This in itself offers students valuable opportunities for social-cognitive learning, for role-play can involve representation of what people in certain situations might say and feel, and how they may behave.

It was stated earlier that curriculum activity in special schools does not specifically focus upon children's social-cognitive development. Drama may represent one of the few media in schools which concerns itself with social-cognitive understanding and awareness. However, comparison and further investigation of other school-based activities would need to be undertaken to add weight to this assumption.

The methodology used in this study to investigate pupils' understanding of first-order false belief differs from the methodology used in studies 1 and 3. The researcher's intentions were to steer away from the test situation, to encourage student participation and to allow the researcher flexibility to improvise according to the students' responses. Narratives 10 and 11 used the method of 'split-briefing' piloted in study 2: students were placed in situations where they themselves experienced false beliefs

and other students were encouraged to predict their classmates' behaviour according to these mistaken beliefs and to justify their behaviour according to their beliefs and desires. Student responses during these narratives demonstrated their ability to appreciate first-order false belief in these participatory contexts. It is possible that involving students with severe learning difficulties in false belief narratives (in similar ways as reported in narratives 10 and 11) may provide the researcher/ teacher with more spontaneous and meaningful contexts in which to facilitate children's understanding of conceptual role-taking.

Chapter 7
Conclusions

7.1 The development of the research

In the preface to this thesis, the author likened his research activities to a research journey to find relevant ways of applying 'theory of mind' research to children with severe learning difficulties. His experimental work began by using more traditional and empirical research methods and ended by using phenomenological approaches. Throughout this journey, the author's long-term aim was to provide children with severe learning difficulties with meaningful contexts in which to investigate their understanding of people's psychological states. The author's experimental work began by working with non-learning disabled children. It seemed logical to learn more about the way young non-learning disabled children approached conceptual role-taking tasks before commencing similar work with children with special needs. The first empirical study involved 3-, 4- and 5-year-olds in three adaptations of the 'Sally Anne' false belief task (Baron-Cohen, 1985). This test represents a simple, yet illuminating experimental context in which children's ability to appreciate first-order belief can be investigated. Dennett (1978) proposed that understanding false belief might constitute a 'litmus test' of a theory of mind, in that it demonstrates a person's ability to distinguish unambiguously between someone's (true) belief and someone else's different (false) belief. Study 1 showed how resilient the 'Sally Anne' task was to simplification. The first three investigations demonstrated how attempts to reduce the inferential demands of the task failed to improve young non-learning disabled children's abilities to predict a story character's behaviour according to her false belief. Substituting real people in place of puppets and providing children with a series of perceptual and conceptual prompts did not significantly improve children's performance. Results from this study generally supported the findings from the literature that it is not until children reach the age of 4 years, that they begin to successfully attribute first-order false belief in similar experimental contexts.

This first study represented an important first stage in the development of the author's research. In this study the author chose to work within a

formal quantitative paradigm. The first investigation consisted of a replication of the 'Sally Anne' task. The author's aims were two-fold. Firstly, he wanted to see if Baron-Cohen's findings about when (at what age) children begin to represent first-order false belief were generalisable to other groups. Secondly, the author wanted to see for himself the difficulties that young children experience when faced with this task; how they responded to the formal, experimental context. His review of the literature had indicated a consensus of opinion about the robustness of the false belief task in terms of its representational complexity. The process of working with children in this first study (together with his knowledge of the literature) led to the formulation of author's hypotheses in investigations 2 and 3; namely, that the substitution of real people in place of dolls and the provision of a series of perceptual and conceptual prompts would lead to improved performance. This inductive-deductive model of research within a scientific framework represented an important first-step in the author's familiarity with the complexity of the false belief task. It demonstrated the back-and-forth movement that Mouly describes, where the investigator first operates inductively from observations to hypotheses, and then deductively from these hypotheses to their implications (Mouly 1978).

Statistical analysis led him to reject these hypotheses; the subsequent modifications to the original task in order to reduce its computational complexity were found not to significantly improve children's performance.

The discussion which followed the first study raised a number of questions about whether a test scenario was really the best way of enabling children to demonstrate their abilities to represent first-order false belief. However, in terms of the sequence of the author's research, these questions (which had a considerable bearing on the author's thinking and subsequent research within a more phenomenological approach) could only be contemplated after the researcher had worked with the groups of children in the way that he did, as a detached, objective observer within a formal empirical framework. In the first study, the author's research questions and hypotheses warranted an objective empirical approach. There was a need for consistency within the specified procedure. The author kept a tight control of the

experimental context in order to permit reliable analysis of whether his manipulation of the independent variables demonstrated change in children's performance. It is proposed that the research methodology in study 1 (and study 3 which used a similar procedure with children with severe learning difficulties) was appropriate to the task at hand. Nevertheless, the process of working with children using a scientific method did alert the researcher to the constraints of a test situation. Findings from study 1 did reveal an inability on the part of the younger children to attribute first-order belief, but this may have been due to their response to the contrived experimental context. Donaldson's (1978) views about the way young children strive to make 'human sense' of the unfamiliar task come to mind, - these children may have been able to represent first-order false belief in more naturalistic contexts, e.g., in the home. Dunn's longitudinal observations (Dunn 1987; 1988; 1991) of young children's spontaneous behaviour in the home provides a more optimistic picture of their ability to appreciate people's internal states. The home may represent the best environment in which to observe children's true abilities to attribute first- and second- order belief. This point is revisited later.

In the discussion following study 1, the author expressed his frustration about assuming a detached, objective role within the constraints of a test situation. When children responded incorrectly to the belief question, he could see possible ways of helping them to decentre. There were opportunities when he could have asked them to justify their answers to the belief questions, - this may have drawn their attention to the story characters' different perceptual and conceptual perspectives. However, the empirical research methodology adopted in this study did not (quite reasonably) permit this, - within the test situation, this type of intervention would be seen to be outside the experimenter's remit and would have invalidated his findings. The researcher's teaching background heightened this feeling of frustration; working within a test context necessarily led to missed learning opportunities. Working within this rigid framework served to highlight the potential of using a false belief story scenario outside a test situation, within a more phenomenological style of enquiry. This motivated the author to devise a more interactive and participatory medium in which a false belief story

scenario could be used to help children learn about representational states.

In study 2, the author devised his own false belief story scenario which involved 6- and 7-year-old non-learning disabled children in drama. Using techniques of 'split briefing' and 'off-staging' children were placed in situations where they had first-hand experience of false belief. The procedure was more flexible and the researcher's role became less detached and more spontaneous, ready to respond to the children's lead. The research contained elements of quantitative and qualitative methods of enquiry. Children were asked a series of control and belief questions which revealed their understanding of first- and second-order false belief, but in what was considered to be a more meaningful and natural context than in the previous study. In addition, children were offered opportunities in debriefing sessions to talk about their beliefs, desires and intentions. The children saw video playback of their actions and heard each others' answers to the experimenter's questions, identifying occasions when they responded according to their false beliefs. In these plenary sessions, children were encouraged to talk about their own and other people's perceptual and conceptual viewpoints. Flavell stated:

> "....our own perspectives produce clear signals that are much louder to us than the other's, and they usually continue to ring in our ears while we try to decode the other's. It may take considerable skill and effort to represent another's point of view accurately through this kind of noise, and the possibility of egocentric distortion is ever present." (Flavell 1985, page 46).

The plenary sessions were designed to help reduce this 'egocentric distortion', - to encourage children to appreciate each other's different belief positions and to learn that beliefs are people's representations of reality, and that these representations may not accord with reality. As it turned out, the 6 and 7 year-old children in this study had little difficulty in answering questions of first- and second-order belief during interview and in response to a video re-enactment of the story a week later. The children's 'ceiling' performance meant that the debriefing session had a relatively low emphasis. However, this study confirmed the author's belief that drama represents a powerful medium in which to focus

children's attention on mental states and that working with children in a more dynamic and interactive way afforded greater potential for children to learn about the mental world. In the second study the author had moved beyond the formal test situation. The design allowed him to identify instances when children could attribute first- and second-order belief (in response to his belief questions) but in addition to this, he had introduced research considerations more akin to qualitative research methods, e.g., analysing children's discussion, looking at how they help each other's understanding, interpreting how children make sense of what they have experienced. In the second study, the balance of power had moved further into the children's domain, - children were more instrumental in their own learning and the researcher was less directive and more responsive.

