

Questioning Children and Adults for Legal Purposes: Insights
from a Naturalistic Data-set

by

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ABSTRACT

This exploratory study examined the manner in which variations in questioning procedures influenced the amount and accuracy of information that children and young adults recalled about a video-taped incident. Preschoolers, 8 to 10-year-olds and young adults were assigned to one of three conditions. In the control condition, one interviewer had complete knowledge of the incident and used a standard question protocol to obtain free recall. To examine how prior knowledge may predispose interviewers to use leading questions, 60 interviewers in the informed condition had limited information about the incident and 60 interviewers in the blind condition had no information about the incident and both groups were free to use their own questioning strategies. The two major dependent measures were spontaneous material (elicited in response to all question types) and yes/no responses to closed questions.

Two main hypotheses and several additional questions were examined. The first hypothesis predicted that the amount of spontaneous recall in the blind and informed conditions would be higher but the accuracy lower, when compared to material elicited in the free recall condition across age-groups. Although results showed a significant increase in recall amount, there was a differential effect on accuracy. For the two younger age-groups accuracy decreased but for the adult sample, accuracy scores remained stable across the three conditions. There were clear age-related differences in the amount of material freely recalled in the control condition and no differences in accuracy. In the blind and informed conditions, there were significant age-related differences in both the amount and accuracy of spontaneous recall material.

The second hypothesis predicted that closed questions which are leading (in the correct sense) would elicit more accurate responses than those that are misleading. Results supported this hypothesis for the two older samples but there was no difference between the two accuracy scores for the youngest samples. The two older age-groups scored significantly higher than the pre-school sample for

accuracy based on leading questions, but there were no age-related differences in response to misleading questions. The blind and informed conditions did not differ in the accuracy of spontaneous recall or closed question material.

Accuracy scores were adjusted by subtracting errors associated with particular features in the questioning context and the subject's developmental status. In comparing the original and adjusted accuracy scores, age-related differences for spontaneous recall were minimal and disappeared for accuracy based on closed questions. In addition to language and comprehension errors, the error type which most clearly distinguished the pre-school from the older age-groups were addition errors classed as incorrect inferences and fabrications. In all cases, these error types were associated with one or more features of the questioning context.

The sequential nature of the question/response discourse was highlighted in the proportion of error which was extended over a sequence of turns and the proportion of interviews containing one or more error retractions. For both measures, the two younger groups scored higher than the young adult group. Age-related differences were also found in the amount and accuracy of material in the interviewer reports as well as in the components of report error.

The results include a detailed outline of the manner in which fabricated material emerged, the circumstances under which it was retracted and the degree to which it appeared in the interviewer reports. Also reviewed are qualitative features relating to the form, content, techniques and style of questioning as well as characteristics of young children's language, thinking and perception.

The results are compared to previous research findings regarding age-related differences in question/response material with specific focus on issues regarding children's inaccuracy, suggestibility and inability to distinguish fact from fantasy. Productive and counter-productive questioning procedures are discussed in relation to the demand characteristics of the interview setting, the nature of repeated questioning and a number of related issues specific to questioning in the forensic context. Practical application of the findings are discussed with a particular focus on improving non-leading questioning skills in applied settings.

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CHAPTER 1

INTRODUCTION

Overview

Accurate and detailed recall of past events are crucial concerns when obtaining legal testimony from both adults and children. Beginning with the work of Binet (1900) and Stern (1910, 1939) earlier in this century, a broad range of evidence indicates that the quality of memory recall is largely determined by the method and context of questioning. With the dramatic rise in reported cases of child abuse, domestic violence and custody disputes in the past decade (Bagley & King, 1990; Pynoos & Eth, 1984; Straus, Gelles & Steinitz, 1980; Bala & Antweiler, 1986), questioning procedures have demanded more research attention, particularly in cases where a child's testimony is considered primary evidence.

In the recent past, three lengthy, costly and widely publicized cases involving multiple allegations of abuse of young children resulted in charges being dropped due to inappropriate questioning (reviewed by Davies, in press). Although not representative of most investigations (Buckley, 1989), these cases serve to highlight the burden of responsibility shared by the various legal, social service and law enforcement personnel involved in their resolution. Questioning that does not conform to legal procedural rules of evidence may have considerable consequences and these consequences are no more important for the prosecution as they are for the defense of the individuals involved (e.g., the well-being of a child vs. the personal and professional reputation of an alleged offender).

The main legal constraint on questioning in both protection and criminal proceedings is the requirement that the non-leading nature of an inquiry be demonstrated to the court. Although the legal onus of proof is less stringent in child protection proceedings than in criminal proceedings (i.e., 'on a balance of probabilities' vs. 'beyond a reasonable doubt'), the procedural constraint requires that statements be elicited in a non-suggestive manner.

The importance of recognizing the leading nature of an inquiry, including both the implicit and explicit expectations conveyed by the content or linguistic structure of a question, the manner in which it is posed and the context in which it takes place, has long been recognized in fields other than law. The psychometric tradition in clinical psychology, for example, relies heavily on supervised training and standardized procedures to ensure reliability of test instruments, as well as examiner competence in test administration and interpretation. Likewise, when gathering data for empirical research, experimenter bias (Rosenthal, 1966) and the various response expectancies or demand characteristics (Orne, 1962) which may be experienced by the subject are routinely guarded against.

The procedural constraint on questioning in the legal context is somewhat different in that the non-leading nature of the actual inquiry must be demonstrated to the court, a requirement which applies to pre-trial as well as courtroom examination. On a material point at issue, any type of questioning which directly or indirectly suggests an answer to the witness must be avoided

because it increases the possibility of inaccurate or biased testimony. This possibility is well-supported by research evidence and, as Dent and Stephenson (1979) have suggested, "is inherent in many, if not all, questioning techniques" (p.14).

A related issue is the degree to which prior knowledge of the material or facts to be recalled may predispose an interviewer to use leading questions. While prior knowledge may increase a questioner's sensitivity to crucial aspects of a particular testimony (Steller, 1989), it may also decrease the objective and neutral stance of the questioner, a stance which is generally considered to promote the obtaining of unbiased information (White, Strom, Santilli & Halpin, 1986; Underwager, Wakefield, Legrand, Bartz & Erickson, 1986).

The questioning of children presents a number of additional concerns. As will be seen in the review which follows, young children's cognitive and language abilities, including their knowledge-base, attention span, comprehension and ability to organize and recall material, are less well established than in older children and adults. In general, they are less able to carry on an un-rehearsed narrative account on their own and their statements are much less detailed. Young children have also been considered to be more suggestible than adults, less accurate in responding to questions generally and less able to distinguish fantasy from reality or fact. Although research findings relating to these last three claims are less straight-forward than the evidence regarding children's cognitive abilities

in general, they are crucial considerations in attempts to obtain credible testimony.

A second concern involves the engagement or rapport-building process, a pre-requisite to any assessment interview and often difficult to develop and sustain with younger children. Typical questions and directives to help engage a child, to keep attention focused or to help structure a situation, may be construed as leading when compared to the task of eliciting similar information from an adult.

A third concern is children's desire to please significant others, a well-established phenomenon in both the developmental and clinical literature. This factor is at the core of the 'parent alienation syndrome' (Gardner, 1987), which describes the position of children in adversarial custody disputes, as well as the 'accommodation syndrome' (Summitt, 1983), which refers to a vulnerable child's adaptive response to the events surrounding an abuse investigation as well as the severe loyalty conflicts which may prompt the retraction of previous statements.

These concerns relating to the questioning of children, together with the interviewer's degree of knowledge and the over-riding leading constraint on questioning in general, provided the impetus for the present investigation. The main objective was to obtain a large body of naturalistic interview data and to examine questioning techniques and strategies according to the general standard of courtroom procedure. It is expected that examination of question/response material derived from a broad range of interviews will yield findings which will both complement and enhance the results of more controlled experiments

reported in the eyewitness literature, as well as provide useful insights into the pragmatics of questioning for legal purposes in general.

Topics selected from literature in the theoretical, developmental, clinical and experimental domains are next reviewed to provide the necessary background context for understanding the range of factors involved in attempts to gain accurate and detailed information about a past event.

The Leading Constraint in Context

Leading questions are most generally defined as questions which suggest an answer to the witness.

A question is leading when, by its substance or form, it suggests a desired answer.... If a question is made up of an unqualified statement of an assumed fact, either unproved or contested, followed by an interrogation as to that fact, it is almost necessarily leading and objectionable. (Busch, 1960, p. 25-26).

With respect to a contested fact, questions may be leading in both substance and form. As can be seen in the examples listed below (cited from Danet and Kermish, 1978), not only do the questions contain the contested fact, the majority reflect a response bias or expectation in that they 'pull' for or anticipate a 'yes' or 'no' response.

- 1) tag questions ('You did it, didn't you?') and questions with prefatory phrases such as 'Isn't it a fact that....?'
- 2) declaratives ('So you did X.')
- 3) yes/no phrased negatives which may convey the impression that a particular response is required as in 'Did you not say X?'

- 4) choice questions in which one alternative is more detailed such that the witness may be encouraged to choose the more detailed response
- 5) questions in which a contested fact is assumed as in the classic 'Have you stopped beating your wife?'
- 6) argumentative questions cast in the declarative, when used to introduce an interpretation of events

In addition to the constraint on the use of questions leading in substance and form, subtle variations in the wording of a question have also been shown to affect the response elicited and thus prove to be leading or misleading in relation to the details of interest (e.g., presuppositions contained in questions using different verbs of contact such as 'smashed' vs. 'hit' (Loftus and Palmer, 1974; Loftus, 1979); the use of marked vs. un-marked modifiers such as 'How tall..?' vs. 'How short...?' (Harris, 1973); the use of the quantifiers 'some' vs. 'any' (Lakoff, 1969) and the use of the definite vs. indefinite article (Muscio, 1916; Loftus & Zanni, 1975; Dale, Loftus & Rathburn, 1978)).

Basic Question Forms: Kearsley (1976) has outlined a variety of question forms. With respect to mode of communication, questions may be non-verbal and overt such as in gestures, glances or a raised eyebrow etc., and serve to elicit a verbal or non-verbal response. The interrogative may be indicated in the direct verbal form by rising intonation (e.g., 'Did he go?') or in the more indirect declarative form with an embedded interrogative phrase (e.g., 'I wonder where he went.').

Direct questions are open or closed. While open questions generally request information and begin with a wh-word as in who, what, where or when

(e.g., 'When did he leave?'), closed questions offer one or more alternatives requiring a yes/no or choice response (e.g., 'Did he leave in the morning?' or 'Did he leave in the morning or afternoon?').

Accuracy in Relation to Question Form: In terms of eliciting accurate recall of past events, free recall elicited by a general open request (e.g., 'Tell me what happened' or 'What do you remember?'), produces more accurate but less complete details than material obtained by either general or specific questioning (Cady, 1924; Snee and Lush, 1941; Marquis, Marshall and Oskamp, 1972; Dent and Stephenson, 1979; Dent, 1982; List, 1986; King & Yuille, 1987). This trade-off between the amount and accuracy of material as the result of questioning is clearly shown in a study by Lipton (1977) which demonstrated an inverse relationship between the amount and accuracy of material elicited across four degrees of question specificity. Out of 144 total possible items to be recalled, free recall produced the most accurate (91%) but least complete reports (21%). General open-ended questions resulted in less accurate (83%) but more complete recall (32%) and specific questions produced still less accurate (72%) but considerably more complete recall (79%). Multiple-choice questions produced the least accurate reports (56%), with the same amount of recall as that obtained with specific questions (75%).

Lipton also compared specific and multiple choice questions containing a positive or negative bias (i.e., questions leading in the correct sense requiring a yes-response vs. misleading questions requiring a no-response) with neutral open-

ended questions. Neutral questions (open questions) produced the most accurate (83%) and least complete recall (32%) and leading questions produced less accurate (76%) but more complete recall (78%). Misleading questions produced the least accurate recall (52%) but no less material (73%) than leading questions.

Similar findings with respect to question specificity have been reported by Dent et al. (1979) in a study involving children who witnessed a staged incident. General open-ended questions (e.g., 'What was he wearing?' or 'What did he look like?') produced less error than more specific open-ended questions requesting particular details (e.g., 'What colour hair did he have?').

Response Expectation and The Degree of Discourse Demand: Payne (1951) has emphasized that every question assumes something. In terms of the material content of a question, to the extent that open questions do not contain an incorrect assumption or request unknown material, they are generally considered to be less leading or misleading than closed questions. Thus, while open questions are directive in that they request general or specific information, they usually do not advance material to be confirmed or disconfirmed with a yes/no response. An exception to this general rule applies to open questions asked in the subjective as opposed to the more objective form (e.g., 'Do you know what he was wearing?' vs. 'What was he wearing?') (Muscio, 1916). Although the subjective form of an open question prompts a yes/no response, it assumes less than the more objective form (e.g., that 'he' was wearing something or that the respondent actually knows or saw what was worn) and provides the explicit option

to not know the answer. On this basis, it may be considered less leading than the more objective form in that it contains less of a response expectation or discourse demand.

The distinction between the subjective and objective forms also applies to closed questions (e.g., 'Did you see a...?' vs. 'Was there a...?') and two rarely cited studies report the subjective form to be less leading than the more objective form (Muscio, 1916; Burt & Gaskill, 1932). More recently, this distinction was used for just one question in a series of questions ('Do you know what the man does for a living?' versus 'What does the man do for a living?') and it decreased subjects' tendency to speculate (adults more than children) when they did not have the information requested (Poole and White, 1990). While use of the subjective form (termed an 'inoculation' form of a question) may reduce the expectation of a response, particularly if the information requested is unknown, Poole et al. (1990) caution that it may also prompt the subject to spontaneously report less information.

The potential for questions or, more generally statements, to be suggestive or leading thus rests, to some extent, on the degree to which they implicitly demand a response (Raskin & Yuille, 1989). A fundamental dimension of most interactions is the pattern of turn-taking (Sachs, Schegloff and Jefferson, 1974) which is well established before the emergence of the first words in early language development (Condon, 1977; Kaye, 1977). This pattern of coordination may thus

carry the potential for an even more subtle experience of a response expectation on the part of the subject.

Though less obvious than the more explicit forms of leading questions, additional social conventions or more implicit rules of conversation and communication such as the cooperative principle (Grice, 1975), the given-new strategy (Haviland & Clarke, 1974), and norms of equality and fairness (Doise & Mugny, 1981), may also carry the potential for influencing a response.

Question Function: Questions are just one of a variety of speech acts which include making a declaration, giving a command or direction and making a promise (Austin, 1970b; Searle, 1975). Although generally considered to function as straightforward requests for information, questions may also supply information or serve to monitor the social relationship (e.g., 'Can I ask you another question?' cited in Goody, 1978). A large percentage of questions addressed to children by caretakers, for example, are rhetorical in that they function to elicit agreement or compliance (e.g., 'Right?') rather than information from a child (Keenan, Schiefflen & Platt, 1978). Adults' requests for clarification have also been shown to change in adult-child discourse over the course of early language development. In a study examining mother/child and teacher/child conversations at home and preschool, Cherry (1979) found that requests for repetition were more common with younger children and requests to confirm the adults' understanding were more common with older children (Cherry, 1979).

Despite the various distinctions regarding question form and function, there is no correlation between the grammatical form of a question and its function (Hymes, 1972; Danet et al., Kearsley, 1976). As can be seen in the three examples cited by Kearsley (1976) below, different forms of a basic closed question may serve the same function.

Interrogative form:	Is that dog dead?
Tag form:	That dog is dead isn't it?
Declarative form:	That dog is dead?

These examples serve to further illustrate the response bias embedded within both the tag and declarative forms (i.e., they prompt the expectation of a yes-response), in contrast to the interrogative form which does not do so.

The lack of correlation between question form and function reflects one of the basic principles of speech act theory which distinguishes between the referential and performative functions of utterances (Austin, 1970b; Searle, 1975). The referential function refers to the locutionary meaning or content which can be either true or false. The performative function refers to the intention and consequence of a statement which cannot be predicted from its form since different forms may have the same function.

Goody (1978) also relates the referential/performative functions to the report and command distinction in communication theory (Watzlawick, Beavin and Jackson, 1967). The referential function is analogous to the report or content aspect of a message and the performative function parallels the command or relationship aspect of a message, with the latter often determined by non-verbal

cues such as the manner or tone in which the message is spoken. From the perspective of both speech act theory and communication theory, the report aspect or content of an utterance is considered subordinate to the command aspect, that is, the relational dynamic or 'what is going' in the interaction between two people.

The Relational Dynamic: The relational dynamic is one of a variety of features in an interactional setting which may account for the 'remarkable compliance' of subjects in an experiment (Orne, 1962). The asymmetric nature of the relationship between experimenter and subject is similar in some respects to that between parent-child or doctor-patient and an obvious parallel can be drawn to the questioner and witness in the legal context. Although the relative status of the questioner and respondent does not necessarily predict the perceived power or authority accompanying a particular interaction, there is no question that children are subordinate in most of their relationships with adults (Tammivarra & Enright, 1986).

In addition to this status differential, the manner in which a subject is addressed (e.g., the use of a title vs. none), mitigated forms of a request (e.g., 'Tell us if you can...' etc.) and tone of voice, may all carry the potential for influencing the response (Danet, Hoffman, Kermish, Rafn & Stayman, 1980; Jeans, 1975). The issue of import here is that, in addition to the content or form of a particular question, the subject or witness draws from a range of more or less

subtle cues and available information which the setting offers or 'affords' (Gibson, 1979) and responds to what is perceived as relevant.

Direct versus Cross-Examination: The questioner who is establishing testimony must avoid the use of leading questions and at the same time direct the witness to cover relevant material. The use of bribes or threats in efforts to elicit information, to encourage a witness to talk or to repeat earlier statements are also considered inappropriate when the questioner is attempting to establish testimony (Benedik 1989; Ceci & Bruch, 1991).

In contrast, questioning for the purpose of cross-examination is under no such constraints. In keeping with the general adversarial nature of legal procedure, the purpose of cross-examination is to gain favourable testimony for one's own case by testing the reliability or validity of the opposition's evidence, and this usually involves attempts to undermine one or more of its aspects (Mauet, Casswell & MacDonald, 1984). Although techniques which have been traditionally associated with cross-examination (e.g., leading questions and strategies such as confrontation or more indirect insinuations) have generally been considered less than optimal for producing accurate recall (Cohen, 1981), the right to cross-examination is entrenched in law and therefore a fundamental part of legal procedure.

Children's Competence

The child witness literature distinguishes between a child's competence to testify and the credibility of the statement obtained. Competence has traditionally been determined by a child's capacity to be sworn and involves understanding the obligation to tell the truth, having the ability to discriminate the truth from a lie and, more generally, the ability to understand and relate information. Concerns regarding the latter ability are next addressed from various perspectives in the developmental literature.

Eliciting Material from Children: Questioners in the legal context must not only elicit material from a witness, they must also rely on what the witness offers as the basis of further questioning. In comparison to older children and adults, young children require more structure and specific prompts to generate recall of a past event. In eliciting stories about personal experiences for example, Peterson and McCabe (1983) describe efforts taken to avoid the interaction becoming an interrogation, with the child offering just yes/no responses. The use of non-specific prompts (such as 'Huh-huh') and general prompting questions (such as 'And then what happened?') were necessary to gain additional material. In a similar fashion, McNamee (1979) has documented the difficulty in eliciting an uninterrupted narration of a familiar story from children below six years of age. Considerable encouragement to get the child started (after initial 'I don't know' or 'I forget' responses), and prompting questions (such as 'What happened next?') were required due to the child's frequent stops. McNamee describes the

interaction between the child and the adult as a conversation and reports that, even with minimal prompting, it was unclear exactly what the children knew since "the adults [were]... active participants in the story-telling process." (Square brackets added for clarity).

The use of social facilitating comments (termed phatics in linguistics or back-channels in communication) which serve to establish and maintain social relatedness, are also considered important features of discourse settings in which children are being encouraged to talk (e.g., 'Mm-hmm,' 'Oh really,' and 'I see' (Wood, McMahon & Cranstoun, 1980; Wood & Wood, 1983)).

Scripted Knowledge and Routines: Schema theory (Schank and Abelson, 1977) has offered one framework for understanding how general knowledge is organized and the manner in which it influences both comprehension and later recall. Schemas are identified as organized sets of expectations (both spatial and temporal) based on past experience and stored in memory in the form of scripts (Nelson, Fivush, Hudson and Lucariello, 1983). A restaurant script for example, would involve a general pattern of behaviours in sequence such as driving to a restaurant, finding a table, choosing from the menu etc.. In a similar fashion, repeatedly experienced daily activities such as those occurring around dressing and mealtime, in addition to the scripted social routines and conventions involved in greetings, partings and play-time also form part of the general knowledge base.

Studies of developmental differences in script memory have shown that children 3-4 years of age demonstrate a similar basic structure in recalling details

of lunch at MacDonalds or baking cookies to that of 5-8 year-olds, although their recall contains less detail and less complex language (Nelson, 1978; 1981; Nelson et al. 1983; Nelson and Gruendal, 1981). Similar evidence of the organization of general knowledge schemas has been demonstrated in studies of story recall (Mandler, 1978; Stein and Glenn, 1979). The basic structure of a story grammar has been shown to be consistent for subjects aged 5 years to adulthood (Mandler and Johnson, 1977), with age-differences once again primarily reflected in the amount of detail recalled.

The language of pre-schoolers has also been found to be more complex when the content is script-based and the interaction occurs around shared scripts (French, Lucariello, Sidman and Nelson, 1980). When the narrative is unrehearsed or less script-based, children younger than 6 years of age do not produce narratives with correct sequential order and only with increasing age do the narratives become more detailed and sequentially structured (Peterson & McCabe, 1983).

Inferences: Inferences also play a crucial role in the comprehension, storage and retrieval of events in memory. For both adults and children, inferences based on scripted knowledge or routines in the general knowledge base may not only increase memory for expected features or details (Bransford and Johnson, 1973; Mandler and Ritchey, 1974; Paris and Lindauer, 1977) but also produce distortions termed intrusion errors (Stein, 1977; Graesser, Woo, Kowalski and Smith, 1980; Taylor and Crocker, 1981; Lindberg, 1991; Goodman and Reed,

1986; Todd & Perlmutter, 1980). For example, in a study of memory for ambiguous passages with children aged 2 to 7 years, the younger children were less able to distinguish their own embellishments from the actual story stimulus (Brown, Smiley, Day, Townsend and Lawton, 1977). In a series of studies testing children from grades 2 to 9 after they saw an action adventure on television, younger children demonstrated errors more consistent with general knowledge or scripts when compared to older subjects who showed more confusion of details regarding the stimulus material (Collins & Wellman, 1982). Preschoolers have also been shown to use scripts based on general knowledge and routines as memory about a specific event fades (Myles-Wosley, Cromer & Todd, 1986).

This type of evidence suggests that older children and adults are better able to monitor and screen their productions, thus demonstrating meta-cognitive or meta-memory abilities which enable them to discriminate fact from elaborations (Flavell, 1981; Markman, 1981; Schneider, 1985). However, it has also been argued that since the ability to draw inferences increases with age (Paris and Lindauer, 1976), young children's memory may be somewhat protected from such intrusion errors due to their limited capacity to draw inferences, integrate information, or understand the more subtle grammatical or semantic nuances which may be contained in a question or instruction (Ceci, Caves & Howe, 1982; Duncan, Whitney & Kunen, 1982; Loftus & Davies, 1984; Goodman & Reed, 1986).

Age Related Differences in Free Recall: Age-related differences in memory recall have been most clearly shown in the quantity or amount of material which has been freely recalled (Kail, 1989; Ornstein, 1985; Marin, Holmes, Guth & Kovac, 1979; King & Yuille, 1987; Goodman, Aman & Hirshman, 1987; Saywitz, 1987) and attributed to differences in the general knowledge base and its organization (Brown, Bransford, Ferrara & Campionni, 1983), encoding and retrieval strategies (Brown, 1979; Chi, 1976; Flavell, 1977), attentional capacity (Case, 1984), storage versus operating space (Case, Kurland & Goldberg, 1982), automatic versus effortful processing (Bjorkland, 1985), as well as depth of processing (Craik & Lockhart, 1972) and strength of the memory trace (Brainerd & Reyna, 1988). Studies examining the amount of free recall across various age-groups have concluded that children generally do not equal the amount recalled by adults until approximately 11-12 years of age (Kail, 1984; Loftus and Davies, 1984).

While the majority of studies show clear age-related differences in terms of the quantity of material freely recalled (see Goetze (1980) for contrasting findings), there is also evidence that age-related differences may be reduced or reversed in circumstances where a child knows as much or more than an adult (Chi and Reese, 1983; Lindberg, 1980; Neisser, 1979; Chi & Ceci, 1987; Ornstein and Nause, 1985) or is able to use material prompts (Price, 1984). Higher estimates of memory competence have also been found in everyday settings when compared to the more artificial tasks in laboratory settings and this difference

between competence and performance has been found across all age-groups in a variety of tasks involving both memory and comprehension (Flavell, 1970; Wellman and Somerville, 1980; Ornstein, Baker-Ward & Naus, 1988).

In terms of enhancing memory recall, a procedure termed the 'Cognitive Interview' has been developed by Geiselman and colleagues to enhance memory retrieval through the use of four retrieval mnemonics (Geiselman, Fischer, MacKinnon and Holland, 1985; Geiselman, Fisher & MacKinnon, 1986). Based on previous studies investigating feature overlap between memory encoding and memory retrieval the four mnemonics are listed as follows:

1. Mentally reinstate the environment and personal or internal contexts.
2. Report all detail regardless of perceived importance.
3. Narrate the events in a variety of orders.
4. Narrate the events from a variety of perspectives.

Geiselman (1988) has reported the effectiveness of these steps in eliciting more correct information without a subsequent increase in error across a number of studies. Although further support for the positive effect of context reinstatement (number one above) has been reported by Cutler and Penrod (1986, 1988), other studies report no effect (Fernandez and Glenberg, 1985; McSpadden, Schooler and Loftus, 1986) and these discrepancies have been attributed to methodological differences. In the McSpaddon et al. study for example, contact between subjects and experimenter was minimized by the use of an audio-recording of the instructions.

Two studies have adapted elements of the cognitive interview for younger subjects. Using a modified version with children aged 7-12 years, Geiselman and Pedillo (cited in Davies, in press) reported a 21% improvement in the amount of recall, relative to unstructured controls, but also an increase in confabulated responses. The increase in the amount of recall was thus offset by the increase in 'made up' responses.

Re-instatement of context was utilized in a more concrete way by Wilkinson (1988), who questioned 4-year-olds one day after witnessing staged events during a walk through a park. Half the subjects were questioned in their nursery school and the remainder were questioned after returning to the park. After describing the events in their own words, subjects were asked a series of increasingly explicit questions if they failed to respond. Subjects questioned in the park recalled significantly more spontaneous detail in free recall (as well as in response to general or specific questions) than children questioned in the nursery school and there was no increase in confabulation.

While the clearest age-related differences are found in the amount of material freely recalled, the majority of studies report no age-related differences in the accuracy of free-recall (List, 1986; Saywitz, 1987; King & Yuille, 1987; Pear & Wyatt, 1914; Cole & Loftus, 1982). Evidence that young children are less accurate than older children and adults stems primarily from studies involving direct questions (Cohen & Harnick, 1980; Yarmey & Kent, 1980; Brigham, Van Verst & Bothwell, 1986; Ceci, Ross & Toglia, 1987). Before outlining the range

of empirical studies addressing age-related differences in accuracy as well as the closely related issue of suggestibility, the developmental status of children will first be reviewed from three additional perspectives relating to the interpersonal context in which questioning takes place.

Competence/Performance and the Questioning Context

Piaget (1928, 1952, 1967) proposed four major stages in cognitive development and it is the second of these, the pre-operational stage (2 to 7 years) which has particular relevance to the present topic. The pre-operational child's thinking is generally characterized as egocentric, that is, the child is unable to de-centre from his or her own perspective or the surface features of a task and display a more abstract understanding of relationships required to solve specific tasks involving memory and mental operations. These operations were defined by Piaget as internalized sets of actions or mental representations involving such logical abilities as those demonstrated in the principles of class inclusion, transitive inference, conservation and perspective-taking.

In defining the tasks in terms of the abstract logical operations required for successful completion, the achievement of operational intelligence (7-11 years) is demonstrated when the child is able to deal with transformations between states and the relations of one to another. A brief description of the pre-operational child's performance on tasks involving the principles of conservation and perspective-taking follows below:

1) Conservation of Number

Two rows with the same number of objects are shown to the child. When asked whether the rows have the same number of objects, the child agrees. One row is then spread out and when again asked if the number of objects in the rows are the same the child responds that one row has more. The perceptual features thus over-ride the understanding of equivalence of number and the child's response is therefore considered to be concrete.

2) Perspective Taking

In the classic three mountain task, the child views a model of three mountains from one side. When asked what another person would see from a different side, the child's response is restricted to his or her own viewing perspective.

A variety of studies examining the more pragmatic features of the task and social setting in which these errors occur suggest that misunderstandings based on interpersonal or contextual cues may be involved rather than a lack of mental reasoning. In the conservation of number task for example, three alternative explanations have been offered. When asked the same question two times, McGarrigle and Donaldson (1974) propose that the child may assume the question is about something other than quantity, such as length. McGarrigle et al. demonstrated that a higher percentage of children exhibited conservation of number when the task was placed in a more meaningful context (e.g., having a 'naughty teddy-bear' come and kick one of the rows). In a related study, Rose and Blanck (1974) proposed that repeating a question may act as a cue to the child that something must have changed (since the question was asked a second time) and the child therefore changes his or her response. Performance on the

conservation task improved, for example, when the children were asked only once (after the change) if the rows were the same (Rose et al., 1974)

In a more recent review of conservation task studies, Light and Perret-Clermont (1989) cite evidence that the child may not perceive the question as being a straightforward request for information since the adult already has the same information. This was clearly illustrated in a study by Light, Gorsuch and Newman (1987). After pairs of 5- and 6-year-old children divided a heap of dried peas into two equal piles, the experimenter put the peas into two different shaped containers and asked the children whether there was the same amount of peas in each container. Although less than 20% of the children responded correctly in the first sample, a second sample in which a different experimenter asked the question after the first was 'called to the phone' demonstrated over 50% correct responses. The degree of shared knowledge or the subject's perception of the questioner's degree of knowledge may thus play a crucial role in determining task performance.

Similar findings have been shown with respect to Piaget's three-mountain task. In a widely cited study on perspective-taking by Hughes and Donaldson (1979), pre-school children were able to correctly hide a doll from the perspective of two different toy policemen without actually having the doll in view. Although this task involved mental or logical operations similar to those in the classic three mountain task, performance improved when the task was embedded in a context offering cues such as motives and intentions, which support the child's

understanding. Donaldson's (1978) distinction between embedded and disembedded contexts thus emphasizes the child's entire perceptual field which includes the interpersonal and non-verbal aspects, rather than just the logic required for the mental reasoning task. As McGarrigle and Donaldson (1974) conclude:

It is possible that the achievements of the concrete operational stage are as much a reflection of the child's increasing independence from features of the interactional setting as they are the development of a logical competence. (p. 49)

Further evidence of the perspective-taking ability of young children and their sensitivity to listener needs has been demonstrated in a variety of contexts (Maratsos, 1973; Menig-Peterson (1975); Pratt, Scribner and Cole, 1977). Maratsos asked children 3 to 5 years of age to demonstrate a set of toys to an adult (i.e., which toy to put in a car which would be run down a hill). Children were able to use pointing gestures to communicate to adults who had full view of the toys. Although this became a more difficult verbal task when the adult's eyes were closed, Maratsos reports that the children were far more verbally explicit. In a similar fashion, Pratt et al. (1977) asked 6- and 8-year-old children to describe the rules of a game to listeners with or without a copy of the game. Both age-groups used more explicit information in describing the rules to listeners without a copy. Menig-Peterson (1975) investigated young children's use of the definite/indefinite article appropriate to the listener's state (i.e., the use of 'the' after the referent has already been established). The speech of 3- and 4-year-old children varied according to the listener's prior state of knowledge. More new

elements were mentioned if the listener was naive and subjects demonstrated greater use of the definite article if the listener was knowledgeable.

The degree to which the questioner is knowledgeable thus appears to be an important determinant of a child's response and a variety of additional studies have demonstrated young children's sensitivity to the listener's age (e.g., 4-year-olds simplified their speech when talking to 2-year-olds (Shatz and Gelman, 1973); 3- to 5-year-olds systematically changed their speech when addressing mothers, peers or younger children (Sachs and Devin, 1976)). Lloyd (cited in Donaldson, 1978) found similar behaviour in children completing a task involving a toy panda who 'could not speak very well' and would need their help. Although the children used more elaborate and complex descriptions when speaking to the panda bear than to the adult, Lloyd reported that they rarely spontaneously indicated when they needed help themselves. This observation is highly relevant to the issue of questioning for legal purposes and will be discussed more thoroughly in a later section.

The conversational setting has been considered a crucial factor in determining the quality of verbal behaviour in a variety of situations ranging from formal standardized test situations to question/answer sequences in the classroom and more informal talk (Labov, 1972a; Cole, Dore, Hass & Dowley, 1978; Mischler, 1978). Of particular importance to the present topic is that the competence/performance distinction may also be addressed at the level of metacognitive skills. The ability to monitor one's own as well as another's

understanding clearly develops with age (Flavell, 1985; Schneider, 1985). In the interview setting, the witness must not only recollect an event, but also to some degree, assess the interviewer's understanding when responding to questions (Dunning, 1989). Studies showing that young children do not demonstrate the ability to take another's perspective have thus been interpreted as evidence that they lack this meta-cognitive skill (Taylor, 1988; Warren-Leubecker, Tate, Hinton and Osbek, 1989). In Taylor's (1988) study for example, young children were first shown a picture of a boat. The picture was then covered and the child was asked what he or she would see or what another person would see who just walked into the room. In both cases the children responded that the boat would be seen.

In the Warren-Leubecker et al. (1989) study, 5-year-olds were shown a stimulus in which a young boy is watching a burning building and is later found holding a lighter which the actual arsonist placed in his hand. When asked what the boy should do, the 5-year-olds responded that the boy should say that he did not start the fire. The authors concluded that the children did not seem to be aware that any further explanation was necessary.

Although both studies may indeed demonstrate a lack of metacognitive awareness (e.g., the subject's egocentric view that the adult knows as much as the child), in keeping with Donaldson's distinction between embedded and disembedded contexts, it is likely that manipulation of subtle contextual cues supporting the child's understanding of the questioner's degree of knowledge or intent would elicit different results. This sensitivity to features in the interactional

setting is next addressed from a body of literature which approaches the relational or interpersonal context in which development takes place more directly.

The Social Nature of Cognitive Development: The importance of close dyadic and triadic relationships as well as broader relational systems in which a child's development takes place have been addressed in a range of studies which emphasize the gradual shift from other-regulated to self-regulated activity (Mead, 1934; Vygotsky, 1972; Sullivan, 1953; Rogoff, 1990).

From the first days of life, mother and infant are actively engaged in repeated patterns of exchange (e.g., the synchrony of movement patterns (Condon, 1977), sucking patterns (Kaye, 1977), vocalizations (Rosenthal, 1982; Papousek, Papousek & Bornstein, 1984) and face-to-face interactions (Fogel, Diamond, Langhorst & Demos, 1982)) and the mutual coordination and regulation of these interchanges provide the basis for developing shared meaning and attention.

Stern (1985) has examined the process, termed 'affect attunement,' in which a mother responds to an infant's expressive movement or sound by a movement or sound which, though not identical, may be similar in the intensity and contour of expression. In matching or cross-matching the infant's expression (e.g., matching an infant's arm gesture with a head movement accompanied by verbal expression), the mother is mirroring or reflecting the child's state and thus establishing shared meaning and attention.

Trevarthen and Hubley (1978) have distinguished between primary intersubjectivity, which describes this one-to-one relationship between a mother

and child, and secondary intersubjectivity which refers to the point when the parent and child share a common outside reference point (around nine months of age). Closely tied to intersubjectivity is the evidence that, by eight months of age, the infant seeks and utilizes emotional or affective information from an adult's facial, vocal or gestural expression to understand or interpret a situation (Feinman, 1983).

This sharing of attention, first in terms of the child's affective state and later towards an outside reference point, is an essential aspect in the development of perceptual and more general cognitive abilities. For example, Rogoff (1990) has reviewed a wide range of studies demonstrating the manner in which the adult guides the child's participation in what are essentially daily social activities without an overt teaching purpose. In the development of language for example, the adult offers corrective feedback by recasting and expanding the child utterances and modelling the correct form rather than correct the child's errors in an overt or explicit manner. By connecting the novel to the familiar, by adjusting the difficulty level in problem-solving and by the transferring of responsibility for task completion, the adult provides the structure or assistance which guides the child's understanding.

Bruner (1982) has termed this structure or mediated assistance the parent provides as the 'scaffolding' which supports the child's continual development. Not only is the child highly dependent on the parent for care-taking and the

structuring of his or her daily activities in the world, the parent is also emotionally involved with the child and thus mediates on the child's behalf.

An important feature throughout the work in this area is the emphasis on the joint nature of the mutual coordination and accommodation of the parent and child in these daily exchanges. Hartup (1986) proposes that the development of the executive or meta-cognitive functions (e.g., planning, monitoring, problem-solving etc.) derive directly from the close relationships and finely tuned dialogues a child experiences with an effective mediator. The monitoring of one's own behaviour to make sense of a task and the sequential ordering necessary to organize and complete a task are first experienced in relation to an adult attuned to the child's understanding. The consistent structuring of the environment to suit the child's understanding thus provides a basis for the gradual shift from other-regulated to self-regulated activity.

In contrast to an emphasis on cognitive functioning in terms of measured intelligence, evidence that a child has successfully internalized these more regulative activities is drawn from studies which demonstrate a qualitative difference in the manner in which children engage in tasks (e.g., securely attached children engage in more symbolic play, exhibit fewer frustration related behaviours and use more sophistication in initiating and coordinating contact with mother compared to less securely attached children (Bretherton & Bates, 1979; Matas, Arend & Stroufe, 1978)). The use of reasoning and suggestion in mothers' control strategies has also been related to relative sophistication in non-

compliance or oppositional behaviours of young children (e.g., simple refusal and negotiation as opposed to temper tantrums or ignoring a request) (Kuczynski, Kochanska, Radke-Yarrow and Girnius-Brown, 1987).

The social nature of cognitive performance has also been examined in the context of peer relationships. Non-conserving children sharing a conservation task with a non-conserving peer have been shown to perform significantly better than non-conserving children who were tested alone (Doise & Mugny, 1981; Glachan & Light, 1982). Since a child must take into account another's point of view to maintain a joint social interaction, task performance may improve due to the broader understanding which encompasses the differing viewpoints (Light & Perret-Clermont, 1989).

Related work has examined the degree to which the logic of a cognitive task may be structured in terms of social norms or rules which provide a rational and practical context to support the questioner's intent. The term 'social marking' (Doise and Mugny, 1981) has been used to identify the degree to which a task can be mapped onto practical social activities such as sharing and exchange. For example, Doise and Mugny (1981) found that an emphasis on equality of rewards was equally effective when emphasized in a task where children worked alone (another child would 'come in a minute') compared to those working in pairs.