The preliminary work with non-learning disabled children in the first two studies served to inform, focus and refine the author's subsequent work with children with severe learning difficulties. The same two false belief story scenarios were used in study 3 to investigate the abilities of children with severe learning difficulties to attribute first- and second-order false belief. Similar to study 1, the researcher adopted a more empirical style of enquiry, his intentions were to investigate if children with severe learning difficulties were able to represent first- and second-order false belief. There have been few studies which have specifically investigated the conceptual role-taking abilities of children with severe learning difficulties. Just over half of the children involved in this study (13 out of 24 children) were able to successfully attribute first-order false belief, and roughly 20% (5 out of 24 children) were able to attribute second-order false belief. The results of this study showed a general trend towards better performance among children with higher scores on the Raven's and TROG assessments, but a clear relationship between children's performance in belief attribution tasks and their scores of mental age using the Raven's test was not reliably shown.

Study 4 was a questionnaire-based investigation into children's spontaneous use of 18 'targeted' internal state words among non-learning disabled children aged 1-5 years and children with Down's Syndrome aged 3-19 years (attending schools for children with severe learning difficulties) . Over a period of one month, parents were asked to write

down sentences and phrases in which children used the targeted internal state words. Results showed that certain metacognitive words ('wish', 'understand', 'guess', 'wonder' and 'believe') were not used by the 2-year-old non-learning disabled children and that the words 'guess', 'trick', 'mistake', 'wonder' and 'believe' were reported to be used by about half of the 4-year-olds. A general finding was that the metacognitive words were among the least frequently reported words across the age ranges. None of the children with Down's Syndrome at the single word/sign level were heard to be using any of the 18 internal state words. At the 2-word level, approximately half of the Down's children (8 out of 14) were reported to be using perception language ('see', 'hear' and 'feel'), but only one child was reported to be using one of the other internal state words from the other categories (the word 'think'). Three of the Down's children (out of 15) at the 3/4+ word level were reported to be using all of the 18 internal state words. At the 3/4+ word level, the older Down's children were reported to be using more of the internal state words. Although the sample sizes were relatively small and therefore findings must be regarded as tentative, the children with Down's Syndrome at the 3/4+ word level were reported to make less use of the 18 targeted internal state words compared to the non-learning disabled 4-year-olds.

The final study investigated further the abilities of children with severe learning difficulties to use internal state language. It also revisited some of the issues raised in study 2, evaluating the potential of drama as an interactive medium in which to focus children's attention on their own and other people's psychological states. In this study, the style of research can be seen to have moved further outside the positivist scientific paradigm and further into the phenomenological (qualitative) domain. The researcher's intentions were to provide children with a dynamic learning context in which he improvised to the best of his ability to facilitate children's understanding of internal state language. In this study, the researcher improvised and interacted within the learning process as it developed. His intentions were clear. Using drama as a stimulus, he wanted to investigate children's understanding of internal states. He wanted to focus the students' attention upon people's internal states by encouraging them to relate to the story characters' situation, and to help them become aware that people's behaviour relates to their psychological states; what people say and what they do depend upon

what they desire, believe and intend. Using simulations of everyday life, which Cohen and Manion (1989) describe as 'social episodes', the author used ethogenic methods to analyse children's non-verbal and verbal language. From this he was able to identify occasions when the students were able to make reference to their own and other people's psychological states.

In contrast to the empirical methods adopted in studies 1 and 3; the form and direction of the author's intervention was spontaneous and could not be pre-determined. The students' responses and the outcomes of the work were less predictable. The researcher had to 'think on his feet', to improvise and read the situation, what Schon (1983) calls 'reflection within action'. The experimental context was interactive, where the emphasis is on researcher and children learning together. The approach acknowledges the importance of 'dynamic and participatory aspects' of social-cognitive understanding (Forrester, 1992).

The author introduced the students to a series of original playlets and used debriefings as a context in which to investigate their understanding of characters' internal states. Analysis focused upon the students' verbal and non-verbal responses to a series of playlets. The author identified and discussed instances when children, as a result of being involved in drama: 1) attributed internal states (desires, intentions and beliefs) to story characters, 2) successfully predicted story characters' behaviour, according to their internal states, and, 3) generalised the meaning of internal state terms by identifying such internal states in themselves or other people in real-life situations. In addition, the investigator analysed the type of internal state language used by the students. The students' internal state usage was categorised according to criteria developed by the author in a previous study (Hinchcliffe and Roberts, 1987). The investigation made no claims for successfully teaching internal state vocabulary to members of the group; no pre-or post intervention tests were conducted to assess whether such words were already within the vocabulary of the children involved, or whether the intervention led to the acquisition of 'targeted' words. Instead, the research attempted to meet the general and specific aims as stated.

All of the children were shown to respond to the actions of actors using very few props and most of the children demonstrated an awareness of characters' desires, beliefs and intentions. In two of the narratives, several of the students were shown to successfully attribute first-order false belief to story characters. Students also showed a great interest in participating in role play and some demonstrated great ability to improvise. In debriefings, some children were shown to struggle to find specific internal state language to describe and explain characters' actions and to talk about their own psychological states. Some students tended to use general internal state terms which did not quite capture the true psychological states of the characters. The author proposed that drama represents a curriculum activity in which students attention can be focused upon internal states and the meaning of such language can be taught. The representational nature of drama and role play affords children with an ideal medium in which this can be done. It also offers the researcher a flexible context in which he or she can improvise to the best of his ability to facilitate children's understanding of internal states.

7.2 Critical review of the methodology

In this thesis the author's experimental work incorporated traditional empirical research methods and more interactive, phenomenological styles of enquiry. Both quantitative and qualitative research methods have their place in educational research. The researcher should be aware that there are a variety of approaches to choose from and that the selection of methodology should suit the task at hand, i.e., the nature of the enquiry rather than researcher's preferred way of working. Study 2 incorporated a combination of styles,- features of both quantitative and qualitative analysis were identified (although the latter assumed a relatively low profile because of the children's ceiling performance in the quantitative analysis). Cohen and Manion (1989) recommend flexibility in the selection of research methodology. Comparing educational research with the social sciences they quote Merton and Kendall (1946):

"Social scientists have come to abandon the spurious choice between qualitative and quantitative data: they are concerned rather with that combination of both which makes use of the most valuable features of each. The problem becomes one of determining at which points they

should adopt one, and at which the other, approach." (In Cohen and Manion, 1989 page 42).

The author's research commenced using empirical methods. As previously stated, the researcher's intentions in studies 1 and 3 warranted a systematic, controlled methodology, where the researcher became a detached, objective (but participant) observer. Objectivity is a mandatory feature of empirical research; there could be a multiplicity of causes for a given occurrence, (including the behaviour of the researcher him or herself), so the researcher is concerned with consistency, standing back from the proceedings to isolate and test the effect of alleged causes as they relate to his hypotheses. The first study involved children in a test situation. This type of empirical research can reveal interesting findings about the social-cognitive abilities of children. The 'Sally-Anne' task provided a simple (and from the children's perspective, interesting) context in which to test children's understanding of first-order false belief. The story scenario and procedure offered an experimental context in which variables could be manipulated to test the author's chosen hypotheses. In study 1, the author's hypotheses were rejected (using real people and the provision of perceptual and conceptual prompts did not significantly improve young children's abilities to predict behaviour according to first-order false belief). However, as previously stated, the researcher needs to be cautious about generalising his findings. It would be an assumption to claim that the younger subjects in this study could not predict peoples' behaviour according to first-order belief. Outside the contrived experimental context, for example in more naturalistic settings, the children who failed the belief questions in study 1 may well be able to represent first-order false belief. It was proposed that observation of young children's spontaneous behaviour in the home may reveal a more optimistic picture of their conceptual role-taking abilities.