The degree of 'social marking' involved in a particular activity is somewhat similar to social scripts and routines which form part of the general knowledge

base and thus an important factor in the more general discourse context in which questions and responses are embedded.

Cognitive development as well as the distinction between competence and performance are thus clearly embedded in social contexts and the next section addresses the importance of early primary relationships from a more clinical perspective.

Clinical Tradition - Object Relations Theory: Although there is a considerable literature on the nature of attachment and mother-infant interaction in relation to later cognitive and social functioning (Ainsworth, 1979; Lamb, Thompson, Gardner & Charnov, 1985), object relations theory is a clinically relevant perspective for the present topic since it directly addresses the child's negotiation of the separation-individuation phase of development and the gradual development of the distinction between self and others (Hartmann, 1958; Mahler, 1975). In contrast to early psychoanalytic theory which viewed instinctual drives as the basis of personality structure, object relations theory approached the development of internal structure through relationship with the primary caretakers (Greenberg & Mitchell, 1983; Blanck & Blanck, 1986). From this perspective, a variety of mild to serious disorders in behaviour and personality (in both adults and children) may be related to an underlying vulnerability which stems from the inadequate negotiation of the separation-individuation stage of development and the subsequent emergence of object constancy.

In contrast to the development of object permanence (in which an infant must acquire a basic mental representation of an object in order to seek it out), object constancy refers to the development of an increasingly stable sense of self as separate from the parent, regardless of whether the parent is immediately present or able to meet the child's needs (Hamilton, 1988). The child is thus able to maintain a more stable internalized representation or image of what the parent provides, regardless of the state of need. In this sense, the achievement of object constancy is a far less observable developmental milestone compared to those in the area of physical or intellectual development. Although the fundamental basis for object constancy is ideally established by 3 years of age, it is not considered a static achievement but the basis for negotiating a range of developmental transitions, with respect to family and work relations, which continue throughout childhood, adolescence and the adult life-span (Blanck and Blanck, 1986; Greenberg and Mitchell, 1983).

To understand the relevance of object constancy and the development of self-other distinction to the interview situation, a brief review of the developmental stages in object relations theory is warranted. It should be noted that this theory has been criticized for blaming the mother, neglecting the father's role and the complexity of family interaction patterns as well as the broader social and economic influences within which family lives are embedded (Hare-Mustin, 1986; Goldhor-Lerner, 1988). However, the basic dynamics of the separation-individuation phase of development and the conditions necessary for the

subsequent emergence of a stable self identity are being addressed in more recent work which includes fathers, peers and groups as formative influences on a young child's development (Harter, 1983; McGoldrick and Gerson, 1985; Biller, 1986; Ashbach & Schermer, 1987).

Without denying the wide range of cognitive activity demonstrated throughout the first few months of life (Field & Fox, 1985; Tronick, 1982), a major assumption held by object relations theorists is that the infant exists in a relatively undifferentiated state, with little distinction or boundary between the inner and outer worlds. This state was identified by Hartmann as the 'undifferentiated matrix' and the first stage in the development of object relations. Out of this undifferentiated matrix the first differentiation to emerge is the core affective experience of good/bad or the pleasure/pain distinction. While these core affects are initially experienced as separate and global states, the infant gradually begins to identify the source of the repeated experience of these states with the primary object or parenting figure. In this, the second stage of object relations termed symbiosis (2 to 6 months), the infant does not experience him or herself as separate from the primary figure but merged in symbiotic union. It is crucial that there is adequate nurturing and mirroring on the part of the parenting figure at this stage, since the child perceives the world in terms of what the primary figure reflects. Thus, while mother is able to merge with the child in symbiosis, her identity is not defined by it.

In contrast, the child's identity is initially perceived only in relation to the parent. Pain and pleasure are distinct, global experiences and the work of Spitz (1965) and Bowlby (1969, 1973) has documented the profound consequences to an infant's development if early attachment and stimulation are not adequate or if the primary figure is lost without an adequate replacement.

Based on observational studies of mother-child dyads, the basic steps in the separation-individuation process and the emergence of object constancy have been outlined as the third stage of object relations (Mahler, Pine & Bergman, 1975). Between 5 and 10 months, the child begins to experience mother as separate and reacts to separation because the image or memory of mother, that is, what she provides, is not yet internalized or stable enough to provide comfort and security in her absence. In the practising sub-phase, from 10 to 16 months, motor and cognitive developments enable the child to gradually explore the environment in a conflict-free manner while still using mother as a secure base. From 16 to 24 months, in what Mahler terms the rapprochement sub-phase, there appears an increase in the awareness of separation from mother, a deliberate search for and avoidance of physical contact, clinging as well as rejecting behaviours and strong emotional swings from all good to all bad (termed 'splitting'). The relatively unstable affect and hyperactivity which Mahler describes in children entering the early part of this stage gradually develop into longer periods in which the child is less reliant on mother. In the latter part of this period, termed consolidation and ranging from 24 to 36 months, emotional states become more differentiated, with

displays of sadness, concern, and disappointment as well as more complex play and use of language.

Mahler attributes the degree to which the child is able to struggle through this period of resistance and ambivalence towards the primary parenting figure as the degree to which the child achieves separation and autonomy. The development of self-differentiation from others is thus based on early primary relationships and the quality of the early dyadic relationships in which the child is embedded will clearly influence how successfully the separation-individuation phase is negotiated.

In comparison to other areas of development such as crawling, walking and talking which are considered to be relatively conflict-free, social conflict is considered essential to the development of an autonomous self (Hartmann, 1958; Blanck & Blanck, 1986). Separation is achieved through the counter-balancing of gratifying and frustrating experiences (e.g., failures in parental empathy (Garbarino & Stott, 1989)) within the parent-child unit. While it is initially necessary for the child to experience a very positive and nurturing environment, the development of a separate and autonomous self requires a tolerable amount of frustration in order to provide an impetus toward separation or self-other distinction. With increasing age and experience, the balance of positive affective experience and frustration is ideally weighed on the positive side so that frustrations or small failures in parental empathy do not continually overwhelm the child (Blanck & Blanck, 1986; Hamilton, 1988; Garbarino & Stott, 1989).

Blanck and Blanck (1972) stress that until the self and object constancy, are reached, levels of object relations not only differ from one individual to another but may also fluctuate in relation to the same individual. Thus, when the child experiences contradiction, the external relationship may over-rule if the sense of self is still pre-structural or interpersonal. With increasing age, if the underlying structure is relatively unstable, the individual will experience considerable vulnerability in situations of interpersonal conflict or stress, despite physical and intellectual maturity. This underlying vulnerability may range from mild to more enduring problems encountered in relationships in both personal and work related spheres, with the more severe disturbances classed in the spectrum of personality or character disorders (Kohut, 1971; Kernberg, 1975).

Clinical Concerns: From the perspective of object relations theory, a number of clinical issues are relevant to the obtaining of legal testimony. First, situations which give rise to legal investigations, both protective and criminal, are embedded in a variety of contexts and cover a broad spectrum of behaviours. In reviewing the clinical literature addressing the symptoms and effects of violence and abuse, the indicators range from short to long-term and from relatively mild to severely debilitating physical, psychological and behavioural problems (Kempe and Kempe, 1978; Walker, 1979; Browne, 1980; Mrazek and Mrazek, 1981; Sgroi, 1982b; Finkelhor and Browne, 1985; Halliday, 1985). All of these indicators have been described in clinical literature prior to the relatively recent recognition of violence and abuse as widespread social realities. It is therefore important to

emphasize that psychological and behavioural problems also occur in individuals who have not been exposed to the more blatant abusive situations, that is situations which warrant legal investigations.

Both individual and family clinical literature have emphasized the developmental consequences for a child when one or both parents are unable to maintain an appropriate and protective generational boundary between themselves and their children (Minuchin, 1974; Miller, 1981, 1984). More seriously disturbed families may be characterized by blurred role boundaries, alcohol or drug dependency and inadequate controls or limit-setting, with adults whose own dependency needs are met at the expense of other family members, particularly children (Anderson and Schafer, 1979; Beavers, 1977; Berkman, 1984). Although assessment of dysfunction may range from mild to serious, boundary problems may occur with or without the more obvious forms of abuse, since there are varying degrees of less than optimal family dynamics (Beavers, 1983). If a positive relationship between caretakers is absent, for example, a child may be in a triadic position where he or she cannot relate to one without appearing to be disloyal to the other. In cases of familial incest, boundary problems are often one symptom of the wider family dysfunction which is itself embedded within broader social, economic and historical contexts which determine the nature of relationships within the family and work-related spheres (Rush, 1980; Butler, 1985; Goldher-Lerner, 1988).

Whether or not a blatant abusive incident or history warranting legal intervention has occurred, the clinical and biographical literatures indicate that it is the consistent betrayal of protective trust, and the lack of an emotionally available primary figure, which are responsible for many of the more enduring problems encountered in childhood, adolescence and later adult functioning (Armstrong, 1978; Butler, 1985; Vale Allen, 1980). For example, Miller (1981, 1983, 1984) has documented the far more subtle experience of emotional neglect or abandonment. In these more covert abusive situations in which a child's dependency needs are repeatedly unable to be understood or fulfilled, a precocious adaptation to the needs of parents or other family members is sustained at enormous cost to the development of the child's own potential. Parents who were themselves deprived of adequate parenting during their own upbringing are less able to provide a consistent and empathic relationship of trust and unable to separate their own needs from the child's needs (Ehrenberg, 1991). In these situations, the child's integrity will be continually compromised by the larger relational systems in which he or she exists.

The underlying vulnerability which derives from inadequate parenting may thus exist regardless of the whether a more blatant abusive act has occurred and Fortin and Reed (1984) have outlined the degrees of vulnerability which children may bring to the 'helping systems.' The more vulnerable a child is to conflict between authority figures, for example, the more likely will be the need to please or elicit a positive response from the adult in the immediate situation. The child

is described as being acutely sensitive to the interpersonal situation, with "finely-tuned antennae to the feelings of others and a skewed perception that he or she causes them" (1984, p. 117).

The clinical literature thus provides an additional perspective for understanding the developmental basis of children's sensitivity to the interpersonal elements in the context of an investigative interview. The acute sensitivity of a child to the feelings of others may reflect a normal developmental stage in a very young child who does not yet experience him or herself as separate because the self-other boundary is not distinct. In an older child, sensitivity to the relational dynamic may reflect a lag in development due to an environment which has not been experienced as 'good enough' to support the development of a stable self, differentiated from others. With less differentiation, the child will be far more reliant on interpersonal dynamics, more vulnerable to perceived conflict in general, particularly in relations to or between authority figures, and less able to distinguish his or her own experience from that which is reflected or afforded by the perceived external source.

These clinical concerns are highlighted in a recent retrospective study which examined the process of disclosure in a fairly large sample (N=630) of abuse allegations (Sorensen and Snow, 1991). Of the 116 confirmed cases involving subjects from 3 to 17 years of age (80% involved a confession or legal plea in court, 14% involved a conviction and 6% involved medical evidence highly

consistent with sexual abuse), 97% involved a person in a position of trust or supervisory role (58% were immediate family members).

Whereas only 11% of the subjects initially gave an active disclosure, defined as a detailed and coherent first person account of the abuse, the authors report that 79% at first denied the abuse or gave tentative disclosures, often appearing confused and vacillating between acknowledging the abuse and denying that it took place. The denials were most common after children were initially questioned by a concerned parent or authority figure, or in a formalized procedure after being identified as a potential victim. In the majority of these cases (96%), the subjects eventually gave a detailed and coherent account within varying time frames. In 22% of these latter cases, the children later retracted their statements, and almost all subsequently reaffirmed the abuse (93%).

Based on this sample of confirmed cases, the authors concluded that disclosure is best described as a dynamic process which, depending on the child's circumstances, may involve a number of progressive stages rather than a single-outcome event. They argue that, since most investigative protocols assume that children are in active disclosure, statements obtained when a child is in a tentative phase of disclosure will clearly detract from any assessment of credibility and possibly place the child at continued risk.

While acknowledging that not all victims will experience the various phases of disclosure found in this retrospective study, Sorenson et al. suggest that recognizing various phases in the process of disclosure would promote more

effective case management, particularly if given time and adequate support, false allegations could be clearly distinguished from those cases in which the child is in a tentative disclosure phase.

Although this retrospective study of confirmed cases does not report the specific questioning procedures used to elicit information, it underscores the fact that the quality of material elicited may be influenced by a complex interplay of factors relating to the child's circumstances both within and beyond the immediate interview setting. It not only stresses the need to ascertain the child's perceptions of his or her circumstances but also "the importance of allowing children to participate in establishing the conditions under which they feel safe to talk" (Garbarino et al., 1989, p. 90).

These concerns also direct attention to the investigator's role and general manner of questioning, particularly with respect to the issue of objectivity and the questioner's hypothesis-testing stance, the degree to which prior information is used in questioning and the manner in which the questioner resolves what may appear to be a conflict between investigative and therapeutic concerns.

If objectivity in questioning depends, as Garbarino and Stott (1989) suggest, on the manner in which information is presented to the child rather than the investigator's knowledge, background information may be used as material from which questions can be constructed (Boat & Everson, 1986). An example of such use is provided by Raskin and Yuille (1989) who propose that cues may be used in certain situations to reinstate the context in which the event was

understood to have taken place (e.g., 'Do you remember anything about a mirror?').

Prior information includes not only the facts relating to a specific case, but also the interviewer's general knowledge and understanding of the dynamics associated with child abuse and the actions or behaviours that constitute an abusive act. The manner in which such understanding may influence the questioning process has been addressed from an hypothesis-testing framework. It has been proposed, for example, that interviewers should have at least two alternate hypotheses to avoid eliciting information that supports the assumption or hypothesis that abuse occurred and ignoring information that would not support it (Ceci & Bruch, 1991; Raskin & Yuille, 1989). With no hypothesis, Ceci et al. propose that an investigator is more likely to make less efficient use of interview time and may not recognize subtle but forensically relevant cues.

Preconceptions or assumptions regarding the type of support and encouragement provided to a child during the questioning process have also been related to the seemingly opposing therapeutic versus investigative concerns during the questioning procedure. For example, an interviewer's objectivity may be reduced if he or she enters into a therapeutic alliance or becomes overly supportive or reinforcing with a witness and such efforts may ultimately detract from assessment of the credibility of the statements elicited (Dodds, 1987; Raskin & Yuille, 1989; Stellar, 1991). The lack of credible evidence, highlighted in the dismissal of charges due to inappropriate questioning procedures, is thus the

primary concern prompting the stance that the investigative and therapeutic roles should be separate and that therapy should be undertaken only after investigation is substantially complete (Raskin & Yuille, 1989).

In contrast, the authors of the retrospective study of confirmed cases cited above maintain that the common assumption that most abused children are capable of immediate active disclosure in a coherent and detailed first-person account is not warranted. They propose that more effective case management and overall system response would involve recognition of the continuum of phases in the disclosure process and thereby ensure adequate support as the case is resolved (Sorenson & Snow, 1991). Although this type of on-going evaluation or assessment-type model would ideally avoid the more flagrant violations in questioning procedures required for credibility and at the same time offer adequate support throughout resolution of the case (Bresee, Stearns, Bess & Packer, 1986; Sorenson & Snow, 1991), the manner in which these goals may be achieved in actual practise is not yet clearly mapped out.

In summary, the interpersonal context in which questioning takes place has been addressed from three perspectives. Factors relating to the task or interpersonal setting have been shown to affect performance in a range of studies investigating the comprehension and language abilities of young children. Also examined was the manner in which cognitive development is embedded within social relationships and activities which gradually promote the development from other-regulated to self-regulated behaviour. Finally, the clinical literature has

outlined the developmental basis for understanding the varying degrees of sensitivity to the interpersonal aspects, both within and beyond the interview setting, which may influence a child's response in a questioning context.

The final section of this review outlines a range of empirical studies in the eyewitness literature which have examined age-related differences in question/response accuracy and suggestibility.

Age-Related Differences in Question/Response Accuracy and Suggestibility

Studies investigating age-related differences in question/response accuracy and the related issue of suggestibility have utilized questions in both the open and closed question forms. While open questions generally request information, ranging from a general to more specific focus, they may also be misleading if they contain an incorrect assumption. Closed questions (often referred to as recognition questions requiring a yes/no response) include those that are leading in the correct sense (requiring a 'yes' response), those that are misleading in form and/or content (requiring a 'no' response) and those in a multiple-choice format.

Suggestibility has been most generally defined as sensitivity to context (King & Yuille, 1987) or the degree to which cognitive and social factors influence a subject's responses to questions (Ceci and Bruck, 1991). Evidence that young children are less accurate and/or more suggestible in response to misleading questions or misleading information than older children and adults is mixed (Goodman, 1984; Loftus & Davies, 1984; Ceci & Bruch, 1991). Studies

addressing these issues vary widely in method, with more recent work responding to concerns about too narrow a focus on children's competency without due consideration of the interaction of age with factors relating to the particular task and context of the interview setting (Melton & Thompson, 1987; Turtle & Wells, 1987). A range of factors have been investigated and the review which follows is representative rather than exhaustive, with selected studies outlined and grouped according to basic themes. Since many studies include an initial instruction for free recall in addition to a series of questions, the amount and accuracy of material freely recalled will be reported for comparison purposes.

The Misleading Question Effect: Four studies in the late 1970's and early 1980's examined the misleading question or misleading information effect across age-groups (Dale, Loftus & Rathburn, 1978; Marin, Holmes, Guth & Kovac, 1979; Cohen & Harnick, 1980; Duncan, Whitney & Kunen, 1982). Using a short film clip with 4- and 5-year-old children, Dale et al. (1978) found a significant response bias effect with questions involving the definite versus indefinite article (the use of the article had no effect on material present in the film but did affect non-present material).

In the Marin et al. (1979) study, subjects 5 to 22 years of age witnessed a staged argument and were then presented with misleading information. Although results showed a significant age effect in terms of the amount of recall, there was no difference in overall accuracy across age-groups (91%), no age-related

differences for the objective yes/no questions and no misleading information effect (based on just one question).

Using a petty crime film stimulus and 22 specific questions, half of which were misleading, Cohen et al. (1980) found nine-year-olds to be less accurate (more suggestible) than both 12-year-olds and college students who did not differ in accuracy. Compared to college students, the 12-year-olds were less accurate in response to both leading (in the correct sense) and misleading questions.

Although this finding did not replicate one week later to questions in a multiple-choice format, Ceci and Bruch (1991) suggest that the number of subjects per cell ($n=3$) may have contributed to the low power of the test to detect differences after the one week delay). All subjects incorporated misleading information one week later and the 12-year-olds did so more than the college students.

A slide sequence of events from the 'Star Wars' movie was used by Duncan et al. (1982) to test 6-, 8- and 10-year-old children as well as college students. Expected age differences were found for the orthodox open questions (requiring short answers) but no obvious age effect for the questions containing misleading information. To investigate whether the lower overall recall of the younger children might mask the effect of the misleading questions, the authors analyzed only correct items and results showed that the younger children were less influenced by the misleading information than the older subjects.

King and Yuille (1987) questioned subjects aged 6, 9, 11 and 16 years of age after witnessing a staged event. Although the youngest subjects freely recalled

less detail, they were no less accurate. The youngest age-group was more suggestible in response to misleading questions, tending to agree with the suggested information, in contrast to the older subjects who responded with 'I didn't notice.' The authors report that a number of the younger children later mentioned that they just 'went along' with the question.

In a series of studies involving children aged 3 to 12 years of age, Ceci, Ross and Toglia (1987) presented misleading information to an experimental group one day after a story stimulus and tested recognition memory with pictures three days later. The youngest children scored significantly less than the older age-groups (accuracy scores for the control group ranged from 84% to 95% with increasing age and the experimental group ranged from 37% to 84% (accuracy plateaued around the ages of 7 to 9 years)). Although contrasting findings have been reported by Zaragoza (1987, 1991) across a series of studies finding no misinformation effect with preschool-aged children, detailed examination of the methods used by these authors has identified a number of differences (e.g., age of subjects, delay interval, central vs. peripheral details, between vs. within subjects design etc.) which may account for the discrepancy in the results (Toglia, 1991).

In a task involving children aged 3 and 6 years of age as well as adults, Goodman and Reed (1986) used 17 objective questions and 4 suggestive questions 4-5 days after subjects interacted with an unfamiliar man. The questions were administered before the free recall task in order to see if the suggested information would be recalled. While the adults recalled more accurate as well as

inaccurate information, the 3-year-olds performed poorly on all tasks. Performance of the 6-year-olds and adults was relatively equal on the objective questions and on the identification task. Although the 6-year-olds were significantly more suggestible, the authors report that the absolute differences were small and that the responses conforming to the suggestion were often hesitant. Although the 3-year-olds recalled little (a number were reported to be shy and to pay less attention to the confederate), they recalled fewer errors and the suggestions did not appear in their free recall.

Saliency: The saliency of an event has been examined in terms of schema consistency (List, 1986), the degree to which it involves central or peripheral detail (Goodman, Aman, Hirschman, 1987; Lindberg, 1991) and the degree to which it is personally meaningful (Ceci and Bronfenbrenner, 1985; Perlmutter, 1980). List (1986), for example, investigated high versus low probability of occurrence material (established empirically in a previous study) with 10-year-old children, college students and older adults. Subjects observed video-tapes of staged shop-lifting incidents and were tested one week later with free recall and recognition test questions. For the 10 year-olds and college students, subjects' recall was more complete but less accurate for high versus low probability of occurrence material. In response to questions, the 10-year-olds were as complete but less accurate than the college students.

Yuille et al. (1986) investigated the effect of item saliency on suggestibility by staging a bicycle theft to small groups of children aged 8-9, 11-12 and 13-14

years of age. Although the younger children were more suggestible to two misleading questions regarding headwear, the authors report that they also demonstrated unexpectedly accurate and detailed memory of a character's running shoes. This latter finding suggests that the salience of a particular item in an research setting may not be readily predicted by the experimenter.

Source Credibility: Source credibility has been shown to affect adults' responses to questions, particularly if they are led to believe the questioner is more or less credible or warned that material may be misleading (Smith & Ellsworth, 1987; Dodd and Bradshaw, 1980; Greene, Flynn & Loftus, 1982; Christiaanson & Ochalek, 1983). Similar findings have been shown in studies involving children (McDevett and Carroll, 1988; Warren, Hulse and Tubbs, 1991). Warren et al. used a suggestibility scale developed by Gudjonsson (1984) which measures responses to misleading questions as well as the degree to which subjects change their response once interpersonal pressure is applied. After hearing a story and answering 20 questions (15 of which are misleading) subjects are then told they did not do very well and the questions are administered a second time. Warren et al. warned subjects aged 7 and 12 years as well as adults that questions would be difficult or tricky and to answer only what they actually remembered. Relative to the controls who received no such instruction, accuracy was increased by about 5%, with no differences in accuracy across age-groups. When told they did not do well at the end of the first set of questions and then

asked to respond to the second set, the younger age-group changed their responses more often than the older group.

Source credibility has also been examined in relation to the age of the questioner or the misleading information source. Kwok and Winer (1986) offered 9- and 12-year-olds the choice of two correct options and found both groups rejected either option in favour of both (the correct choice) when a peer rather than an adult asked the question. In one of a series of studies reported by Ceci et al. (1987), children aged 3-12 years were presented with misleading information one day after a story stimulus and recognition memory was tested with pictures three days later. In the experimental condition, the misleading information was presented by a 7-year-old boy. Relative to the control group who received the misleading information from an adult, accuracy of the younger subjects improved in the experimental condition. Ceci et al. (1987) concluded that the improvement was related to their expectations of the adult as an authority figure, both in terms of a person in control or a person with knowledge (for some subjects the questioner was the same person who read the story).

Baxter and Davies (1988) tested 7- and 10-year-old children after witnessing a domestic dispute on film. Questions followed an accurate or misleading account of the dispute on audio-tape by either the 7-year-old or adult actor (using identical scripts). Although the older subjects gave more full accounts, subjects exposed to misleading scripts produced more error across age-groups than those exposed to accurate scripts. There were no age-related

differences in the accuracy of misled subjects or exposure to younger or older voices.

The credibility of the adult as questioner has also been considered an important factor in studies demonstrating that young children respond to questions or instructions which don't make sense (e.g., 6-year-olds attempted to carry out inadequate card game instructions and, unlike the 8-year-olds, did not request more information when prompted to do so (Markman (1977)); preschoolers followed instructions to give a puppet 'more' or 'less' or 'tiv' to drink (Carey, 1978) and young children attempt to respond to inadequate or ambiguous instructions (Robinson & Whitaker, 1986)).

In a classic study demonstrating the importance of response expectations (Hughes and Grieses, 1980), 5- and 7-year-olds actively made sense of nonsense questions (e.g., Is milk bigger than water?). After an initial 'I don't know' (IDK) response, four out of eight 5-year olds offered a response when the question was repeated. When asked to justify their responses, younger children tended to 'import' additional context. Older children qualified their responses more frequently and remained more centered on the inherent characteristics or features of an object.

The adult's credibility as questioner has also been cited as the factor which may have determined discrepant findings in studies examining the definite/indefinite article effect. In contrast to studies which do report the definite/indefinite article effect (Loftus et al. (1974) with adults; Dale et al.

(1978) with children), Mosten (1987) found no differences across children aged 6, 8 and 10 years of age and a similar finding in an adult sample was reported by Zanni and Offerman (1978). Mosten (1990) attributes the discrepant findings to the interaction between subject's perception of the questioner's knowledge or credibility and the linguistic form of the question. He proposes that shared knowledge of the event to be remembered (which did not occur in his 1987 study) is common in studies where the questioner is present during the stimulus presentation and may thus contribute to the subject's perception of the questioner's credible use of the term.

Response Expectation: The implicit demand to respond to a question posed has been examined in a number of studies attempting to reduce response expectation by offering subjects an explicit 'I don't know' option (IDK). For example, Warnick and Sanders (1980) demonstrated a decrease in the number of adults' false identifications with no subsequent decrease in the proportion of correct identifications.

Mosten (1987) tested subjects aged 6, 8 and 10 years of age, using a staged incident in a school setting with a questionnaire format (8 true and 8 false questions). All subjects were less likely to say 'I don't know' to questions about events actually witnessed than to misleading questions. Although the IDK instruction had no effect on the accuracy of responses in the experimental group when compared to the control group, the experimental group had a higher number of IDK responses and 8-year-olds gave more IDK responses to true

questions than did either the 6- or 10-year- olds. Moston concluded that young children may use the IDK response less often because of a lack of understanding or it may be helpful only if it is an option not already available.

Similar efforts have been made to reduce the implicit demand to choose one of a series of pictures in target-absent photo-identification tasks. Despite warnings or cautions that the photo may not appear in the line-up, younger children generally appear to make more false identifications than older subjects (King & Yuille, 1987; Davies, Stevenson-Robb & Flin, 1988), although contrasting findings do exist (see Yarmey, 1988).

Using a 'Mr. Nobody' category in a photo-identification task involving a target-absent array, Davies, Tarrant and Flin (1989) found an increase in the number of children who did not make a choice but no effect on accuracy. The authors qualify their results to the extent that a fairly long exposure to the target may have eliminated the demand characteristics of the task.

Explicit instructions for the use of the IDK option has also been reported by Dent (1991) as one of a variety of strategies used to reduce the inherent suggestibility of the questioning context. In reviewing the general method of elicitation across a number of studies using a series of non-leading questions, Dent reports that instructions were as simple as possible and, in order to avoid inadvertent suggestion, interviewers were blind to the exact nature of the stimulus event. To ensure subjects interpreted the task as the experimenter intended, interviewers informed the children they did not know what happened. Subjects

were also interviewed at school, assured that the situation was not a test and that it did not matter how much they remembered.

Stress: In a general review of studies addressing the relation of stress or arousal to performance, Deffenbacher (1983) concluded that high levels of stress interferes with performance in adults. Contrasting results were found in a field study reported by Yuille and Cutshall (1986). Witnesses who reported high levels of stress were as detailed and accurate in their recall as those who reported less stress.

In a recent review of 13 studies investigating stress in relation to children's memory and suggestibility (Ceci and Bruck, 1991), a high level of stress actually improved later memory in three studies, had no effect in four studies and had a detrimental effect in six studies. To illustrate the range of methodologies used in these investigations, the results of three are reported below.

In a venipuncture study involving children aged 3 to 7 years, Goodman et al. (1986) hypothesized that the experimental group would have better memory for main event details and that the control group (arm was rubbed) would perform equally well on memory for central and peripheral details. There were no differences between groups in performance on free recall, objective questions, suggestive questions and the photo-identification task. The main finding was that memory for the central action was significantly better than memory for peripheral detail.

In a second study, involving actual inoculations of children aged 3 to 6 years, Goodman et al. (1987) found no significant differences in free recall in the younger versus older children (3- and 4-year-olds vs. 5- and 6-year-olds). Emotional state was assessed on a 6-point scale and the highest accuracy and lowest suggestibility were found for the high arousal group. Although there was no decline in free recall when tested at 3 to 4 days and later at 7 to 9 days, the older children answered more objective questions correctly and the younger groups demonstrated a decline on the photo-identification task. Both groups were more accurate in response to questions involving central actions than to those involving more peripheral detail. The older group was more resistant to suggestion and this resistance was greater for actions and appearances than for more peripheral details. Leading questions elicited fewer accurate responses compared to the objective questions and the older children performed more accurately than the younger ones. In a follow-up study 1 year later, Goodman, Hirshman and Rudy (1987) reported a general decrease in the amount of accurate information, low resistance to misleading questions and no difference as a function of the original stress rating (although few children in the high stress group were interviewed).

Peters (1991) questioned children aged 5-10 years in a stress manipulated study using both free recall and 15 objective questions, five of which were misleading. Blood pressure and pulse were monitored while subjects were involved in a card game. In the stress condition, subjects heard a fire alarm and a

confederate's remarks about smoke. In the control condition, subjects heard a radio being switched on and off and no reference to smoke. Although the groups differed in the expected direction on the blood pressure and pulse ratings, they did not differ in free recall. The controls were more accurate on both the leading and misleading questions and Peters concluded that stress did impair performance relative to the controls.

Degree of Confidence: Self reports of degree of confidence are generally not highly correlated with accuracy in adults (Lindsay, Wells and Rumpel, 1981; Wells and Murray, 1984). In a review of 34 studies addressing this relationship, Wells et al. (1984) report that the more positive correlations occurred in studies which utilized a staged situation, immediate testing and offender-present line-ups. Although there is some evidence that speech hesitations, voice pitch and speech errors are more reliable indicators of truth or falsity than either facial or bodily cues (DePaulo, Stone, and Lassiter, 1985a), the relationship between confidence and accuracy has not been thoroughly addressed in studies investigating children's eyewitness abilities (Dent et al., 1979). Related work has addressed the effect of powerful versus powerless speech styles (e.g., hesitations, verbal hedges and fragmented as opposed to more narrative speech (Lind, O'Barr, 1979; O'Barr, 1982)) and the degree to which it may interact with age on jurors' perceptions of testimony (Nigro, Buckley, Hill & Nelson, 1989).

Abuse Related Questions: Two studies have utilized abuse-related questions in an effort to reduce the gap between research and applied settings.

Goodman, Rudy, Bottoms and Aman (1990) questioned pairs of same-sex children, 4 and 7 years of age, ten days after interacting with a strange adult (one child played and one child observed). A different adult asked general and specific questions, with the latter including both suggestive and non-suggestive questions. Older children were more accurate on both the suggestive questions and on the questions with an abuse related theme.

In the second study, girls aged 5 and 7 years of age were questioned 1 to 4 weeks after a medical examination (half involved a back examination and half involved a genital examination), using both suggestive and non-suggestive questions and some with an abuse-related theme (Saywitz, Goodman, Nicolas and Moan, 1989). Although the older children were more accurate to both suggestive and abuse related questions, there were no differences in resistance to the abuse related suggestive questions.

Questioning Manner or Style: Five studies have examined age-related differences by manipulating the overall manner or style of questioning. Wells, Turtle and Luus (1989) compared direct and cross-examination questioning styles with 8-, 10- and 12-year-old children one day after viewing an abduction on video. In the direct examination condition, the interviewer asked 10 questions regarding the number of characters and descriptive information. A second questioner, whom the subjects had not met previously, used seven questions in a cross-examination style (e.g., 'You claimed that the playground was fairly crowded, is that correct?'). Although there were no age-related difference in accuracy for the

direct examination condition, the 8-year-olds were significantly less accurate in their response to the cross examination questions than the older age-groups. In a second analysis using bivariate regression, the authors report age-group differences for both questioning styles, with the cross-examination condition showing a stronger age-effect.

Using a staged setting, Clarke-Stewart, Thompson and LePore (1989) tested 5- and 6-year-old children's interpretation of an ambiguous event relative to questioning style. Half of the subjects observed a janitor cleaning a toy and play area (clean condition) and of the remaining children who observed the janitor playing in a 'rough and somewhat suggestive' manner with a doll (play condition), half received 'sweets' for 'not telling' (play-secret condition). In the latter two conditions, the janitor tried to involve the children in the action of playing (specific actions were balanced across conditions) and the children were questioned about the janitor's activities one hour later by the 'boss' in either a neutral, accusatory or exculpating manner.

When questioned in an objective and neutral manner (open-ended questions), responses were brief but accurate. In response to specific questions, 14 of the 17 factual questions were answered correctly on average. Five of the 6 interpretive questions were answered correctly and these findings were consistent at a follow-up one week later. When questioned in a manner suggesting a particular interpretation of the janitor's activity, less than half the children remained with the original story and the remainder switched from one to the

other or agreed to both. Children also changed their interpretations to match the second interviewer's interpretation if it contradicted the first. The authors report that all children eventually went along with the questioner's view of the event, with some doing so more slowly than others. Since it was not the memory of the event but the interpretation of its meaning which changed according to the questioner's bias, the authors concluded that that demand characteristics in the ambiguous setting clearly influenced the responses elicited.

Clarke-Stewart et al. (1990) also report that the 'more suggestible' children were more compliant in games with the experimenter, less knowledgeable about lying, more suggestible on a projective test and story recall measure and that their parents placed less value on self direction and independence.

Four question conditions were used in a study involving sheriff's office detectives (Geiselman, Saywitz and Bornstein (cited in Ceci and Bruck, 1991). Children in the 3rd and 6th grades were questioned after witnessing a staged event. In the standard condition using free recall followed by questions, interviewers using the most rapport-building elements (before the interview) elicited the least amount of recall error. Neutral and unenthusiastic questioners produced the least amount of accurate and inaccurate detail. Interviewers in the sceptical questioning condition (doubtful about the child's responses) produced more accurate and inaccurate information than the neutral interviewers. Interviewers in the positive attention and support condition elicited the most

accurate details and the same number of inaccurate details as interviewers in the sceptical condition.

In the fourth study, children aged 3 and 6 years of age were questioned after playing a game with a stranger (Goodman, Wilson, Hazen and Reed (cited in Ceci & Bruck, 1991)). Four years later the children were asked to recall the event and respond to abuse-related suggestive questions in an accusatory atmosphere. Although few children had any recollection of the event in free recall, those who did were more resistant to abuse-related than non-abuse related misleading questions, particularly those asked in an accusatory and urgent tone. In the fifth study, children 3 to 7 years of age were questioned two to four weeks after an inoculation shot in either a supportive (subjects were complimented for performance regardless of accuracy) or neutral condition (little verbal or non-verbal support) (Goodman, Bottoms, Schwartz-Kennedy & Rudy, 1991). Interviewing style did not affect the number of false reports in response to the misleading questions. Although interviewing style had no effect on the older children's false reports, the younger subjects gave fewer false reports to the supportive interviewers.

Social Support: Two studies have investigated the effect of social support in the questioning context. Goodman, Sharma, Golden and Thomas (as cited in Ceci & Bruck, 1991) had preschoolers questioned by a misled parent or stranger and parents were able to elicit more accurate information than the stranger. In the second study, Mosten and Engelberg (in press) questioned 7- and 10-year-olds

after receiving instructions from a stranger on the use of a tape-recorder. Subjects were asked to freely recall what happened as well as respond to questions, a small portion of which were misleading, in one of three conditions: peer present at questioning only; questioning after a discussion with a peer and questioning after a discussion with peer as well as peer present during questioning. For the combined condition, there was an increase in the amount of recall compared to the remaining two conditions as well as an increase in resistance to misleading questions.

Repeated Questioning: The issue of repeated questioning relates to repetition within one or across a number of interviews. Although two studies have reported no increase in recall after a one day delay, (Dent et al. 1979; Flin, Boon, Knox and Bull, in press), evidence that repetition enhances recall memory has been found in a wide range of studies with both adults and children and generally attributed to a rehearsal effect (Baker-Ward, Hess & Flanagan, 1990; Poole and White, 1990).

In contrast, for studies in which repeated questioning has been shown to decrease response accuracy, interpretation has generally been in terms of the demand characteristics of the task setting (i.e., the child responds to what is perceived as the expectation of the questioner or as a cue that the answer should change (Rose et al. (1974); Siegal, Waters & Dinwiddy, 1988)). Mosten (1987) investigated the use of repeated questions within an interview, using both direct repetition and similar questions about the same topic with children aged 7, 8 and

10 years of age. Although there was an overall decrease in accuracy across age-groups, there was no mean differences in the percentage of incorrect responses. In keeping with the interpretation proposed by Rose et al. (1974), Mosten suggests that the change in response most likely occurred because the child interpreted the first response as being incorrect once the question was repeated. On this basis Mosten concluded that a questioner should be prepared to accept a child's first answer and not challenge the response with repeated questioning.

In a more recent study, Poole and White (1990) questioned subjects aged 4, 6 and 8 years as well as adults after witnessing an ambiguous staged event. Half the subjects were questioned immediately after and one week after the incident and the remainder were questioned one week later. A female interviewer used an ordered set of seven questions repeated three times which included the option to not answer. In response to the open questions, there were age-related differences in the amount of information recalled but no differences in accuracy. The youngest age-group changed their response to repeated specific questions more than the older age-groups. These findings are in keeping with Mosten's (1990) interpretation that younger children do not understand that repetition is a check for consistency rather than an indication that their initial response was inaccurate.

Poole et al. (190) also report that the adults and the 8-year-olds were more likely to qualify their answers by indicating uncertainty and that the adults speculated more freely than the children in responding to specific questions for

which they had no information. Since adult subjects became more certain in their responses with repeated questioning it was concluded that repetition of open questions influenced response style more than its content or accuracy.

The term 'commitment effect' has been used to describe the increased confidence adult subjects display after an initial tentative and incorrect face identification from photographs when the task was later repeated (Gorenstein and Ellsworth (1980). A related phenomenon is response shaping (Dunning, 1989) whereby an initial slight inaccuracy may become more elaborate over the course of further or repeated questioning, across one or more interviews.

Patterns of Error: Accuracy rates for action details tend to be higher than those for descriptive details for both adults and children (Dent & Stephenson, 1979; Yuille and Cutshall, 1989) and errors with respect to estimates of age, height and size are common for adults and children and more so for younger children (Davies Stevenson & Flin, 1988; Goetz, 1980; Brigham, VanVerst & Bothwell, 1986).

Two types of addition errors have also been found in young children's responses to questions or directives. McCartney and Nelson (1981) reported that children in kindergarten and grade two continued a story past its ending. Similar findings have been reported by Saywitz (1987) with 8-year-olds when compared to children 11 and 15 years of age. Utilizing an audio-tape presentation of two story episodes (consisting of 36 propositions), Saywitz tested memory initially in a written free recall task followed by a recognition task (24 of the 36 original

propositions formed the true items) and six direct questions (three of which were misleading) regarding a character in the story.

Accuracy based on free recall and recognition questions was similar across age-groups. The free recall and recognition tasks were administered again 5 days later as well as a task to recall as many details as possible about the character.

Although the amount of accurate information recalled remained stable over time, percent accurate recognition decreased over time and additional propositions increased over time. The 8-year-olds added more propositions than the older groups and were more variable in making additions (ranging from 0-10 on first recall and from 0-50 on the second recall). Saywitz reports that for all children, 70% of the distortions were modifier errors (descriptive detail) and 25% were pragmatic or evaluative inferences. Although the mean number of misleading propositions recalled was less than one for all grades, there was a marginal age effect with the younger children tending to be less susceptible to the suggested information.

Addition errors, including confabulated responses and fabrications, have particular relevance to eyewitness testimony. Although the terms confabulation and fabrication have at times been used interchangeably, confabulations usually refer to additional material based on scripted knowledge and routines to fill in memory gaps and fabrications refer to actual falsehoods. These error types are next discussed in relation to the fact versus fantasy distinction.

The Fact versus Fantasy Distinction: Although play and fantasy are considered primary activities for the development of cognitive and language abilities (Bruner, 1986; Bettelheim, 1974; Winnicott, 1971; Gould, 1972; Garvey, 1974; 1977), in terms of children's competence, one of the most contentious issues in the literature on children's testimony is that pre-schoolers are less able to distinguish fantasy from reality or fact than older children and adults.

A number of factors in both the cognitive and clinical literature relate to this issue. At the cognitive level, preschoolers' failure to distinguish appearance from reality (Flavell, Green & Flavell, 1986) may be considered an example of the concrete thinking characteristic of Piaget's pre-operational stage of cognitive development. Three and four-year-old children, for example, have been shown a glass of milk which is then placed in a red plastic wrapping. When asked what colour the milk is, they respond that the milk both looks red and is red, thus demonstrating an inability to distinguish between what is considered the real versus apparent properties of an object.

A second factor is children's ability to distinguish actual events from imagined events, an ability termed 'reality monitoring' which is fairly well developed by approximately 8 years of age (Johnson, Raye, Hasher & Chrommick, 1979). Relative to 9-year-olds, 6-year-olds have been shown to be less able to distinguish what was said from what was imagined (Foley, Johnson & Raye, 1983) and less able to distinguish actual body movements from imagined movements or actions from intentions (Lindsay & Johnson, 1987). Although Davies and Baxter

(1988) report that the latter finding was not replicated in a more forensically realistic context, more recent work has indicated that pre-schoolers are more apt to confuse what they imagine with what they actually witness when the sources of information are semantically or perceptually similar. In a study by Lindsay, Johnson and Kwon (in press) for example, 4- and 6-year old children were less able to distinguish between what two storytellers said if they were similar (both teenagers) compared to the condition where they were dissimilar (one was a teenager and one was an adult).

A third factor is a child's ability to distinguish real from pretend characters. Morison and Gardner (1978) studied the responses of children from kindergarten to grade 6 on two card sorting tasks. The first task involved distinguishing two fantasy figures (an elf and dragon) from a real figure (a frog). Although 5-year-olds were aware of this distinction, older children generally made fewer errors. The second task involved sorting pictures of real or pretend characters and again, with age, children made fewer errors.

A fourth factor is the tendency of preschoolers to freely associate material during conversations, without making clear the connection to the topic at hand as do older children and adults (Wood, McMahon & Cranstoun, 1980).

From a more clinical perspective, young children may exhibit a merging of fantasy and reality when strong feelings are aroused, such as distress caused by a story that has an unexpected ending or fear of a monster in a play setting. Gould (1972) has used the term 'fluctuating certainty' to describe this type of temporary

regression which usually requires the comfort and security provided by a trusted older person to ground the child in reality and sooth imaginary fears.

A contrasting phenomenon has been described by Sorenson and Snow (1991) when a child is in a tentative phase of disclosure. After relating information about an abusive incident, these authors report that a child may add an illogical ending such as "then I punched him in the nose and ran away" or dismiss an earlier statement with "I didn't mean what I said." This type of fantasy projection, used to protect oneself from a painful or difficult emotional situation, is a well-known phenomenon in the clinical literature (Stevens and Berliner, 1976). The loyalty to parents or loved ones as well as the need to protect oneself against anticipated punishment or adult disapproval may thus be important influences on certain aspects of a child's statement.

Recognition of the range of factors which may influence a child's response to questions are clearly relevant to any appraisal of the credibility of statements made by children during an investigative interview and a procedure termed 'Statement Validity Analysis' (SVA) has been specifically developed for this purpose (Steller & Yuille, 1988; Raskin & Yuille, 1989). The original procedure was developed in Germany during the 1950's to systematically evaluate the statements of child witnesses and is based on a large number of cases in which a child was assessed by a court-appointed psychologist (Undeutsch, 1982). The assessment is based on the premise that the content and quality of invented recall may be distinguished from the recall of actually experienced events (e.g.,

experienced events contain a greater richness in detail and more subjective elements (Trankell, 1972)).

SVA is a modification of the original procedure and involves three parts (Raskin & Yuille, 1989; Raskin & Esplin, 1991). The interview component consists of an initial rapport-building phase and includes a general assessment of the cognitive, linguistic, behavioural and social skills of the child. The free-recall phase, with minimal prompting, is then followed by specific open-ended questions regarding particular details. The procedure also includes one or more misleading questions in order to assess susceptibility to suggestion.

The second part of the SVA procedure involves an analysis of the statement according to 19 content criteria grouped in five major categories as follows: 1) formal characteristics of the statement such as the logical structure and quantity of details as well as unstructured production; 2) characteristics of specific content such as contextual embedding, descriptions of interactions, reproduction of conversation and unexpected occurrences; 3) peculiarities of content referring to unusual details, accurately reported but mis-understood details, external associations, subjective accounts of one's own or other's mental state; 4) motivational related contents including spontaneous corrections, admission of lack of memory, doubts about one's own testimony, self-deprecation and pardoning the alleged offender and finally 5) details characteristic of the offense.

The third part of the SVA procedure involves a validity checklist and is clearly geared to assess a range of factors (both within and beyond the interview

setting) which may influence a child's response to questions. The statement is assessed along the following dimensions: the appropriateness of language, knowledge and affect as well as susceptibility to suggestion; characteristics of the interview such as suggestive, leading or coercive questioning; motives to report, the context of the original disclosure and pressure to report; consistency of the statement with laws of nature, other statements and other evidence.

Recent attempts to assess the validity of various content criteria and their contribution to the overall SVA procedure have involved simulation and field studies designed to discriminate between actual experiences and made-up events (Yuille, 1988; Steller, 1989; Undeutsch, 1989; Raskin & Yuille, 1989; Koehnken & Wegener (cited in Steller, 1989); Raskin and Esplin (1991)). Although a thorough review of these studies is beyond the scope of the present review, the procedure clearly holds promise as a systematic attempt to assess factors, both within and beyond the interview setting, which may influence the material elicited from children through questioning.

While most studies in the more recent eyewitness literature have given due consideration to the interaction of age with various aspects of the task and context of actual investigations (i.e., stimulus, salience, stress, temporal factors and questioning style etc.), a frequently cited concern is the lack of generalizability of research findings to actual investigative interviews (Yuille and Wells, 1991) as well as the lack of replication in more forensically realistic contexts (Davies & Flin, 1988). Not only is it necessary to determine the 'contextual equivalence' of the

experimental and applied domains (Yuille & Wells, 1991) but also whether the "environment experienced by the subject ... has the same properties it is supposed or assumed to have by the investigator" (Bronfenbrenner, 1979).

Efforts to reduce the gap between research and applied settings have primarily focused on the experience of the subject. Few have considered the position of the interviewer in actual investigations, a position characterized by two essential features. First, by the time a case goes to court, a verbal statement may have already been obtained and the questioner has a fairly good understanding of the relevant material to be reviewed. This position is very different from the earlier stage of an investigation when it is necessary to obtain preliminary evidence. Information possessed by the investigator at this point may be quite limited and the use of directive questions to elicit and clarify details of the event is, in most circumstances, unavoidable.

The second feature concerns the degree of knowledge of the witness or interviewee as opposed to the interviewer. In most adult-child discourse, the adult knows more than the child and may be described as being in a position of advanced knowledge or cognition with respect to activities such as care-taking, teaching or playing. This position of knowledge is lacking in a preliminary investigative interview and was therefore an essential concern in the present research context. In actual cases, although varying degrees of information which prompted the actual investigation may be known at the outset, the interviewer does not have a controlled series of questions and does not know the truth.

Questions are usually based on previous responses, and the interviewer, in general, does not know if a particular question is leading (in the correct sense) or misleading. As Dunning (1989) has suggested, reality is more ambiguous than the specific misleading questions used in most experimental investigations.

In one more naturalistic study reported by Dent (1982), experienced and inexperienced interviewers were free to choose their own strategies in questioning 8 to 10-year-old children about a staged event. Although two experienced interviewers were the most effective in eliciting detailed accounts, they also elicited more error than those with less experience. Two interviewers, both school teachers, who obtained a combination of high accurate and low inaccurate points used the technique of context reinstatement, gave little opportunity for free recall and asked few general but many specific questions as well as a number of leading questions. Dent reports that these two interviewers appeared to be able to judge how and when to use more suggestive questions and avoided questions phrased to elicit information consistent with preconceived notions about what happened. Dent concluded that the level of rapport and interaction with the children were more important factors in determining the quality of recall than the actual form of the questions.

In a more recently reported study (Pettit, Fagan & Howie, as cited in Ceci & Bruch, 1991), children aged 3 and 5 years were questioned in one of three conditions, 2 weeks after participating in a staged event. Interviewers had either full knowledge of the event, no knowledge or inaccurate knowledge based on a

written report, and were instructed to avoid the use of leading questions in their attempts to find out what happened. Of approximately 50 questions asked during the 20-30 minute interviews, 30% were leading and half of these were misleading. Compared to interviewers with full information or no information, interviewers with inaccurate information asked 4-5 times as many misleading questions and obtained the most inaccurate detail. Overall, children answered 41% of the misleading questions incorrectly and interviewers with no knowledge used an increasing number of leading questions as more and more children were interviewed.

Although these last two studies had interviewers question a number of children and therefore contained a substantial sequence effect, they represent an important attempt to examine questioning procedures used by interviewers in a position similar to those in forensic settings. This aspect was the essential concern in the present research context. The overall goal was to obtain a large body of more naturalistic interview data, with interviewers free to use their own questioning techniques and strategies, and to examine questioning procedures according to the standard of general courtroom procedure. The goal in its broadest sense was to examine the process by which the 'facts' of an experienced event are established through questioning and to distinguish productive and counter-productive questioning procedures which influence the amount and accuracy of material elicited.

In keeping with the general results of studies reviewed in this chapter, it is expected that data obtained from a more naturalistic data-set will provide evidence to address two main hypotheses and several additional questions.

Hypotheses 1 and 2 are expected to hold for both child and adult sample groups.

Hypothesis 1: As the method of questioning moves from free recall (elicited by 'Tell me what you can remember') to more specific questions of any kind, the amount of spontaneous recall material will be high but the accuracy of recall will be lower.

Question 1: How does interviewers' degree of knowledge of the event to be recalled relate to their use of leading or misleading questions?

Hypothesis 2: There will be significant age-related differences for accuracy based on both leading and misleading questions and closed questions which are leading will produce more accurate responses than those that are misleading.

Question 2: Do interviewer characteristics such as age, gender, profession, experience and education have a relationship to the amount and accuracy of material elicited through questioning?

Question 3: Is there a relationship between aspects of the questioning context (or characteristics of the question/response discourse) and the accuracy of the material elicited?

Question 4: Do interviews with younger children have a different pattern of errors than interviews with older children and adults?

- Question 5:** Do interviewer reports of the material elicited reflect the amount and accuracy of material actually elicited?
- Question 6:** To what degree do young children actually manifest inaccurate recall, suggestibility and the inability to distinguish fantasy from reality? How are these characteristics influenced by the interaction style of the interviewer?
- Question 7:** Can a distinction be made between structuring and leading a subject? Do certain structuring features enhance or hinder accurate recall?
- Question 8:** What are the risks to accurate recall involved in different questioning procedures? Can a knowledge of these risks help differentiate productive from counter-productive questioning techniques and strategies?

CHAPTER 2

METHOD

Design

The study was designed to obtain a large body of question/response material from a broad range of professionals given an identical interviewing task across three different age-groups. To maximize developmental differences according to Piaget's pre-operational, concrete operational and formal operational stages of cognitive development, preschoolers, 8- to 10-year-old children and young adults were selected as the age-groups to be interviewed.

To maintain strict control over the subjects' viewing perspective and at the same time allow conservation of limited resources, a film sequence rather than a staged event was chosen as the stimulus material to be recalled. Although a staged event has an obvious advantage over a filmed event in terms of ecological validity, the more relevant concern was to place the interviewer in a position similar to actual investigators (i.e., having little or no direct knowledge of the event to be recalled).

To examine the manner in which prior information may predispose an interviewer to use leading questions, three question conditions were designed as follows:

- 1) **Control Condition:** one fully informed interviewer using a standardized protocol to obtain free recall
- 2) **Blind Condition:** 60 interviewers with no prior information, free to use their own questioning procedures

3) Informed Condition: 60 interviewers with minimal information (a few facts about the film details) prior to questioning, free to use their own questioning procedures

Due to the logistics required in obtaining such a large sample of interviewers from the local community as well as the need to maintain strict control over the standardized question protocol, one interviewer (rather than 60 interviewers) was chosen for the control condition. Although this condition is therefore not a control in the strict sense of the term, for ease of reference it will be referred to as the control condition.

In determining to what degree interviewers in the informed condition should be made aware of the film details, the primary consideration was to place the questioner in a position common to actual investigators. Since known 'facts' at the beginning of many investigations are relatively few in number, the following material was chosen: a car is in the water at one point and a young boy is involved. (Note: A brief description of the film is found on p. 83).

The final factor considered in the overall design was the gender combination of the interview pairs. To ensure equal representation for both interviewers and subjects, the four combinations of same and opposite sex pairs occurred five times in each age-group, totalling 60 interviews for each of the blind and informed conditions. The control condition involved a female interviewer with 10 male and 10 female subjects per age-group (totalling 60 control interviews).

In summary, the three main factors in the design were age-group (3), condition (3) and gender-combination (4) and the primary dependent measures to be scored were the amount and accuracy of material elicited during the interviews. An additional control questionnaire, involving 20 open questions, was utilized to allow some comparison of repeated questioning on the material elicited during the main interview.

Interviewers were also asked to write a report on the details obtained from the subject in order to examine the degree to which the material in the reports accurately reflected the amount and accuracy of detail elicited during the interview. The overall design of the study is outlined in Figure 1.

At this point, it is important to outline the degree to which parallels can be drawn between an actual investigative interview and the present research setting. At a global level, both situations involve a specific type of question-answer discourse in which the overall task and roles of the participants are generally well defined in theory but may not be so well-defined in practise. There are four main differences.

First, use of the stimulus film in the research setting allows for some measure of the 'truth' and thus provides a means to score the amount and accuracy of details elicited. The research setting also allows control of the interviewer's prior knowledge of the event as well as the means to track the use of this knowledge. Third, the intense emotional component which often accompanies an investigative interview and which may partially account for an

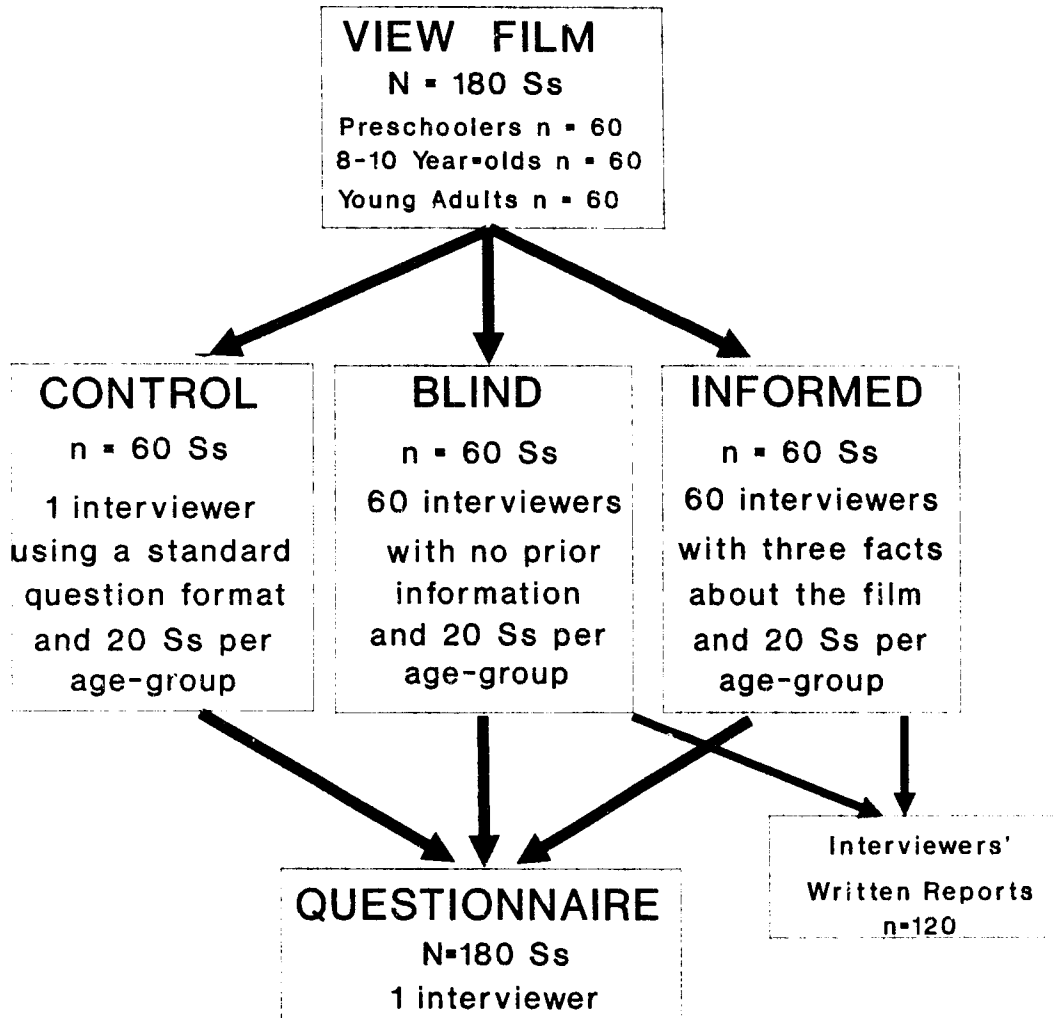


Figure 1: Overview of Research Design

interviewee's reluctance to talk, does not generally exist in the research setting, nor does the interviewer's burden of responsibility which accompanies an actual investigation.

A number of common features do exist however. In addition to the interviewer's lack of direct knowledge of the event, the joint nature of the question/response discourse as a whole, as seen in such features as turn-taking, co-operation and the subjects' role in the shaping of questions asked, is intrinsic to both situations. The interviewer must also accommodate to the developmental status of the subject (i.e., the cognitive and verbal skills which the subject brings to the task) and establish and maintain rapport. Finally, in both cases, a subject's reluctance to talk or lack of cooperation may stem from any number of circumstances such as a strange environment, fatigue or not understanding the task etc.. A number of features are thus common to both situations and it is the techniques and strategies of questioning which stem from these common features which are the focus of the present investigation.

Subjects

The subjects involved 180 separate interviewer-interviewee pairs. Although, in a sense, each interview as a whole comprised one case, for ease of reference the participants will be referred to as interviewers and subjects.

Fifty-one of the 60 preschool subjects (30 females and 30 males) were obtained through 12 registered day-care centres representing diverse socio-

economic neighborhoods in the Victoria area. Letters outlining the purpose and procedure of the study were distributed to parents of children between 3 years, 6 months and 5 years, 11 months of age (see Appendix A-1). The remaining 9 preschoolers were obtained through parents in the local community who expressed an interest in the study. The mean age of the preschool sample was 4 years, 8 months and ranged from 3 years, 5 months to 5 years, 10 months.

Fifty-eight of the 60 children (30 females and 30 males) in the 8- to 10-year-old sample were obtained from 6 schools representing diverse socio-economic neighborhoods (five elementary schools in Victoria School District #61 and one private school). In four of the six schools, letters to parents were sent home with every fifth, sixth or seventh child throughout each of the grade 3, 4 and 5 class lists. In the private school, letters were sent to parents of 72 children in the specified age-range and in the remaining public school which had a large ESL (English as a second language) population, 15 names were chosen by the principal from one class list. At this point only 5 additional subjects were required and the ESL children were very low in both receptive and expressive English language skills. The remaining 2 children were obtained through parents in the community who expressed an interest in the study. The mean age of this group was 9 years 5 months, ranging from 7 years 11 months to 10 years 11 months.

Forty-four of the 60 young adult subjects (30 females and 30 males) were recruited from the subject pool of the Psychology Department at the University of Victoria. Six subjects were obtained at short notice from the university residence,

cafeteria or hallways. One subject attended the local community college and the remaining nine subjects had either just completed high-school or were in their final high-school year. The mean age of this sample group was 19 years and ranged from 16 to 24 years.

Although ESL subjects were fairly well screened from the samples, English was the second language for two subjects in each age-group. With two minor exceptions, all appeared to be fluent English speakers. One elementary school-aged child (in the control condition) was very shy and the articulation of one preschool child (in the blind condition) was difficult to understand. These two factors, however, were common for a number of children in the younger samples and the two subjects in question were therefore included in the sample.

Interviewers

Interviewers were identified as any service professional who conducted interviews in one of a variety of settings. Initial contact was made by phone or letter to local mental health centers, court and social services, schools, police and university departments (psychology, counselling, social work, education and child care) and services (financial aid and counselling), as well as to counsellors, lawyers, psychologists, physicians and psychiatrists in private practise. Prospective interviewers were informed of the purpose and procedures involved in the study and the voluntary nature of participation (see Appendix A-2). Interviewers were asked to sign a volunteer consent form (Appendix A-3) and to provide

background information regarding education, a current job description, related work experience and approximate career length (see Appendix A-4). Police officers were asked to wear plain clothes.

The mean age of the 120 volunteer interviewers (60 females and 60 males) was 39 years (SD = 6.7, ranging from 24 to 63 years), with a mean career length of 13 years (SD = 5.9, ranging from 2 to 35 years).

A frequency distribution of the 23 interviewer job descriptions or occupations is located in Appendix A-5. These 23 original job descriptions were subsequently classed in five broad categories listed below with the number of interviewers per category:

1. Education/Counselling	n = 25
2. Psychology	n = 30
3. Law	n = 18
4. Police work	n = 14
5. Social work	<u>n = 33</u>
Total	N = 120

Level of education was also classed in four broad categories listed below with the number of interviewers per category:

1. No degree	n = 17
2. Bachelor level	n = 24
3. MA/LLB level	n = 59
4. Ph.D level	<u>n = 20</u>
Total	N = 120

Stimulus Film

A five and three-quarter minute video excerpt from a colour film entitled "The Huntsman" (National Filmboard of Canada, 1972) was the stimulus film for

the study. The sound track included piano accompaniment and a short section of dialogue. A brief description of the film follows:

A young boy, age approximately 8-10 years, is collecting golf-balls at a golf-course. While he is scooping balls out of a creek, two older boys arrive and offer him fifty cents for the good balls he'd found rather than pay the \$2.00 which he could obtain from the club members. The boy refuses to sell at first but after the teens threaten to throw his cowboy boots in the water, he throws them his balls. The teens then drop his boots in the water anyway and the boy is later seen sitting on a swing and in bed looking very down cast. The next day he sees the teens hunting for balls in the same creek. Without letting the older boys see him, he sneaks over to their car which is parked on a hill, releases the parking brake and gives the car a push. The car rolls down the hill toward the teens, one of whom alerts the other. The two run out of the way just as the car plunges into the water.

The film was chosen for its clear sequence of events and the obvious wrong-doing of both the older boys and the younger boy. Results of a preliminary pilot study (N=23), conducted to determine the suitability of the stimulus film for a recall task involving preschool children, indicated that adequate recall material could be elicited from this age-group.

Cognitive Status Screen

The Peabody Picture Vocabulary Test-Revised, Form L (Dunn and Dunn, 1981) was used to obtain a rough screening of the subjects' vision and cognitive-linguistic status as measured by receptive hearing vocabulary. This test is a widely used measure of English recognition vocabulary knowledge and has demonstrated adequate reliability and validity as well as satisfactory correlations with other receptive and expressive language skill measures (Dunn et al., 1981). The PPVT-

R has been standardized for subjects 2.5 to 40 years of age, requires 10-20 minutes for administration and does not require the subject to read or write. Normative data is based on a U.S. national sample (mean = 100, SD = 15).

Scores on the PPVT-R were compared across age-group, condition and gender (Statistical Package for the Social Sciences-X, Release 3.1, 1989). Means and standard deviations for the age-standardized scores are listed in Appendix B-1. Although the grand mean score of 110 (SD = 15) for the 180 subjects was higher than that obtained in the U.S. based normative sample (mean = 100, SD = 15), similar differences have been found for the PPVT-R and a range of cognitive tests in previous Victoria studies (Spreen and McAllister, 1981; McAllister, 1987) as well as in the British Columbia normative data collected for an earlier edition of the test (Holmes, 1980). Results of a 3 x 3 x 2 ANOVA (age-group x condition x sex of subject) indicate a significant main effect of age-group ($F(2,162) = 3.20, p = .043$) with no effect of condition or sex and no interactions (see Appendix B-2).

Post-hoc comparisons (Tukey's HSD test using the pooled error term) of age-group means (preschoolers = 109.5, 8-10 year-olds = 106.97 and young adults = 113.95 respectively) indicate the elementary school sample was significantly lower than the young adult sample and the remaining group means did not differ at the .05 level.

Mean differences in PPVT-R performance between age-groups were attributed to the different sampling procedure used for each sample. The most

systematic sampling occurred in the elementary school age-group and the mean of 106.97 (SD = 16) was the lowest of the three groups. Just under one-third of the preschool sample was recruited from the University of Victoria Preschool Centres and the mean of 109.5 (SD = 13.7) is comparable to a mean of 107.9 (SD = 12) obtained in a previous Victoria preschool study which used an alternate form of the revised test (N = 238, McAllister, 1988). The young adult subjects were primarily recruited from a first-year university population and the mean of 113.95 (SD = 14.8) was the highest of the three groups.

PROCEDURE

Assignment of Interviewers and Subjects to Conditions

Interviewers were asked to interview a subject from an age-group with which they had some experience in their work setting and thus self-selected the age-group from which the subject was drawn. Once an interviewer was scheduled, he or she was randomly assigned to the blind or informed condition and to the same or opposite gender combination of interviewer-subject pairs. When one or more of the eight cells (two conditions by four gender combinations) was filled, the interviewer was placed in whichever cell remained for that condition and gender combination. If an interviewer did not arrive after 60 minutes or cancelled at the last minute, the subject was then assigned to the control condition. If a subject cancelled on short notice and the required replacement

(sex of subject) was not found, the interviewer was then re-assigned to the cell or condition for the subject who was available.

Interviews in the blind and informed conditions were given scheduling priority due to the time commitments of the professionals involved. The 60 control condition interviews were then scheduled according to laboratory availability. A running pool of about 12 subjects was kept for each of the three sample age-groups and a subject of the required sex was obtained once each interview was scheduled.

Initial Instructions

None of the subjects were informed that they would be questioned about the film. Phone contact was made with parents of children in the two younger age-groups in order to schedule the interview time. Parents were strongly cautioned not to mention the idea of a memory test or details about the content of the film and to give their child the following bits of information: 1) see a movie; 2) play a picture game; 3) do some talking with another person and be video-taped; 4) see themselves on video and have a snack. In order to ease the transition from home or daycare to the university setting, it was suggested that children in the youngest age-group bring a familiar toy on the day in question.

The young adult subjects were given the following information: 1) view a short film; 2) take a vocabulary test; 3) have a conversation with another person which would be videotaped; 4) be given a full de-briefing at the end.

General Procedure

All subjects were first given a brief overview of the procedure and introduced to the interview set-up which included a one-way mirror, observation room and video equipment. The interview room was equipped with a large rectangular table and chairs as well as a smaller child's table and two chairs. Two stuffed animal toys were located in one corner of the room.

The film was viewed in a small, darkened observation room and subjects sat approximately one meter from a 28 x 20 cm video-monitor screen. In order to ensure, to some degree, that the subject actually looked at the film, the experimenter sat to the right and slightly behind the subject's chair. For the youngest age-group, the film had no introduction other than "Now we are going to watch the movie. It's about five minutes long. Are you ready to start?" Brief comments such as "Let's see what happens" were made if the child's attention was not continually directed at the video monitor.

In order to mask the purpose of the film, subjects in the two older age-groups were given the following instructions:

This is a short film about five minutes long. When it's over, I'm going to ask you whether or not it held your attention. Are you ready to start?

Immediately after viewing, subjects in the two older age-groups were asked to rate the film on a scale of one to ten in terms of how well it held their attention. If the eight-to ten year-olds did not understand the meaning of the instruction, they were asked to "choose a number between one and 10 to say how

interesting the movie was." There was no further discussion or comment on the film. After returning to the main lab where the PPVT-R was administered, subjects were offered a snack. The procedure then varied according to which condition the subject was assigned.

Control Condition

Subjects in the control condition were given the following instructions:

Now I'm going to ask you to tell me as much as you can remember about the film (movie) you saw earlier. It's important that you speak clearly so that the mic' picks up your voice and try not to leave anything out. Are you ready?

Once the subject finished the initial recall, he or she was asked to repeat the procedure (trial 2). For the two older age-groups, a non-specific request for more information was made on completion of the second recall as follows:

Do you remember anything more?
Do you remember any more details?
Anything else that you can think of?

Question Prompts

If preschoolers in the control condition responded with "I don't know" or "I don't remember" to the initial recall request, a variety of initiating prompts such as "Do you remember seeing the film?" or "Which part do you remember?" were offered.

Due to the brevity of preschoolers' initial recall in the pilot study as well as their limited recall and narrative abilities reported in the published literature, a

variety of general question prompts were used for all subjects who produced minimal recall. These questions were very conservative in that they were not leading in the classic sense (e.g., 'Was the car red?') and did not request particular descriptive information (e.g., 'What colour was the car?'). As can be seen in the examples below, the main purpose of these questions was to anchor particular references made by the subject, to obtain more detail regarding the sequence of events and to obtain more information generally.

e.g. Subj.: He pushed the car.
Int.: Who pushed the car?

e.g. Subj.: He wanted to scare the bad men.
Int.: Why were they bad? (or) Why did he want to scare them?

e.g. Int.: What happened at the beginning (next, end?)

e.g. Int.: What else do you remember?

Question prompts were used for all preschool subjects, for one elementary school subject (whose initial recall was similar in content and quantity to that of the preschool sample), and for none of the young adult subjects.

Control Questions

Upon completion of the second recall trial, the experimenter asked 20 control questions which are listed as follows:

1. Who was in the film (movie)?
2. What was the little boy doing?
3. How was he collecting golf-balls?
4. How many did he have?
5. Where did he keep them?
6. Describe the boy. (What did he look like?)

7. What was the boy wearing?
8. Who else was in the film?
9. What did the older boys (men) do?
10. What did the older boys do after they threw the boy's boots in?
11. What did the boy do after they threw his boots in?
12. What did the boy do after he dumped the water out of his boots?
13. What did the two older boys (men) look like?
14. What were the two older boys wearing?
15. What did the boy do the next day?
16. What were the two older boys (men) doing the next day?
17. What did the boy do before he pushed the car?
18. Why did the boy push the car?
19. What was the boy wearing the next day?
20. Describe the car. (What did the car look like?)

Debriefing

To ensure each child understood the nature of right and wrong in the film, a debriefing procedure was then administered to subjects in the two younger age-groups as follows:

- 1) When the boy pushed the car, was that a right thing or a wrong thing to do?
- 2) Why was it wrong?
- 3) What else could the boy have done?
- 4) Who could he have told?

At the end of the debriefing procedure subjects were given the opportunity to view themselves on video and, to ensure future subjects were un-informed about the nature of the recall task, cautioned not to mention details about the movie to their friends (or colleagues). The young-adult subjects were given a full account of the purpose of the study.

Blind and Informed Conditions

Subjects in the blind and informed conditions were scheduled to arrive at the lab approximately one-half hour before the interviewer. The procedure was

similar to that of the control condition up to the vocabulary test and snack. At this point, all subjects were taken to a separate room and kept busy until the recall interview. The two older age-groups were given a modified version of a word fluency test in which they were asked to write or print as many words as possible that begin with certain letters. The preschool subjects were given drawing materials and asked to "Draw anything you like." No subjects in this age-group spontaneously drew the film contents.

While subjects were kept busy, the interviewer arrived, was introduced to the interview set-up and given the following verbal instructions:

In a few minutes, you're going to meet a little boy/girl (young boy/girl or student) named _____ who is _____ years-old. At the moment, _____ is in another room. About _____ minutes ago, _____ saw a short five-minute film behind this mirror or screen. There is a VCR and T.V. screen set up in there to view the film.

Now at this point, _____ does not know that you are going to question him/her about the film. All he/she knows is that he/she will meet a man or lady (another person) and do some talking (have a conversation). _____ knows that while you're talking I'll be behind the mirror doing my work running the video camera.

Your task is to find out as much detail as possible about the contents of the film. You are free to tell the subject that you haven't seen the film or what you do for a living and to question in any manner that seems appropriate.

Here (points to) is the camera and here is the mike. It's fairly sensitive so you don't have to worry about speaking right into it. These chairs and the table are for your use and you're free to move them or arrange them to suit yourself. I don't need a full-face view of either of you but I would like to at least have your profiles. Also, as long as you stay in this end of the room (motion with arms), I'll be able to pick you up even if you or _____ move around.

You have an hour to complete the task and there are pencils, pens and paper here if you'd like to take notes. There are also crayons and blank paper if you'd like to use them.

Although I cannot tell you what the film is about, I can tell you there is a sequence of events which make a sensible story line.

**(Informed condition interviewers were given the following additional information:
A car is in the water at one point and a young boy is involved.)**

When you are done, I'd like you to motion to me in some way that you are finished. Some people say "Catherine will be back soon" or just say "We're done." At that point I will come back into the room and tell both you and _____ what do do next. I'll need to ask _____ a few more questions as part of the control measure and I will take you to another room and ask you to fill in three forms. The first is a consent form, the second requires brief information about your training and experience and the third is optional. I'll ask you to write a report on the details of the film based on what _____ has told you. You can use the any notes you take for that purpose but you won't be able to see the video-tape until after you've written the report.

Once you have finished writing the report, you are welcome to see the five-minute film and I'll debrief you about what I'll be looking for in the analysis of the data. That about covers what I need to tell you. Do you have any questions? Before I bring _____ in, how would you like to be introduced?

Although interviewers were free to arrange the table and chairs as they wished, time constraints due to heavy laboratory use (requiring test materials etc.) prevented a uniform initial set-up for all interviewers. Once the interviewer indicated he or she was ready to begin, the camera was turned on and the subject was then brought to the lab and briefly introduced to the interviewer. The experimenter then left to monitor the interview from behind the one-way mirror.

On completion, the interviewer was taken to a separate room and asked to sign a consent form, to write a brief description of his or her training and experience, and to write a report on the contents of the film based on the interview. The experimenter then administered the control questions and the debriefing procedure to the subject. Interviewers were also cautioned not to mention film details to their colleagues and, if time permitted, viewed the stimulus film and were informed more fully of the design of the study and the proposed analysis. Additional procedural details are listed in Appendix B-3.

Interview Length in Minutes

The length of the recall interviews is reported in minutes. Means and standard deviations across age-group, condition and subject gender are listed in Appendix B-4. Results of a three-way ANOVA indicate a main effect of condition ($F(2,162) = 84.75, p < .001$) with no effect of age-group or gender and no interactions (see Appendix B-5). Comparisons of condition means (control condition = 5.27, blind condition = 24.5 and informed condition = 26.9 minutes respectively) indicate that interviews in the control condition were significantly shorter than those in the blind and informed conditions and the latter two conditions did not differ at the .05 level.

A second three-way ANOVA tested differences in interview length between the four gender-combinations of interviewer-subject pairs in the blind and informed conditions only. Results indicate no main effects and no interactions see Appendix B-6).

Time Interval between Film Viewing and Recall

The time interval between film viewing and the beginning of the recall interviews is reported in minutes. Means and standard deviations across age-group, condition and subject gender are listed in Appendix B-7.

Results of a three-way ANOVA (age-group X condition X gender of subject) indicate a significant main effect of condition ($F(2,162) = 13.81, p < .001$), with no effect of age-group or gender and no interactions (see Appendix B-

8). Tukey's post hoc tests of condition means (control condition = 20.8, blind condition = 24.6 and informed condition = 27.5 minutes respectively) indicate the time interval in the control condition was significantly lower than the blind and informed conditions and the latter two did not differ at the .05 level.

SCORING PROCEDURE

Data Transcription

Although the main objective of the study was to approach each interview as a whole, a comprehensive analysis which would include both verbal and non-verbal behaviours was beyond its scope. At the outset, it was therefore determined that scoring would be restricted to interview transcripts.

Verbatim transcripts were initially typed from audio-recordings and then edited by two individuals, each of whom reviewed half the videotapes to decipher indistinct dialogue and non-verbal responses such as nods of the head, gestures and pointing.

Turns

The major unit of analysis examined in scoring each interview was the conversational turn (Sachs, Schegloff and Jefferson, 1974). For the purpose of this study, a turn was defined as an interviewer's statement or question followed by a subject's response (an adjacency-pair). Beginning with the interviewer's first statement followed by the subject's first response, each pair of turns was

numbered in sequence until the interviewer indicated the session was over. For ease of reference, subsequent use of the term 'turns' will refer to the numbered turn-pairs.

Turns were roughly classed in one of two groups, those which concerned the film material (on-topic turns) and those which concerned other material (off-topic turns). As part of the basic description of the data-set, the number of turns and the percent on-topic turns are next reported across age-group, condition and gender-combination. Means and standard deviations are listed in Appendix C-1. Due to the differences in questioning procedure used for the controls, turns were examined separately from those in the remaining two conditions.