Researchers utilising systematic empirical research methods must also guard themselves from what Cohen and Manion describe as 'quantification', - when quantitative research 'becomes an end in itself' (Cohen and Manion 1989, page 25). In relation to the author's first study, it would be feasible (but not desirable) to devise a series of permutations of the false belief task to test a series of recursive hypotheses in an attempt to improve children's performance. In this event, questions could

justifiably be raised about the experimental findings becoming increasingly trivial and far removed from the world of the classroom. An analogy to this in special education is when behavioural teaching becomes an end in itself, - when teachers become so engrossed with behavioural-product approaches, e.g., checklists of finely graded behavioural objectives, that they lose sight of the relevance of the work to the child.

In the author's opinion, the real value of these test scenarios for children with severe learning difficulties lies in the ways in which they can be adapted to provide children with exciting and innovative new teaching contexts. With the interests of these children in mind, it is not sufficient to involve them in test situations which serve merely to confirm their social-cognitive difficulties. What is needed is imaginative reconstruction of these experimental scenarios to change them from test contexts to learning contexts; from 'closed' assessment (assessment for its own sake) to 'open' assessment (assessment leading to intervention).

Too frequently, in the author's opinion, researchers visit special schools, involve children in conceptual role-taking tasks, and leave with files full of data about the difficulties that many of these children experience with such tasks. This way of working does little to bridge the gap between research and practice. Far better to involve the school staff in the work at the early stages, to elicit their partnership and to allow them to guide the experimental work. In this way, 'theory of mind' research will become less concerned with assessment and more to do with intervention. It is the author's opinion that many of the conceptual role-taking tasks designed by developmental psychologists over the last few years can be adapted for use as teaching contexts in schools for children with severe learning difficulties.

In the author's later experimental work, the research methodology moved further towards a phenomenological approach. In study 5, the researcher became less concerned with objectivity and interacted spontaneously with his subjects. Using drama to focus the students' attention upon people's psychological states, the researcher strived to understand and explain what was unique and particular to these individuals rather than being concerned with what was general and universal (Burrell and Morgan,

1979). The researcher tried to discover how the students interpreted the playlets which they saw performed, how they understood and predicted the story character's behaviour according to their desires, intentions, beliefs and feeling states. Analysis of the students' non-verbal and verbal language provided some evidence of their abilities to appreciate people's psychological states, but the researcher's findings were regarded as tentative; he acknowledged the speculative nature of the enquiry and the difficulty of interpreting subjective meanings. In providing the students with a series of short 'social episodes', the researcher attempted to share the subjects' frame of reference by responding intuitively to their experience. The researcher responded to the students' lead in debriefings and improvised to the best of his ability. However, he was aware of the effect that he was having on the proceedings, that his decisions of when to prompt, when to change tack, etc., must have influenced the students' responses and commentary and made the process of analysing and reflecting upon the students' experience difficult.

In interpretative paradigms of research, particularly when researchers are working in experimental contexts which are spontaneous and highly emotive, e.g., study 5, researchers need to be aware of the power that they have to impose their interpretations of situations and events upon their subjects. For example, in study 5, narratives 4 and 7 focused upon deception. In the discussion of narrative 4, the author described the different shades of meaning of deception according to the intentions and possible consequences of people's deceptive behaviour. A person's judgement of when a lie is considered to be 'right' or 'wrong' is subjective and researchers should be cautious about how they communicate their own value positions.

In the final study, working within an interpretative paradigm seemed a reasonable way in which the researcher could realise his stated intentions. The flexible approach seemed to offer the students opportunities to demonstrate their social cognitive awareness. This approach acknowledged the importance of 'dynamic and participatory' aspects of social-cognitive understanding (Forrester, 1992), and, in many ways, placed greater emphasis on the way children begin to learn about people (their beliefs, desires and intentions) through social interaction. This takes us back to Hobson's 'person-related' meanings (Hobson, 1993)

described in chapter 1, where, according to Hobson, children's engagement with other people's emotional attitudes towards people, objects and events are seen to constitute the building blocks for children's understanding of psychological states.

7.3 Implications for future research

Research into the social-cognitive development of children with severe learning difficulties is still in its infancy. In mainstream schools, awareness of mental activities, e.g., language relating to internal states, is not generally seen as an explicit aim of the curriculum; children would be expected to develop this awareness incidentally, through ordinary daily life and social experiences. It is likely that much of non-learning disabled children's social-cognitive awareness, particularly their understanding of internal state language, takes place in the home before children begin to attend school. Parental reports of children's spontaneous use of 18 'targeted' internal state words (some of which were metacognitive words, which have been shown to develop later in children's vocabularies, Shatz, 1983; Bretherton and Beeghly, 1982) showed that the majority of 5-year-old children were heard to use all of the target words. In special schools, the author would like to see development of children's social-cognitive awareness as an explicit aim of the curriculum. In chapter 6, the author discussed how the National Curriculum may have diverted teachers attention away from important, but hitherto-unexplored, areas of specific difficulty for children with severe learning difficulties, e.g., social cognition. Researchers and teachers have a responsibility to devise curricula which may help to accelerate children's progress in these areas.

The findings from the experimental work with learning-disabled children reflect the great range of individual differences in the abilities of children with severe learning difficulties to appreciate people's psychological states. Some of the children were able to attribute first-and second-order false belief and had relatively wide vocabularies of internal state words. Others, at least in the investigative contexts described in this thesis, had more limited internal state vocabularies and were shown to experience difficulty in representing other people's psychological states. In the drama work, some of these children appeared to be able to relate to the

feeling states of the story characters, but had great difficulty finding appropriate internal state language to label them. Language clearly plays an important part in a person's social-cognitive understanding, - the ability to draw upon internal state vocabulary clarifies our thinking about people's behaviour, and, in many ways, offers a fuller understanding of the social world.

Research into the social-cognitive development of children with severe learning difficulties presents considerable problems, - social cognition deals with intangible entities, which cannot be directly perceived or demonstrated, - thoughts, feelings, wishes, intentions, attitudes, knowledge, etc. However, even the most severely intellectually disabled child can be assumed to have experienced these things within themselves, at least in some rudimentary form. All children feel such emotions as anger, frustration, loneliness, happiness, and so on. The experimental work described in this thesis has been concerned with attempting to make children consciously aware of some of these mental events and activities, both within themselves and within other people.

Arising from this thesis, there seem to be four possible avenues for future research:

Firstly, the technique of 'split-briefing' in drama could be developed further to offer younger non-learning disabled children 'first-hand' experience of false belief. Study 2 involved 6-and 7-year-old children. 5-year-old children's understanding of second-order false belief could be investigated using the same story scenario or a simpler version. Children with severe learning difficulties could also be involved in a similar procedure, placing more emphasis on video-recording of individual children's responses to belief questions between scenes and play-back during de-briefing.

Secondly, internal state language could be the focus of further investigation. In chapter 6, Beeghly et al.'s (1986) study was reviewed concerning the internal state language used by mothers to their children with Down's Syndrome. Their findings indicated that the mothers of children with Down's Syndrome used proportionately fewer internal state utterances than did mothers of non-learning disabled children matched

for linguistic ability and mental age. Beeghly et al. speculated that mothers of children with Down's Syndrome may have used less internal state language because of low expectations of their children. It would be interesting to investigate the internal state language used by teachers to their pupils with severe learning difficulties. It is possible that like parents, teachers may consciously restrict their use of internal state language because they feel it is beyond the comprehension of their pupils. Research could focus on the frequency of internal state reference by special school teachers and mainstream teachers. Research could also centre upon which curriculum activities appear to elicit more internal state language from both teachers and pupils.

Thirdly, further research could focus on the complexity of specific internal state words. As indicated above, the literature seems to suggest that metacognitive words are among the last category of internal state words to emerge in the language of young children. The present author's questionnaire-based study indicated that some metacognitive words (e.g., 'wonder', 'believe', 'wish' and 'guess') were less frequently used by non-learning disabled and learning disabled children. Research could centre upon how and when children use metacognitive language, what children understand about metacognitive words and the different 'layers' of metacognitive implication attached to individual words.

Finally, the narratives conceived by the author for the final study could be made into short video stories. These might represent a useful resource for researchers and teachers to investigate and develop children's internal state language and illustrate the meanings of certain social-cognitive terms. In his research activity, the author has found drama to be a powerful medium in which to focus learning disabled children's attention upon the mental world. Much of the drama that the author has observed in schools for children with severe learning difficulties has been, in his opinion, unnecessarily simple and at times superficial, - again, perhaps because of poor expectations among some teachers. The author's final study demonstrated how students with a range of different abilities can enter into what Bruner calls the 'narrative mode of thought' (Bruner 1986). Even the less able students engaged in the make-believe world of drama, responding to the actions of actors using very few props. Other students were shown to enter into what Bruner (1986) calls 'the landscape

of consciousness', i.e., they demonstrated an awareness of story characters desires, beliefs and intentions. Some teachers may be less imaginative and ambitious in drama because of lack of experience or training. In the words of Dorothy Heathcote "Educational use of drama has a long way to travel" (Heathcote et al 1988, page 31). The Programmes of Study (Speaking and Listening) in the Revised Orders for English in the National Curriculum (DFE 1995) place greater emphasis on drama and improvisation at Key Stages 1-4. It is hoped that this thesis has demonstrated the unique merits of drama to children's social cognitive development and that recent legislation will induce teachers to assign to drama greater emphasis than was afforded by previous National Curriculum Orders.

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Appendix 1: Role briefings for doll' house story (study 2)

Mike's briefing

Scene 1

You are playing marbles in the living room with your sister Sally. One of the marbles rolls under the sofa. You look for it and find a big 'special' marble that you lost a few weeks ago. It's your marble, your Dad gave it you last Christmas. Sally says it's her marble and that she bought it from the sweet shop. You start to fight over this marble. You don't want Sally to have it. However, Sally snatches it from you and puts it in her toy box which is in the corner of the living room. You get upset by this and continue to argue with her that she has taken your marble.

Mum comes in to see what all the noise is about. She gets cross with you and Sally. She sends Sally outside to play in the garden and tells you to clear up your toys which are scattered over the living room floor. Sally and Mum go out and leave you on your own in the living room. You are still angry about Sally taking your marble. In fact you are so angry that you decide that Sally is not going to have your marble. You take the marble out of Sally's toy box and hide it in a vase on the window- ledge. You can retrieve the marble later.

You leave the living room and go up to play in your bedroom.

Scene 3

Later that day after tea, you are sitting with Sally, Mum and Dad watching 'Top of the Pops'. At the end of 'Top of the Pops' you and Sally have to go up to bed. You say goodnight to everyone and go up to your bedroom. You are very tired and you fall asleep quickly.

Scene 4

But in the middle of the night you wake up. You suddenly remember about the marble. You get out of bed and creep downstairs to find it. As you get downstairs, you see Sally in the living room. She has also got up in the middle of the night to fetch the marble. Before you are able to say or do anything, you hear Dad behind you. He has heard some noises downstairs and has come down to see what's going on. He sees you and Sally and tells you both off. He sends you both straight back up to bed.

Scene 5

You lie awake in bed thinking about your marble.

Sally's briefing

You are playing marbles in the living room with your brother Mike. One of the marbles rolls under the sofa. When Mike looks for it he finds a big 'special' marble that you lost a few weeks ago. It's your marble, you bought it in the sweet shop down the road. Mike says it's his marble and that Daddy gave it to him. He must be mistaken. You start to fight over this marble. You don't want Mike to have it. You snatch the marble away from Mike and

put it in your toy box which is in the corner of the living room. Mike continues to argue with you saying it is his marble.

Mum comes in to see what all the noise is about. She gets cross with you and Mike. She tells you to go out and play in the garden and tells Mike to clear up the toys on the living room floor. You go out into the garden to play.

Scene 2

You come back into the living room with some flowers that you have picked in the garden. You go over to the window-ledge to put them in a vase. As you are about to put them in, you are surprised to see your marble in the bottom of the vase. Michael has obviously taken it out of your toy box and hidden it there. You take the marble out of the vase and put it in a dish on the sideboard while you put the flowers in the vase. However, you are so busy arranging the flowers that you forget about the marble. You leave the marble in the dish on the sideboard and go out in the kitchen to find Mum.

Scene 3

Later that day after tea, you are sitting with Mike, Mum and Dad watching 'Top of the Pops'. At the end of 'Top of the Pops' you and Mike have to go up to bed. You say goodnight to everyone and go up to your bedroom. You are very tired and you fall asleep quickly.

Scene 4

But in the middle of the night you wake up. You suddenly remember about the marble. You get out of bed and creep downstairs to find it. As you get half-away across the living room, you hear a noise behind you. You turn around and see Mike watching you from the doorway. But before you are able to do or say anything, you both see Dad coming down the stairs. He has heard some noises downstairs and has come down to see what's going on. He sees you and Mike and tells you both off. He sends you both straight back up to bed.

Scene 5

You lie awake in bed thinking about your marble.

<u>Mum's briefing</u>

Scene 1

You are on the telephone when you hear Sally and Mike arguing in the living room. You put the 'phone down and go in the living room to see what all the noise is about. You see Sally and Mike squabbling on the floor. You tell them both off and send Sally out to play in the garden. You tell Mike to tidy up the toys left on the living room floor. You go outside with Sally.

Scene 3

You are sitting watching 'Top of the Pops' with Sally, Mike and Dad. It is time for Sally and Mike to go up to bed. They both go upstairs and after watching a film, you and Dad also go up to bed.

Dad's briefing

Scene 3

You are sitting watching 'Top of the Pops' with Sally, Mike and Mum. It is time for Sally and Mike to go up to bed. They both go upstairs and after watching a film, you and Mum also go up to bed.

Scene 4

It's the middle of the night. You are woken up by some strange noises coming from downstairs. You go downstairs to see what's happening. As you get downstairs you see Mike and Sally in the living room. You tell them both off for getting up in the middle of the night and send them straight back to bed.

Tom the cat's briefing

Scene 3

You come into the living room and jump up on to the sideboard. You accidentally tread on a dish. You knock a marble out of the dish and it falls to the floor. You see it roll under a table. You jump down, walk across the living room floor and go out into the kitchen to eat your dinner.

Appendix 2: Transcriptions of drama narratives (study 5)

Narrative 1: The Party

Viv (to himself):	I wonder if Mum will let me go to Sally's party? I really want to go to Sally's party on Saturday night, but I can't get there.
(enter Mum)	
Viv:	Mum, can I go to Sally's party on Saturday night? I really want to go to her party.
Mum:	Oh, Viv-you'll have to ask your dad about that because he might be using the car.
Viv:	But he won't be using the car on Saturday night.
Mum:	I don't know-he might have to work on Saturday night. You'll have to ask him when he gets in.
Viv:	OK. When is he coming in?
Mum:	He should be in very soon, now.
(Exit Mum)	
Viv (to himself):	I really hope I can go.
(enter Dad)	
Dad:	Hello, there.
Viv:	Hi, Dad. Dad, is there any chance that I can go to Sally's party on Saturday night?
Dad:	Saturday?
Viv:	Yes, I really like Sally. I really want to go to her party. Is there any chance that you can take me in the car?
Dad:	Well, I'd love to take you, but I can't. I'm working on Saturday night, I'm sorry. I'm sorry but I can't take you.
Viv:	So, I can't go (very dejected).
Dad:	No, sorry.
Viv: (hands in pockets, very dejected).,	
(exit Dad)	
Molly/David/ Anna/ Simon:	Aaagh (sympathetically).
Molly:	He's sad.

Debriefing

Viv:	Now, we've got our jackets off and we want to talk about what we did and what we said when we were acting. Who would like to say something about what we just did?
Audience (silence)	
Viv:	What happened? What happened in the story?
David:	Were talking.
Viv:	Yes, we were talking.
Simon:	You were asking if you could go to Sally's party?
Viv:	Right, yes-I was asking if I could go to Sally's party, who was I asking?
David:	(pointing to Margarita) Your mum.
Viv:	Yes, Margarita was my mum in the story. And what did my mum say?
Simon & Peter (simultaneously)	See Dad
	Dad
Anna:	Ask Dad

Viv: Yes, she said I would have to ask Dad. Because he was the only person who could drive me to the party. Then what happened?