The number of turns in the control condition ranged from 3 to 41. Results of a two-way ANOVA (age-group X gender) indicate a significant main effect of age-group ($F(2,54) = 39.6, p = .001$), with no effect of gender or the interaction of age-group and gender (see Appendix C-2). Tukey post hoc tests of group means (preschoolers = 22.5, 8-10 year-olds = 8.5 and young adults = 6.6 mean total turns) indicate that turns in the preschool sample were significantly higher than in the two older age-groups, and the latter two did not differ at the .05 level.

The total number of turns in the blind and informed conditions ranged from 15 to 424 and results of a three-way ANOVA indicate a significant main effect of age-group ($F(2,96) = 5.87, p = .004$), with no effect of condition or gender-combination and no interactions (see Appendix C-3). Post hoc tests examining differences between group means (preschoolers = 201.1, 8-10 year-olds

= 182.3 and young-adults = 136.6 mean turn totals respectively) indicate the young adult sample was significantly lower than both the preschool and 8-10 year-old samples and the latter two did not differ at the .05 level.

Percent On-Topic Turns: Turns in the control condition interviews were close to 100% on-topic across age-group and gender. Percent on-topic turns in the blind and informed conditions ranged from 28-100% and results of a three-way ANOVA indicate a significant main effect of age-group ($F(2,96) = 4.51, p = .012$), with no effect of condition or gender-combination and no interactions (see Appendix C-4). Post hoc tests of group means (preschoolers = 80.3%, 8-10 year-olds = 85.1% and young-adults = 90.7% on-topic turns respectively) indicate significant differences between all three age-groups.

In summary, the two turn measures in the blind and informed conditions were inversely related. The total number of turns increased from the oldest to the youngest age-group and the percent on-topic turns decreased from the oldest to the youngest age-group. For descriptive purposes, interview length in minutes was also correlated with the total number of turns and percent on-topic turns. As can be seen from the results listed below, while the two measures of interview length (length in minutes and length in turns) were fairly highly correlated across age-groups, there was no correlation between length in minutes and percent on-topic turns.

Correlation of Interview Length In Minutes With		Total Turns	Percent On-Topic
Total	(n = 120)	.81	-.05
Preschool	(n = 40)	.79	.09
8-10 Years	(n = 40)	.83	-.08
Young Adults	(n = 40)	.86	-.05

Scoring Criteria for Question/Response Material

Scoring of question/response material involved a fairly strict gist-recall paradigm and, as a general rule, no detail of the film was considered more important than others. Since the smallest detail in an actual investigation may be an important factor in the weighing of particular evidence, there was no attempt to score only essential details of the film stimulus.

Although more controlled studies maintain a clear distinction between estimates of the amount and accuracy of free recall material and estimates of accuracy based on open or closed questions, this distinction was not clear in the present, more naturalistic data-set. Not only was spontaneous recall material elicited in response to both open and closed questions (e.g., a subject produced spontaneous material in addition to a yes/no response to a closed question), in many cases, the subject did not respond to the question asked (e.g., offered information that was not directly requested but none-the-less scoreable spontaneous recall, changed the topic, or offered an 'I don't know' response). There was thus no one-to-one correspondence between open or closed questions and the type of response which was elicited.

At the outset, therefore, a primary distinction was made between spontaneous recall material, scored in response to all question types (free recall narratives as well as spontaneous material elicited in response to all questions), and closed questions which elicited a yes/no response. Spontaneous recall was scored in all three conditions and closed questions were restricted to the blind and informed conditions. Closed questions included those which were leading in the correct sense (requiring a 'yes' response) and those which were misleading (requiring a 'no' response). Regardless of whether the question was open or closed, if its propositional content was not correct (i.e., it required a 'no' response), it was considered misleading.

A brief overview of the major scoring categories is first presented below. For all categories, a more detailed listing is found in the final appendix (Appendix L) which includes an outline of the scoring decision rules (Appendix L-1) as well as the complete scoring of a relatively short and straightforward transcript from the preschool sample (Appendix L-2).

Spontaneous Recall

Regardless of the manner in which material was elicited, the content of subjects' spontaneous recall was scored first and divided into three types of units termed correct details, inferences and errors.

Correct Details: Correct details referred to action or descriptive content and the boundaries of details are underlined in the example below.

e.g. Subj.: The boy pushed the car into the water.

Inferences: Inferences were identified as interpretations or conclusions derived from the logic of an observable sequence of events and classed as one of the following five types:

- 1) Practical Inferences - reasonable and obvious (filling in a gap)
- 2a) Semantic Inferences - reasonable but not obvious
- 2b) Evaluation/Exaggeration Inferences
- 3) State Inferences - a thinking or feeling state
- 4) Future Inferences - a reasonable future action or state
- 5) Incorrect Inferences - comprehension errors

Errors: Spontaneous recall error material (incorrect detail) was classed in terms of its relation to the actual film content and the nine error sub types with brief examples are outlined as follows:

- 1) Mis-Perceptions - turned on the car versus released the brake
- 2) Modifier Errors - incorrect shirt colour (descriptive errors)
- 3) Sequential Errors - incorrect sequence of events
- 4) Direction Errors- buy versus sell the balls
- 5) Pronoun Errors - their boots vs. his boots
- 6) Vocabulary Errors - the boots melted vs. sank
- 7) Estimate Errors - incorrect estimates of age, size or distance
- 8) Fabrications - significant additions which clearly contradict the film
- 9) Extended Errors - elaborations of an earlier error

The gross spontaneous points included correct details, inferences and errors. To derive estimates of accurate and inaccurate details, three screens were applied with respect to error corrections, inferences and error types as follows:

- 1) Subsequent corrections of spontaneous errors were subtracted from the error point total.

2) In determining the manner in which inferences should enter into the calculation of the amount and accuracy of spontaneous recall material, three factors were considered relevant. First, although there is fairly consistent treatment in the literature for what constitutes accurate and inaccurate action or descriptive detail for unstructured recall, there is less consistency for the scoring of inferences. Saywitz (1987), for example, classed pragmatic and evaluative inferences as distortion errors. In contrast, in their description of the statement analysis procedure, Yuille and Cutshall (1989) considered inferences about a character's state of mind to be unclassifiable since the information was unknown to the analyzer.

The second factor was the distinction between memory based on fact versus inference or interpretation. Although legal investigations have traditionally placed considerable emphasis on this distinction, it has come into question more currently (McGough, 1991).

The third factor was the relevance of inferences to the understanding of the stimulus material in the present data-set. State and incorrect inferences were considered crucial in determining subjects' comprehension of the film material and were therefore considered appropriate for inclusion in the recall scores. Since it was unclear exactly how practical, semantic and future inferences should enter into the spontaneous point total, they were screened at this point and later discussed in conjunction with closed questions advancing practical, semantic and future inferences.

3a) Since pronoun errors were obviously related to production rather than to memory or perception, they were excluded from the error point total.

3b) Since extended errors were elaborations of an initial error rather than distinct additional errors, they were also excluded from the error point total and considered a separate dependent measure.

Spontaneous Recall Amount and Accuracy Scores

Accurate details (including state inferences) were assigned one correct point. Inaccurate details (including incorrect inferences) were assigned one error point. Accurate and error points were summed to derive the spontaneous recall amount (total point) score.

For the control condition, accurate and error points were initially summed separately for the first and second recall trials. Overall accurate and error scores were then calculated by subtracting the shared points from the trial one plus trial two total.

Spontaneous recall accuracy scores were derived by dividing the raw accuracy score by the total point score and multiplying by 100.

Closed Questions (CQ)

Closed questions involved both leading (c) and misleading (x) questions. Leading questions were identified as those which required a 'yes' response (i.e., they were leading in the correct sense). Misleading questions required a 'no'

response and included questions with extended error status, open questions containing an incorrect assumption as well as those requiring an 'It didn't show' response (e.g., 'What was the boy's name?'). Although choice questions usually contained a leading and misleading alternative, for practical purposes they were classed as misleading.

Depending on whether the yes/no (or choice) response was correct or incorrect, the closed question points were classed in one of the following four cells:

		Response	
		c	x
Question	Leading	c	
	Misleading	x	

It is important to note that the CQ total (i.e., the sum of these four cells) reflects the number of closed questions to which the subject offered a scorable response (correct or incorrect) rather than the number of closed questions asked. There was no penalty if subjects did not respond directly to a question or if they offered an 'I don't know' response.

1) Closed Question Quantity

Although the quantity of CQ points was initially to be based on the summation of accurate and error points falling within the four cells, this somewhat gross summation raised three immediate concerns relating to order effects and the assignment of equal weighting to all closed questions. The first concern involved

questions and responses which extended a previous error and was addressed by examining error extensions as a completely separate dependent measure.

Extensions based on both spontaneous or closed question errors were therefore identified in units defined by their conceptual boundary rather than their raw number and examined separately.

The second concern involved closed question responses which corrected or retracted a previous error and was addressed by subtracting CQ errors which were subsequently corrected or retracted.

The third concern involved questions whose correct response was somewhat ambiguous (e.g., the question related to a previous question or required an inference) and was addressed by applying the following five screens to the closed question accurate and error points:

1) Clarifications: Questions which clarified a particular detail and thus served as functional rather than exact repetitions were screened.

2) Checking Questions: Questions which checked whether a detail was based on fact versus inference were screened.

3) Inferences: Questions advancing a practical, semantic or future inference were screened.

4) Mixed Status: Questions for which a correct response would require more than a yes/no response were screened.

5) Subjective Format: Despite the surface form prompting a yes/no response, open questions in the subjective form were screened (e.g., 'Do you remember what he did with the balls?' or 'Did you see what he did with the balls?').

In summary, the closed question point total was derived by subtracting retracted error points as well as accurate and error points associated with the five screens from the gross closed question total. For the 120 interviews in the blind and informed conditions, the number of closed questions involved in each of these steps is illustrated below:

Gross CQ Pts	---->	Minus	---->	Minus	---->	CQ Point
(4788)		Retractions		Screens		Total
		(76)		(976)		(3736)

The screened questions constituted 20% of the gross closed question total and the percentage of the 976 questions comprising each of the five screens is listed as follows:

- (1) Clarifications = 71%
- (2) Inferences = 11%
- (3) Checking Ques = 5%
- (4) Mixed Status = 10%
- (5) Subjective Format = 2%

As part of the basic description of the data-set, the quantity of closed questions and the proportion classed as leading (in the correct sense) are next examined across age-group, condition and gender-combination. Means and standard deviations are listed in Appendix D-1.

The CQ total ranged from 1 to 90, with eight interviews having a frequency less than or equal to five (three in the preschool sample, one in the 8-10 year-old sample and four in the young-adult sample).

Results of a three-way ANOVA on the CQ total indicate a main effect of age-group ($F(2,96) = 3.10, p = .049$) with the effect of condition tending toward significance ($F(1,96) = 3.54, p = .063$), but no effect of gender-combination and no interactions (see Appendix D-2). Post-hoc tests of mean pairs for the age-group effect (preschoolers = 29.1; 8-10 year-olds = 37.8 and young adults = 26.6) indicate the 8-10 year-old and young adult samples were the only significantly different pair of means at the .05 level. Although the mean difference between the preschool and 8-10 year-olds did not reach significance, the preschool and young adult samples were relatively equivalent for the CQ total when compared to the middle age-group.

Proportion Leading Questions: The proportion of questions classed as leading was next examined across age-group, condition and gender-combination. Results of a three-way ANOVA indicate a main effect of age-group ($F(2,94) = 7.79, p = .001$), with the effect of condition tending toward significance ($F(1,94) = 3.45, p = .066$), but no effect of gender-combination and no interactions (see Appendix D-3). Tukey's post hoc test of group means (preschoolers = 31.7%, 8-10 year-olds = 42.5% and young adults = 43% leading questions) indicate the preschool sample was significantly lower than both the 8-10 year-old and young adult samples and the latter two did not differ at the .05 level. Significantly more

misleading questions were thus asked in the preschool interviews than in either of the two older age-groups. The results of this analysis as well those for the quantity of closed questions are graphed in Figure 2.

2) Closed Question Accuracy

Three closed question accuracy scores were derived as follows:

(1) Percent Accuracy based on Total Closed Questions

$$\frac{\text{Total correct responses}}{\text{Total correct + incorrect responses}} \times 100$$

(2) Percent Accuracy based on Leading Questions

$$\frac{\text{Correct responses to leading questions}}{\text{Correct + incorrect responses to leading questions}} \times 100$$

(3) Percent Accuracy based on Misleading Questions

$$\frac{\text{Correct responses to misleading questions}}{\text{Correct + incorrect responses to misleading questions}} \times 100$$

Error Classifications

The initial accuracy scores derived for spontaneous recall material were based on errors classed in terms of their relation to the actual film content (e.g., misperceptions, modifier errors (incorrect descriptive detail) and sequence errors etc.). To allow some comparison with previous studies reporting accuracy rates for action versus descriptive detail, there was an initial attempt to classify errors in these two broad categories (action vs. description). It was soon apparent,

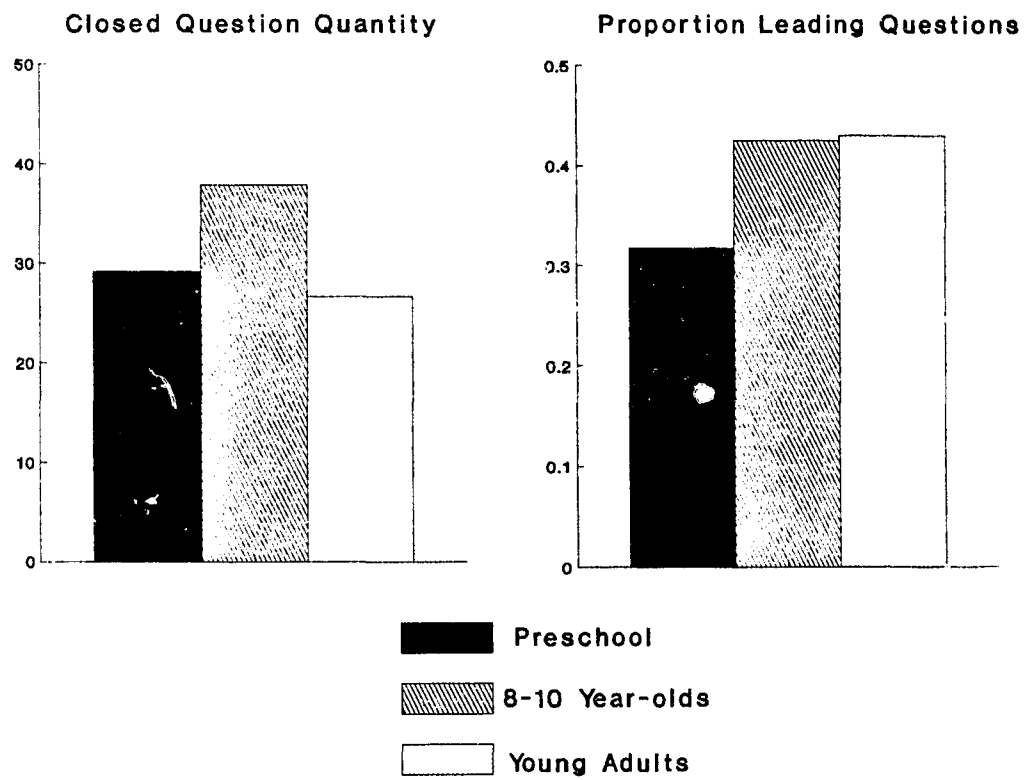


Figure 2: Closed Question Quantity and Proportion Classed as Leading

however, that this dichotomous classification was not adequate to classify the variety of errors based on both spontaneous and closed question material (since many errors did not clearly fit into either category) and this classification was therefore not pursued.

Far more apparent were errors which could be associated with various elements or features in the questioning context as well as those which could be attributed to the subject's developmental status (i.e., cognitive and linguistic abilities). In keeping with the exploratory nature of this study, a classification scheme was therefore developed to identify errors associated with these two factors and the purpose of developing this procedure was two-fold. It not only allowed an examination of age-related differences in the proportion of error associated with these two factors, that is, questioning context and age, it also allowed the calculation of adjusted accuracy scores (by subtracting errors identified in these two categories) for comparison with the original accuracy scores.

The identification of errors associated with features in the questioning context (subsequently referred to as 'discourse feature errors') and those associated with the subjects' developmental status (subsequently referred to as 'developmental status errors') are briefly outlined (with a more detailed listing of the criteria and examples located in Appendix L).

Discourse Features Errors: Spontaneous and closed question errors associated with the five elements of context listed below were classed as discourse

feature (DF) errors. The sequential ordering of these five features does not reflect order of importance.

1) Lack of a shared referent: Errors attributed to lack of a shared referent between the interviewer and subject were identified when subsequent spontaneous material indicated a different aspect or point of time in the sequence of events was being referred to by the subject).

2) Embedded errors: Embedded errors were identified in questions advancing correct as well as incorrect material or a summary of material which the subject confirms.

3) Momentum errors: Errors in response to questions containing a response bias included the declarative, tag and negative forms.

4) Repeat process errors: These errors followed the same or similar question after an initial correct or IDK response, or a vague question.

5) Inadvertent prompted error: Errors associated with an interviewer's side comment or implicit suggestion were classed in this category.

Developmental Status Errors: The classification of errors attributed to the subject's developmental status was extremely conservative and included the following 10 sub-types (once again the order does not reflect order of importance):

- 1) all semantic (vocabulary) errors and initial fabrications
- 2) estimate errors in relation to the subject's age
- 3) comprehension errors involving inferences
- 4) obvious acquiescence errors
- 5) switch in reference errors
- 6) responses to evaluation questions

- 7) responses to how/why questions
- 8) responses to obviously misleading questions
- 9) the three highest frequency errors (e.g., boy playing, fishing)
- 10) obvious contradictions with no explanation

Scoring of Interviewer Reports

Interviewers' written reports were transcribed and scored as spontaneous material (accurate details, inferences and errors). The amount score included accurate and error points repeated from the interviews as well as inferences (both correct and incorrect) on the interviewer's part. Spontaneous errors repeated from the interviews were distinguished from repeated closed question errors as well as incorrect inferences on the interviewer's part.

Scoring of Control Questionnaire

The control questionnaire contained 20 open questions ranging from a general to specific focus. Responses were scored according to the gist-recall paradigm outlined for spontaneous recall.

Scoring of the Informed Condition Facts

Overt use of the information provided to the 60 interviewers in the informed condition was limited (n=14; preschool = 4, 8-10 year-olds = 5 and young adults = 5). In most cases the interviewer informed the subject directly. Of the five closed questions which incorporated these facts, three were leading, two were misleading and in all cases the subject responded correctly.

Scoring Reliability

The scoring system was initially developed on the entire data set. Two additional raters were then trained to obtain measures of inter-rater reliability on 30 of the 180 interviews (16%). To ensure adequate representation from the variety of interviews and at the same time avoid the longest, shortest and most complex interviews, selection was representative rather than random. One interview was selected from each level of each factor considered in the design (6 interviews from the control condition (age-group x gender) and 24 interviews in total from the blind and informed conditions (age-group x condition x gender-combination)).

The procedure involved three levels of scoring as follows:

- 1) Level One: Rater two scored spontaneous recall points.
- 2) Level Two: Due to the complexity of scoring decisions for the closed question points, raters two and three each scored 12 of the 24 reliability interviews in the blind and informed conditions.
- 3) Level Three: Rater three classed the discourse feature and developmental status errors for both spontaneous and closed question material.

For each level, the procedure involved both a training and trial phase before the actual scoring of the reliability interviews.

Training Phase: To obtain a working knowledge of the basic scoring system and the decision rules applying to the more complex material in each phase, training involved viewing the stimulus film as necessary, access to the scoring instructions and decision rules and working through between four and 10

interviews with the primary scorer. Although the language competence of the youngest age-group was fairly obvious in the transcripts, raters were generally unaware of the age or sex of the participants unless detail regarding these facts emerged. For example, if a question required an estimate of a film character's size or age in relation to that of the subject, the raters were informed of the necessary detail.

Trial Phase: The rater scored an additional six interviews without assistance from the primary scorer (although questions could be asked), to test whether a minimal acceptable level of agreement with the primary scorer was achieved (a correlation or % agreement greater than .85 or 90%).

The reliability measures are outlined below. Means and standard deviations for each comparison are listed in Appendix D-3a.

1) Level One: Spontaneous Points: Pearson correlation coefficients between raters one and two were .98 for the spontaneous point total and .81 for percent accuracy scores. T-tests examining the differences between the raters were non-significant for both measures (spontaneous point total ($t(58) = .51$, $p = .61$) and percent accuracy scores ($t(58) = -1.0$, $p = .32$)).

2) Level Two: Closed Question (CQ) Points: Correlation coefficients between raters one and two were .95 for the quantity of closed questions ($t(22) = -.065$, $p = .95$). Although the usual procedure is to resolve discrepancies before classifying the CQ points in the four-cell grid, due to the sequential nature of the scoring system, resolving a discrepancy at one point had repercussions at other

points in the interview. In order to maintain the integrity of each rater's scoring system as a whole, the discrepancies were therefore not resolved. The remaining correlation coefficients between raters one and two were .56 for accuracy based on the closed question total ($t(22) = -.78, p = .44$), .76 for accuracy based on leading questions ($t(22) = 1.09, p = .29$) and .59 for accuracy based on misleading questions ($t(22) = -1.89, p = .07$).

Correlation coefficients between raters one and three were .98 for the quantity of closed questions ($t(22) = -.11, p = .91$), .58 for accuracy based on the closed question total ($t(22) = .72, p = .48$), .94 for accuracy based on leading questions ($t(22) = .65, p = .53$) and .59 for accuracy based on misleading questions ($t(22) = .27, p = .79$).

3) Level Three: Error Classifications: Rater three was provided with a list of spontaneous and closed question errors scored by the primary investigator (including the turns in which the errors occurred) as well as the transcripts for each of the 24 reliability interviews and classed each error in one of the following four categories:

- 1) Discourse Feature Error (DF)
- 2) Developmental Status Error (DVS)
- 3) Retracted Error
- 4) Regular (Remainder) Error

Although an error could be classed in both the DF and DVS categories, DF took precedence and the retracted error category took precedence over both the DF and DVS categories. Errors which did not fall into one of the first three categories were then classed in the fourth category. The initial percent agreement

between rater three and the primary scorer for the four-choice classification was 86.6% (n=187). Using Cohen's (1960) correction for guessing, the percent agreement was 79%.

Descriptive Measures in Relation to Interviewer Characteristics

As part of the basic description of the data set, the six descriptive measures for the 120 interviews in the blind and informed conditions (time interval between film viewing and recall, interview length in minutes and turns, percent-on-topic-turns, closed question quantity and the proportion of questions classed as leading) were next examined in relation to the five interviewer characteristics (age, gender, length of career, job-category and level of education).

Age: Multiple correlations of the six descriptive measures with interviewer age were non-significant for all age-groups (multiple R squared for the preschool sample = .18; 8-10 year-olds = .10 and young adults = .04).

Gender: Gender differences were examined using separate t-tests for each age-group and results were non-significant for all six descriptive measures.

Length of Career: Multiple correlations of the six descriptive measures with interviewer career length were non-significant for all age-groups (preschool multiple R squared = .06; 8-10 year-olds = .21 and young adults = .13).

Job Category: Due to the unequal n across the five job-categories and four levels of education, the basic findings are reported in general terms, based on the descriptive statistics, and limited to the quantity of closed questions and the

proportion of questions classed as leading. Means and standard deviations for the five job categories and four levels of education across age-group are presented in Appendix D-4.

For the preschool sample, police-officers (n=9) asked the most closed questions. For the 8-10 year-old sample, police officers and lawyers asked the most closed questions and for the young adult sample, lawyers asked the most and social workers and police-officers (n=1) asked the least number of closed questions. For the proportion of questions classed as leading, counsellors and psychologists scored slightly higher than the remaining categories in the preschool sample. No obvious differences across categories occurred in the 8-10 year-old sample and for the young adult group, psychologists asked the most leading questions and social workers asked the most misleading questions.

Level of Education: Interviewers with no degree (police officers) asked the most closed questions in the preschool group, relative to the remaining three degree levels which did not differ. The Ph.D. and no degree level interviewers asked the most closed questions for the 8-10 year-old sample. For the young adult sample, the MA/LLB and Ph.D. levels were higher than the no degree or BA level.

For the proportion of questions classed as leading, the Ph.D. and BA levels scored highest in the preschool sample, with no obvious differences in the 8-10 year-old sample. The MA/LLB and Ph.D levels scored highest in the young adult group.

ANALYSIS

The analysis proceeded in a series of five stages, each addressing one or more of the specific hypotheses or questions outlined as follows:

Stage One: The first major hypothesis considered the general relationship between the amount and accuracy of spontaneous recall and the overall form of elicitation across age-groups.

Hypothesis 1: Relative to the amount and accuracy of spontaneous recall elicited by the standardized protocol in the control condition (i.e., 'Tell me as much as you can remember'), it is expected that the amount of spontaneous recall material in the blind and informed conditions will be higher and the accuracy will be lower across age-groups.

Hypothesis 1a: For the control condition, it is expected that there will be significant age-related difference in the amount of spontaneous recall but no differences in recall accuracy.

Hypothesis 1b: For the blind and informed conditions, it is expected that there will be significant age-related differences in both the amount and accuracy of spontaneous recall material.

Hypothesis 1c: Since explicit use of the informed condition facts was very limited, there will be no differences in spontaneous recall accuracy between the blind and informed conditions and no differences across the four gender-combinations.

Stage Two: Closed question material was examined in the second stage of the analysis. The first question below was addressed in the previous chapter.

Question 1: How does the interviewers' degree of knowledge of the event to be recalled relate to their use of leading or misleading questions?

Since the design factor which discriminated the blind and informed conditions had no clear effect on the number of questions asked or the proportion of questions classed as leading, the hypothesis relating to closed questions was restricted to age-related differences in accuracy based on leading and misleading questions.

Hypothesis 2a: There will be significant age-related differences in accuracy based on both leading and misleading questions and accuracy based on leading questions will be higher than those based on misleading questions across age-groups.

Hypothesis 2b: The blind and informed conditions will not differ in responses to leading and misleading questions across age-group or gender-combination.

The second question was examined separately for each of the major dependent measures.

Question 2: Do interviewer characteristics such as age, gender, profession, experience and education have a relationship to the amount and accuracy of material elicited through questioning?

Stage Three: The third stage of the analysis examined the proportion of error associated with the five discourse features and compared the original accuracy scores with the adjusted accuracy scores.

Question 3a: What proportion of error may be associated with elements in the questioning context (i.e., discourse feature errors) and are there differences across age-groups?

Question 3b: Do age-related patterns in the initial accuracy scores change when scores are adjusted by subtracting errors associated with the questioning context?

Question 3c: Do age-related patterns further change when accuracy scores are again adjusted by subtracting errors associated with the subjects' developmental status?

Stage Four: The three dependent measures used to examine age-related differences in stage four of the analysis were error extensions, fabrications and error retractions.

Question 4: Do interviews with younger children have a different pattern of recall errors than interviews with older children and adults?

Stage Five: Stage five of the analysis examined the amount and accuracy of material in the interviewer reports as well as responses to the control questionnaire.

Question 5a: Do interviewer reports reflect the amount and accuracy of material elicited in the interviews and are there differences across age-groups?

Question 5b: Are there age-group differences in response to the questionnaire?

Based on the results of these five stages in the analysis and a discursive outline of more qualitative aspects of the data-set which will be presented in Chapter 4, additional questions to be addressed are listed as follows:

Question 6: To what degree do young children actually manifest inaccurate recall, suggestibility and the inability to distinguish fantasy from reality? How are these characteristics influenced by the interaction style of the interviewer?

Question 7: Can a distinction be made between structuring and leading a subject? Do certain structuring features enhance or hinder accurate recall?

Question 8: What are the risks to accurate recall involved in different questioning procedures? Can knowledge of these risks help differentiate productive from counter-productive questioning techniques and strategies?

All statistical analyses utilized the SPSS-X Statistical Package (release 3.1, 1989) unless otherwise noted. Level of significance was chosen at the .05 level. Due to the exploratory nature of this study, Tukey's post hoc procedure was used for individual comparisons between means (except where otherwise noted).

CHAPTER THREE

RESULTS

Stage One: Amount and Accuracy of Spontaneous Recall Material

Amount: The amount of spontaneous recall material was first compared across the three age-groups and conditions in a 3 x 3 ANOVA. Means are graphed in Figure 3a and listed along with standard deviations in Appendix E. Results show significant main effects for both age-group (accounting for 44% of the variance ($F(2,179) = 89.6, p < .001$)) and condition (accounting for 10% of the variance ($F(2,179) = 20.5, p < .001$)) and a significant interaction (accounting for 4% of the variance ($F(4,179) = 3.73, p = .006$)).

Post hoc tests between age-group means indicate significant differences between all three age-groups for the control and informed conditions. For the blind condition, the differences were significant between the two younger sample groups. Comparison of condition means indicate the control group was significantly lower than the blind and informed conditions for the two younger sample groups. For the young adult group, the difference between the control and informed conditions was the only pair of means to differ at the .05 level.

As can be seen in Figure 3a, the young adult group in the blind condition did not fit the pattern of relationships predicted in the first hypothesis. Means in the blind and informed conditions were therefore compared across age-group and gender-combination (see Appendix E-1) and graphed in Figure 3b. Although the results of a three-way ANOVA (3 age-groups x 2 conditions x 4 gender-

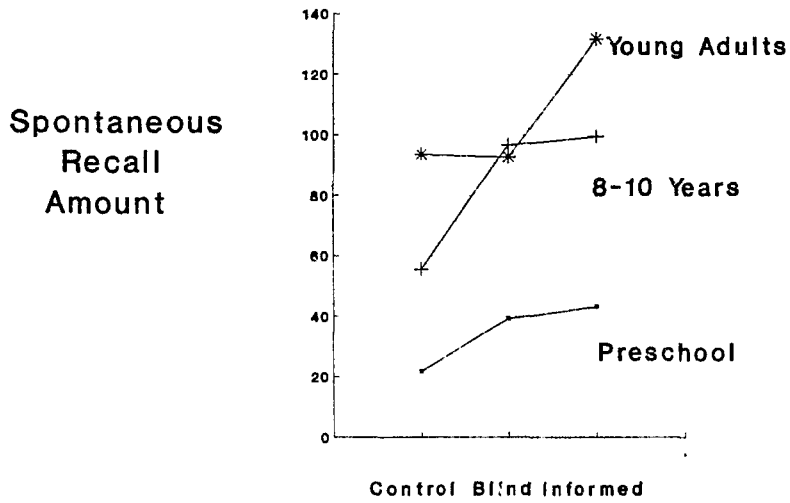


Figure 3a: Spontaneous Recall Amount across Age-group and Condition

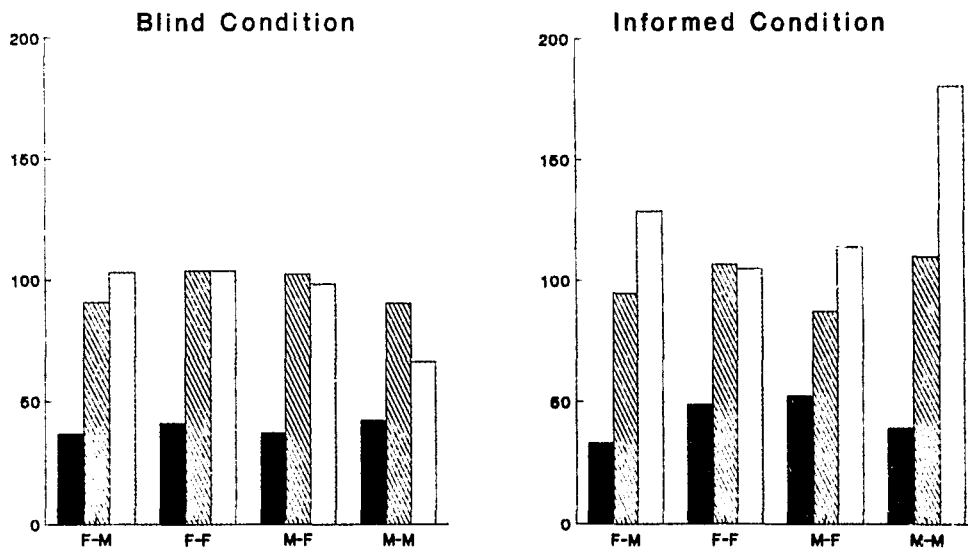


Figure 3b: Spontaneous Recall Amount across Age-group and Gender-Combination

combinations) indicated no overall effect of gender-combination (see Appendix E-1a), as can be seen in Figure 3b, the main difference between the two conditions is located in the male-male gender-combination for the young adult group ($t(8) = -4.88, p = .001$). These cells were therefore examined more closely to determine if there was a relation to interview length (in minutes) or interviewer occupation.

Although the results of a three-way ANOVA (reported earlier) comparing interview length across age-group, condition and gender-combination indicated no main effects and no interactions (see Appendix B-6), a t-test comparing interview length in these two cells was significant ($t(8) = -2.78, p = .025$)

With respect to interviewer occupation, the young adult group in the blind condition contained two counsellors, two social workers and a child care worker. In contrast, the informed condition contained one social worker, one family therapist, two lawyers and one physician. The interviewers in the latter two categories obtained three of the top seven scores for spontaneous recall amount.

Although interviewers were randomly assigned to the blind and informed conditions, these differences in interviewer occupation and the concomitant difference in interview length obviously influenced the amount of spontaneous material elicited in these two cells.

Accuracy: Spontaneous recall accuracy was next compared across the three age-groups and conditions in a 3 x 3 ANOVA. Means are graphed in Figure 4 and listed along with standard deviations in Appendix E-2.

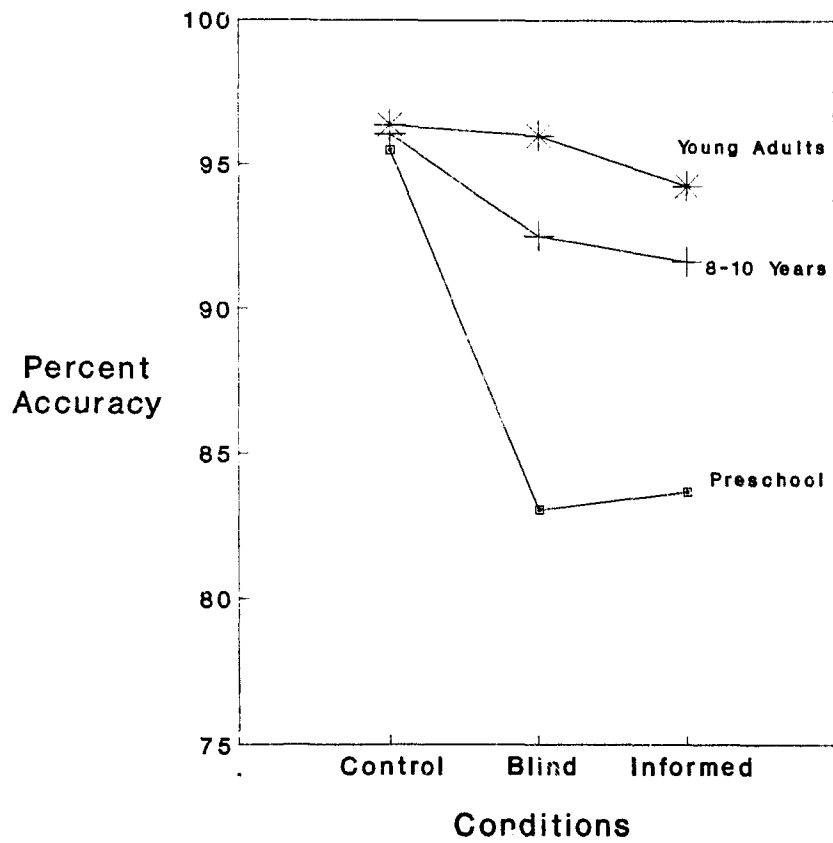


Figure 4: Spontaneous Recall Accuracy across Age-Groups and Conditions

Results indicate significant main effects for both age-group (accounting for 27% of the variance ($F(2,171) = 54.49, p < .001$)) and condition (accounting for 17% of the variance ($F(1,171) = 36.19, p < .001$)) and a significant interaction (accounting for 11% of the variance ($F(4,171) = 10.69, p < .001$)).

Post-hoc comparisons indicate accuracy scores did not differ between the three age-groups in the control condition. For the blind and informed conditions, there were significant differences between all three age-groups.

Post hoc comparisons across conditions indicate a significant decrease in accuracy in the blind and informed conditions for the two younger samples but the young adult sample did not differ across the three conditions.

In summary, the results of these analyses generally support the pattern of relationships predicted in hypothesis 1. With the exception of the young adult group in the blind condition, the amount of spontaneous recall in the blind and informed conditions increased. In terms of accuracy, although the young adult sample showed no decrement in accuracy across conditions, the two younger age-groups showed a significant decrement in the blind and informed conditions, with the preschool sample significantly lower than the 8-10 year-old sample.

Two additional analyses were conducted on the control condition data. To examine whether there was a sex of subject effect or an interaction of age-group and sex, separate two-way ANOVAS (age-group x sex) were conducted on the amount and accuracy of spontaneous recall material. Means and standard deviations are listed in Appendix E-3. For spontaneous recall amount, there was

no effect of sex or interaction of age-group and sex (see Appendix E-4) and for spontaneous recall accuracy, there were no main effects and no interactions (see Appendix E-5).

The proportion of interviews in the control condition which contained no error was also examined across age-group. Frequencies and proportions of error-free subjects and results of chi-square tests are listed in Appendix E-6. The overall chi-square test was significant and individual tests between age-groups indicate no significant difference between the preschool (.40) and 8-10 year-old (.25) samples but both groups had a significantly higher proportion of error-free interviews than the young-adult sample (.00). Thus while there was no difference in the accuracy of free recall across age-groups for the control condition, there was significantly more variability in the amount of error elicited from the younger age-groups.

Relation to Interviewer Characteristics: Spontaneous recall amount and accuracy were next examined in relation to the five interviewer characteristics.

Age: Multiple correlations of spontaneous recall amount and accuracy with interviewer age were non-significant for all age-groups (preschool multiple R squared = .02; 8-10 year-olds = .06 and young adults = .06).

Gender: The results of separate t-tests conducted on spontaneous recall amount and accuracy across gender for each age-group were non-significant.

Career Length: Multiple correlations of recall amount and accuracy with interviewer career length were non-significant for all age-groups (preschool

multiple R squared = .05; 8-10 year-olds = .03 and young adults = .03).

Job-Category: Means and standard deviations for spontaneous recall amount and accuracy across the five job-categories and four levels of education are listed in Appendix E-7 for each age-group. With respect to spontaneous recall amount, police-officers (n=9) elicited the most and lawyers (n=4) the least amount of recall from preschool children and psychologists and social workers obtained the most from 8-10 year-olds. Lawyers (n=6) obtained the most and social workers (n=11) obtained the least from young-adults. For spontaneous recall accuracy, police and social workers obtained the highest accuracy, closely followed by psychologists and lawyers. There were no clear differences in spontaneous recall accuracy across interviewer job-category for the older two age-groups.

Level of Education: Interviewers with no degree (mostly police officers) obtained the most spontaneous recall and those at the BA and MA/LLB level obtained the least from pre-schoolers. For the 8-10 year-old sample, interviewers at the BA level obtained the most and those at the Ph.D. level obtained the least amount of recall. For the young adult sample, interviewers at the Ph.D. level elicited the most and those with no degree the least amount of spontaneous material from young adults. For spontaneous recall accuracy, there were no clear differences across level of education in any age-group.

STAGE TWO: Closed Question (CQ) Accuracy

Accuracy: The second hypothesis predicted significant age-related differences in accuracy for both leading and misleading questions and that accuracy based on leading questions would be higher than those based on misleading questions across age-groups. A four-factor MANOVA was conducted with age-group, condition and gender-combination as between-subject factors and question-type (leading vs. misleading) as a within-subject factor. Means and standard deviations for accuracy scores based on leading and misleading questions as well as the closed question total are listed in Appendix F.

Results of the four-way MANOVA indicate significant main effects for both age-group ($F(2,92) = 10.1, p < .001$) and question-type ($F(1, 92) = 6.68, p = .011$) and no interactions ($p > .2$) (see Appendix F-1). These results, along with accuracy scores for the closed question total are graphed in Figure 5.

Post hoc tests were next conducted to examine the age-group effect. For accuracy based on leading questions the preschool sample was significantly lower than the two older groups. Although age-group differences for accuracy based on misleading questions were non-significant, ($p > .16$), as can be seen in Figure 5, the differences were clearly in the same direction as those based on leading questions. In comparing differences between accuracy based on leading and misleading questions for each age-group, the overall test indicated no interaction

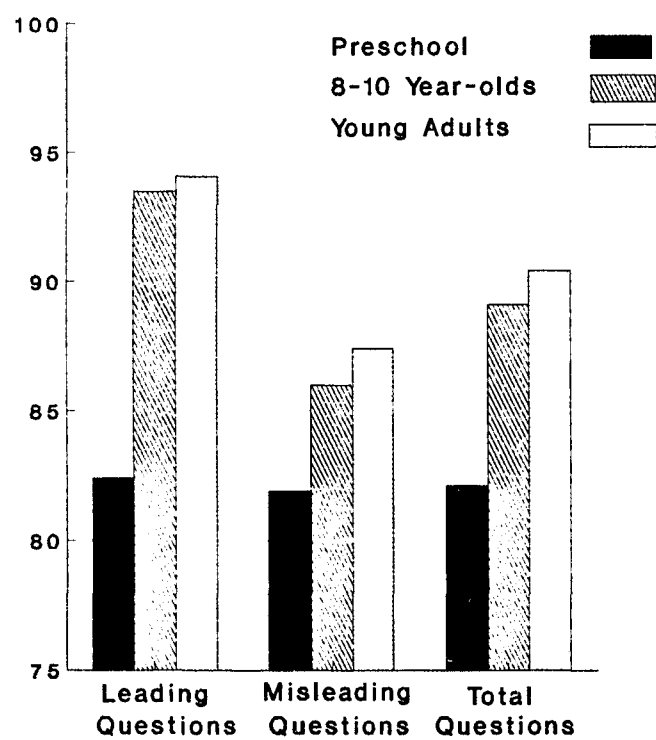


Figure 5: Closed Question Accuracy across Age-groups

($p = .19$). Results of paired t-tests, however, were significant (see Appendix F-2). Although there were no differences across question type for the youngest sample, accuracy based on leading questions was significantly higher than accuracy based on misleading questions for the two older age-groups.

Differences between accuracy scores based on spontaneous recall and the closed question total were also examined (see Appendix F-3). The overall paired t-test was significant. Individual tests of age-group differences indicate that while there was no difference in the two accuracy scores for the preschool sample, spontaneous point accuracy scores were significantly higher than the closed question accuracy scores for both the 8-10 year-old and young-adult samples.

To examine whether there were differences in accuracy based on leading and misleading questions across the two conditions and four gender-combinations, two separate ANOVAS were conducted and results show no main effects and no interactions (see Appendix F-3a and F-3b).

Relation to Interviewer Characteristics: The three closed question percent accuracy scores were next examined in relation to the five interviewer characteristics.

Age: Multiple correlations of the three CQ accuracy scores with interviewer age were non-significant for all age-groups (multiple R squared for the preschool sample = .02; 8-10 year-olds = .06 and young adults = .05).

Gender: Results of separate t-tests conducted on the three accuracy scores across gender were non-significant for each age-group.

Length of Career: Multiple correlations of the three CQ accuracy scores were non-significant for all age-groups (multiple R squared for the preschool sample = .11; 8-10 year-olds = .06 and young adults = .05).

Job-Category: Means and standard deviations for the job-category and level of education across the three closed question accuracy scores are listed in Appendix F-4. For all three accuracy scores, police officers and social workers obtained the highest and lawyers the lowest scores in the preschool sample, with very little difference across job-categories for the older age-groups.

Level of Education: For accuracy scores based on the closed question total, interviewers with no degree or a BA level degree (again mostly police-officers and social workers) elicited the highest scores in the youngest age-group and differences across degree level were not large for the older sample group. For accuracy based on leading questions in the preschool sample, the Ph.D. level scored lowest in comparison to the three remaining levels which did not differ. There was no obvious difference across education level for the 8-10 year-old group and for the young adults, interviewers with a BA level scored the lowest, compared to the remaining three levels performed relatively equal (interviewers with no degree scored the highest (n=3)).

For accuracy based on misleading questions, interviewers with no degree or a BA degree scored higher than the remaining two levels for the preschool sample. There was very little difference across levels for the 8-10 year-old sample. For the oldest sample group, interviewers with no degree scored lower

than the remaining three levels which performed relatively equal.

Stage Three: Comparison of the Initial and Adjusted Accuracy Scores

The goal in the third stage of the analysis was to compare the initial accuracy scores based on spontaneous and closed question material with adjusted accuracy scores (i.e., those in which errors associated with various elements in the questioning context as well as those due to the subject's developmental status were subtracted).

The first adjustment involved screening spontaneous and closed question errors for those associated with the following five discourse features:

- DF1 - Lack of a shared referent
- DF2 - Embedded error
- DF3 - Momentum error
- DF4 - Repeated process error
- DF5 - Inadvertent prompted error

The second adjustment screened errors attributed to the subject's developmental status. The criterion for inclusion in this classification was conservative and involved errors which were clearly due to the child's developing language and comprehension abilities.

Errors contributing to the spontaneous or closed question error totals could thus be classed as discourse feature (DF) or developmental status (DVS) errors and a small number of errors were classed as both. For practical purposes, errors in the latter case were counted just once in the initial screening of the DF errors.

With the exception of the anomaly found in the young adult male-male

gender combination (which was attributed to differences in interviewer occupation and interview length), there was no difference in the original accuracy scores across condition or gender-combination. Scores were therefore collapsed across condition and gender-combination for Stage Three and the distinction between accuracy scores based on spontaneous and closed question material was maintained.

1) The First Adjustment: Subtraction of Discourse Feature Error (DF)

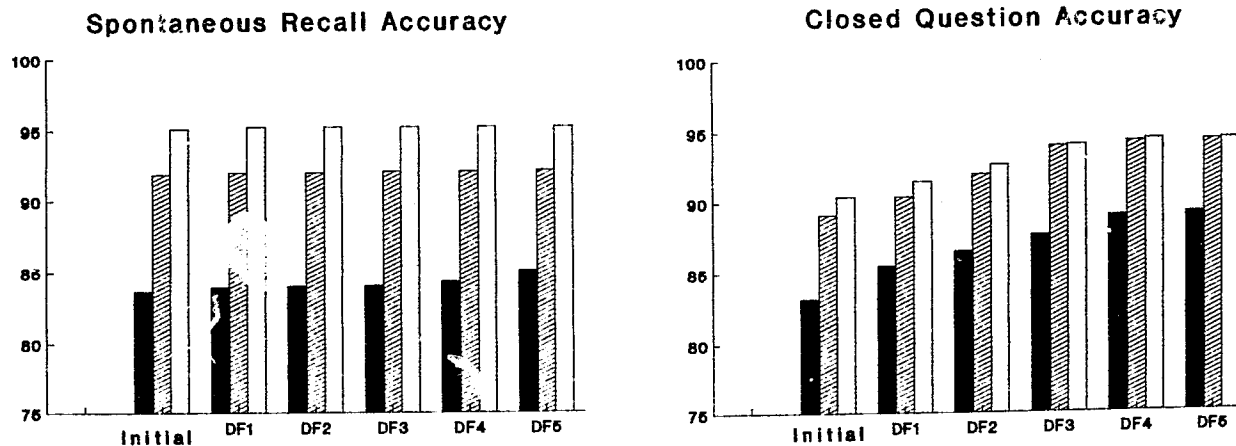
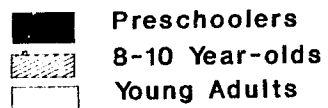
The proportion of total error (combined spontaneous and closed question error) associated with the five discourse feature sub-types was first examined across age-groups using one-way ANOVAS and post hoc tests (see Appendix H). Results were non-significant for the combined proportions of total error associated with discourse features (preschool mean = .21; 8-10 year-olds = .19 and young adults = .16 respectively) as well as for the proportion of error associated with each of the discourse feature sub-types.

Adjusted accuracy scores were next calculated by successive subtractions of each DF error sub-type and the results are graphed in Figure 6a. The analysis then proceeded in four steps as follows:

- (1) The relative standing of the three age-groups was first examined using ANOVAS and post hoc tests (see Appendix H-1).

Results indicate the relative standing of the three age-groups did not change over the successive adjusted scores for either the spontaneous or closed question points. As can be seen in Figure 6a, significant differences between all

Figure 6a: Initial and Adjusted Accuracy Scores with Successive Subtractions of Discourse Feature (DF) Error



- DF1 - Lack of a Shared Referent
- DF2 - Embedded Errors
- DF3 - Momentum Errors
- DF4 - Process Errors
- DF5 - Inadvertent Prompted Errors

three age-groups were maintained for the spontaneous point scores and significant differences between the preschool and two older age-groups were maintained for the closed question scores.

- (2) Change scores were derived for both spontaneous and closed question points (by subtracting the original from the resultant adjusted score) and age-group differences were examined using a oneway ANOVA (see Appendix H-2).

For the spontaneous point change scores, ANOVA results were significant. Post hoc tests indicate the preschool sample was significantly different from the two older age-groups (preschool sample = 1.19; 8-10 year-olds = .27 and young adults = .09). In contrast, the ANOVA testing age-related differences for the closed question point change scores was not significant (preschool sample = 6.10; 8-10 year-olds = 5.31 and young adults = 4.07).

- (3) Age-group differences in the proportion of interviews having a change score greater than zero were next examined by means of chi-square analyses (see Appendix H-3).

The overall chi-square test of group differences for spontaneous point change scores was non-significant. Individual tests indicate that the preschool and young adult samples were significantly different at the .05 level (preschool = .33; 8-10 year-olds = .25 and young adults = .12). In contrast, results of the chi-square test examining the proportion of interviews containing CQ change scores greater than zero were significant. Individual tests indicate the preschool and 8-10 year-old samples were significantly different from the young-adult group at the .05 level (preschool = .80; 8-10 year-olds = .78 and young adult = .53).

- (4) A final analysis tested differences in the two sets of change scores (spontaneous vs closed question points) using paired t-tests (see Appendix H-4).

The overall paired t-test comparing the two sets of change scores was significant, and individual tests for each age-group were also significant. Subtraction of DF error resulted in significantly higher adjusted scores for closed question points than for spontaneous points across all three age-groups.

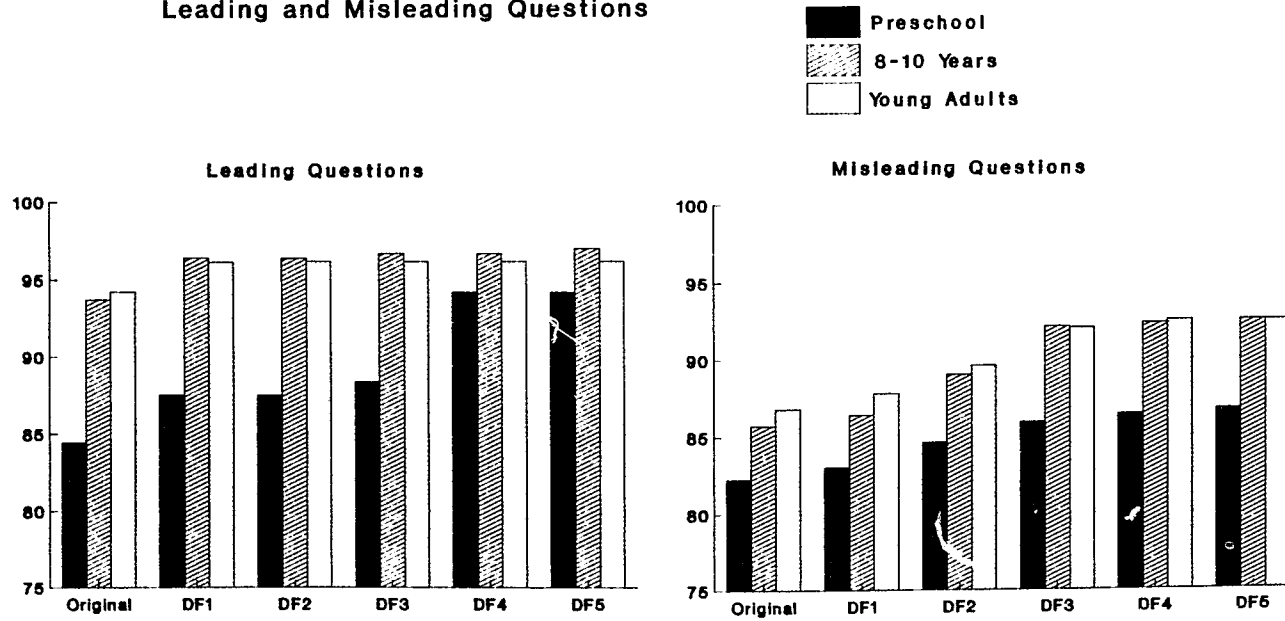
In summary, although the subtraction of DF error did not alter the relative standing of the three age-groups for either the spontaneous or closed question points, the resultant adjusted score was approximately 5% higher for closed question points than for spontaneous points across all three age-groups.

Adjusted accuracy scores were next examined separately for leading and misleading questions using ANOVAS and post hoc tests (see Appendix H-4b) and results are graphed in Figure 6b.

For leading questions, there was very little change across successive adjusted scores for the two older age-groups. In contrast, while the preschool group remained significantly lower than the two older age-groups for the subtraction of lack of a shared referent, embedded and momentum errors, this difference disappeared with the subtraction of errors made in response to broad questions in which the interviewer was attempting to elicit more information (e.g., 'What were they all doing? / Nothing.').

For misleading questions, adjusted scores tended to increase across all age-groups for the subtraction of lack of a shared referent and embedded errors, with

Figure 6b: Original and Adjusted Accuracy Scores with Successive Subtractions of Discourse Feature Error (DF) for Leading and Misleading Questions



- DF1 - Lack of a Shared Referent
- DF2 - Embedded Errors
- DF3 - Momentum Errors
- DF4 - Process Errors
- DF5 - Inadvertent Prompted Errors

no changes in the relative standing of the three age-groups. However with the subtraction of momentum errors (elicited by questions with an embedded response bias in declarative form), a significant increase occurred for the two older age-groups, with very little additional change across subsequent subtractions.

In summary, subtraction of DF error had a differential effect for leading and misleading questions. For leading questions, the difference between adjusted scores for the preschool and the two older age-groups disappeared with the subtraction of repeated process error. In contrast, for misleading questions, differences between the preschool and two older age-groups appeared with the subtraction of momentum error.

2) The Second Adjustment: Subtraction of Developmental Status Error (DVS)

The second adjustment to the original accuracy scores involved a similar four-step procedure. Beginning with the initial adjusted scores (minus DF error) accuracy scores were re-calculated by subtracting developmental status error. These scores, along with the original accuracy scores and the initial adjusted scores are illustrated in Figure 7.

For spontaneous points, ANOVA results comparing the relative standing of the three age-groups were significant (see Appendix H-5). Post hoc tests indicate differences between all three groups were maintained, although the absolute difference between age-groups was very low (2%). In contrast, subtraction of DVS error resulted in no differences between age-groups for the closed question

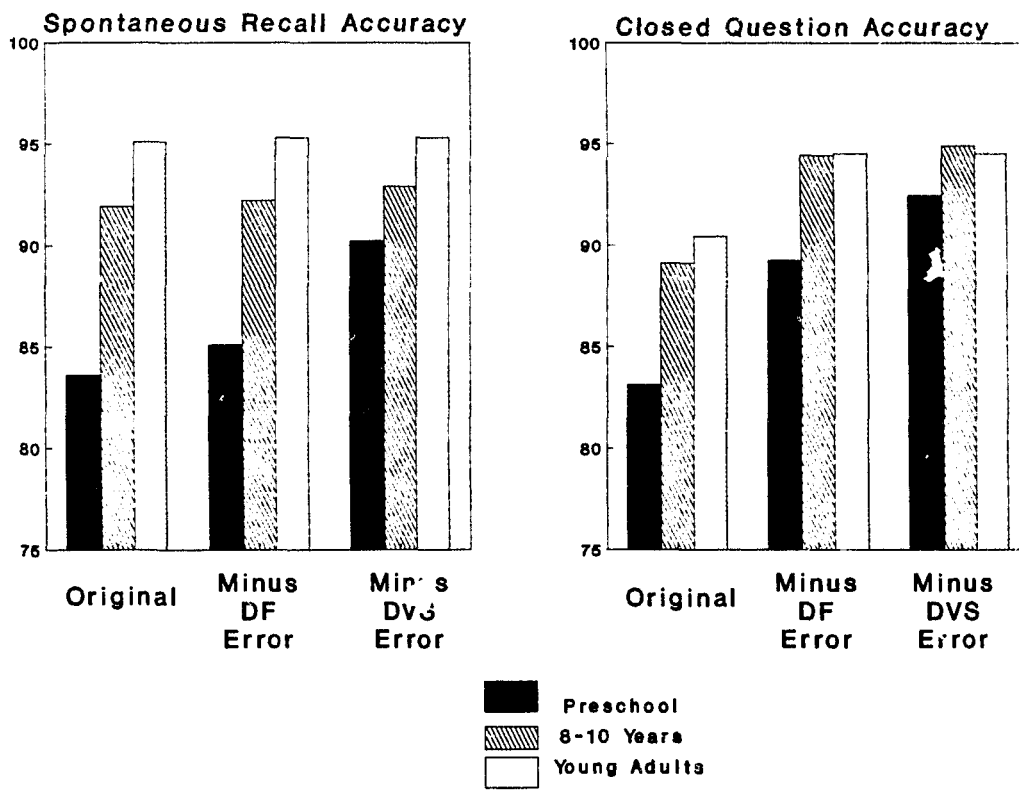


Figure 7: Original and Adjusted Accuracy Scores with Discourse Feature (DF) and Developmental Status Error (DVS) Removed

adjusted accuracy scores.

Results of the ANOVAS testing age-related differences in the change scores were significant for both spontaneous and closed question points (see Appendix H-6). Post hoc tests indicate significant differences between all three pairs of means at the .05 level for both the spontaneous (preschool = 5.14; 8-10 year-olds = .72 and young adults = .03) and closed question change scores (preschool = 3.18; 8-10 year-olds = .59 and young adults = .00).

Overall chi-square tests of age-group differences in the proportion of interviews containing change scores greater than zero were significant for both spontaneous and closed question points (see Appendix H-7). Individual tests indicate significant differences between all pairs of group proportions at the .05 level.

Results of the paired t-tests examining differences between the two sets of change scores are listed in Appendix H-8. Although the overall paired t-test was significant, individual tests of age-group means indicate the preschool sample was the only group to have significantly different change scores.

In summary, although the subtraction of developmental status error did not change the relative standing of the three age-groups for spontaneous point scores, the absolute difference between the three age-groups was minimal (2%). In contrast, there was a significant difference in relative standing for closed question scores, resulting in no differences between age-groups. Subtraction of developmental status error resulted in significantly higher scores for the preschool

group only.

Stage Four: Age-Related Patterns of Error

Interviews containing error extensions (i.e., errors which were extended over two or more turns) occurred in all age-groups. Extensions containing fabrications were restricted to the preschool and 8-10 year-old samples and examined separately from error extensions without fabrications.

1) **Error Extensions without Fabrications**: Extensions of spontaneous and closed question error were combined for comparison across age-group. Extensions of retracted errors and those classed as clarifications (n=5) were screened from the analysis. Means and standard deviations for the total number of extension units as well as the proportion of total errors which were extended are listed in Appendix I-1.

For the total number of extensions, results of a oneway ANOVA were significant ($F(2,119) = 5.73, p = .004$). Post hoc tests indicate the preschool and 8-10 year-old samples contained significantly more extensions than the young adult sample but did not differ from each other at the .05 level (preschoolers = 1.6, 8-10 year-olds = 1.8 and young adults = .79).

Results of the oneway ANOVA testing age-group differences in the proportion of total error which was extended were also significant ($F(2,119) = 4.79; p = .01$), with post hoc tests indicating significant differences between the preschool and young adult group only (preschool = .16; 8-10 year-olds = .13 and

young adults = .06).

Also examined was the proportion of interviews containing one or more extensions. Frequencies, proportions and the results of chi-square tests of age-group differences are listed in Appendix I-2. The overall chi-square test was significant, with individual tests between group pairs (preschool = .73; 8-10 year-olds = .68 and young adults = .43) indicating the preschool and 8-10 year-old samples contained significantly higher proportions than the young adult group.

2) Fabrications: No fabrications occurred in the young-adult sample. The 8-10 year-old sample contained seven isolated occurrences, three of which were subsequently retracted. Twenty-two interviews in the preschool sample contained fabrications ranging from a single occurrence to major fabricated strings of error, a number of which were also retracted. Fabrications which were subsequently retracted were screened from the analysis below.

The proportion of interviews containing one or more fabrications was examined using a chi-square analysis. Frequencies, proportions and chi-square test results are listed in Appendix I-3. The overall chi-square was significant, with individual tests indicating the preschool sample was significantly different from the two older age-groups (preschool = .48; 8-10 year-olds = .05 and young adults = .00).

To examine whether there was a difference between the two conditions in the proportion of preschool interviews containing fabrications, a chi-square test was conducted and results were non-significant ($\chi^2(1) = .62, p = .43$). A more

detailed and qualitative description of fabrications is outlined in Chapter Four.

3) **Error Corrections or Retractions:** Retractions of spontaneous and closed question error were combined for comparison across age-group. Means and standard deviations for the total number of retractions as well as the proportion of total error which was retracted are listed in Appendix J-1. For the total number of retractions, results of a oneway ANOVA did not reach significance ($F(2,119) = 2.79, p = .065$). The means for this analysis were 2.0, 1.7 and 1.1 (from the youngest to the oldest age-groups) respectively.

Results of the oneway ANOVA examining the proportion of total error which was retracted were also non-significant ($F(2,119) = 1.10, p = .335$). The means in this analysis were .14, .12 and .10 from the youngest to oldest samples respectively.

Also examined was the proportion of interviews containing one or more retractions across age-groups. The overall chi-square was significant, with individual tests indicating that both the preschool and 8-10 year-old samples were significantly different from the young adult sample at the .05 level (preschool = .78; 8-10 year-olds = .83 and young adults = .53) (see Appendix J-2).

Stage Five: Interviewer Reports and The Control Questionnaire

Interviewer Reports

Reports were obtained for 111 of the 120 interviews in the blind and informed conditions (preschoolers = 36, 8-10 year-olds = 38 and young-adults =

36). The amount and accuracy of report material was first compared across age-group, condition and gender-combination. Means and standard deviations are listed in Appendix K-1.

Amount: The amount of detail in the reports included spontaneous and closed question material repeated from the interviews as well as inferences (both correct and incorrect) on the part of the interviewer.

Results of a three-way ANOVA indicate significant main effects for both age-group (accounting for 39% of the variance ($F(2,87) = 39.3, p < .001$)) and condition (accounting for 2% of the variance ($F(1,87) = 4.37, p = .039$), with no effect of gender-combination and no interactions (see Appendix K-2).

Post hoc tests on age-group means (preschool = 26.6, 8-10 year-old = 69.5 and young-adult = 66.5 mean accurate points respectively) indicate the preschool interviews contained a significantly lower amount of recall than the older age-groups.

Although the means for the preschool sample were identical for both conditions, separate t-tests were conducted between the two conditions on the four gender-combinations for the two older age-groups. Results were non-significant for all but the male-male combination in the young-adult sample (means = 40.8 and 112.0 respectively ($t(7) = -2.82, p = .04$). This difference clearly reflects the difference found in the same cells for the amount of spontaneous recall in the interviews and may be attributed to the difference in interviewer occupation and interview length in these particular cells.

Accuracy: Results of a three-way ANOVA indicate a main effect of age-group ($F(2,87) = 36.12, p < .001$), with no effect of condition or gender-combination and no interactions (see Appendix K-3). Post hoc tests on age-group means (preschoolers = 83.9%, 8-10 year-olds = 92.8% and young-adults = 95.2%) indicate the preschool interviews were significantly lower than the two older age-groups, and the latter two did not differ at the .05 level.

Components of Report Error: Since the report accuracy scores did not reflect the distinction between spontaneous or closed question error repeated from the interview as well as incorrect inferences on the interviewer's part, the proportion of total error due to these sources was next examined using one-way ANOVAS across age-group (see Appendix K-4).

There was no difference in the proportion of spontaneous error repeated from the interviews across age-groups. In contrast, there were significant age-group differences for both the proportion of repeated closed question error (means from the youngest to oldest age-group respectively were 22.5, 15.2 and 6.3%) and the proportion of error due to incorrect inferences on the interviewer's part (means = 20.9, 31.1 and 46.3% respectively). In both cases, post hoc tests indicate the preschool sample was significantly different from the young adult group at the .05 level. In summary, there was an inverse relationship between the proportion of repeated closed question error and incorrect inferences on the interviewer's part across age-groups.

Relation to Interviewer Characteristics: The amount and accuracy of the report material was next examined in relation to the five interviewer characteristics.

Age: Multiple correlations of report amount and accuracy with interviewer age were non-significant across the three age-groups (multiple R squared for the preschool sample = .05; 8-10 year-olds = .07 and young adults = .02).

Gender: Results of separate t-tests comparing the amount and accuracy of report material across gender were non-significant for each age-group.

Length of Career: Multiple correlations of report amount and accuracy with career length were non-significant for all age-groups (multiple R squared for the preschool sample = .11; 8-10 year-olds = .06 and young adults = .02).

Job-Category: Means and standard deviations for the five job-categories and four levels of education are listed in Appendix K-5. With respect to the amount of accurate material in the preschool reports, police officers scored the highest, followed by social workers and psychologists, with lawyers and counsellors scoring the lowest amount. For the 8-10 year-old sample, counsellors scored lower compared to the remaining four job-categories which had no obvious differences. For the oldest sample group, lawyers scored the highest followed by psychologists and counsellors, with social workers as well as police officers (n=1) scoring the lowest. In terms of report accuracy, lawyers scored lower than all other categories for the preschool group, with no differences across categories for the two older samples.

Level of Education: Comparisons of report amount in the preschool sample indicate interviewers with no degree scored the highest, followed by the MA (LLB) and Ph.D. levels, with the BA level scoring the lowest. For the 8-10 year-old sample, the Ph.D level scored lowest relative to the remaining three levels which did not differ. For the oldest sample group, the amount of accurate material was inversely related to degree level. Comparisons of report accuracy in the preschool sample indicate the MA/LLB and BA levels scored the lowest, with the no degree and Ph.D. levels scoring the most accurate. There were no obvious differences across education level for the two older sample groups.

Control Questionnaire

Response to the control questionnaire was very limited for the preschool sample, primarily due to fatigue of the children in this age-group. In contrast, with the exception of a very small percentage of descriptive error (e.g. shirt colour or hair colour), subjects in the two older samples scored close to perfect. Due to this ceiling effect, results of the control questionnaire are not reported further.

CHAPTER 4

QUALITATIVE RESULTS

This chapter presents a more discursive outline of qualitative aspects of the data-set and is organized in three parts. Part One outlines the range of situations in which fabricated material emerged, the circumstances under which it was retracted and the degree to which it appeared in the interviewer reports. Part two is question-focused and presents a variety of particular features relating to question form and content as well as broader features relating to questioning styles, strategies and techniques. Part three is subject-focused, outlining a range of features characteristic of young children's language, thinking and perception as well as response characteristics reflecting their competence as conversational partners in the question-answering task.

The organization of material presented in this chapter in no way reflects order of importance. Fabrications are outlined first in order to provide background context for the illustration of features in the remaining two parts. Although an effort has been made to select examples which most clearly illustrate the features according to the focus of each section, in many cases two or more features are embedded in the same example. This state of affairs highlights the complexity inherent in the question-answer discourse embedded in a more naturalistic data-set and underscores the multiple and often implicit dimensions of meaning intrinsic to its sequential nature.

PART ONE: FABRICATIONS

As stated earlier, no fabrications occurred in the young-adult sample. In the 8-10 year-old sample, there was some question as to whether material in four interviews merited scoring as fabrication (rather than misperceptions). Since the material in question involved significant additions, which clearly contradicted the film material, it was considered fabrication. Two cases involved spontaneous fabrications and two involved fabrication within an error extension.

1. Fabrications in the 8-10 Year-old Sample

1) **Spontaneous Fabrications:** Spontaneous fabrications are illustrated by bold type within square brackets in the examples below. (Note: x+ indicates an error extension and numbers in parentheses locate the example in the interview transcript).

- e.g. Subj.: And then he let let the emergency brake go and then the car came down. And then there's a [**big brick wall**] and then the water... and the car smashed right into the water.
 Int.: Went right over the brick wall into the water? (x+) / Yeah. (x+) (153-57)
- e.g. Int.: (Indicating on drawing) I understand that that's the car and that's the bridge and this'd be the little creek. What's this stuff here? / Those are [**blocks. Those...you know those bags of cement**]?
 Int.: Yeah. / That sometimes they make for um, things when the water rises. (x+)
 Int.: Sort of like dams.(x+) / Yeah.(x+)
 Int.: OK. Fair enough. They had some of those around the water to make it, make sure that the water stayed where it was supposed to. (x+) / Yeah. (x+) (150-183)

The fabricated material from the first example did not appear in the

interviewer's report and no report was obtained for the interview in the second example.

2) Fabrications within Error Extensions: The remaining two cases in the 8-10 year-old sample involved fabrications which emerged after an initial error extension. The first is based on the subject's spontaneous mis-perception (E1).

- e.g. Subj.: Boy played golf (E1) and he lost four golf-balls in the pond. (E1+)
 Int.: So alright, we've got it up to this guy had hit four balls right in a row, right in the pond, every one just went pomp right into the lake. (x+) / Well, they didn't go one after each other. I think **[they hit a rock]** and then they bounced into the ..
 Int.: So one would go this way and bounce off a rock into the lake and another one would probably go this way and right into the lake? (x+) / Yes. (x+)
 Int.: It doesn't sound like he was doing very well. (x+) / Sounds no. (x+) (100-58)

The second fabricated extension is based on an initial misleading question (I5 indicates an incorrect inference).

- e.g. Int.: Where could they (the teens) get the clam-digger? (repetition of subject's spontaneous error)...When he saw those two guys...with his (x) stick. With that.../ Yeah. With that thing.(x)
 Int.: OK. Now how did they get the stick? That's where I'm, confused. How did they get the scoop? They were holding his boots, and they threw his boots in the water. How did they get the scoop from him? (x+) / No. (c) He brought the scoop home (I5) and then **[they were catching em' with th.. their hands.]**
 Int.: The two other kids, teenagers were catching it with their hands in the water? / Yeah. (152-90)

These examples did not appear in the interviewers' reports.

3) Retraction of Fabrications: Three interviews in the 8-10 year-old sample contained fabrications which were subsequently retracted. In the first example the material was corrected by default (i.e., the subject later corrected the error in a

subsequent review of the material and the correction was not acknowledged by either the interviewer or the subject).

e.g. Subj.: ... So he (the boy) went and touched the brake and made it go down and roll on them, 'cause they were mean people and then **[it rolled on them]** and he ran off. (156-17)

The second example illustrates a retraction in response to subsequent questioning by the interviewer.

e.g. Subj.: The boy went in the car and he turned it on (E1) and then **[he went in the lake with it]**.
 Int.: He drove their car in the water? (Laughs) (x+) / Yeah, I think so. (x+)
 Int.: Where were they? / They were in the water and they heard it and jumped out.
 Int.: He drove.. oh, he didn't stay in the car, he didn't drive it himself, he just got it started and jumped out of the car? (c) / Yeah, I really don't know. (c, IDK) (146-81)

The third case involved fabricated material which emerged after the interviewer urged the child to remember. (Note: I4 indicates a future inference.)

e.g. Int.: So they didn't see the boy do this ? (push the car) / No and I guess the boy ran away to his home. (I4)
 Int.: So the boy, when he pushed the car, then he, he ran away? / Yeah, I guess so.
 Int.: Was that the last time you saw the boy? (c) / Um, I don't know.
 Int.: Hmm? / I don't know.
 Int.: Try and remember. You saw him after the teenagers argued. / I think so. We did see him.
 Int.: You did see him. / At the end.
 Int.: At the end. What was he doing? / Uh, I think he was **[playing baseball]** or something like that.
 Int.: By himself? / Um, I think **[with some other friends]**. I don't know. (149-122)
 Int.: ... Well you did very well even if you can't remember if they played baseball at the end or not. / I don't think he did.
 Int.: You don't think he did. / Maybe he didn't. (149-169)

The last example also illustrates an example of a subject's tentative response (i.e., the subject responds with 'maybe' rather than a clear yes/no to the question). No fabrications occurred in the reports based on these three interviews.

2. Fabrications in the Preschool Sample

For the preschool sample, material was not scored as fabrication unless correct material had been elicited previously. This distinction was pertinent for four cases, in three of which the initial material elicited referred to details of another movie. These interviews were in the informed condition and in each case the interviewer was able to re-direct the child to the stimulus film content (e.g., 'the movie you saw here').

The fourth case involved an interview in the blind condition and began as follows:

- e.g. Int.: Do you think you can tell me what that movie was about? / Huh-huh. (Yes)
 Int.: OK. / I don't know the meaning of it.
 Int.: That's Ok, but was there a story that you saw? / Yeah.
 Int.: You want to tell me the story, cause I haven't seen that movie. / Okay. It's inside there (pointing to observation room) and you put on the TV and the have to put in the tape.
 Int.: Ok and once you put it in, what do you see? / There was the movie.
 Int.: And what was the movie about? / I don't know. I wanna write some more.

The interviewer then used a variety of techniques and strategies listed as follows:

- i) A radio announcer's voice ('Here we are in a studio..' and passing the pretend microphone to the child).
- ii) If Mommy were here what would you tell her?
- iii) Max (puppet) can't talk about the movie. What would you say to help Max out.
- iv) You be the movie and I'll turn you on.
- v) Have you ever played a game where you make me draw whatever you want me to draw? / No. / You want to try that game? / Yeah. / Ok. What you do is, you give me the crayon and you tell me about stuff in the movie, and I draw it. / Ok.
- vi) Pretend you're telling Mommy about the movie on the telephone.

Since correct material was elicited only in response to the fifth strategy, the 'made-up' material which the child offered in response to the first four of these strategies was not considered fabrication. Although the report based on this interview contained both fabricated material and actual film detail, the interviewer clearly expressed her inability to tell whether the material was related to the movie or if the child was "making up stories to please me."

Apart from these four cases, preschool interviews in which fabricated material emerged were classed in six groups, with a seventh reserved for those in which major fabrications were retracted.

1) Isolated Occurrence: In two interviews, fabricated content emerged in response to a question regarding the teens' behaviour after the car went into the water. (Note: WA indicates an incorrect assumption.)

e.g. Int.: What did they do when they saw their car in the water? (WA) / **[They shake their finger and stamp their foot.]** (127-166)

e.g. Int.: So did they try to get the car out of the water? (x) What did they do? / **[There was rocks on the bottom. They tried to push it out but then they got stuck]** and I don't know what happened. That was the end. (128-95)

In neither case did the fabricated material appear in the interviewer's report.

2) Isolated Occurances with Extensions: In two cases, the fabrications emerged towards the end of the interview. In the first example, the child shows some reluctance to 'remember more' about the story. He had initially referred to the 'scary ending' and the interviewer relabelled the child's term as 'nasty.'

- e.g. Int.: You said some nasty things happened. What was the nasty thing that happened? / I don't know.
 Int.: You don't? / No.
 Int.: What do you think the whole story was about? / I don't know.
 Int.: Can you remember it now? / No, I don't remember it.
 Int.: You don't remember anything more about it? / No, I don't remember it.
 Int.: Have you got any brothers and sisters?....
 Subj.: (Five turns later) And I don't remember any more.
 Int.: You don't remember anything more about the story? / No.
 Int.: OK, was it a nice story or was it a nasty story? It was a nice story.
 Int.: It was a nice story. Did it have a happy ending? / Ah, No. Ah, it was a scary ending and the starting was a happy ending.
 Int.: The starting was happy. / Yeah.
 Int.: What was the scary? Can you just tell me about the scary ending? What was it? / Ah, I told you about it.
 Int.: But I don't remember what you said. / I said, ah..ah..
 Int.: What was scary about it? / **[The man pushed it the car into the ocean and got the other man.]**
 Int.: I see. Ok. And it just ended there? / Uhm-huh (yes).
 Int.: And what happened to the little boy? / **[He got pushed right into the ocean and he never find his way home.]**
 Int.: That's the end of the story? / Yeah. That's the end of the story.
 Int.: Ok. Got anything more to tell me about it? / No.
 Int.: Why did the man push the car into the ocean? (x+) / Cause he wanted to, cause he wanted to. (x+)
 Int.: Was the little boy inside it? (x+) / Yeah. (x+) (071-74)

In the next example, there was considerable confusion on the interviewer's part in understanding the child's words. The child had previously corrected the

interviewer and expressed some concern about when her father would return to pick her up. The fabricated content appearing late in the interview is briefly indicated below. (Note: E6 indicates a vocabulary error.)

- e.g. Subj.: The man was in the swimming pool. (E6)
 Int.: Was the man ..swimming? (x+) / Yeah. (x+)
 Int.: The man was swimming in the swimming pool. Hmh. / **[And the car hit him.]**
 Int.: The car hit him? The car lying on top of him in the swimming pool? (x+) / Yeah. (x+)
 Int.: Really! Wow, that would be a big surprise.

No fabrications were contained in the reports based on the two interviews in this group.

3) Isolated Occurances in a Playful Context: The next examples are taken from one interview in which minor fabrications were made within a playful context.