David: Ask him

Simon: Dad came in.

Viv: Dad came in.

David: Ask him.

Viv: Yeah, and what did he say?

Molly: Car.

Peter: He needed the car.

Anna: He needed the car, use it.

Molly: Needed the car.

Viv: Why did he need the car?

Peter: Work.

Viv: Yes, right. He was working late on Saturday night. And therefore, could I go to the party?

Peter: No

Anna: No

David: No

Molly: No

Viv: Right, 'cause I couldn't get there. Now how did I feel? How do you think I felt about that?

David: Sad.

Ian: Sad.

Anna: Very sad.

Simon:(smiles) Happy.

Viv: Well, would I have felt happy?

David: No.

Viv: I think I would have felt happy if I had have been able to go to the party.

Viv: What's a word that means I was looking forward to something... (pause).. and then I was let down (strong facial expression)? I was....?

Peter: Upset.

David: Upset.

Viv: Upset, that's a good word. Anyone know what the word disappointed means? Have you heard the word disappointed?
(silence)

Viv: It means you were looking forward to something, and you would really like to do it, and then you can't do it (strong facial expression and gesture) and you become disappointed. (To Peter) You are absolutely right upset as well. Has anyone ever felt disappointed?... about .....anything?
(silence)

Viv: Anyone had something happen to them recently which has made them disappointed?
(silence)

Viv: Anyone? You look forward to something.... and it doesn't happen? Peter?

Peter: (shyly) No.

Molly: Talking.

Viv: Yes.

Molly: You said you go party.

Viv: Yes, that's right, I wanted to go to a party.

Molly: In car.

Viv: Yes, that's right. I asked mum if I could go to the party.

Molly: Ask mum party.

Viv: And mum said?
Molly: She said, "no".
Viv: She said perhaps you can go to the party, if Dad can take you in the car. Shall we do it again. Shall we do this story, again?
Anna: Yes.
David: Yes.

Narrative 2: The Birthday Present

Introduction

Viv: I'm going to play the part of a boy. And it's my birthday. And Keith is going to play my Dad. Do you know what I really want for my birthday, when I play this part?
Peter (audience): No?
Viv: I really want a camera. I've been dying to have a camera for ages. Now watch carefully to see what happens.

(Viv & Keith put jackets on. Enter Dad).
Viv: Hi Dad! Did you have a good day at work?
Keith: Yes, thanks.
Viv: I don't suppose you know what special day it is today?
Keith: Special day, is it a special day, today?
Viv: Oh, it's your
Anna (audience): (calls out) Birthday
Keith: Birthday, I knew really, I was just kidding.
Viv: And you do know what I really want for my birthday?
Keith: Well, I've got a present here for you-a special birthday present. (takes a wrapped present out of his pocket and gives it to Viv). Happy Birthday, I hope you like it.
Viv: (said to audience, and not for Keith's ears) It's a camera, I can't wait (unwraps the present in front of Keith. Sees in fact that it is a glasses case. Says with a certain amount of conviction, but with a faltering voice) Oh, that's really nice, Dad. [Exclamations of "oh' from several students] Thanks, it's..... (stammers a little) it's just what I wanted. Thanks, Dad.

Debriefing

Viv: OK. Let's go back to the beginning of the story and remember what happened. Who was I playing in that story?
Simon: A boy.
Anna: Boy, it was birthday.
David: A boy.
Viv: (nods) A boy-and it was my birthday.
Anna: Birthday present.
Viv: Right, it was my birthday and I was expecting a birthday present. Was was it that I was really hoping to get for my birthday?
Simon: You were hoping to get a camera.
Viv: And what happened?
Simon: You were disappointed. And he gave you a glasses case.
Viv: Yes, I *was* disappointed, wasn't I? What did I actually say to Dad?
Simon: That's nice.
Peter: Said it was great.

Viv: Yeah. Why did I say that?
Simon Because.....(does not continue)
Viv: What I actually said was, "That's really nice, that's just what I wanted. Did I really mean that?
Simon/ Peter/ Anna/ David (sim.) No.
Viv: So why did I say it?
Peter: To be kind.
Simon: To be kind.
Anna: Kind.
Viv: It wouldn't be very nice, would it, if I was to say to Dad, (strong facial expression, directed to Keith) "Well, thanks a lot, Dad-you can keep that. (Throws the wrapping paper towards Keith) I don't want a blinking glasses case! What do I want a glasses case for? I didn't say that, did I?
Anna: No
David: No.
Viv: Why didn't I say that?
Simon: You wanted.....
David: Camera.
Viv: (Nods) I wanted a camera, but, I didn't want to hurt Dad. I didn't want to offend him. There's lots of times in life when, perhaps, we don't say what we really think. I don't know whether that's ever happened to you-it's happened to me on my birthday on a few times, when, someone gives you something, or something happens and deep down you feel a bit disappointed, (pointing to Simon) as you said, but you don't actually say to someone, "that's not what I wanted, you can keep it"-because what would that do, if you said that?
Peter: Upset him.
Simon: Upset.
Viv: Yes, watch this...

[Repeat episode but this time Viv rejects present]

Viv: Oh, dad. What do I want a glasses case for? (pushes it away) I've got one of these, you know I've been looking forward to a camera. You could have at least bought me a camera for my birthday.
Keith: (looks dejected, puts hands in pockets, shrugs head down and turns away.

[Some 'Aaarghs' from students]

Viv: In that version of the story, how do you think Dad felt?
Peter: Upset.
Anna: Sad
Janet: Upset.
Molly: Sad.
Viv: Yes, that wasn't very nice, was it? We may have done something like that, but we really should consider other people's feelings, shouldn't we?
Anna: Umm.

Narrative 3: The borrowed cardigan

Viv: I really like Keith's cardigan. I think it's a really nice cardigan. I don't suppose he'll mind if I took from his wardrobe and wore it?

Molly: Ah! (*hand on mouth*)

Viv: He won't mind if I take it.

David: (turning to assistant) He got ask.

Viv: (takes cardigan out of wardrobe) He won't mind if I wear this. (Puts on cardigan) It fits really nicely. Oh, yes, this is really nice. (Picks up cup and pretends to drink-then spills tea down front of cardigan) Oh, no. Strewth! That's done it, I've made a stain right down the front of cardigan. I don't know what to do with it, now.

(enter Keith. Viv hides behind cupboard)

Keith: Anyone seen my cardigan?

Students: No.

Keith: I want to wear it, you see. I think I'll ask my brother Viv. Where is he?

Students (point to Viv) Here!

Viv: (sidles out from behind cupboard, nervously:) Hi, Keith.

Keith: (sternly) What are you doing wearing my cardigan?

Viv: (nervously) Well.....

Keith: And what's that...(angrily, pointing to the stain)...look!

Viv: (sheepishly) I didn't mean to...

Keith: (stamps his foot in anger) Ughh!

Debriefing

Viv: Now, lets think back. What happened in that story? What happened in the beginning?

Janet: You nicked-took his cardigan without asking.

Viv: Right. And where did I take it from?

Janet: From his wardrobe.

Viv: From his wardrobe, right. Then what happened?

Molly: Gone.

Viv: And then what happened?

Anna: You tea.

David: You had/spilt tea.

Viv: I was wearing his cardigan. I made myself a cup of tea and then what happened?

Asha: Down here (points to her jumper)

Viv: Yes, I spilled some tea down his cardigan. Did I try to get the tea off?

Anna: (rubbing chest) Tissue.

Viv: Yes, I tried to wipe it off, but...

Simon: Stain.

Viv: Yes, it left a stain. Then what happened?

Peter: He tried to find it.

Viv: Yes, Keith came in and tried to find his cardigan. And did he find it?

Anna: No.

Viv: And what did I do?

Anna: Hide.

Viv: Why did I hide?
Simon: Because you did not want to show him what happened.