- e.g. Int.: What are they doing there? (referring to drawing) / Driving away.
 Int.: In.. / Waaayy.
 Int.: In the car? / Yup (S laughs and grabs interviewer's face)
 Int.: That's means I'm wrong, when you do that, that means I'm wrong or what? / Wrong.
 Int.: Wrong. Ok. What were they doing? / I'll make a boat (S refers to drawing)
 Int.: They're driving away in the boat? / No in the **[truck]** you silly.
 Int.: In the truck, and what's this? / Boat, boat.
 Int.: And what was the boat doing? / Boat, boat, he left it behind. (123-211)
- e.g. Int.: In the movie you saw, do you think those guys had names? / I don't know.
 Int.: Did they say any names at all? (x) / No. (c)
 Int.: No? Was there a name for the movie? / **[Charlie]** (giggles) A little mark on my hand. (123-259)

In this case the interviewer reported the name 'Charlie,' referring to the

boy in the film, in his report.

4) Moderate Fabrications: The fourth group involved two interviews in which the fabricated material was associated with the content or context of questioning. In the first example the material emerged as follows:

- e.g. Int.: Did they drive it (the car)? (c) / Yes.(c)
 Int.: They drove it? Did they take the boy with them? (x) / No. (c)
 Int.: Well where were, who looked after him? (WA) They didn't leave him alone did they? / No. He had a momma and ...and they weren't showing in that movie.
 Int.: Oh he had a mom but she wasn't in the movie? / Yeah.
 Int.: Uhm. / A real Mom and Dad.
 Int.: Uh-huh. So they drove the car? / Uh-huh. Yes. Yes.
 Int.: Ok. Did both men go in the car? Or one? / Both. It was a **[truck]**.
 Int.: You never told me it was a truck. Was it a truck? / It was a, they had a truck and a car. It, there was a **[truck port and a car port]**. This man drove the truck and this man drove the car. (074-238)
 Int.: Oh. What happened to the boy? / He walked.
 Int.: Oh. Where was he walking to? / I don't know.
 Int.: Didn't he tell the man where he was going? (x) / Uh-Uh (no). (c) He, the man are not father.
 Int.: Oh. So he was by himself? / Uhm, no. He had a momma and a fa..., but they weren't shown in the movie.

Based on post interview information reported by the subject's mother, this fabrication was linked to the child's family situation. The child's parents were separated. His father and grandfather lived together, one of whom owned a truck and the other a car, with a truck-port and car-port attached to the house. The fabricated content was later incorporated at the end of the interview.

- e.g. Int.: Was, just tell me if it was a happy ending in the end. / ...The car, stuck in the car, in the water. Cause the kid pushed it down.
 Int.: They pushed the boy down? (x) / No.(c) The kid pushed the car **[and the truck down]**.
 Int.: Kids pushed the car and the truck? (x) / No, the kid.(c)

- Int.: Yeah? / Pushed the car and the truck down.
 Int.: Well what happened to it? / Both of the trucks?
 Int.: Yeah. / In the water. (074-296)

None of the fabricated material appeared in this interviewer's report.

For the second interview in this group, fabricated material emerged three times in a playful context. The subject initially identifies the golf-balls as 'ping-pong (E6) balls' and later refers to the 'people...trying to look for **[gold]** in the water.' The second fabrication occurred when the subject was repeating the initial recall and added that the boy 'pushed the car in again.'

- e.g. Int.: What was, what happened in this movie? / Well, this little boy was found ping pong (E6) balls and he picked it up and then he went, he took off his shoes and his socks and he and he and he, um, he saw the two boys and he pushed the car out into the water.
 Int.: Really. So first he saw a ping pong ball. He took his shoes off, there were some boys there and he pushed the car into the water. Was it a car that people sit in or was it a toy car? (cx) / People sit in (c) and because they were trying to look for **[gold]** in the water and he, he threw some he threw some some to him and the next day he, he um he went to that pond again and the their door the two boys' door was open and he got the gold and then he pushed it in the car in the water **[again.]**
 Int.: Again? So you mean the car came out of the water and then he pushed it back in the water? (x+) / Yeah. (x+)
 Int.: My goodness. He was certainly busy pushing that car wasn't he? / Yeah.
 Int.: Yeah. Why did he push it in the water in the first place do you think? / Because they got he got his gold in he wanted because cause um the man then the next day they locked the door and he, there was still some more gold so he tried to get it and the door **[was locked so he tried to shake it]** and he had and he pushed it **[again.]**
 Int.: Oh my goodness. Three times. (140-9,12)

In addition to the fabricated errors referring to gold and pushing the car

more than once, a string of fabrications also occurred at the end of this interview as follows:

- Int.: Did they (the two boys) catch anything? / They just caught, **[they just caught a can.]**
 Int.: A can! / Yeah.
 Int.: You're kidding. A can! They were fishing and they caught a can? / Yeah because they dropped they dropped their um food for the fish.
 (x+)
 Int.: Uh-huh.

The child continued to embellish this string of errors. Although she eventually indicated the material was 'made-up' at the end, the interviewer was obviously not aware of the significance of the child's remark since all three fabrications were included in the report.

- e.g. Subj.: So they had to bring back to them to the can they were so their house was so far away from the lake they got their car and they were walking and and they had to go back to their to their they were going back to their place and then he said I need the car and you know what the car's in the water. That's all. That's all made fun up and that's the end.
 Int.: Well thank-you for telling me that story. / That's alot (smiling) I can't imagine.

5) Major Fabrications - Film Based: The fifth group involved three interviews in which a major fabricated string began as an initial embellishment of the film material and in all cases the fabricated content appeared in the interviewer's report.

The first example involved an interview which began in a fairly playful mode and the subject went along with most of the interviewer's obviously misleading questions. With minor embellishments throughout the interview, the

main fabrication occurred with respect to the car being pulled out of the water by a tow-truck and this material appeared in the interviewer's report. In addition to the playful tone of the interview, this subject had not attended well to the stimulus film and was frequently reminded to 'see what happens next.' He later reported to his mother that he was more interested in the oneway mirror and gadgets in the room than watching the film.

The two remaining interviews in this group contained major fabrications which followed the lack of a shared referent between the child and interviewer. The two examples illustrated below are from one interview.

- e.g. Subj.: (the car) [**bumped into something**]. (135-53)
 Int.: It bumped into something while it was rolling down the hill? /
 Yeah. This (referring to drawing).
 Int.: And what's that? / [**It smashed to pieces**].
 Int.: It smashed to pieces. / Yeah.
 Int.: Was that before it went into the water? / Yeah.
 Int.: So it went into the water all in pieces? / Yeah.
 Int.: Oh, I see. / And it crashed into something like that.
 Int.: It crashed into something on it's way down the hill did it? / Yeah.
 Int.: ... (67) You mean like a rock or something? / Yeah.
- e.g. Int.: Did he have a name? / Yes.
 Int.: The little boy. / Yes.
 Int.: What was his name? / Um, [**Michael**]. (135-91)

6) Major Fabricated Strings - Fantasy Based: Seven preschool interviews were classed in the final group which involved major fabricated strings with four aspects in common. In addition to a moderate to high degree of playfulness, the initial material elicited was accurate, the embellishment of some aspect of the film material was expanded to become a 'made-up story' with no relation to the film

content, and the fabricated material appeared in the interviewer's report.

In one case, the child recalled 'the boy put the balls into a shape.' Subsequent misleading questions regarding the 'shape' elicited initial error extensions which then expanded into major fabricated strings.

A second case involved an interviewer having some difficulty in eliciting more information from the child. He introduced the technique of 'making a list of the things in the film' to fill the page and most of the material subsequently elicited was fabrication.

In the next example, the playful tone had been initiated in the preliminary rapport-building stage and the initial material was elicited as follows:

- e.g. Int.: Was it just a short movie? / The boy pushed the car. The little boy pushed the car into the water and [it ran on] two people.
 Int.: Oh no! Did the people get squished? (x+) / Yes. (x+)
 Int.: Did they drown? (x+) / Yes. (x+)
 Int.: Oh. / The car didn't though.
 Int.: So what happened to the car, then? / The car got stuck in the mud.
 Int.: Did someone pull it out? (x) / Yes. (x) (137-12)

The interviewer's exclamations and dramatic responses may have been perceived by the subject as similar to play and story-telling routines common to adult-child discourse in everyday settings. Elaboration of the initial fabricated material eventually included a farm and people in jeeps. Although the interviewer clearly distinguished two versions of the film in her report, each contained a mixture of accurate and fabricated detail.

7) Retractions of Fabricated Material: The range of situations in which fabricated material was retracted is next illustrated with excerpts from four

preschool interviews. The first example illustrates an initial fabrication quite similar to the one outlined in the previous example. In this case however, the tone of the interview was more 'matter-of-fact' than playful and the retraction emerged during the interviewer's subsequent questioning.

- e.g. Int.: And what happened in this movie? / A car [**bashed into**] two men.
 Int.: A car bashed into two men? / Yeah because that boy pushed the car.
 Int.: OK. Was the car on a hill? (c) / Yep. (c)
 Int.: And the boy pushed the car and it went running down the hill and hit two men? / (Subject nods yes)
 Int.: Did it hurt the two men? (x) / Uhm. No, it just missed them. (c,1)
 Int.: It just missed them? Oh, so it didn't hit the men? / (Subject nods no) (076-13)

In the second example, the fabrication emerged in response to a question regarding what the 'man did with the balls'. In this case, the child confused balls with money and the error appears to be an intrusion error.

- e.g. Int.: So now, I'm trying to get this picture straight because I didn't see it. Ok. One man threw the boy's boots in the water and the other man got some.. / Balls.
 Int.: Balls from the boy. What did he do with those balls? (It didn't show) / [**He took them home and put them in the piggy-bank**].
 Int.: Put them in the piggy-bank? The balls? / No, the money.

The same interview contained a second isolated occurrence and illustrates the manner in which the interviewer was able to distinguish the fabricated content from the film detail.

- e.g. Subj.: And they came out of the water, when, when he rolled the car in the water.
 Int.: Ahh, they came out, did they look happy? (x) How did they look? / Mad. (c)
 Int.: They looked mad? And then what did they do, when they looked mad? / They looked this way (demonstrating with toy)

- Int.: How's that? / **[All dirty]**.
 Int.: Oh, they were all dirty, the men? / But one thing, **[he was standing on the road, the man. The man was standing on the roof]**. (playing with toy figure)
 Int.: The man was standing on the road? / No.
 Int.: No? / He hopped on this..a bunny. (toy on table)
 Int.: Ah, this is a different story now, hum. / No.
 Int.: This is not what you saw, on the TV. This is a different story? / Well I saw a bunny before.
 Int.: But not, not today on the TV? Today you saw../ I saw a real bunny.
 Int.: You did? That was in another place, hum. Where'd you see a different bunny? / At home. (079-114)

The third example illustrates the retraction of a major fabricated string.

The interviewer had initially referred to the drawing materials and stated 'We can make up our own story about the film' early in the interview. The fabricated material began to emerge as follows:

- e.g. Int.: Do you remember where (the boy was walking)? / He was probably walking to his house...probably a building.
 Int.: Oh a building, OK. Was there anything special about the building? / No.
 Int.: What did he do? / Yeah there was something special.
 Int.: What was the special thing? / His..(?) **[heart]**.
 Int.: Is it? Oh. Were they in the window like you're doing (drawing)? (x+) / Yeah.(x+)

The fabricated material was then elaborated until the interviewer asked 'Did that happen in the film?' and the subject responded with 'No, that's what I like.' The interviewer then suggested they make two piles of drawings, one for what was true about the movie and the other for what the subject liked. In this way the interviewer was able to distinguish between the fabricated material and the actual film content. None of the fabricated material appeared in this interviewer's report.

The final example illustrates the retraction of major extended errors and fabrications. Although most of the error constituting the error strings was first introduced by the interviewer and therefore not classed as fabrication, the example serves to illustrate the child's clarity in distinguishing the actual from fabricated detail. Although the subject initially responded correctly for the most part, the error string began in response to the interviewer's continued misleading questions (e.g., the initial 'boat' error was in response to the misleading question 'Was he in a boat? / Yeah.')

and the retraction occurred after the interviewer mentioned that he was going to be tested.

- e.g. Int.: .. I just wanna make sure that this that you told me everthing about this movie its's kinda like a test. Do you know what a test is? A test is when somebody is gonna ask questions about what you jus: saw and I'm gonna get a test after this. I'm gonna be tested. / I mean he he was fishin and.. he wasn't fishin in a boat really.
- Int.: Not really? / No.
- Int.: What kind, what was he fishing on? (WA) / A boardaboat.
- Int.: A boardaboat. Just like on a raft? / (S nods yes).
- Int.: And his Mom and Dad. Were they with him? / No.
- Int.: They weren't with him. Oh boy, now I'm, really confused. Who was he fishing with? / He was fishing by hisself.
- Int.: And his sister wasn't there? / No.
- Int.: Did his sister help him push the car? / No.
- Int.: No? / He was, I mean I changed my mind.

In this example, the interviewer's question after the initial retraction contained an incorrect assumption (WA) to which the subject responded with a made-up word. A more technically correct question would have been 'Where was he fishing?' Despite the confusing amount of accurate and inaccurate detail, only one fabricated detail was contained in this interviewer's report.

PART TWO: QUESTION FEATURES

1. Open Questions

Apart from straightforward requests for information, the degree to which open questions were embedded within a discourse demand is not easily specified in terms of a single dimension. The variety of features accompanying open questions were classed in four categories as follows:

- 1) Specificity
- 2) Frames of Reference
- 3) Side Comments, Rhetorical Questions etc.
- 4) Relational Frames
- 5) Degree of Deference

1) **Question Specificity:** Specificity was earlier introduced as the degree to which open questions request general or specific information and can best be illustrated on a four point scale, ranging from general to most specific.

- (1) Tell me...
What was it about?
- (2) What happened next, then, first, before etc.
Can you tell me more?
What did he look like?
- (3) Why did that happen?
How did he do that?
- (4) What colour was his hair?

Small pockets' of error were found in response to open questions as follows:

(1) Incorrect inferences: Incorrect inferences made in response to open questions were common in the preschool sample. As can be seen in the first example below, it is difficult to determine whether the incorrect inference (I5)

reflects the child's actual understanding of the film material, an intrusion error based on his general knowledge base or a response to the discourse demand. In both examples, the child is clearly importing additional context.

e.g. Int.: How come they were driving so fast? / They wanted to escape. (15)

e.g. Int.: How could a little boy push a big car? / He was strong. (15)

The next example illustrates a similar error in the 8-10 year-old sample.

e.g. Int.: What kind of expression did he have on his face when he was doing this business with the car? / Happy. (097) (the expression on the boy's face at that particular point in the film was focused attention or determination)

(2) The Subject Assumes the 'Who' or 'What' Question Requires a Name:

e.g. Int.: Who was in the film? / I don't know.

Int.: Could you tell me what it was about? / I don't know their names.

e.g. Int.: What was your movie about? / I don't know what it was called.

Int.: Well, I don't care what it was called. What was in it? / It was about the little child's friends were going to play ball and big and getting balls out of this swamp for them.

e.g. Int.: Was this movie about Christmas? / (Subj. nods no)

Int.: Oh, wasn't it? Was it a story? / No.

Int.: Oh, what was it then? / I don't, you know I don't know the name. (074-39)

(3) Why-Questions: In a number of cases, a how or why-question appeared to tax the preschool subjects' comprehension and language ability.

e.g. Subj.: They're really mean.

Int.: The grown-ups were? / Yeah.

Int.: Oh. How were they so mean, what did they do? / Uh, uh, I don't know.

Int.: Oh, Ok. So you just thought they were mean though. / They are mean.

Int.: Oh, Ok. Did they look mean? / Yeah.

Int.: How could you tell? How could you tell they were mean? /
Because I saw their face.

Int.: Oh. And it just sort of looked mean to you, eh? / Uh-huh (yes).

e.g. Int.: Why did they want the golf-balls then? / Cause I don't know. I
think so but I don't know why.

2) Frames of Reference: Frames of reference accompanying open questions were classed as subjective, external or a combination of the two.

(1) Subjective Reference

e.g. Int.: What did you like best/worst?

e.g. Int.: What was the scariest part?

e.g. Int.: Was there anything special about..?

Fabrication was elicited in response to the third example above, but this material was also subsequent to the interviewer's earlier instruction 'We can make up our own story about the movie' at the beginning of the interview.

(2) External Reference

e.g. Int.: What would you tell your Mom the movie was about?

e.g. Int.: If you had to write an article for the Martlett, what would you say the movie was about?

(3) Combined

e.g. Int.: What would your Mom like best?

e.g. Int.: What would I like the best?

In response to the question in the last example, the subject responded "You'd like the golfing." This material had not been mentioned previously and then became the basis for further questioning e.g., 'Who was golfing?'

3) Side Comments and Rhetorical Questions etc.: Although side comments, exclamations, rhetorical questions, topic changes and general filler material

appeared, for the most part, to function in a manner similar to normal conversation, particularly adult-child discourse, in a number of cases the material provided an inappropriate framework for the following question.

The first example illustrates a fairly innocuous rhetorical question in which the interviewer expands the child's response to a broader context.

- e.g. Subj.: He pulled his pants up so they wouldn't get wet.
 Int.: That's a good idea, isn't it, if you don't want your pants to get wet.
 (073-72)

The next examples illustrate evaluative comments which were clearly inappropriate.

- e.g. Int.: (In reference to subject's drawing of the teen) Was he a happy man? /
 No.
 Int.: That's a really good picture. I like that man. (130-53)
- e.g. Int.: What was the end of the story? A happy ending? / Uhm..
 Int.: I don't like sad endings, do you? / (074-144)
- e.g. Int.: What did he do with the golf-ball when he found it? / He put it in his pocket.
 Int.: Oh that's a funny story isn't it? What happened then?

The last example illustrates the manner in which an interviewer unwittingly suggests the response obtained.

- e.g. Int.: It sounds like kinda a strange film. / (S nods yes)
 Int.: What did you think of it? / (Subj. shrugs)
 Int.: Just a short one. / Yeah short.
 Int.: Yeah. Well, it doesn't sound like too much more details in there.
 Anything else you can think of to tell me? / That's all I remember.

4) Relational Frames: The fourth category identified the manner in which the interviewer structured the relational dynamic.

(1) Informing the Subject of Lack of Knowledge: The first case

demonstrates a fairly straightforward instruction.

e.g., Int.: I'm going to ask you to tell me what that movie was about because I didn't get to see it.

The next two examples demonstrate a more subtle 'pull' on the child's sympathies.

e.g. Int.: You'll have to tell me what the movie was about because nobody let me see it.

e.g. Subj.: In that room we saw a movie.

Int.: You did? I didn't get to see any movie. You're lucky, aren't you? / Uh-huh (Yes). (073-62)

(2) Defining the Task as One's Own: A number of interviewers continually

defined the task of understanding as their own and enlisted the child's help to understand.

e.g. Int.: Now let me see if understand this. There was a boy. / Yeah.

(3) Framing the Task as a Joint Effort and/or Test Situation

e.g. Int.: Do you know what C (experimenter) is going to do with us today? She's going to test us to see how much we remember. Do you think we can surprise her and remember a whole pile of things for her? Do you think we can do that? (130-44)

5) **Degree of Deference**: Various degrees of deference were apparent both within and across interviewing styles. The first example illustrates an open question in subjective form and the second example illustrates a more indirect approach.

e.g. Int.: Do you think you could tell me what kind of water that was?

e.g. Int.: I'm interested in what kind of water that might have been. (131-088,110)

In one case, a male interviewer was drawing a picture when the preschool subject entered the room and he waited until the child approached him directly before speaking to her. Considerable time talking and drawing was interspersed with questions directly related to the recall task and many of the questions were prefaced with 'Can I ask you another question about that movie?' Although the subject in this case was very clear about what she did and did not know, closed questions predominated with the consequence that very little spontaneous information was volunteered by the subject.

At the opposite extreme, the next example illustrates the manner in which a question beginning with 'Well what...?' may prompt the subject to respond to the discourse demand rather than a request for information which he may not have. (Note: E2L indicates a descriptive error.)

e.g. Int.: What were the big people doing? (teens in water) / Just..
 Int.: Hmmmm? / .. playin. (E2L)
 Int.: Well what were they playing? / Nothin, just playin tag. (E2L+)
 (124-57)

2. Closed Questions

Features accompanying closed questions were grouped into those with an embedded response bias, those involving a question sequence and those involving some degree of ambiguity.

1) Response Bias: Questions in the declarative, tag and negative form, as well as various combinations of these three features were common throughout the data-set. Declarative questions, particularly those with an added assertive quality appeared to be the most subtle form of question with an embedded response bias.

e.g. Int.: So he (the boy) must have seen them before. (x) / Yes. (3)

The basic tag form (i.e., 'It was X, wasn't it?') was less common than various tag-forms such as the use of 'Huh?' or 'Eh?' ('Right?' or 'Isn't that right?') at the end of the interviewer's question or statement.

In general, closed questions with an embedded negative were confusing to interpret for scoring purposes. In most cases, the subject's response was also somewhat ambiguous for the interviewer to interpret.

e.g. Int.: You don't see him as being big or huge or remarkable in any way? / Yeah.

Int.: Yes? So yes? / Yes. (164-124)

Twelve closed questions with an embedded negative produced an error. In three cases, the closed question was actually leading in the correct sense. Of the remaining nine misleading questions, seven were in the form of a declarative with an embedded negative and the remaining two combined the tag and negative.

2) Questions in Sequence: Two or more questions in sequence were distinguished by one of four characteristics:

(1) The second question was the inverse of the first (somewhat similar to a choice question) and a further question was necessary if it was not clear to which the response referred. In the example below the second question contains an

embedded negative which adds further ambiguity regarding the subject's response.

e.g. Int: Was that a surprise to him? Did he expect that? / Yeah.
Int.: He didn't expect them to do that? / No. (086-4)

(2) The sequence begins with an open question followed by one or more closed questions advancing examples of the requested material. This feature was commonly used by lawyers interviewing subjects in the 8-10 year-old and young adult samples.

e.g. Int.: When he came home, you know just going back to that, he comes home, what happens, he goes in the .. his house?

e.g. Int.: What type of clothes did the boy have? Did he have a heavy coat on or did he gave a bathing suit on? Did he just have shorts on? (061-58)

(3) The sequence covers a broad range of material. In both examples below, the question was addressed to a preschooler and was far too complex.

e.g. Int.: So how did the story end? Who had the car, who had the gold (repeat error) and what are they all feeling? (140-87)

e.g. Int.: Then what did they do? Did they walk into the water? I didn't get to see that movie. It sounds exciting. What else happened? Did they walk in after they pulled their pants up? / (073-74)

(4) The question involves a summary of material in which an incorrect detail is introduced and the subject agrees to the entire summary.

3) Ambiguity: To the extent that information advanced in a closed question (including choice questions) was not clearly correct or incorrect, there was some degree of ambiguity embedded in the question. For example, questions with mixed status required more than a yes/no reply to merit a correct response. Questions which required or incorporated an inference and those which advanced

two or more details for the subject to confirm or disconfirm were also ambiguous to some degree and thus required additional processing and clarification on the subject's part to merit a correct response.

To the degree that the alternatives offered in a choice question (e.g. 'Was it X or Y?') were unambiguous, that is, there was a distinct reference to detail in the stimulus film, this question form clearly offered the advantages particular to a recognition as opposed to a recall task. There were a number of situations, however, in which the alternatives or the details to which they referred required additional clarification to merit a correct or incorrect response.

(1) Both choices are correct at different times in the film or depending on what aspect is being considered and the interviewer assumed they are mutually exclusive.

e.g. Int.: They took the balls from the little boy or did the little boy give them to them? (066-159)

e.g. Int.: Does he give them the balls or sell them the balls? (175-97)

e.g. Int.: Did you see the boys driving or just the car parked? (089-140)

The next example illustrates the manner in which a response to the initial choice question affects the child's later response. The child had initially described the boy getting balls both in the bushes and in the water.

e.g. Int.: Did he find golf-balls in the bush or the water? / In the bush.
Int.: And did he get any balls in the water? / I think so. (066-180)

(2) One or more choices are partially correct.

e.g. Int.: Did you see a canoe (x) or just a paddle (repeat vocabulary error) sitting in the water? (x) (061-164)

A related example occurred when the interviewer asked the subject to make a global assessment.

e.g. Int.: Describe in one word, was it (the film) funny, sad or serious? / Serious. (089-32)

(3) The correct response lies somewhere in between the alternatives offered.

e.g. Int.: Were they men or boys?

(4) The subject responds 'not X' and the interviewer then assumes 'Y' is the case.

e.g. Int.: What was the boy doing? Was he standing still or leaping up and down? / He wasn't standing still.

3. Questioning Strategies and Techniques

Apart from asking open and closed questions, interviewers used a variety of questioning strategies and techniques. These are grouped under the following six headings (whose order does not reflect order of importance):

- 1) Asking an Obvious Misleading Question
- 2) Requesting a Similar Comparison
- 3) Use of Drawing Material
- 4) Role-Play
- 5) Changing the Topic
- 6) Obtaining More Information

1) Asking an Obvious Misleading Question: Although interviewers were, for the most part, unaware of the status of a question (i.e., whether it was leading in the correct sense or mis-leading), there were three situations in which obvious

misleading questions or guessing were used.

(1) Getting Started: The first example, from an interview in the blind condition, illustrates an initial attempt to get the child started after an 'I don't know' or 'I don't want to' response.

e.g. Int.: So I thought maybe you could tell me what was on that show that you saw on the video. / I don't know.

Int.: Huh. Let's see if we can remember. Do you remember what happened? Now let's see, was there a little girl like you? / No, there was a little boy. (079)

(2) Eliciting Further Information: The next examples illustrate the techniques used by one interviewer to gain additional detail.

e.g. Int.: Two men O.K. They just came walking up did they or did they come on horses? (cx) / They just came by car.

Int.: In a car. O.K. That's good to know, and they drove up in their car and it was a big white one I guess. (x) / No.(c)

Int.: Hmm. It wasn't a white one? / (Nods no) It wasn't the same colour as my Mom's green one. (127)

Although using an obviously misleading question in this fashion is somewhat similar to a recognition test which has some advantages over a recall task, it holds some risk. The incorrect material may either trigger an association which is not differentiated from the film content or serve to define the situation as play. The next example, taken from the same interview, illustrates such a case. The question is in declarative form and the error material also appeared in the interviewer's report.

e.g. Int.: What else was famous about that boy? Did he, did he whistle? (x) / Like this (Subject attempts to whistle).

Int.: Oh so you can do it. So he whistled a little tune when he walked

along? (x) / Yes. (x)

(3) Assessing the Subject's Credibility or Power: Obvious misleading questions were also used in attempts to test the subject's credibility or to obtain some indication of the child's power as measured by his or her willingness to correct the interviewer. While it was not possible to determine the number of situations in which an obviously incorrect question was used for this purpose, in the few cases which were confirmed by the interviewer, the subject responded correctly. The strategy does hold some risk however, particularly if a good level of rapport has not been adequately established or maintained, if the subject has not been given either explicit or implicit permission to correct the interviewer or if the discourse has taken on a playful tone.

2) **Requesting a Similar Comparison**: A number of interviewers asked the subject to make a comparison (e.g., 'Have you ever seen something like that before?'). While this strategy helped clarify exactly which aspect of an object or event the subject had previously referred, it also held some risk if the material being compared became mixed up with the film content. Although there were instances, in both the preschool and 8-10 year-old samples where this type of confusion was eventually sorted out, the use of this strategy warrants some caution and awareness of the risk involved.

3) **Use of Drawing Material**: The use of drawing material was used most frequently in the preschool sample and was an obvious aid, in most cases, to elicit and clarify film details. In one preschool interview, for example, the child did not

mention the boots being thrown in the water but drew the boots in the water. In terms of obtaining accurate material, however, there were five situations in which the use of drawing material held some risk.

(1) Intrusion of scripted material: The first two examples illustrate the intrusion of scripted detail and its relation to subsequent questioning.

e.g. Child is drawing the 'pond' and singing waving as she marks the waves. The interviewer then asked 'Was the water waving?' (130-237)

e.g. Subj.: (S is drawing the house in the film) I don't know how many windows his house had.
Int.: You remember seeing on the film lots of windows? / Yeah (063-48)

(2) Intrusion of salient material in the child's world: In a number of cases, the interviewer asked the child to draw her house or dog etc., and this material was later confused with the film detail.

e.g. Subj.: It wasn't this, this, the house wasn't that light, that light though. It was a little darker than that though.
Int.: What, that house? The house that he (the boy) was at? / Not this one. My house. (069-130)

In one case, the child's drawing of the scene of the boy in bed included a teddy-bear toy and in another, the child's drawing and comments emphasized the genital anatomy of the three male characters, a topic which her mother later reported was of keen interest to her daughter at that point in time. (077)

(3) Interviewer labels drawing incorrectly or incorporates an incorrect assumption

- e.g. Int.: Is that the forest? / No the grass. (130-50)
- Int.: So this guy's smiling? / Yep, and so is this guy but it's just a fake smile. (062-122) (Note: Teen #1 did have a 'smirk' on his face.)
- e.g. Int.: Let's make a little lake and put waves in. (069-144-5)
- e.g. Subj.: You drewed them happy.
 Int.: Oh, weren't they happy? / No.
 Int.: Make them sad then. / No, mad. (139-244)

In another case, the child did not agree with the proportions in the interviewer's drawing and a power struggle developed.

- e.g. Int.: What colour shirt? / He's not that fat. (074)

(4) Interviewer assumes all material relates to the film

- e.g. Subj.: Hey there's a star up there. (referring to spot on paper)
 Int.: Yep. That's maybe a star at, at night. / Maybe that's the first star out.....
 Int.:Were there any stars when this little boy was with his net? / I think so.
 Int.: Was it during the day or was it during the night? / It was during the night when the moon was out.
 Int.: The moon was out. Was he supposed to be out at night? (WA) / He wasn't out at night. (c)
 Int.: Oh. I thought you said the moon was out. / It was but sometimes it out, uh, out um, in the morning too. Sometimes.. (062-359)
- e.g. Int.: (Referring to drawing of the car) Was it a special door? / You open it and it like that. And then you get into the driver's seat, close the door. And put on the seat belt and then start driving.
 Int.: Was that what he did? (x) / No.(c) He was under the car.

4) Role-Play: In two cases, an interviewer in the preschool sample switched to a role-play. In the first example below, this strategy was successful and in the second it was not.

e.g. Int.: One wanted the paddle and the other one had it? Is that what was happening? Just that... this was the paddle you want it I want it and we're fighting over it? / Yeah.

Int.: That's right.../ Just like that...

Int.: Just like that and then what happened .. the car's coming! Is that what happened? / Then you would run like that. (061-290)

e.g. Int.: So they were in the pool. / Yeah.

Int.: Boy that's pretty good. Would you like to be that boy or would you like to be the men? Which would you rather be? / The boy.

Int.: The boy eh? So I'm the man and I'm in the pool. Am I swimming or something? What am I doing in the pool? / I didn't say that. (122-44)

5) Changing the Topic: Topic changes were clearly appropriate in a variety of situations (e.g., to redirect the focus of attention or offer a break if a child was uncooperative). In the preschool sample, a number of interviewers introduced off-topic material and used it as a background reference in shifting back and forth from the on-topic to off-topic material.

In a small number of cases however, considerable time and effort was required to get the child focused and attending to the task and the interviewer changed the topic as soon as recall material was forthcoming. Although the material was usually not very clear and the topic change allowed the interviewer to process the material, it proved to be counter-productive since it then framed the situation as play or prompted the child off-task. The interviewer was then in

a position of having to bring the child back to task once again.

6) Obtaining More Information : Apart from introducing the recall task and keeping the child focused, interviewers were generally in a position of needing more detail or, if the details elicited were sparse and difficult to comprehend, needing to better understand the child's meaning. The following examples illustrate a variety of techniques used to accomplish these two goals.

(1) Rephrasing the question: Rephrasing the question frequently followed an 'I don't know' (IDK) or 'It didn't show' response on the subject's part. The first example below illustrates a successful rephrasing. The IDK response to the detail in question is accurate in the sense that the teens initially did offer the boy money and it is not clear that they intended to steal the balls.

e.g. Int.: So these men, actually when they, they wanted the golf-balls. They were gonna try to steal them from him. Is that what they wanted to do? / I don't know.

Int.: They wanted to take them without paying for them? / Yeah. (145-32)

The second example, from an interview in the young adult sample, illustrates two approaches to the same material.

e.g. Int.: I don't remember where the men were at this point, (end of film) do you remember? / They never show.

Int.: What happened to the two guys after they run out of the water? / They never show.

(2) Future/Would or Could Questions: Questions containing a future/would or could feature or an explicit hypothetical detail were used with varying degrees of success. In the first examples, both the subject and the interviewer maintained

the distinction between the actual and hypothetical details.

- e.g. Int.: They would probably have thrown his shoes in too wouldn't he? /
He didn't have shoes.
Int.: No but if he had shoes. / Yeah he would have thrown his shoes
in. (147-251)
- e.g. Subj.: He was walking in bare feet and carrying both in one hand.
Int.: So with the other hand he could be looking for more golf-balls?
(x) / Maybe, yeah. (x) (179-99)
- e.g. Int.: What sort of things do you think he might have smelt or saw in
the woods. / Maybe he smelt the trees.
Int.: Ok so there were trees in the woods..... Would he have heard
anything do you think? / Birds probably. (087-21,27)

The next example illustrates an 8-10 year-old's thinking process in response to the hypothetical question.

- e.g. Int.: If they had looked over toward the car, do you think they would
have seen him? / Um they probably would have been distracted
by the car. I think. They may have seen him but they wouldn't
have really recognized him, although they probably would have
known 'Hey that's the kid from yesterday' but uh - probably not
because he was behind the car. (176-105)

A final example illustrates the manner in which the future/would question coupled with the subject's limited language skills resulted in an unclear distinction between the actual and hypothetical detail.

- e.g. Int.: Was he (the boy) playing with something? / (S nods yes)
Catching fish. (E1)
Int.: He was catching fish. How'd he do that? / With a fishing rod.
Int.: Oh. So there he was playing in the water, catching fish with a
fishing rod. Did he catch any fish? (x) / (S nods no) (c)
Int.: He was just trying. I wonder what he would do with the fish
once he caught them. / He would eat them, he'd cook and eat
them.
Int.: He would. How would he get them home if he caught them?/
Cut them.
Int.: Cut them. Yeah. / And then put them in the bucket, home.

- Int.: Oh did he have a bucket then? To bring them home? (x) / (S
nods no) (c)
Int.: No? / He would take them in his hand. (079)

(3) Leaving an Opening for Future Recall

- e.g. Int.: What colour sweater? (E2M) / I forget.
Int.: You forget. It may come back to you later. (089-101)

(4) Getting the subject back on track: Efforts to get the subject back on track included anchoring the context (e.g., Int.: Now in this movie that you saw...?), defining the task as one's own and enlisting the child's help (e.g., Int.: Let me see if I understand this.).

5) Interviewer supplies the word: In a number of cases, the interviewer offered a word if the subject appeared to be having some difficulty expressing what he or she meant. In the first example below, the interviewer carefully offers one possibility which the subject correctly rejects and then offers a second possibility which the subject incorrectly accepts.

- e.g. Int.: And did you get a chance to see in the movie what the inside of the car was like? / Yes. It was black and had moving stuff in it.
Int.: Moving stuff? When you say moving stuff, does that mean that somebody was moving? I mean like somebody was moving from one house to another house? (x) / No. Not that kind. (c)
Int.: Not that kind of moving./ Yeah. The kind like, like uh, let me see, how could I.. like the kind of stuff that you can push and pull.
Int.: The kind of stuff that you can push and pull. / The kind like uh, that thing (gestures with right arm back and forth).
Int.: Oh, that thing that makes the car go, the stick shift in the middle? (x) / Yes, the stick shift. (x) (130-97)

4. Normal Risks in Question/Response Discourse

The transcripts offered numerous examples of the manner in which features of regular conversational discourse may affect the accuracy of the material obtained.

1) Interviewer mishears the subject: In the two examples illustrated, the first was due to some hearing loss on the interviewer's part and in the second was due to unclear articulation on the subject's part.

e.g. Subj.: (Referring to drawing) This is the car parked.

Int.: Ok. So we'll just call that the car park eh? (x) / No, it's falling in the water. (c)

e.g. Int.: What did the other man do? / He got some change from the little boy.

Int.: Some change? What kind of change was that? / Well actually, balls.

Int.: Buttons, what did you say? Bottles. He got some bottles from the little boy? / No, balls. (079-70)

2) Interviewer does not understand the subject's meaning:

e.g. Int.: What happened after he pushed the car into the water? / I guess they washed (E1) their stick together and he said Pow-Wow.(E6)

Int.: Oh. / So their stick and they washed their stick there.

Int.: What was sticking together? The cars? (x) / ---? (no response dilemma)

Int.: But what was sticking together? / Um, you know.

Int.: No, I don't know. I didn't get to see it. You'll have to tell me about it because I don't understand. Can you help me understand that movie?

3) Interviewer relabels incorrectly: In a number of cases, an interviewer paraphrased previous recall and in doing so relabelled the material. Although this was most often done without substantial change to the meaning, the relabelling was incorrect in a number of cases.

- e.g. Subj.: It was very scary at the end.
 Int.: (50 turns later) You said some nasty things happened. What was the nasty things that happened. / I don't know.
 Int.: You don't. / No.
 Int.: What do you think the whole story was about?

Closely related to relabelling was the use of characteristics of more informal speech. In the example below, although the use of the term 'their friend' is recognized as a manner of speech, the literal meaning is incorrect.

- e.g. Int.: So the boys came across their friend (x) collecting golf-balls. / Yeah.
 (x) (089-198)

4) Interviewer makes too broad a request: Requests to 'Tell me everything' or 'Tell the whole story' frequently met with an 'I don't know' response in the preschool sample.

- e.g. Int.: You tell me everything that happened and I'll just sit and listen. / I don't remember. (068-140)
- e.g. Int.: OK, so you've told me the whole story. Can you tell me the story again, cause I didn't quite get it the first time. Just tell me every thing it was about. We don't need to draw it this time. Just tell me. / I don't know what it was all about now.
 Int.: You don't know what it's all about now, well you've told me that there was a little boy and he had to, he didn't want to give his balls away. / No. (071-47)
- e.g. Int.: What do you think the whole story was about? / I don't know.
 Int.: Can you remember it now? / No, I don't remember it.
 Int.: You don't remember anything more about it? / No, I don't remember it.
 Int.: Have you got brothers and sisters? / Yeah. (071-59)

In the preschool sample, a variation on the broad request involved interviewers' attempts to obtain more information (after an initial IDK or 'I don't

want to ' response) with the use of questions such as 'Did anybody do anything or say anything?' In these situations, the question invariably elicited a 'No' response.

5) Interviewer argues against child's logic: The next examples illustrate the manner in which an interviewer questioned illogical material. The child had volunteered very little spontaneous recall and, due to the omission of major details, the interviewer questioned the logic of the material she did recall.