Viv: Yes, I was feeling rather embarassed about the fact that I had taken his cardigan. When Keith came and actually saw me wearing his cardigan, how did he feel?
Molly: (stamps her foot).
Peter: Angry.
Simon: (angrily) "Why you wearing my cardigan?"
Anna: Angry.
Viv: Yes, angry. How did you know he was angry.
Peter: Stamped his foot.
Molly: Sad.
Viv: Why was he angry?
Molly: Banged his feet.
Viv: Yes Molly, banged his feet. He was very cross. Did you see his face?
Simon: It was very red.
Viv: So he was feeling very cross.
Molly: Very cross.
Viv: Has anyone felt very angry recently?
Simon (puts hand up) No.
Viv: I got very angry this morning when I was driving my car. Someone pulled out in front of me and I had to stop very suddenly.
Simon: I get very angry with the computer.
Viv: You got angry with the computer?
Simon: Kept falling off the track.
Viv: So you got angry when it didn't work properly?
Simon: Yes.
David: I got angry in my house. About keeping my room. "I don't want to do it. It's not my job."
Viv: Tell me a bit more. Who gets cross?
David: Me.
Viv: You get cross because your asked to tidy up your bedroom?
David: Yeah.
Viv: And what was it you said, "It's not my job?"
David: It ain't my job.
Viv: (laughs) I bet that goes down well. What do you think of that Margarita?
Margarita (exp.): My mum sometimes asks me to tidy up my room and sometimes I get cross, because I like it in a mess.
Viv: Well, that's interesting. (to David) Do you like your bedroom to be in a mess?
David: I like a mess.
Simon: I like mine in a tip. It's all over the place.
Peter: And then you can't find anything.
Viv: That's a very good point. He thinks it's nice to keep your bedroom tidy because then you can find things.

Narrative 4: The Lie

Viv: 5.30, it must be time for Neighbours. (Goes over to the television and turns on the television. At the same knocks a

vase off the coffee table. Strewth. How did that happen. It's mum's favourite vase, the one dad bought her for Christmas. Mum's going to go mad! (Enter mum)

Mum: Oh, there you are. (sees the broken vase on the floor). What's happened?

Viv: It's your vase. Chappy the dog jumped up onto the table and knocked it off. It's nothing to do with me-the dog did it.

Mum: So where is Chappy, now?

Viv: I don't know. He ran out into the garden.

Debriefing

Viv: Now, let's think back. What was the first thing that happened?

Simon: You're watching television.

Molly: Vase. Looking at TV.

Viv: I wanted to watch television.

Simon: Knocked the vase.

Viv: Yes, when I went over to turn the television on, I knocked over the vase. Whose favourite vase, was it?

Simon: Your mum.

Viv: Then what happened?

Simon: Then your mum came back and said, "What's that on the floor?"

Viv: And what did I say?

Simon: You said your dog did it? You lied.

Viv: Yes, I lied, didn't I? Because I said that Chappy the dog jumped up and knocked the vase off the table. Was that true, what I said?

Anna, David, Janet: (simult.) No.

Viv: No, I told a lie.

Students: Lie.

Viv: Why did I tell a lie?

Simon: Because you didn't want to get yourself into trouble.

Viv: David, why did I tell a lie?

David: The thing fall down.

Viv: Yeah, I said the dog did it when I actually did it? What would you do if you were in that situation, what would you do?

David: Clear it up.

Viv: Okay, you'd clean it up... and then what would you do?

Peter: Own up to it.

Viv: You'd own up to it. That's an interesting way of putting it-*owning up* to it. Sometimes it's actually better to say that you've done something...do you think that Mum would have been that cross? Did I do the right thing by lying, do you think?

Students: No.

Viv: Margarita, if you had really have been by mother, would you have been cross with me. What would you have said if I had gone out in the kitchen and said, "Mum, I've just just had an accident, I've broken your best vase".

Margarita: I don't think I would be cross if you were honest about it. I would be a little upset.....

Viv: Because it was your favourite vase...

Margarita: ....but I wouldn't be angry with you.

Viv: Did you believe me, when I said that Chappy the dog had jumped up and knocked the vase off the table?

Margarita: Not really.

Viv: Has anyone told a little lie recently? I have.

David: (pointing to the assistant) You.
Viv: (to assistant) Have you told a little lie, a fib?
Assistant: Oh, yes.
Viv: Sometimes we do, don't we.
Simon: To get out of it.
Viv: Keith, have you told a fib recently?
Keith: When I was at school the other day, somebody said to me, "How are you?" And I said, "I'm fine" and I wasn't, because I felt horrible. So that was a fib.
Viv: Has anyone else told a fib?
David: He got a job and he leave it.
Viv: Is this someone you know or is it a story?
David: In telly.
Viv: Oh, on the telly.
David: The barman he boss him around and bottle and bar-he clean it up, "No, you clean it up,".....
Viv: Did he tell a fib?
David: (incomprehensible)
Simon: At my Nan's I told a lie then, I said someone has thrown a paper airplane out of the window and there weren't.
Students: (laugh)
Viv: That's a good one. In a way, when Keith was my dad and he gave me that present.....
Simon: You told a fib.....
Viv: Yes, because I said I really liked it and that's what I really wanted. I told that fib because I didn't want to upset him.

Narrative 5: The doughnut

(Viv and Keith, brothers-sitting watching television)

Keith: Ok, what's on telly?
Viv: Nothing much.
(Enter Mum, carrying a real doughnut on a plate)
Mum: Keith, thank you so much for helping me with the hoovering today, you did such a good job.
Viv: (green with envy) Tchh.
Mum: Have this doughnut for doing such a good job.
Keith: Thanks, mum.
(Exit Mum)
Viv: Creep. I don't like doughnuts anyway.

Debriefing

Viv: What was going on, there then?
Anna: Watching television.
Janet: Your mum came in with a doughut.
Viv: Yes, then what happened.
Janet: Gave the doughnut to Keith.
Viv: Yes, then what did she say to him?
Molly: Thank you.
Simon Thank you for helping.
Viv: Yes, thank you for doing the hoovering. Had he done a good job?
Students: Yes.
Viv: And was that why he was getting a doughnut?
Janet: Yes.

Viv: And what about me. Did you see my face?
Anna: Upset.
Viv: Why?
Janet: Jealous.
Simon: Because you were jealous.
Viv: I was jealous? What does jealous mean?
Janet: Someone else gets something.
Viv: Right. Someone else gets something and you really want it... and you feel jealous about him having something. Ok...you said I was jealous because I didn't get a doughnut, what did I actually say to him?
Simon: "I didn't like them".
Viv: Do you think I meant that?
Simon: No, you wanted it.

Narrative 6: The Sweetheart

[Viv and Keith chatting to each other]

Viv: I really like Margarita, I think she's smashing. I don't know whether she likes me, but I think she's great.

(enter Margarita)

Margarita: Hi!

(walks towards Viv with her arms outstretched. Viv looks very excited, thinking she is going to put her arms around and kiss him. Walks straight passed Viv and puts arms around Keith. Viv looks very put out, hands on hips).

Keith: Oh, hello there! (embrace and kiss. VIv looks on very jealously)

Debriefing

Viv: So, what happened there?
Simon: You thought that she was going to kiss you.
David: Got another man.
Janet: She hugged the wrong person.
Anna: (points to Keith & Margarita) Say 'hi' like that (mimes embrace) and you upset.
Viv: I thought when she was coming towards me, she was going to kiss me.....and what did she do?
Simon: Straight past you.
Viv: She went straight passed me....
Anna: Kiss him.
Viv: Yes and kissed Keith. And how did I feel?
David: Upset.
Molly: Sad.
Viv (waits): Ok. I was feeling .....(waits) what was the word we talked about last time beginning with 'j'...
Simon: Jealous.
Anna: Jealous.
Viv: Yes, I was *jealous* of Keith. What I really wanted was for her to come over to me and give me a kiss. But it didn't happen did it?
Students: No.

Narrative 7: The Broken Window

(Viv and Keith playing football out in the garden)

Viv: Don't kick it too hard. You remember what happened last time when we played ball.

Keith: We broke a window.

Viv: No, you broke the window. Take it easy, if anything happens to that shed window, then you can tell dad about it.

Keith: I won't

(Keith kicks the ball and it smashes the shed window)

Keith: Oh, no!

Viv: You've done it again. I keep telling you to take it easy; you've smashed another window. Well, that's nothing to do with me. You're going to have to tell dad. The money will have to come out of your pocket money, not mine.

Keith: Oh, no.

(Indoors. Mum sees Keith look worried)

Mum: Are you alright, Keith?

Keith: Well actually...

Mum: What's the matter?

Keith: Well, I don't feel very well. Can I go and lay down for a while? I'm feeling very poorly.

Mum: Well of course, if you're not feeling very well.

Debriefing

Viv: Let's have someone different. We were two brothers and we were playing....?

Isha: Football.

Viv: Football, yes-out in the?

Isha: In garden.

Viv: In the garden, and what happened?

Isha: Accident.

Viv: An accident, what sort of accident?

Isha: Crashed.

David: In the window.

Viv: Yes, Keith kicked the ball and it smashed the shed window.

Isha: Window.

Viv: And then what happened?

Janet: You have to pay with your pocket money.

Viv: Yes, it was actually Keith who smashed the window. What did he do, when we went into the house, what happened then?

Janet: Not feeling very well.

Viv: Who asked him?

David: (Points to Mum)

Janet: Mum.

Viv: She said, "are you alright?" What did he say?

Peter: No.

Anna: No. Not well.

Viv: He said he wasn't very well and could he go and have a lay own.

Molly: Bed.

Viv: And what do you think about that? Do you think that he wasn't feeling very well?

Peter: No, he was trying to get out of it.

Viv: How was he trying to get out of it, then?

Peter: By pretending that he wasn't very well.

Viv: By pretending that he wasn't very well. Right. What do you hink, Keith?

Keith: I was trying to get out of it, that's quite right. And I was pretending.

Molly: Cross.

Keith: Cross? Well I thought mum was going to be cross, that's true. I thought mum was going to be really, really angry, so I tried to get out of it.

Viv: Yeah, he got out of it by saying that he didn't feel very well and he had a lay down upstairs. But we don't think that was actually true, we think that he was telling a fib-pretending that he wasn't very well.

Peter: Putting it on.

Viv: Yes, putting it on, that's right. Has anyone done this, pretended that they were unwell to get out of something, ...perhaps you may have been worried about something,... anyone done that?.....(David points to assistant)...I know I have.

David: (pointing to assistant) you got a sore throat.

Assistant I pretended that I got a sore throat?

David: Pretend you got a sore throat.

Viv: And what good would that have done her?

Assistant: I'm trying to think of the situation....

David: (points to the door) Sick

Assistant: Oh, I was pretending to have a sore throat, was I, so I could have a sit down?

David: Yeah. (some students laugh)

Viv: I remember the first holiday I had, when I went away camping, I missed my mum and dad, because it was the first time I had gone away-I actually pretended that I wasn't very well-because I thought that maybe that would mean that they would send me home.

Narrative 8: The Missing Toast.

Viv: Now, what do I need to do before I go out?...wash my hair...umm I think I've just got time to make myself some toast. (puts some bread in the toaster, gets a plate ready...then looks at his watch) Shouldn't take long (then leaves the room).

(enter Keith)

Keith: Right then, do you know, I'm really hungry (sees the toast in the toaster)...and there's some toast (rubs his hands together over toast)....just what I fancy. Let's get a plate.....umm look at that.....spread on the butter....I'm gonna have this toast (takes it out with him)

(enter Viv, whistling. Walks over to the toaster, great suprise when he sees the toast has gone)

Viv: What's happened to my toast?

Students: (laugh)

David: He's pinched it.

Debriefing

Viv: Again, let's remind ourselves what happened first of all.

Janet: You were getting ready to go out.

Viv: I was getting ready to go out.... and I thought I had time to make some toast.

Janet: When you went out the toast had gone.
Viv: Yes, so when I came back in, how did I look?
Janet: You looked upset.
David: Upset.
Molly: Sad.
Viv: Umm....
Peter: Grumpy.
Viv: Did I expect my toast to disappear?
Janet: No.
Simon: You thought it was in there still.
Viv: I thought it was in there....yeah....so what had happened when I had gone out?
Simon: Your brother had took it.
Anna: Took it the toast...(pointing towards where Keith had taken it) out there. It's gone.
Viv: So when I came back, I was *surprised*....
Simon: That it'd gone.
Viv: ....to find my toast had gone.....
Anna: Yeah.
Viv: ....so the look that I had on my face was one of *surprise*. I was surprised about what had happened. Now, where did I think the toast was, when I came back?
David: In the toaster.
Anna: In the toaster.
Viv: When I was outside, did I know that my brother had taken the toast out?
(simultaneously)
Peter: No.
David: No.
Simon: No.
Anna: No.

Narrative 9: The Dirty Coffee Cups

(Keith in the living room watching television, lots of dirty cups are lined up on the floor)

Keith: Right it must be time for Neighbours (turns on the television and lounges right back in the chair, legs outstretched, hands behind his head).
(enter Viv)
Viv: Don't you think it's about time that you cleared this mess up? (points to the line of dirty cups)
Keith: What mess?
Viv: How many cups have you got there?
Keith: (pensively, counting) Six!
Viv: You not going to leave them there until mum gets home?
Keith: (gesturing with his arm) Oh, just leave it, leave it....let's watch Neighbours.
Viv: Ok, (sits down) you're the one who's will get into trouble. (watches television). Don't you think that you should do something about these cups?
Students: Yes.
Keith: (again

lethargically) Oh, leave them.

Debriefing

Viv: What happened in that story?
Simon: He couldn't be bothered to clear them up.
Viv: Yes, he had all his cups on the floor....and he just left them there.
Viv: What did Keith say?
Peter: Leave it.
(simulataneously)
Janet: Leave it.
Anna: Leave it.
David: Leave it.
Viv: And how was he sitting on that chair?
Simon: (stretching back on his chair) Like this.
Viv: Yes, stretched back. How did he look?
(no response)
Viv: (to Janet) You're right in saying that he couldn't be bothered...
Janet: Lazy
David: Lazy, lazy.
Viv: Lazy....he was being a lazy bones wasn't he?
David: (laughing) Lazybones.
Viv: What does it mean to be lazy?
Simon: You just sit there and do nothing.
Peter: Not bothered to do anything.
Viv: You just sit there, waiting for things to be done for you....I'm a bit lazy sometimes....expecting people to clear up after me....
Simon: Yep (with amusement).
Janet: Lazybones! (pointing to Simon) He's a lazybones.
(laughter)
Molly: He's quite sad.
Janet: Everyone do it for him.
Viv: Is there another way that we can play a part and show that someone is lazy? Who would like to show a lazy person.....show someone being lazy?
Peter: Stay in bed.
David: Stay in bed.
Viv: Staying in bed, right. Can we get anyone else involved?
(no response)
Viv: You could stay in bed....you don't want to get up.....you could play that part. Can we get anyone else to play a part?
Simon: Get up.
Viv: Yes, we could have another person saying, "come on, get up"
Janet: This is mum.
Viv: What would she say, then?
Janet: Lazy bones, get up.
Viv: Yeah, say a bit more, anything else?
Janet: Get up for school..... Or get up to go to work.
Viv: Which would be better?
Janet: School.
Viv: You want to do the school. Let's try it out, we've got something, here. Anyone want to play a part?
Janet: Me, mum
Viv: You want to play mum, alright come over here. Now, who wants to play someone being lazy?
(Anna points to Simon, gets up and comes to front)

Viv: Good, you're going to do some acting.
(Viv puts two easy chairs together to make a bed)
Viv: Let's say that this is a bed (Simon lays down on the bed)
Molly: Dad.
Viv: What are you going to say to Simon?
Janet: (to Simon) Lazybones get up.
Viv: Good. Can you say something else?
Molly: Dad.
Viv: You want a dad to be in this?
Molly: Yeah.
Viv: Who's going to play dad?
Anna: Peter.
Peter: What about David?
(David come out to front)
Viv: (to Janet) Now, you and dad can think about what you are going to say.
Janet: Got to get him up for school, because he's late for school.
Viv: Good, (to David) now, you could say something about Simon, you could say that he has been getting a bit lazy, lately....
David: Lazy.
(students, laugh)
Janet: He never has breakfast....
Viv: We're going to leave you (gesturing to Janet, David and Simon) to do some acting together. Have a go.
(Janet and David approach Simon, Janet tugs on Simon's wrist)
Janet: Come on, get up!
Simon: No, I'm not going to get up for school.
(Janet begins to tug him rather vigorously)
Viv: Don' t pull him too hard. Say something else to him.
Janet: (to David) Say something to him.
David: Water.
Janet: Get some water (students pretend to get some water and throw it over Simon).