- e.g. Int.: Was he happy cause he found the ball? / Un, not no really.
 Int.: Why, why wouldn't he be happy? / U'h. I think he was sad.
 Int.: Why? / I don't know.
 Int.: Cause that's what he wanted to get and he got it. Ok, if you were there and you wanted to get the ball. Let's pretend that you're the person that's standing there by the side of the pond, eh. And you just saw the golf ball there and you really, really wanted it. And you went in and you got wet, your feet all wet and you got it, and you came out. Would you be sad? ...I think you'd be a little happy. Why do you say he'd be sad? / Cause he was.
 Int.: But why? There's got to be a reason. / I don't know.
 Int.: There's got to be a reason. / I don't know. (069-155)

In the next example, taken from the same interview, details regarding the car being pushed in the water did not emerge and the interviewer (in the blind condition) again questions the apparent inconsistency of the child's logic.

- e.g. Int.: Was it a happy story or a sad story? / A happy one.
 Int.: Would it be happy if somebody threw his boots in the water? That's not very happy is it? / But, but it was happy.
 Int.: What make it happy? Can you tell me what made it happy?... What things happened that made it a happy story? / I don't know. (069-199,201)

The next example illustrates the idiosyncratic nature of children's errors and the manner in which it may interact with the interviewer's questioning style.

- e.g. Int.: This little boy, was he your size? Do you think he was your size or was he bigger than you or smaller than you? / He wasn't even born yet.

(15)

Int.: We have a little boy who's not even born, oh we have a problem here. Because little boys, if they're like you then they've been born. Because if they weren't born, we couldn't see them. So we've got this little boy, he comes and he pushed the car into the water did he? Boy, why did he do that? / Because, because those people are murderers. (E6)

The incorrect inference (I5) may have referred to the size of the boy on the viewing screen and the subject's logical consequent that the boy wasn't real. The vocabulary error (E6) may have been the child's way of saying the people were 'bad guys.'

6) Interviewer Introduces Error and Later Assumes it was Spontaneously Recalled by the Subject:

e.g. Int.: Rubber boots? (x) / Yeah. (x) (100 turns later the subject incorporates 'rubber' into a free recall review of material)
 Int.: Why did he say rubber? Uh...
 Int.: What would he..? / I think they were rubber, I don't know. (147,248,249)

5. Questioning Manner or Style

In general, interviews were conducted in a fairly relaxed conversational style, ranging from a very slow to fast pace. Although no interviewers questioned in a technically perfect manner, there were numerous qualitative distinctions which could be considered more or less productive in terms of eliciting accurate recall.

A number of features appeared to be idiosyncratic to particular interviewers. One interviewer for example, used the tag form 'Huh?' at the end of most utterances. While this clearly signalled a change of turns, it also contained a

response bias prompting a 'yes' response. Another interviewer used obviously misleading questions to obtain more information and a third changed the topic as soon as material was forthcoming. Speculative questions used by one interviewer elicited speculative responses. A very indirect form of questioning was used by another interviewer, with the result that very few closed questions were asked.

e.g. Int.: You haven't told me how old the boy is or what he looked like?

e.g. Int.: I don't know what colour the car is.

The quality of the question/response discourse in the preschool sample was very different from that in the two older sample groups. Interviewers in general used shorter phrases, slower and syntactically simpler speech and frequently repeated, recast or expanded the child's speech. While these features are common to regular adult-child discourse, a number of additional features were clearly counter-productive to eliciting accurate recall of the film material. These features included overly dramatic verbal and non-verbal responses (e.g., wide pitch swings, exaggerated facial expressions, animated expressions), attempts to generate enthusiasm and playful teasing. In these cases the interviewers appeared to rely on scripted knowledge and routines to interact with children in this age-group, and in most cases the child eventually fabricated.

In contrast, interviewers with a slower, more low-key and matter-of-fact approach, continually focused on the task, defined it as a cooperative venture and enlisted the child's help to understand what happened. Although specific mention of the need to obtain accurate information was rare, the degree to which the interviewer oriented the child to the recall task varied from no orientation (e.g.,

beginning with 'Tell me what happened,') to explicit mention of one or more of the following details:

- 1) I haven't seen the film
- 2) My job is to find out what the film is about
- 3) I'll need your help to understand what happened.
- 4) It's important that I understand exactly what happened.

These comments were not restricted to the beginning of the interview and the orientation they provided appeared to continually structure the relational dynamic as a cooperative venture between the interviewer and the subject throughout the course of the interview.

PART THREE: SUBJECT FEATURES

This section presents a number of qualitative features relating to subjects' responses under the following five headings (whose order of presentation does not reflect order of importance):

1. Use of language
2. Comprehension
3. Reversal errors and self corrections
4. Self boundaries and perceptual shifts
5. Child as a conversational partner

1. Use of Language

In addition to a limited amount of recall and lack of correct temporal order, preschoolers' language was characterized by a range of features classed in one of six groups as follows:

- 1) **Unclear Anaphoric Reference:** Preschoolers often used a pronoun without

a clear referent. Although the child may have assumed that the interviewer had seen the film or at least knew what it was about, this feature was clearly misleading for the interviewer.

- e.g. Int.: What was the movie about? / About a little boy that pushed a car into the river.
 Int.: A little boy who pushed a car into the river? / Yeah.
 Int.: Was it a big car or a little car? / A big car.
 Int.: A big car. / A big car.
 Int.: Oh. Was he driving the car? / No. They weren't drivin' it. They were out of it and then he pushed it into the water.
 Int.: Oh. They...they got out of the car? / An' then he push it in. (061-16)

The next example illustrates the manner in which an unclear anaphoric reference develops into substantial error.

- e.g. Int.: Do you want to draw me what you saw on that picture? Do you think you could do that? / Well guess what?
 Int.: What? / Well uh this car, he fell in the water. This boy had pushed it down there. He was so strong (I5) that he could push it in the water and it went splash like that.
 Int.: You mean the boy was so strong that he could push a car and he pushed the car into the water? / (S nods yes)
 Int.: Is that right? And tell me a little bit more about what happened there. / Well um um he was sneaking and he sneaked inside.
 Int.: He sneaked inside the car? / (S nods Yes)
 Int.: Oh. / And guess what?
 Int.: What? / And so the boy said 'watch out' because they didn't want their car to fall on their heads.
 Int.: I don't understand that, I mean he said watch out and he didn't want what to happen? / The car to hit him.
 Int.: Oh I see. Was he just alone? / Uh-huh (No) he had a friend.

2) Use of the nominal pronoun: In a number of cases, the preschool child initially responded with the nominal pronoun and then corrected.

- e.g. Subj.: I said 'no,' the boy said 'no.' (140-49)

3) Vocabulary: Preschoolers' use of language was also characterized by

overextension (i.e., errors in which the word meaning is inappropriate for the detail described but contains one aspect of correct semantic content), the meaning of which is more or less obvious. In reference to the boots sinking for example, the 'the boots melted' is far less easily recognized than 'the boots drowned.' Such overextensions due to the child's limited vocabulary were clearly misleading for the interviewer.

4) False Starts and Hesitations: The language demands of question-answering and preschoolers' limited processing capacity were clearly evident in situations where the interviewer was on the wrong track. In cases where the question contained two or more errors or incorrect assumptions, the subject invariably corrected only one. In the example below, the question contains two incorrect assumptions (WA).

e.g. Int.: What were they doing on the lake (WA) with their golf-clubs? (WA) /
They weren't with their golf clubs.
Int.: They weren't? / Nope.
Int.: I thought they were golfing. / They were and then they, um, the other day, un and the other day after, that the boy, the, they boy, un they started to... They went out of, for, for the, with the net. um... the next day after that, um.. the boys took 'em and he seen them um... and so he went in, and um... He pushed the car in after he grabbed something out. (E1)

The spontaneous material in this subject's response contains repetitive false starts and hesitations. While it appeared that the child understood that additional clarification was required, his processing and expressive abilities were clearly not up to the task. In a number of similar instances in the preschool interviews, such limitations in the child's expressive ability emerged after the child initially

corrected the interviewer and was attempting further clarification.

2. Comprehension

Errors related to preschoolers' comprehension are divided into the following six groups (whose order does not reflect order of importance):

- 1) Spontaneous incorrect inferences
- 2) Concrete responses to questions
- 3) Particular error content
- 4) Adequate comprehension despite incorrect response
- 5) Apparent contradictions
- 6) Child's pragmatic understanding of the task

1) Spontaneous Incorrect Inferences: Incorrect inferences (I5) were characterized by three features. The first example illustrates pre-operational thinking.

e.g. Subj.: He put the golf-balls in his pocket and the golf-balls kept gettin' flatter and flatter. (I5)

The next examples illustrate incorrect inferences due to the child's real-world experience and knowledge-base.

e.g. Subj.: The boy lived alone. (I5)
 Int.: Why do you think the boy lived alone? / Because I saw no Mommy and Daddy.
 Int.: Maybe Mommy and Daddy were at home? / No because I saw him sleeping. (130-113)

e.g. Subj.: He (the boy) sleeps.
 Int.: He what? / He sleeps. That made him strong. (I5)
 Int.: He slepted? You mean he went to sleep? / Yeah.
 Int.: And how did that make him strong? / Well you know that does happen.
 Int.: Oh I'm sure it does. But you tell me about this boy, his sleeping

and how that made him strong. / Well sometimes I do. Sometimes all the people do.
 Int.: Well sure we all have to sleep. So this boy did he sleep during the, during the uh, while the picture was running? / Yeah. (064-100)

A small pocket of incorrect inferences in the preschool sample appeared to be related to the interviewing context. In the example below, fabricated material had emerged previously and the child is importing additional context which appears to be more confabulation (based on scripted knowledge) than fabrication. (Note: the incorrect inference is in bold type.)

e.g. Int.: Must have scared them eh? (c) / **And they thought it was a storm coming up** but it was the car rolling down the grassy hill. (c) (122)

2) **Concrete Responses to Questions:** There were numerous examples of the child's concrete interpretation of a question (i.e., the child responds in a more immediate sense than that contained in the question). The examples which follow are taken from the rapport-building turns as well as those specific to the film content.

e.g. Int.: Where was he (the boy)? / I don't know.
 Int.: Was he inside or outside? / Inside.
 Int.: Really. / Inside the movie.
 Int.: Inside the movie. Well in the movie was he inside a house or was he outdoors? / Outdoors. (132-87)

e.g. Int.: Did he have anything on? (as the subject begins to draw the boy) / Well his head. (131-61)

e.g. Int.: Was it a long or a short movie? / (Subj. holds hands about 18 inches apart) (074-26)

e.g. Int.: Why did he push the car? / For a reason. (061)

- e.g. Int.: Who do you think brought that car there? / I know who brought it. (064-116)
- e.g. Int.: He didn't have them (the boots) on his feet? / No.
Int.: Where did he have them? / Somewhere else. (139-53)
- e.g. Int.: How did that happen? (car in the water) / When you weren't here. (070-195)
- e.g. Int.: Did the boy say anything when they threw his boots in? (x) / No. (c)
Int.: Would you say something if someone threw your boots in the water? / No, I don't have any. (062-389)

In contrast, examples of more sophisticated thinking were evident in responses demonstrating an understanding of the question in its broader context as follows:

- e.g. Int.: So he was by himself? (c) / Uhm, no he had a momma and fa .but they weren't shown in the movie. (074-242)
- e.g. Int.: Was it a happy story with happy people and a happy house? / It wasn't a cartoon. (074-72)

In one case, a preschool subject used a simile in her response.

- e.g. Int.: Where would the boy be? (in drawing) / He would be in like Elk Lake (local lake).
Int.: Elk Lake! Wow, he pushed the car in, this boy pushed the car into Elk Lake? / Elk Lake, no, not Elk Lake. (166-202)

3) Particular Error Content:

(1) Estimates: In general, requests to estimate age, size or distance were beyond the preschool subjects' ability. Although subjects in this age-group were clearly able to distinguish the size of the boy from the two older boys or teenagers in the film, most errors occurred when the subject was asked to compare his or her own age or size or that of a third party to the film detail.

- e.g. Int.: And the two men that came and threw his boots in the water, were they bigger than he was? Or smaller? / Smaller.
 Int.: They were smaller than he was, eh? / Yeah.
 Int.: Ok. Well, I'm surprised that they threw his boots in the water if they were smaller than he was. Maybe they were real strong guys, eh. OK. So when they threw his boots in the water, what did he do? Did he do something with the golf balls? Did he give them the golf balls maybe? / No. The man bigger than you and the little man, ummm (long pause)....
 Int.: Kind of hard to remember isn't it? / Yeah. (121-61)
- e.g. Int.: Was the little boy about as big as you? / No, he was three.
 Int.: He was smaller than you? / Yeah. No, he was bigger.
 Int.: He was bigger than you Ok. (071-51)

The next example illustrates a choice format question which the subject answers in relation to herself.

- e.g. Int.: Was this boy a big boy or a little boy or a baby boy? (xcx) / A big boy.(x)
 Int.: Bigger than you? (c) / (S nods yes). (c)
 Int.: Like you're four, eh? So it would be about a boy that's about, uh, eight? / I don't know how old he is cause he didn't tell us. (069-42)

The next two cases illustrate concrete responses indicating the subject had clearly not yet mastered the inferential leap involved.

- e.g. Int.: Do you think the kid was in school who pushed the car? / No.
 Int.: No? / He wasn't in school when he pushed the car.
 Int.: He wasn't in school. Do you think he goes to school though? / No. (061-206)
- e.g. Int.: How old was the little boy? Was he uh, bigger than you or smaller than you? / He was on TV. He wasn't real, but he might be smaller than me if I was on TV.
 Int.: About how big on TV? / Um..around up to here (points to chest).
 Int.: Would you say that he goes to school? / Yep.
 Int.: What grade do you think he goes to? / He doesn't to to any grade.
 Int.: Doesn't he go to school? / Yep. He's only three.
 Int.: He's three. So is that older or younger than you? / Younger. I'm five.

- Int.: Oh you're five. I should have known that. So do you go to school? /
Yeah.
- Int.: But this little boy doesn't go to school? / I didn't see him go.

There were numerous examples of the subject not understanding particular terms used by the interviewer.

(2) Use of the term 'Almost':

- e.g. Int.: Did they run because they were almost ran over? / No.
Int.: Did the car almost run over the boys? / No. They ran out of the water.
Int.: Did they run to chase the boy or to get away from the car? / To get away from the car.
Int.: Did the car almost run them over? / No.

(3) Use of the term 'Could':

- e.g. Int.: Could this car have killed those two people? / What?
Int.: Could this car have, come down here, could it have killed those two people? / No, they just ran. (076-135)

(4) Use of the term 'Next' (temporal vs. spatial):

- e.g. Int.: Now this movie that you saw. You saw it here didn't you? It was in the next room I think. Do you remember? / No it wasn't. I was in the other room. (065)

(5) Colour: In one case, a preschool child did not consider 'white' to be a colour. The first example refers to the colour of the teen's shirt which was white.

- e.g. Int.: What colour shirt? / He didn't have a colour shirt.
Int.: Oh he must have, you've got a colour shirt. / Would this show up (holds up white crayon)
Int.: Not very good, that's white. O.K. So these two men... (074-113)

In a related example, the shirt in question was dark blue and the subject

appears to be making a distinction with respect to coloured print or words rather than the basic shirt colour.

e.g. Int.: A coloured shirt? / A plain shirt. (079-18)

In three cases, a preschool child did not understand the interviewer's question as to whether the film was black and white or in colour.

e.g. Int.: Was it in colour? / No. (078-3)

Int.: I just thought of something. If it was a blue shirt, the film must have been in colour, was it? / (S nods no) (078-26)

e.g. Int.: Is there anything else you can think of to tell me? / That's all I remember.

Int.: Was it black and white or was it colour. / It was blue and white.

Int.: Sort of black and white with a tint to it. / No.

Int.: No? / It was just blue and white.

Int.: Do you think it was.. / It was a blue car with white circles on it. (075-43)

e.g. Int.: Was the movie in colour? Was it in colour? / Yeah it was. Every movie's in colour.

Int.: No, I've seen some black and white. / Black and white?

Int.: With no colour, yeah. / Uhm. That that's in colour, black and white. (S points to picture on wall.) (074)

(6) Emotions: Preschoolers' responses to questions regarding a film character's feeling depended on whether the state in question was implicit or overtly expressed. The boy in the film did not display any overt expression of anger and preschoolers' responses to questions referring to the boy's inner feeling were consistent in disconfirming angry feelings and confirming sad feelings.

e.g. Int.: Was the boy mad? / No, sad.

e.g. Int.: Do you think he was a little bit angry about that, about giving the man the golf balls, a little bit unhappy. He didn't want to keep the golf balls himself? / Uh-huh (No).

Int.: No? / He give them. (121-116)

4) Adequate Comprehension Despite Incorrect Response: There were numerous examples of the subject responding incorrectly to a closed question but at the same time demonstrating adequate understanding of the detail in further spontaneous material.

e.g. Int.: He took off his boots so they wouldn't get wet? / No, because they weren't water-proof. (139-91)

e.g. Int.: And when he (the boy) went into the water with his pants on, rolled up, was he trying to get something back? To get something out of the water? / Yeah. No, just a golf ball. (121-47)

The next example is from the 8-10 year-old sample.

e.g. Subj.: He gave the eggs for free. (I5)

Int.: Did they (the teens) offer him money? / No.

Int.:You talked earlier about there being six eggs (E1) and five dollars (E2M). Where does that part come in? / (S recalls the dialogue)

Int.: So the boys did offer him five dollars? / No, they didn't give it to him. (097-91)

In contrast, there were a number of examples where the child was very clear about what she or he did or did not know.

e.g. Int.: Where was the boy? When you were looking at the film, where was the boy at? / I don't know what the name of the places but I know that he's on land. (069-48)

5) Apparent Contradictions: The language demands of question-answering were also evident in cases where a preschool child simultaneously confirmed and disconfirmed the material advanced in the interviewer's question. Although the response appears contradictory in the examples below, two levels of reference

appear to be operating. In the first case, the child may be referring to the car on the way to, as well as in, the water.

e.g. Int.: Now was it (the car in the water) going down or was it just staying still there. / It was going down but it was staying there like that (referring to drawing). (062-136)

In the second case, the child may be referring to the fact that water was shown, but not in the same scene as the golfers.

e.g. Int.: Well was there any water nearby when they were golfing? / Yeah, there was supposed to but there wasn't. (062-254)

6) Child's Pragmatic Understanding of the Task: Efforts to encourage the child to talk were at times unsuccessful due to the child's pragmatic understanding of the context.

e.g. Int.: What are we gonna tell C that we saw? So that I know what I can tell her you saw in that movie? / No C watched it. (074-183)

e.g. Int.: I heard you got to watch a movie earlier, is that right? (S nods yes)
 Int.: Gee, I wish I could have seen it. Do you think you can tell me what it was about 'cause I didn't get to see it did I? / (S nods 'no')
 Int.: No, and I missed it and I'd like to know what it was about. / You should watch it then.

3. Reversal Errors and Self-Corrections

The limits of preschoolers' language abilities were also evident in two features pertaining to errors. The first involved error material elicited after initially correct detail and the second involved self-corrections.

1) Reversal Errors: In a number of cases, although initial recall was correct, the interviewer's attempt to understand the details more clearly in combination

with the child's limited language ability produced an error.

- e.g. Int.: Did all the car go in the river or just part? / All of it.
 Int.: Right under the water? (x) / Yeah. (x)
 Int.: Boy! / No, no.(c) On top of the water, half.
 Int.: I see. / On top of the water.
 Int.: On top of the water and then maybe did it sink down into the water?
 (x+) / Yeah.(x+)
 Int.: Yeah it did. Did the water come tight over the top of the car? (x+) /
 (S nods yes) (x+)

2) Self Corrections: Although self-corrections were found in all three age-groups, those particular to the preschool sample were distinct in that they appeared to be related to the child's processing abilities.

(1) Intrusion Errors: The first examples appear to be spontaneous intrusion errors which are immediately corrected by the subject after the interviewer either echoes the response or asks a further question.

- e.g. Int.: The car floated? (x) / No, (c) a special kind of car that can drive it into the river. (misperception)
 Int.: Can drive it into the river. / No, not that kind. (061-137)

- e.g. Subj.: Someone pushing those two guys cars in. Policeman's (I5) car into the water and they ran out.
 Int.: Someone pushed a policeman's car under water? (x) / No, just two mens' one. (c) (139-33)

(2) Spontaneous Corrections: The next example illustrates a sequence error which is spontaneously corrected.

- e.g. Int.: And what did they do when they first got there? / They come along and they pick up the boots and they said 'Hi' but um.. the guy um didn't um pick up the boots before um um he said 'Hi.' (062-108)

Self-corrections in the preschool sample often occurred after the

interviewer echoed the child's incorrect response.

e.g. Int.: Was he older than me or younger than me? / Older.
Int.: Older? / Younger than you. (123-51)

A more complex sequence is next illustrated in an example which begins with an incorrect assumption embedded in the interviewer's question.

e.g. Int.: And what were they all doing together? (WA) / Nothing. (c)
Int.: Nothing, they just.. / They were friends. (I5)
Int.: They were friends? / They were not. (c)
Int.: They were not friends? / Yeah. (074-197)

Since incorporation of the negative (i.e., the ability to negate or deny a proposition) into sentence structure comes relatively late in language development (Lima & Bellugi, 1966; Pea, 1980), this example illustrates the subtle manner in which incorrect assumptions may enter into questions and the subsequent processing demands placed on the child.

The previous example also illustrates the fluid nature of a preschooler's processing capacity. Although the subject was initially unable to incorporate the negative, in the next example, taken from the same interview, the child clearly incorporates the negative in his initial response.

e.g. Int.: Was it a happy story with happy people and a happy house? / It wasn't a cartoon. (074-72)

4. Self Boundaries and Perceptual Shifts

1) Confusion of Self with Boy in Film: During initial recall, three cases occurred in which a preschool boy referred to himself in the film. Although it is possible that the subjects may have confused the fact that they would later see

themselves on video, in two of the three cases, the interviewer's prior knowledge of the film material obviously helped clarify the distinction between the subject and the film character. The first example below is taken from an interview in the informed condition

- e.g. Int.: you saw a movie a little film a while ago. Do you remember that? / Yeah.
 Int.: Would you like to tell me a little bit about what that was about? / Nah.(No)
 Int.: No? / No.
 Int.: That's something I'd like to find out a little bit from you. / It was a picture of me.
 Int.: It was a picture of you? / Yeah.
 Int.: Just a picture or was it a movie? / A movie.
 Int.: And what were you doing? / I was watching it. (135-21)

The second example is taken from an interview in the control condition.

- e.g. Int.: Who was in the film? / Me

 Int.: Well were you a little boy or little girl in the film? / A little boy.
 Int.: And what did the little boy do? (125-Q)

The third example involved a preschool interview from the blind condition, and illustrates a lack of self-other distinction throughout the entire recall material. The child was three years five months of age and also the youngest subject in the preschool sample.

- e.g. Int.: What was that movie about? / Me.
 Int.: Was it a movie that was about you? / Yeah.
 Int.: You're kidding. / No.
 Int.: What did you do in the movie? / I was little in the summer.... And when I was little I turned on the car and roll it down in the water. (069- 37)

This example serves to illustrate a confusion of the child's self boundary.

His mother later reported that her son had difficulty separating what happened to himself from what happened to other people, as well as from what he saw on TV.

2) Nature of the Discourse: Preschool interviews also contained examples of perceptual shifts as follows:

(1) Confusion of Responsibility: In two cases, there was a temporary confusion on the child's part in taking responsibility for some action in the film. As can be seen in the examples below, the subject responds to the question in relation to him or herself and appears to lose orientation to the task.

e.g. Int.: Somebody pushed two men's car in the water? Who did that? / Not me.

Int.: No, I bet it wasn't.

e.g. Int.: The man had the boots. Where did he get them? / I didn't have them.

Int.: Hmmh? / I didn't have them.

Int.: No. Where did the man get them? (070)

(2) Assumes the interviewer saw the film: In the next two examples, the child assumes the interviewer saw the film. In both cases, the interviewer did not mention that she had or had not seen the film.

e.g. Subj.: Can you draw the shape?

Int.: I don't know. I didn't see him put them (balls) into a shape. (139-70)

In the second example, the child appears to interpret the question in terms of the question/response routines common to adult/child discourse.

e.g. Int.: Do you know why he rolled it (car) down the hill? / Why?

Int.: No, I don't know why do you? (135-77)

5. Child as a Conversational Partner

1) Subject Initiates a Change of Topic: A change of topic was rarely initiated by subjects in the two older sample groups. In contrast, topic changes in the preschool group included the following four content areas:

- i) Spontaneous association to related material
- ii) Re-directs attention to immediate context
- iii) Attention to physical comfort
- iv) Desire to finish

While most topic changes to the immediate context were readily identified by the interviewer, spontaneous associations were less obvious.

e.g. Subj.: And then the boots drowned and my cousin Donny's sock drowned.

The next example illustrates a spontaneous association to a movie the child watched the night before.

- e.g. Int.: How old do you think the little boy (in the stimulus film) was? /
Nine.
Int.: So he was older than you? / A little. You know what, last night the little girl, she was only about, she was only 8 or 9...
Int.: Uh-uhm. / And she was in, in the house alone. No one there.
Int.: Good heavens / All alone and she was a little older than me....
Int.:How old do you think the older boys were in the film? / Ten.
Int.: So they were just a little bit older than the than the little boy? / Little girl.
Int.: Oh, a little girl was in the pond? / No.
Int.: You were still talking about last night. / Yeah. (075-51)

2) Non-Compliance: A variety of compliant and non-compliant behaviours were displayed by subjects in the two younger sample groups. A number of 8-10 year-olds expressed some reluctance in 'having to go through the whole thing again' once the interviewer began a review of the material and one subject

refused to respond verbally to questions (she would write her answers).

Preschool subjects displayed a wider variety of non-compliant behaviour. One child turned his back on the interviewer at one point and refused to answer questions, others showed a lack of interest in continued questioning, fatigue or frustration when the interviewer was clearly on the wrong track (e.g. 'I already told you' and 'I didn't say that').

3) Subject Corrects Interviewer's Poor Form: The older preschool subjects were clearly more sophisticated in their use of language.

e.g. Int.: Were they (the sun) in the movie? / Was the sun out in the movie?
No.

e.g. Int.: Were you inside a house in the movie? / Was it inside a house? No.

4) Acquiescence: Unquestioning acceptance of incorrect assumptions or incorrect material embedded in the interviewer's question was found in a wide range of responses. The first example demonstrates acquiescence to a question containing an incorrect assumption.

e.g. Int.: What did the boy say? (at end) (WA) / I didn't hear. (130-280)

The next examples illustrate acquiescence following the interviewer's attempt to clarify the subject's reference.

e.g. Int.: And then what happened? / He (the boy) just did the things he wanted to.

Int.: Who, the man did? (x) / Yeah. (x) (071-24)

e.g. Subj.: The guys were golfing the very first. (Two men were golfing at the beginning of the film.)

Int.: Oh it was their first time golfing? (x) / Yeah. (x)

The next example is taken from an interview in the 8-10 year-old sample.

- e.g. Int.: What did they say? / (Subject clears throat) (The film character did clear his throat.)
 Int.: Was it stuff that you usually don't say? / Um.. well.. he said..(S continues with later dialogue) (089-200)

Further examples from the 8-10 year-old sample illustrate responses which, though never clearly contradicting or disconfirming the incorrect material embedded in the question, offer explicit confirmation only to the correct material.

- e.g. Subj.: And then he opened the door and he took the key out (E1) and the car went rolling down the hill.
 Int.: Ok, but he didn't get in the car? (c) / Yeah, he did. (x)
 Int.: He got all the way in the car? (x+) / Yeah (x+), cause the door... he... he... the door was open.
 Int.: Ok. / And..so he just opened the door and took the keys out (E1- repeat) and the car went rolling down. (152-127)
- e.g. Int.: And did he have to wash them (the balls) off? (x) / No. (c)
 Int.: Uh-uhm. So did he take them out of the sand (x) and put them directly into his pocket? / Oh, no. (c) He was um .. (indeciferable) it in the water.
 Int.: Uh-uhm. So washed it off in the sand. (x) / Washed it off. Then he put it in his pocket. (097-155)
- e.g. Subj.: The boy is feeling with his feet in the pond.
 Int.: Making sure it's not a big drop-off. (x) / Yeah (x) or maybe feeling for golf-balls, I'm not sure.

The final example demonstrates a preschool child's explicit desire to please or do well.

- e.g. Int.: Do you remember what colour the car was? / No. But next time I come I'll remember.

(5) Lack of a Shared Referent: There were a range of situations in which the interviewer and subject did not share the same referent. The first example

illustrates a response to a different question than the one which was asked.

e.g. Int.: Same two men in the lake? / No one was bigger. (062-273)

The next two examples, both from the 8-10 year-old sample, illustrate the lack of a shared referent which extends over a number of turns. The error extension is not corrected in the first example and it is corrected in the second.

e.g. Subj.: ...And then one of the guys dropped his boots in.
 Int.: So he took the boy's boots, boots off (x) and dropped then in, huh? / Uh-huh (yes).(x)
 Int.: Uhm. But if the boys were standing up its hard to get your boots off, huh? What did he.. / Uhm-mm, he was sitting down.
 Int.: The boy was sitting down? / Yeah.
 Int.: Why was he sitting down? / On the edge of the pond.
 Int.: While he was just sitting there and they came along and he gave the golf-balls, so then one of the guys, the older ones took his boot, both boots or just one? / Both.
 Int.: Took both his boots off and threw them in the pond? (x) / Yeah. (x) (084-56)

e.g. Subj.: They told him if he went around here he had to sell to them.
 Int.: And was that funny to you? / No, not really.
 Int.: You didn't think it was very funny? / Serious.
 Int.: It was serious? Was it a serious film? / Well if someone gyped you out of your best fishing place it isn't good.
 Int.: I see, he fished in the lake did he? / Yeah.
 Int.: Well why did he have golf balls there? / Well he wanted to sell them.
 Int.: I see, he was fishing in the lake, selling golf balls. / Well that wasn't the only thing he was doing. Searching everywhere.... (20 turns later)
 Int.: What happened to his fishing rod while he was searching for the golf-balls? / Fishing rod?
 Int.: Why was he fishing in the lake? / Uh well he didn't use a fishing rod, something like a stick with a scoop on the end.
 Int.: Oh, was he fishing kinda like a net or a big spoon? / Just like a spoon....
 Int.: What kinda things do you think you could catch with that? / Golf-balls.

Int.: Golf-balls (loudly)! / He just scraped it along the bottom.
 Int.: So he was fishing for golf-balls not fishing, not fishing for fish. I see. (155)

(6) Ideosyncratic Responses: Three preschoolers from the informed condition began describing a different movie. In each case, the content was fairly obvious (e.g. 'Winnie the Pooh'), and the interviewer was able to re-direct the child to the stimulus film. In two cases, a child was explicit about recalling the ending first.

e.g. Int.: How did it start out? / I know the ending. (134-52)
 e.g. Subj.: I'll tell you it backwards. (129-25)

The final example illustrates the manner in which one of more of the features illustrated in the previous sections quickly develop into a confusion of meanings in the preschool interviews and the tremendous workload, on the part of both the interviewer and the subject to sort out the accurate from inaccurate detail.

e.g. Int.: Where did this take place? Was the movie at a beach or some place like that or near water? / No, no, it was behind the mirrors. (concrete response)
 Int.: ...Where was the little boy when he was pushing the car? / At a beach. (vocabulary error or incorporation of material from the previous turn)
 Int.: At a beach eh, Ok. / At a...you know what? I went to a beach and it had a swing. (free association or reference to the swing set in the film)
 Int.: Were there... There weren't swings in this movie were there? (x) / No. (x) (126-45) (tag form with embedded negative)

CHAPTER 5

DISCUSSION

Amount and Accuracy of Question/Response Material

Spontaneous Recall Material: Relative to free recall elicited in the control condition, the amount and accuracy of spontaneous recall material in the blind and informed conditions generally supports the initial hypothesis predicting a trade-off between amount and accuracy as the result of questioning. With two exceptions, there was a significant increase in the amount of recall across age-groups and a differential effect on accuracy.

The lack of an increase in the amount of recall for the young adult sample in the blind condition was attributed to interviewer characteristics and interview length. In terms of accuracy, although the preschool and 8-10 year-old samples showed a significant decrement, there was no decrease in accuracy for the young adult sample. This latter finding is not in keeping with more controlled studies which indicate a trade-off for adult groups (e.g., Lipton, 1979). It may be that the contextual embeddedness of this more naturalistic data-set (i.e., the fact that the subjects played a role in the shaping of questions asked), offered some advantage to the adult sample in comparison to the younger age-groups.

The amount and accuracy of free recall material in the control condition clearly supports previous research evidence that young children freely recall less than older children and adults but are no less accurate. These results must be considered in light of two qualifications. Additional question prompts were used

for subjects in the preschool group and there was significantly more variability in the amount of error elicited in the two younger age-groups compared to the adult sample.

Closed Question Material: Explicit use of the three facts provided to interviewers in the informed condition was very limited and far less than anticipated when the study was initially designed. Since only five of the total number of closed questions asked (3736) contained these facts (three were leading, two were misleading and in all cases the subject responded correctly), the manner in which prior information may predispose an interviewer to use leading questions was not adequately determined by this design factor.

At a more general level, although the difference between the blind and informed conditions did not reach significance for the closed question total or the proportion of questions classed as leading ($p = .065$ and $p = .066$, respectively), the mean number of closed questions tended to be slightly higher in the informed condition across all age-groups (mean differences from the younger through older samples were 5, 7 and 10 questions respectively). Although having some information may have prompted interviewers to ask a greater number of closed questions, an equally plausible factor may have been the fact that interviews in the informed condition were on average three minutes longer than those in the blind condition (although this difference did not reach significance).

With respect to the proportion of questions classed as leading, there was no difference between the two conditions for the youngest sample and the

informed condition had slightly higher means in the two older groups (a difference of 6 and 9 points respectively). The lack of a clear condition effect for either the closed question total or the proportion of questions classed as leading again indicates that the manner in which prior information predisposes an interviewer to use leading questions was not adequately determined by this design factor.

Accuracy of Closed Question Material: With one exception, hypothesis 2^a was supported. Accuracy scores were higher for leading questions than for misleading questions for the two older age-groups but this difference did not hold for the youngest age-group. The fact that the scoring system was developed to accommodate the range of material which emerged in this naturalistic data-set (e.g., error extensions were screened in the calculation of accuracy scores) may have offered some advantage to the youngest age-group.

The preschool group scored significantly lower than the older groups for accuracy based on leading questions. For misleading questions, although the difference between the preschoolers and older groups was clearly in the same direction as accuracy based on leading questions, differences did not reach significance. This latter finding is clearly not in keeping with more controlled studies which show a misleading question effect for the preschool age-group (e.g., Ceci et al., 1987) and may be due to the fact that subjects played a major role in the shaping of questions which were asked. Since this feature of more naturalistic

interviews has a strong parallel in forensic investigations, replication of these results will be necessary.

The finding that there was no difference between the 8-10 year-old and young adult samples for accuracy based on closed questions is clearly in keeping with more controlled studies whose results show that the accuracy on recognition questions peaks between 7-9 years of age (e.g., Ceci et al., 1987).

In summary, estimates of the amount and accuracy of material elicited in this naturalistic data-set are similar, in general, to the results of more controlled studies. The two main differences (i.e., no decrement in accuracy across the question conditions for the young adult sample and no misleading question effect for younger subjects) may be attributed to the advantages a more naturalistic data-set offers, particularly the subject's role in the shaping of questions asked.

Interviewer Reports

The reports contained between 17-37% less material than the interviews, with the 8-10 year-old and young adult samples equivalent in terms of amount. Interviewers in all age-groups obviously screened a considerable amount of material which they may have considered unimportant.

Age-related differences in the overall accuracy of report material were significant (83.9%, 92.8% and 95.2%), and virtually identical to the spontaneous recall accuracy scores in the interviews. Since the amount of material in the reports combined both spontaneous and closed question points, this equivalence

was initially surprising. If interviewers screened much of the spontaneous and closed question material which they considered to be unimportant, the results of this screening procedure clearly maintained the basic ratio of accurate and error points in subjects' spontaneous recall during the interviews. Examination of the components of report error do not bear out this explanation, however. Although the proportion of repeated spontaneous error was relatively equal across age-groups (approximately 50%), there was an inverse relationship between the proportion of repeated closed question error and the proportion of incorrect inferences on the interviewer's part. The proportion of repeated closed question error increased from the oldest to the youngest age-group and the proportion of incorrect inferences on the interviewers' part increased from the youngest to the oldest age-group. It may be that, with increasing age of the subject, interviewers took more 'for granted' and were less concerned about the degree to which the report accurately reflected the interview material.

Interviewer Characteristics

Differences between male and female interviewers were not found for any of the six descriptive measures or major dependent variables, nor was there any association with interviewer age or career length. Three basic patterns emerged for interviewer job-category and level of education (relatively unequal n). In the preschool sample, police officers (n=9) asked the most closed questions, obtained

the most spontaneous recall and, along with social workers (n=11) obtained the most accurate spontaneous and closed question material in this age-group.

This pattern was generally repeated in terms of level of education. With the exception of the accuracy of spontaneous recall material (no difference across degree levels), interviewers with no degree (mostly police officers) asked the most closed questions, obtained the most spontaneous recall and scored the highest in terms of closed question accuracy scores and the amount and accuracy of report material. These findings are most likely due to the fact that seven of the nine police officers and all the social workers in this age-group had training in investigative interviewing with children as well as experience in actual investigations in the local community.

The least variability was found across job-category and level of education in the 8-10 year-old sample group. Police officers and lawyers asked the most closed questions and psychologists and social workers obtained the most spontaneous recall from children in this age-group. Although police officers and lawyers are trained to elicit facts through questioning, psychologists and social workers may have obtained more material due to their experience and understanding of the relational dynamics which influence the cognitive and social functioning of children in this age-group.

The third pattern was found in the young adult sample. Lawyers asked the most closed questions and obtained the most spontaneous material in the interviews and the reports. For level of education, interviewers at the MA/LLB

and Ph.D. levels asked the most closed questions, and Ph.D level interviewers also obtained the most spontaneous material from the adult age-group. Although there were no differences across level of education for accuracy scores based on spontaneous material and the closed question total, interviewers with no degree scored the lowest in terms of spontaneous recall amount and closed question accuracy based on leading and misleading questions. Finally, there was an inverse relationship between education level and the amount of report material, but no differences for report accuracy. This overall pattern in the adult age-group most likely reflects the influence of verbal skills at the MA/LLB and Ph.D. levels. To determine whether these general patterns are restricted to the present data-set it would be necessary to obtain a subsequent sample of data for replication.

Initial versus Adjusted Accuracy Scores

Although the initial accuracy scores generally appear to endorse age-related differences in question/response material, these differences were clearly less pronounced when accuracy scores were adjusted by subtracting error associated with various elements in the questioning context and the subjects' developmental status.

The First Adjustment: The proportion of total error associated with the five discourse features was relatively equal across age-groups (ranging from 16-21% from the oldest to youngest samples respectively) but the subtraction of these errors had a differential effect across the various accuracy scores. Although the

subtraction of DF error did not change the relative standing of the three age-groups for accuracy based on spontaneous or closed question points, there was virtually no change for spontaneous point accuracy (an increase of 1% for the preschool sample) and a uniform 5% increase across all age-groups for closed question accuracy.