Narrative 10; The Missing Marble (1)

(Sally and Mike briefed separately)
(Keith briefs Sally outside)
Viv: (to everyone, just as Sally is about to enter) Do we know what Sally has been told to do?
(together)
David: No
Anna: No
Simon: No
(enter Sally)
(Janet and Simon play marbles. One of the marbles rolls under the settee. Simon looks under the settee).
Simon: What's this? There's my marble I lost. Looking for it for ages...must have dropped it or something.
Janet: (grabs marble from Simon) That's my marble!
Simon: No, that's my marble!
(both start to struggle. Janet puts marble in her toy box)
Mum (Molly): (to Janet, pointing to the door.) Go garden play.
(exit Janet, with Keith. Keith briefs Janet)
(Simon takes the marble from toy box and puts it in the vase)

(Viv intervenes....)

Viv: (to audience) Where did Janet put the marble in the beginning?
David: (points to toy box) In the games....
Viv: In the toy box, yes... Where's the marble now, really?
David: (points to vase) In the vase.
Viv: When Janet comes back (points outside) in a minute, where will Janet look for the marble?
Anna and David (simultaneously pointing to toy box): In there.
Simon: (points to toy box) In there.
Viv: She will look in the toy box....why will she look there?
Simon: Because she put it there?
Peter: She put it there.
Viv: Now, let's see what happens, next (signals to Keith to enter with Janet)
(Janet enters with some flowers. She goes over to the vase and sees the big marble. Takes it out of the vase).
Janet: (genuine surprise) My marble.

(Viv intervenes)
Viv: Where did you think it was?
Janet: In the box.
Viv: (points to vase) How did it get there?
Janet: Brother.
Viv: Did you know that it was in there?
Janet: No.
David: No.
Viv: Let's see if we can remember the story. What happened in the beginning.
Peter: Playing marbles.
Viv: They were playing marbles. Then what happened?
David: (points to mock settee) There.
Viv: Yes, one of the marbles rolled under the settee. And what did Simon find?
David: Big marble.
Viv: Yes, the big marble. Then what happened?
Seely: Fight.
Viv: Yes, because Simon said it was his marble, but Janet said it was her marble. So what did Janet do with the marble?
David: Box.
Viv: Yes, and then what happened?
(no response)
Viv: Who came in because of all of the noise?
Anna: Mum, stop fighting.
Viv: And she told Janet to go out in the .....?
Anna: Garden.
Viv: And when she was gone, while she was away, what happened then?
David: (points to Simon) Hide it.
Viv: Yes, while Janet was gone, he took the marble out of the toy box, and where did he put it?
David: Vase.
Viv: And then what happened?
(no response)
Viv: What happened when Janet came back in?
David: Flowers.
Viv: What did she do with the flowers?
David: In the vase.
Viv: That's right, she put them in the vase.....and what did she find?

Peter: Marble.
David: Marble.
Viv: And what did she think had happened?
(no response)
Viv: Janet when you found the marble, what did you think had happened?
Janet: Brother.

Narrative 11: The Missing Marble 2 (puppets)

Part One
(David is wearing hand puppets. There are two small recepticles with lids on the floor in front of him; a box (non see-through) and a tin.

Viv: Now, this time, instead of using real people, we are going to use some puppets to tell the story. Let's call our puppets Mike and Sally. Which puppet do you think is Mike (David moves the male puppet)... and is Sally? (David moves the female). Now, it's the same story, Sally and Mike are playing marbles, make them play marbles. (Viv assists) One of the marbles rolls under a chair and Mike finds the big special marble. Make Mike find the big marble. Now Mike says it is his marble, but Sally says it's her marble so they begin to argue (David makes the puppets fight, saying, "it's my marble.")
Sally's got the marble and she puts it in her toy box (assists David). And then Sally goes outside to play on the playground..... (David takes Sally just outside the classroom, on the floor. David returns and Viv asks David...) Now what do you think Mike is going to do?
David: Hide it.
Viv: Go on then.
(David takes marble out of the box and puts it in the tin)
Viv: (to David) Now where did Mike put the marble in the beginning?
David: This one (points to box).
Viv: And where's the marble now, really?
David: Here (points to tin).
Viv: Now, who's going to get Sally?
(Anna gets up and goes to get Sally. Keith goes with her to stall her return until the questions are asked).
Viv: (to David) When Sally comes back, where will she look for the marble?
David: This one (points to the box).
Viv: Let's see where Sally <u>will</u> look for the marble.....(indicates for Anna and Keith to come in)
(Anna and Keith enter, Sally on Anna's hand).
Anna: (making Sally wave) Hello.
David: (making Mike wave back) Hello.
Viv: Sally wants her marble. Where's she going to look first for her marble?
Anna: (takes Sally over to the box, opens lid) Gone.
David: Yes.
(Janet claps)
Viv: Yes, it's gone.

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Part Two
(Danny manipulates Mike, Anna manipulates Sally)

Viv: Now, we have to remember who's who. Anna, who have you got?
Anna: Sally
Viv: (points to Mike) And, Danny, what's his name?
Danny: Mike.
Viv: Yes, his name's Mike..... (encouraging Danny and Anna to move puppets down to the marbles on the floor)....and Mike and Sally are playing marbles.....Now Sally puts the marble in the box (Anna does this) and then Sally goes outside on the playground (exit Anna and Keith).....(helping Danny to manipulate the puppet) and then Mike takes the marble out of the box and puts it in Danny's pocket.
Viv: (Turns to Molly) Molly, where did Mike put the marble in the beginning?
Molly: (points to box) There.
Viv: And where's the marble now, really?
Molly: (points to Danny's pocket) Pocket.
Viv: Now let's ask Sally to come in.....(As Anna comes in with Sally, Viv asks question to Molly)...Now where will Sally look for the marble?
Molly: Pocket.
Viv: I'm not sure.....Let's see where Sally will look for the marble....
(Anna lifts the lid of the box)
Anna: Not there.
(some students laugh)
Viv: So where is the marble?
David: (points to Danny's pocket) In his pocket.
Viv: In his pocket, well done.

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Part Three

(Nancy manipulates Mike; Betty manipulates Sally

(repeat up to when Betty exits with Sally....)
Viv: Now, when Sally is outside (helps Nancy to manipulate puppet), Mike takes the marble out of the box and hides it somewhere....you choose where to hide it.....(Nancy looks around and ignores David's gestural prompt to put it in her pocket....puts the marble under the table).....Ok, that's good....Now, Nancy, where did Sally put the marble in the beginning?
Nancy: (after pause) in box.
Viv: Yes, in the box....and where's the marble now, really?
Nancy: (points under the chair) Under the chair.
Viv: (nods) And when Sally comes back in a minute, where will she look for the marble?
Nancy: (points under the chair) Under the chair.
Simon: No.
Viv: Will she?
(Nancy nods)
Viv: Ok, lets see what she does.....
(Betty enters with Sally)
Viv: Hello Sally.
David: Hello Sally.

Viv: Now you're looking for your marble, aren't you? So where are you going to look for your marble?

Betty: (making out that Sally is looking-goes towards box and lifts lid). It's missed.

(students laugh)

Viv: It's missing.

Betty: It's missed.

Viv: Can anyone tell Sally where her marble is.

Janet: Under the chair.

David: Under the chair.

(Betty and Sally look under the chair)

Betty: Aha, I got it.

Viv: Well done. Let's give them a clap.