In comparing the original and adjusted scores for leading questions, the difference between the preschool and two older groups disappeared with the subtraction of error elicited by questions with a broad focus (i.e., 'Did they do or say anything? / No.'). For misleading questions, the older age-groups scored significantly higher than the preschool sample with the subtraction of momentum error (mostly questions containing a response bias in declarative form).

The Second Adjustment: Age-related differences were further reduced with the subtraction of error associated with the subject's developmental status. There was virtually no change for the two older sample groups and a significant increase for the preschool sample (5%) for adjusted scores based on both spontaneous and closed question material. Although significant differences in the relative standing of the three age-groups remained for the spontaneous recall adjusted scores, the absolute differences were minimal (2%). There were no differences in closed question adjusted scores across the three age-groups.

These findings have clear implications for addressing the issue of age-related differences in question/response accuracy in a more naturalistic settings. In contrast to a fixed set of questions utilized in more controlled studies,

the mutual shaping of question/response material in the present data-set clearly offers a realistic parallel to actual investigative interviews. While age-related differences appear strongest when observing the initial accuracy scores, these differences become minimal or disappear altogether when error relating to the questioning context and the subjects' developmental status is subtracted.

The Sequential Nature of Question/Response Material

Two features which emerged from the sequential nature of this more naturalistic data-set were error extensions and error retractions.

Error Extensions (Without Fabrications): Errors extended or elaborated over a sequence of turns were identified by their conceptual unit (rather than the raw number of turns). Although the mean number of error extensions was relatively low (1.6, 1.8 and .70 for the youngest to oldest age-groups respectively), the two younger samples contained significantly more extensions when compared to the young adult sample and a similar pattern of difference was shown in the proportion of interviews containing one or more extensions. For the proportion of total error which was extended (means of 16%, 13% and 6% from the youngest to oldest age-groups respectively), the difference between the preschool and young adult sample was the only comparison to reach significance.

These findings offer an important insight into age-related differences in the sequential structure of more naturalistic question/response material. Extension units not only provide a concrete illustration of the manner in which an initial

error may be 'shaped' into a more substantial error with additional questioning, they also reflect the fact that the sequential structure of the question/response discourse is similar, regardless of whether the material elicited is in accurate or extended error 'space.' The interviewer is thus unaware that further questioning regarding a particular detail may be extending or elaborating an earlier error.

Retractions: On a more positive note, error corrections or retractions were an equally important feature characterizing the sequential nature of the question/response discourse. Although age-group differences in the mean number of retractions and the proportion of error which was retracted did not reach significance, the proportion of interviews containing one or more retractions was significantly greater in the two younger samples (approximately 80%) when compared to the oldest age-group (50%). This error-correcting feature, along with the wide range of situations in which an error was retracted thus offers an additional perspective on the sequential nature of question/response material as it emerged in a more naturalistic interview setting.

Age-Related Patterns

General Age-Related Patterns: For the two older age-groups, the initial accuracy scores based on spontaneous material tended to be higher than those based on closed question material. Although this pattern is in keeping with more controlled questioning studies, it did not hold for the preschool sample (whose scores did not differ). The more naturalistic discourse setting may have provided

more in the way of an advantage to the younger sample, when compared to the older age-groups.

With the exception of accuracy based on misleading questions, age-related differences in the initial accuracy scores for both spontaneous and closed question material in the blind and informed conditions were fairly robust. However, there was little difference in performance between the 8-10 year-old and young adult samples. With the exception of spontaneous recall amount, differences between these two groups were minimal for accuracy based on spontaneous recall in the interviews and in the reports and non-existent across the proportion of questions classed as leading, the closed question accuracy scores and the amount of material in the interviews and in the reports. This relatively equal performance may reflect the advantage which a more naturalistic discourse setting offers to subjects in the middle age-group and is keeping with a number of more controlled studies in which accuracy plateaued in this age-group (e.g., Ceci et al., 1987).

In contrast, error extensions and the proportion of interviews containing one or more error retractions were the only measures on which the performance of the two younger samples was relatively equal in comparison to the oldest sample. Once again, these findings reflect both the cost and the benefit of features relating to the sequential nature of question/response material in a more naturalistic context and may have clear parallels in actual investigative interviews.

The quantity of closed questions was the single measure on which the preschool and young-adult samples scored relatively equal and lower in

comparison to the middle age-group. Interviewers obviously asked fewer questions in the oldest group because adult subjects offered more detailed responses in general. In contrast, for the youngest sample, this finding under-represents the number of questions asked because subjects in this age-group frequently did not respond to the question in a direct manner (for scoring purposes).

Addition Errors and the Fact versus Fantasy Distinction: Apart from obvious language and comprehension errors, the error types which most clearly distinguished the preschool sample from the two older age-groups were addition errors classed as incorrect inferences and fabrications.

Incorrect Inferences: For a small pocket of incorrect inferences elicited from the preschool sample, it was difficult to distinguish whether the error should be attributed to the subject's comprehension or lack of metacognitive skill or due to the questions's response bias. In the example illustrated below, fabricated material had emerged previously and the question refers to the teens seeing their car coming towards the water. The incorrect inference is in bold type.

e.g. Int.: Must have scared them eh? (c) / **And they thought it was a storm coming up** but it was the car rolling down the grassy hill. (c,15) (122)

The child is obviously importing additional context (Hughes & Grieve, 1980). Since the error occurred in the context of previous fabricated material, the child may have experienced the interviewer's overall manner and tone of questioning as perceptually similar to the regular features of conversation².

routines in everyday settings. Again, since the importance of obtaining accurate information was rarely mentioned in any explicit fashion, the interviewer's overall manner and tone appear to be a crucial and quite inadvertent factor in determining the quality of children's responses in this age-group.

Fabrication: Although just under one-half of the preschool interviews contained fabrications ranging from isolated occurrences to major fabricated strings, in all cases this error type appeared to be related to one or more features of the discourse context.

Four features were evident. The first involved questions requiring a future inference or requesting material past the ending of the film. Since the interviewer was unaware of the sequence of events or at what point the film ended, this factor obviously parallels the situation in actual investigations and holds some risk.

The second feature was related to the rapport-building stage and involved elements common to adult-child discourse in everyday settings. These included overly dramatic verbal and non-verbal responses (e.g. wide pitch swings, exaggerated facial expressions, 'Oh my gosh!' and 'Holy cow!'), attempts to generate enthusiasm, evaluative and rhetorical questions as well as side comments. These features appeared to initiate a playful atmosphere which was obviously counter-productive to later questioning. Although the interviewer's intent was to obtain film detail, the elaboration and expansion of error on the child's part may be attributed to the perceived similarity to scripted conversational cues and social routines common to adult-child discourse in everyday settings.

A closely related feature was the use of closed questions in situations where open questions were clearly an available option or alternative. The interviewer appeared overly hasty in beginning the questioning, often interrupted the child and imposed his or her own line of thinking without paying careful attention to what the child said. While the interviewer's misunderstanding was corrected once, twice, or even three times, the child was also having to go against the interviewer's general momentum if the questions contained an embedded response bias. This appeared to be a more demanding task than responding to a misleading question per se, particularly if the interviewer continued to 'get it wrong.' Since children in this age-group are rarely in a position of having more knowledge than an adult, let alone having to correct or contradict the adult, by reverting to activity which adults and children share in everyday settings (e.g., play and story-telling), fabrication may have served to right the perceived imbalance in the situation and thus lessen the child's workload.

The fourth feature involved instances where the child demonstrated fatigue, lack of interest in continued questioning or frustration. Since there was an obvious difference between the goals of the interviewer and the child in these cases, fabrication may have served as a 'default' position which, from the position of having less power than the adult, again lessened the child's workload.

Despite the amount of fabrication which emerged in the preschool interviews, if the variety of contexts in which fabrication occurred are taken into account, the results offer very little to support the general claim that young

children are less able to distinguish fact from fantasy. What appears to be a far more salient issue is the young child's active attempt to make sense of the question in terms of the scripted cues and social routines common to child-adult discourse in everyday settings.

Further support for preschoolers' ability to distinguish fact from fantasy is gained from interviews in which fabricated material was retracted, particularly the two most dramatic instances. The first of these occurred after the interviewer mentioned he was going to be 'tested' and the second occurred after the interviewer checked that a particular detail actually occurred in the film. In a third case, although a child indicated material was fabricated by remarking 'That's all made fun up,' the interviewer was unaware of the significance of the remark. Thus, while the sheer amount of fabricated material in the preschool sample suggests a difficulty distinguishing fantasy from fact, a more accurate assessment would be that the child is actively responding to salient cues or scripted routines which are perceptually similar to features characterizing adult-child discourse in everyday settings.

Suggestibility

The issue of suggestibility may be addressed from four perspectives. At a global level, if suggestibility is operationally defined as the extent to which subjects answer misleading questions incorrectly, the results of this study indicate that preschoolers are no more suggestible than older children and adults since age

differences did not reach significance on this measure (the initial accuracy scores). In contrast to more controlled studies demonstrating a clear misleading question effect for younger children (e.g., Ceci et al., 1987), it appears that young children are more likely to respond correctly to misleading questions in a more naturalistic discourse setting.

The second perspective on suggestibility relates to addition errors and fabrications. In all cases, these errors were clearly associated with scripted cues or social routines common to adult/child discourse in everyday settings. Since there was rarely any explicit reference to the importance of obtaining accurate information, many of the errors in response to questioning may be considered within the context of everyday conversational settings, a context in which accuracy is not a primary concern.

Regardless of whether a specific question was leading or misleading in a technical sense, the overall quality of the interaction appeared to be a far more salient factor in determining the quality of the material elicited. These findings are in keeping with those of Dent (1982) whose results were also based on a more naturalistic data-set and highlights the importance of addressing contextual factors affecting the quality of the interaction. It appears that a more accurate operational definition of suggestibility would be the degree to which the subject responds to a variety of subtle and inadvertent contextual cues over the course of the interview.

Errors associated with four of the five discourse features fall clearly in the realm of inadvertent contextual cues. Response expectation was most clearly associated with questions containing a response bias, errors introduced in the interviewer's summary of material, and to a lesser extent, with repeated questions. These discourse features have obvious implications for training purposes and, in terms of improving questioning skill, are most likely an area where error could be significantly reduced.

Although less clearly related to response expectation, errors associated with the final discourse feature, prompted error, involved incorrect material initially introduced or implied by the interviewer and incorporated by the subject at some later point. This factor highlights the importance of proceeding slowly and with caution since any and all material which emerges over the course of an interview may influence a subsequent response. Although errors associated with this discourse feature occurred across all age-groups, in the preschool group they often occurred in combination with a playful atmosphere.

The more developmental-clinical approach to the child's perceptual field offers a third perspective on the issue of suggestibility and three qualitative distinctions emerged in this data-set.

To obtain accurate detail, it is necessary to develop and maintain a working alliance for the recall task. In a number of cases where the interviewer inadvertently advanced both correct and incorrect material (e.g. a multi-status question), the subject often confirmed the correct detail but did not directly

correct the error which was more or less ‘hanging in the air.’ These errors highlight the distinction between cognitive performance in answering a question correctly and the salience of the relational dynamic when a subject avoids correcting or contradicting the interviewer. In three interviews from the 8-10 year-old sample, multiple occurrences of this error type, in combination with the child’s general response demeanor (e.g., responding with ‘maybe’ rather than a clear yes/no) suggested a particular sensitivity to the relational dynamic. One of these children was involved in the lengthy and complex extended error string illustrated in Appendix B-3a. The salience of the relational dynamic in this example appears to over-ride the child’s ability to clearly identify and relate the details of the film to the interviewer. Had the interviewer asked fewer closed questions and allowed the child to describe what she saw, it appears that the description would have been accurate.

A second qualitative distinction is illustrated in the next example in which the interviewer has basically repeated the child’s previous statement.

e.g. Int.: Someone pushed two men’s car in the water? Who did that? /
Not me.

In this case, there is a clear shift from the child’s orientation to the film detail to the relational dynamic. This example illustrates the dynamic nature of the young child’s perceptual field in an interview situation and provides a striking contrast to the first qualitative distinction outlined above where the 8-year-old’s efforts to maintain a positive relational dynamic results in a confusing mixture of accurate and inaccurate film detail.

The third qualitative distinction is represented by one preschool child who actually identified with the boy in the film. Although the segment of transcript illustrated below does not do justice to the quality of the discourse between the participants, it is a striking example of a child's lack of self-other distinction.

- e.g., Int.: What was the movie about? / Me.
 Int.: Was it a movie that was about you? / Yeah.
 Int.: You're kidding. / No.
 Int.: What did you do in the movie? / I was little in the summer ...and when I was little I turned on the car an' roll it down in the water.

Further support for this interpretation was obtained from the child's mother who later reported that he often confused what happened to himself with what happened to other people (or what he saw on television). This example thus illustrates an early stage in the development of self-other distinction which clearly offers a more challenging task to the interviewer attempting to elicit information.

These examples thus serve to illustrate three qualitative distinctions concerning a child's perceptual field in an interview situation. Sensitivity to the relational dynamic may be evident when a child avoids correcting or contradicting the interviewer or in the perceptual shift from shared attention toward the film to the immediate relational dynamic. Finally, a lack of self-other distinction, evident in the interview with the youngest subject in the sample, clearly offers a more challenging task to an interviewer with little or no knowledge of the material to be recalled.

Demand Characteristics

Relative to the older age-groups, preschoolers' recall was sparse, lacked sequential structure and, due to unclear anaphoric reference and limited vocabulary skills, was often difficult to understand. Interviewers in this age-group generally had a far more challenging task than their counterparts in the older samples.

Interviewers clearly adapted to the developmental status of the subject. In terms of the basic structure of the discourse, the inverse relationship between the total number of turns and the percent on-topic turns across age-groups most likely reflects the fact that young children require more structure in communicative settings generally.

In general terms, interviewers' language was slower, more simple, and contained more repetition, recasts and expansions. While these particular features are common in adult-child discourse in everyday settings, additional features such as overly dramatic verbal and non-verbal responses, attempts to generate enthusiasm, evaluative and rhetorical questions, side comments and playful teasing were obviously counter-productive. These features may be classed in the category of scripted cues and social routines which, in terms of obtaining accurate material, must be suspended or avoided.

To establish and maintain a task-oriented working alliance with a young child it is necessary to accommodate to the child's developmental status and at the same time achieve a delicate balance. The interviewer must maintain the

preschooler's interest and co-operation and avoid intimidating the child, demanding too much or prompting the child into a play situation. Subjects were more apt to respond accurately and correct the interviewer's misunderstanding if a good degree of rapport was established, explicit or implicit permission had been given to correct the interviewer's misunderstanding and there were no apparent contradictory messages.

While many descriptions of the perception, comprehension and memory abilities of preschool children are based on a deficit model of cognitive functioning when compared to similar abilities in older children and adults (e.g., young children lack metacognitive skills), such characterizations tend to mask the more salient issue of the child's sensitivity and attunement to the relational dynamics and the socially scripted cues and routines in the interview situation.

Given that a young child exists in a world primarily structured by adults, including daily routines and activities at home, day-care or preschool, the interviewer working under legal constraints must be particularly sensitive to the child's perceptual field which includes not only the task at hand, but also the relational dynamics which may vary over the course of the interview.

Repeated Questioning

With respect to the issue of repeated questioning, the data-set offers very little material for direct comparison to studies in which the exact question is repeated one or more times. Instances in which a question was repeated in an

exact fashion (either immediately or in subsequent questioning) were rare. Far more common were two basic variations in the form of repeated questioning, namely repeat-format questions and errors elicited when the same or similar question was posed after an initially correct or IDK response (repeat-process questions).

Repeat-format: Questions in which the interviewer echoed or repeated one or more details and gained the subject's agreement before asking the next question were common throughout the data-set and appeared to be a useful way to offer the subject a chance to check or confirm the interviewer's understanding. As can be seen in the example below, these were not exact repetitions of the initial question but a means to clarify the details and in some cases elicited additional spontaneous material or error retractions.

e.g., Int.: Tell me what happened./ There was a boy.
Int.: There was a boy. / Yeah and he pushed the car.

The smaller and more concrete units of repeated detail kept the child focused and appeared, in general, to be more manageable. Although most repeat-format questions were asked in declarative form and therefore contained an embedded response bias (e.g., "There was a boy. / Yeah."), in some cases, the interviewer provided an additional framework which clearly aided in establishing mutual understanding (e.g. 'Now let me see if understand this. You said there was a boy who pushed the car. / Yeah and they were mean.').

In contrast to more controlled studies in which questions repeated in an exact manner were found to decrease accuracy, repeat-format questions did not

appear to function in any counter-productive manner. The one exception to this general finding was repeat-format questions in which an incorrect detail was embedded in a summary or review of material (again in declarative form which contained an embedded response bias) and a 'Yes' response basically confirmed the bulk of correct detail. In contrast to repeat-format questions in which only one or two details are advanced for confirmation, errors embedded in detailed summaries clearly put an increased processing load on the subject and thus hold some risk for eliciting accurate responses.

Repeated-Process: Errors which emerged when the same or similar question was posed after an initial correct or 'I don't know' response were identified as repeat-process errors. Since the error emerged after one or more further questions regarding the same material, the subject may have accommodated to a perceived discourse demand. While acceptance of an 'I don't know' response is crucial, in most cases, further questioning did not give the impression that the initial response was not 'good enough.' Re-phrasing the question or posing it from a different perspective were reasonable alternatives when presented within the framework of checking the interviewer's understanding.

The data-set thus offered a certain degree of contextual embedding in which the interviewers' repeat format or repeat process questions appeared to function as a check that the material was understood, rather than cuing the subject that the initial response was not acceptable or incorrect. Although this framework is similar to that proposed by Mosten (1990) who posits that young

children do not understand that repetition is a request for confirmation rather than an indication that the response is incorrect, the present findings go one step further. Repeat-format questions were an integral part of the question/response discourse and appeared to function primarily as a check that the material was correctly understood. In addition to confirming the fact, the interviewer's understanding of the fact was primary, rather than the consistency or correctness of the response. This qualitative distinction would rarely be evident in more controlled questioning studies and thus highlights the manner in which the mutuality of the relational dynamic is embedded in a more naturalistic data-set.

Productive versus Counter-Productive Questioning Procedures

Although the overall quality of the interaction and the relational dynamic, appeared to be the salient factor in eliciting accurate material, particularly from the youngest age-group, features relating to question form and particular strategies and techniques were also more or less productive. Each of these aspects is reviewed briefly below.

Quality of the Interaction: A shift in the focus of attention or in the relational dynamic occurred at many points throughout the course of the interviews and in some cases the subject's perceptual shift appeared to override any assumed or pre-established understanding of the task. Brief perceptual shifts occurred when the child assumed responsibility for some aspect of the film event or interpreted the question in terms of question/answer sequences common to

adult/child discourse in everyday settings. The focus on the film detail was thus at times subordinate to the relational dynamic between the interviewer and subject.

Structuring versus Leading the Subject: Structuring the relational dynamic included such elements as defining the task as one's own, informing the subject of one's own lack of knowledge and enlisting the child's help to understand what happened. Structuring also included the acceptance of both spontaneous and closed question material in a positive and supportive atmosphere. While a certain degree of positive support was clearly necessary, this type of structuring need not be overly supportive or dramatic. This distinction appears to be crucial to avoid inadvertent cues based on scripted routines which then increase the potential for inaccurate material.

Reorienting the child to the task included anchoring the frame of reference (e.g., 'Now in that movie that you saw, did you see what the boy did after he talked to the men?') and frequently involved repetition of previous material within the framework of checking the interviewer's understanding (e.g., 'Let me see if I understand this. You said there was a boy.'). Moving forward to elicit new material was accomplished in a very slow manner, with an emphasis on the importance of understanding what the child saw rather than on the accuracy of the response. This distinction is quite subtle. It does not downplay the importance of accuracy or telling the truth, but focuses more on structuring the relational dynamic (e.g., 'It is important that I understand what happened (or what

you saw)' rather than imposing a framework which may actually distance the child with an emphasis on a more abstract 'truth' (e.g., 'It's important that you tell me the truth ').

Technical Aspects: The degree to which open or closed questions were embedded in a discourse demand (e.g., 'So he must have seen them (the teens) before'), or associated with inappropriate side comments, rhetorical questions or socially scripted routines, clearly reflects features common to adult-child discourse in everyday settings. In the interest of developing a broader range of non-leading questioning skills, it is important that interviewers become aware of the more or less obvious features which, due to their perceived similarity to regular discourse settings, may lead or prompt the subject to recall less than accurate material.

The most common counter-productive procedures may be summarized as follows:

- 1) The use of closed questions when open questions are an available option or alternative.
- 2) The use of closed questions with an embedded response bias (declaratives, tags, negatives)
- 3) Asking too many questions (a series or sequence of potentially confusing questions which cover a broad range of material)
- 4) Interrupting and imposing one's own line of thinking without careful attention to what the child had said
- 5) Relabelling the subject's terms without checking the accuracy with the subject

- 6) Offering a word when the subject appears to have some expressive difficulty
- 7) Using hypothetical questions (e.g., future would/could questions)
- 8) Arguing against the logic of the subject's recall rather than addressing the inconsistency in terms of own's own need to better understand what happened
- 9) Using features common to adult/child discourse in everyday settings (e.g., wide pitch swings, overly dramatic responses, side comments etc.)

Productive questioning procedures included the following:

- 1) Use of the subjective form in open questions to avoid incorrect assumptions and perceived discourse demands (e.g. Did you see what happened next? vs. What happened next?)
- 2) Asking the subject to show what happened or what he saw if there is some expressive difficulty
- 3) Echoing or repeating small bits of material to provide a structure to the discourse and to clarify one's own understanding rather than repeating a question in a direct fashion

Strategies and Techniques

1) Drawing: Although the use of drawing material may enhance the amount of detail obtained in an interview, it clearly held some risk in that young children incorporated material salient to their daily routine or scripted material consistent

with their knowledge of the object being drawn. An equally important concern is labelling the drawing for the child rather than eliciting the details from the child.

2) Obviously misleading questions: The use of obviously misleading questions were not without risk. Although used as an aid to get the child started, to obtain more information or test the child's power or credibility, this strategy holds the risk of prompting a child into a play situation or 'going along' with the interviewer.

3) Asking for a similar comparison: In clarifying details, interviewers may ask the subject if he or she had 'ever seen something like that before?' Although this strategy clearly aided in clarifying details, it was not without risk since it may prompt a confusions between the comparison and film details.

Related Issues

Acknowledging the degree of ambiguity in question/response discourse (Dunning, 1989) is particularly important when the questioner is naive. Closed questions generally presuppose an objective fact or truth which may be confirmed or disconfirmed by a yes/no response. The present data-set indicates that there are at least three situations in which this presupposition is not warranted. Mixed status questions, for example, require more than a yes/no response to merit a correct or incorrect status. Questions advancing or incorporating an inference and those inadvertently advancing two or more details for the subject to confirm or disconfirm rather than just one, also present a level of ambiguity which is not

generally acknowledged when questioning for legal purposes. Since this ambiguity requires more processing of the material on the part of the subject and is not obvious to the interviewer, it clearly warrants slow and cautious questioning.

A second issue concerns whether an entire testimony should be considered unreliable or discounted on the basis of an obvious error or contradiction. The classification of errors in this data-set offers a useful perspective from which to approach this issue. Errors associated with the five discourse feature sub-types appeared uniformly across all age-groups. Of the proportion of total error associated with discourse features (ranging from 16-21% across age-groups), a small percentage of error (ranging from 3-7% from the oldest to youngest sample groups respectively) was associated with the lack of a shared referent, a feature common to most discourse settings. These errors, intrinsic to conversational discourse, may be distinguished from the remaining discourse feature errors which were associated with some degree of discourse demand (e.g. questions containing a response bias). In contrast, while the language and comprehension errors found in the preschool sample may be attributed to the subject's developmental status, the addition errors (incorrect inferences and fabrications) were also associated with more subtle cues and scripted routines in everyday adult-child discourse settings.

Since naturalistic interviews and actual investigative interviews share a number of the basic features of regular conversational settings (e.g. errors due to lack of a shared referent or to scripted cues and routines, ambiguity and error-

extensions sequences as well as the error correcting feature), these distinctions offer legitimate grounds to question whether an obvious error in a forensic context may be considered a function of one or more features in the question/response discourse rather than due to an unreliable memory or intentional deception on the child's part. Although this latter factor was not a concern in the present research context and therefore not addressed in any comprehensive fashion, it clearly adds an additional perspective on the need for cautious questioning in order to avoid the inadvertent prompting of inaccurate details.

Directions for Future Research

The reported findings are based on interview transcripts. These as well as the videotapes offer a substantial resource for future analyses and a number of possibilities are listed below:

- 1) Compare the guidelines now being developed for questioning protocols to the results of this study.
- 2) Examine questioning procedures used in transcripts of actual investigative interviews in light of the results of this study. Is it possible that interviewers may increase the range of structuring techniques without unnecessarily leading or misleading the witness?
- 3) In the present data-set, examine the expressed degree of certainty in responses and its relation to accuracy.

- 4) Examine age-related differences in non-verbal behaviours (e.g., differences in physical movement, mirroring of body positions, paralinguistic aspects including intonation and stress).
- 5) Examine the language of both the interviewer and the subject with respect to phonological, lexical, syntactic and semantic repairs as well as pronoun errors on the part of both the interviewer and the subject.
- 6) Examine the overall structure of the discourse more thoroughly.

Application of the Findings

The most pragmatic application of the results is their potential usefulness to interviewers who volunteered as subjects, particularly those involved in actual investigations. Both the transcripts and video-tapes offer a rich resource for illustrating various features relating to the form and context of questioning as well structural features of the question/response discourse in general. The material also holds potential for developing an illustrated training package as an adjunct to existing programs for improving interviewing skills, particularly in the finer points of non-leading questioning.

This type of training would also serve as a preliminary step in obtaining a subsequent sample of interview data using a similar methodology. Although the interview protocol and the time constraints of the professionals involved in this study prevented a thorough review at the completion of each interview, the exchange of information between the interviewer and researcher in viewing or

discussing the video-tapes and transcripts has considerable potential for teaching and training purposes.

While it is clear that error may not be totally eliminated, it can most likely be significantly reduced by increasing awareness of the technical aspects of non-leading questioning and addressing the common features of adult-child discourse which serve as demand characteristics for both the interviewer and the subject. For the preschool age-group, the need to provide structure without unnecessarily leading or misleading the child may serve to enhance the recall of spontaneous material, lessen the influence of discourse demands and increase the accuracy of responses to questions generally.

Specific Methodological Concerns

In addition to addressing the issue of reliability, factors relating to the stimulus event, time interval, interview length and instructions to the interviewers are next considered both in terms of evaluating the methodology employed and at the same time contemplating future research or training in this area.

Reliability of the Scoring System: It would be difficult to overstate the complexity involved in scoring such a naturalistic data-set. Since there was an attempt to include as much material as possible to derive the estimates of the amount and accuracy of question/response material, certain material was forced into scoring categories (e.g., speculative questions and less than certain responses), and other material was screened from the analyses (e.g., clarifications, mixed

status questions and inferences). Each of these aspects deserves further examination.

The scoring reliability measures for the closed question accuracy scores are lower than would be expected in more controlled experimental studies and can be attributed to two major factors. Despite the general screening of questions, there was still a certain degree of ambiguity in scoring the question/response material, both in terms of its recursive nature and differences in rater's interpretation. These differences in interpretation may have been enhanced by the fact that the primary scorer was familiar with the video-tapes as well as the transcripts (with the exception of the stimulus film, the two additional raters scored the interview transcripts without access to the video-tapes). This factor, in addition to the low number of questions contributing to the closed question accuracy scores in some cases, resulted in substantial differences in accuracy scores based on a discrepancy of just one or two error points. Further work on the scoring of closed question points is therefore necessary to derive more reliable estimates of the accuracy of the closed questioned material.

Reliability of the Results: Since interviewers were randomly assigned to the blind and informed conditions, the results offer an estimate of the reliability of the findings to some degree. With the exception of the amount of spontaneous recall in the interviews and in the reports, differences between the blind and informed conditions did not appear for any of the six descriptive measures, for the accuracy scores based on spontaneous and closed question material or for error

extensions, fabrications and retractions. Since the condition effect for the amount of spontaneous recall in the interviews and in the reports was confined to the M-M combination in the young adult sample and readily explained in terms of differences in interviewer occupation and interview length, the results may be considered reliable within the context of the study.

Stimulus Event: Although the stimulus film clearly provided mundane realism in terms of children's ability to articulate their experience of a complex event to a naive interviewer, the lack of an ongoing sequence of events (over a two day period) obviously influenced the number of pragmatic and semantic inferences elicited through questioning. A second concern relates to the number of estimate errors which could be attributed to a preschooler's concrete response with respect to the size of the detail in question on the viewing screen. When asked to describe the size of the car for example, one subject said 'as big as my hand.' In response to a question about the boy's age in a related example, one child replied 'the boy wasn't even born yet.' While the latter response may have reflected the child's distinction between an actual child versus the film character, the use of the film stimulus introduced an additional dimension of context which was necessary to acknowledge in attempting to understand the meaning of particular responses for scoring purposes. A third concern was the complex nature of the interaction between the three characters at the pond. A less complex transaction would most likely reduce the complexity of the scoring to some degree as well as the number of errors.

Although a staged ongoing event would most likely reduce or eliminate these particular concerns, a decision on this matter would be weighed carefully against available resources and the particular advantages a film stimulus holds in terms of the logistics of running additional interviews for training or research purposes.

Time Interval: The interval between film viewing and the beginning of the recall task was significantly shorter for the control condition than the remaining two conditions and this difference was clearly due to a lack of control over the interviewer's time of arrival in the latter two conditions. An equally important factor, however, was the variation in the amount of time involved in rapport-building and task orientation in the blind and informed conditions. Unlike the control condition, the beginning of the interviews in the latter two conditions rarely coincided with the actual beginning of the recall task, thus extending the variation in the time interval between stimulus and actual recall.

Although neither factor was considered a significant confound, in future work it would be necessary to achieve better control over the interviewers' arrival time to equalize the time interval across conditions as much as possible. In the interest of ecological validity, however, the use of a longer time interval would alleviate this particular concern.

Interview Length: With respect to the length of time allotted for interviews in the blind and informed conditions, one hour was more than ample. While some variation was anticipated in terms of the length of time used for

rapport building and task orientation, disadvantages associated with a high proportion of off-topic material included increased transcription costs (across all age-groups) and establishing a playful atmosphere which prompted elaborate fabrications (specific to the preschool group).

Instructions: Apart from the initial contact by phone or letter and verbal instructions prior to the interview, there was no attempt to influence interviewers' questioning procedures. In any subsequent study, although the interviewers would receive a certain degree of training in non-leading questioning skills (e.g. offering the subject an explicit 'I don't know' option), the present findings indicate no obvious differences between blind and mildly informed interviewers in terms of the quality of the material elicited. Questioning procedures stemming from blind versus fully informed interviewers would be a fruitful contrast to examine the manner in which accurate information may be obtained without directly leading the subject.

Following training based on the general findings in the present study, it is anticipated that data obtained from a subsequent sample of interviews would yield the following findings:

- 1) shorter interviews on the whole, slower paced interviews and more efficient use of interview time
- 2) a higher proportion of on-topic turns across all age-groups
- 3) fewer closed questions asked across all age-groups

- 4) little change in spontaneous recall accuracy for the young adult age-group but significant improvements in accuracy for both the preschool and 8-10 year-old age-groups
- 5) significant improvement in closed question accuracy across the three age-groups
- 6) higher accuracy scores across age-groups generally with less error associated with discourse features
- 7) a significant reduction in the number of error extensions across all age-groups and a significant reduction in incorrect inferences and fabrications for the preschool age-group.
- 8) a greater degree of caution expressed by interviewers in their reports

Conclusion

The exploratory nature of this study demanded a fairly broad focus to examine the manner in which variations in questioning procedures influenced the amount and accuracy of material elicited. In keeping with the initial purpose of the study, the findings both complement and enhance the results of more controlled research and offer a number of insights into the pragmatics of questioning for legal purposes in general.

A basic understanding to be gained from this data-set is that, in questioning young children, the task for the interviewer is to obtain information **from** the child. Within the limits of their cognitive abilities and general capacity to articulate their experience, young children are able to relate information accurately and more importantly, to correct an interviewer's mis-understanding given explicit or implicit permission to do so. Scripted cues and social routines common to adult/child discourse in everyday settings appeared to be far more

salient factors influencing the quality of material elicited than the form or content of specific questions.

Given the range of productive and counter-productive questioning procedures which emerged in this data-set, improving the non-leading questioning skills of interviewers responsible for gathering evidence appears to be possible. As the complex interplay of factors which investigators face in applied settings are becoming increasingly more clear to researchers, subsequent training and research will determine the degree to which this goal can be reached in actual practise.

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Appendix A-1

Letter To Parents

To: Parents and Guardians
 From: Catherine Mahoney, Ph.D Candidate in Psychology (Ph.: 721-8645 or 381-0546)

I am investigating questioning techniques which facilitate memory recall in children. This research stems from issues which arise when questioning children for legal purposes.

The purpose of this letter is to inquire whether you would be willing to have your child participate in the study. Each child will view a five-minute film and then be interviewed about its contents, either by myself or another professional. All interviews will be video-taped and take place on the UVIC campus. Transportation to or from home, school or day-care can also be provided.

In brief, the film depicts the story of a young boy who collects golf-balls at a golf-course. Two older boys trick the youngster into giving them his balls and then throw his boots in the water. The next day the young boy gets his revenge by releasing the parking brake on the older boys' car and pushing it into the water.

The film was chosen for its clear sequence of events and the obvious wrong-doing of both the older boys and the younger boy. In addition to testing your child's memory of the film details, a thorough de-briefing will take place at the end of the session to ensure each child understands the nature of right and wrong as well as the use of a parking brake as a safety precaution.

To protect anonymity, each child will be identified by a subject number on the data sheets and by his or her first name only in the interviews.

If you are interested in having your child participate in the subject pool for this study, please fill in and sign the form below and return it as soon as possible. You will then be contacted and given specific details and instructions. It is crucial that you do not mention the idea of a memory test to your child in order that the test situation parallels an actual witness situation as closely as possible.

If you wish to view the film or discuss the purpose and procedure used in the research please feel free to phone me at the numbers listed above. I would greatly appreciate your assistance and thank-you for your attention.

STATEMENT OF INTEREST FORM

I, _____, am interested in having my child participate in the research conducted by Catherine Mahoney at the University of Victoria.

Child's Name	Age	Sex
Parent or Guardian's Signature	Date	Telephone Number

Appendix A-2

Letter to Potential Interviewers

Dear _____,

I am a Ph.D Candidate in the Department of Psychology at the University of Victoria and am currently investigating questioning techniques in interviewing both adults and children for legal purposes. In order to gather data which is as realistic as possible, it is important to find professionals who have had some training and experience interviewing clients in a variety of settings.

The purpose of this letter is to inquire whether you would be willing to volunteer just over one hour of your time to participate in this project. Your task would be to interview a subject (an adult or child) about the contents of a film seen prior to the interview. All interviews will be video-taped and take place on the UVIC campus.

The overall purpose of the study is to assess memory recall at various age levels and to examine questioning techniques which facilitate such recall. It is therefore necessary to involve a large number of professionals to ensure an adequate range of questioning styles and strategies. There will be no attempt to assess interviewing effectiveness on an individual basis and anonymity will be strictly protected.

I will contact you by phone over the next few weeks regarding this request. Please feel free to contact me c/o the Department of Psychology (721-7525) or at home (381-546).

Thank-you for your attention.

Sincerely,

Catherine Mahoney M.A.

APPENDIX A-3**VOLUNTEER CONSENT FORM**

I, _____, consent to participate in the research conducted by Catherine Mahoney at the University of Victoria. The purpose of the study and the procedures to be used have been fully explained to me and I understand that I am free to withdraw my consent at any time.

Date

Signature of Volunteer

Appendix A-4
Interviewer Information

ID: _____

Age: _____

Sex: _____

1) Education:

2) Current job description:

3) Related experience and other relevant information:

4) Approximate length of career in this field:

APPENDIX A-5

Frequency Distribution of Interviewer Occupations

Occupation (N=23)	Frequency
Chaplin (University)	1
Child Care Worker (B.A.)	3
Counsellor (M.A. or M.ED.)	13
Counsellor (Ph.D.)	4
Counsellor (Ed.D.)	2
Family Therapist	2
Financial Aid Officer	2
General Practitioner	1
Lawyer	19
Nurse	1
Occupational Therapist	1
Office Manager	1
Police Officer	13
Psychiatrist	2
Psychologist (M.A. or M.S.)	17
Psychologist (Ph.D.)	10
Psychometrist	1
Social Worker (Registered, B.A. or B.S.W.)	12
Social Worker (M.S.W)	8
Social Worker (Children's Officer)	2
Teacher	2
Teaching Assistant (B.A.)	2
Victim Support Counsellor	1

TOTAL	120

Appendix B-1

Means and Standard Deviations for Peabody Picture Vocabulary Test-Revised (Standard Scores) by Age-Group (3), Condition (3) and Gender (2)

Grand \bar{M} = 110 ($SD=15$)
 N = 180

		Condition					
		Control		Blind		Informed	
Age Group	sex n	M	F	M	F	M	F
		10	10	10	10	10	10
Preschool	\bar{M}	107.1	107.7	109.8	112.5	115.1	104.9
	SD	14.5	11.4	19.0	10.9	15.6	9.5
Elementary School	\bar{M}	111.6	102.0	108.2	108.8	104.0	107.2
	SD	25.6	14.2	6.9	17.0	10.5	19.1
Young Adults	\bar{M}	119.6	112.0	112.4	116.3	111.4	112.0
	SD	20.5	20.7	11.3	8.9	13.9	11.1

Appendix B-2

ANOVA Results Comparing PPVT-R Standard Scores across Age-group (3), Condition (3) and Gender (2)

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig. of F
Age-Group	1498.478	2	749.239	3.203	.043
Condition	151.511	2	75.756	.324	.724
Gender (G)	138.689	1	138.689	.593	.442
Grp x Cond	253.956	4	63.489	.271	.896
Age x Gender	12.744	2	6.372	.027	.973
Cond x Gender	475.244	2	237.622	1.016	.364
Grp x Cond x G	812.222	4	203.056	.868	.485
Residual	7899.400	162	233.947		

Appendix B-3**Additional Procedural Details**

1. With one exception, interviewers were unacquainted with the subject prior to the interview. The exception involved a school counsellor whose acquaintance with the eight year-old child was based on approximately six classroom periods of general discussion.
2. In all but 13 cases, the interviewer did not meet the subject until the interview was ready to begin. The exceptions involved a brief encounter in the hall-way and occurred when either the subject or the interviewer was late in arriving and the procedure was behind schedule or an interviewer arrived earlier than scheduled.
3. In four cases, the parent of a preschool child was present during viewing of the film and in one case, the mother was in the lab during the interview. In the latter case, the child had refused to leave his day-care on the day the interview was initially scheduled.
4. There was no strict control over the time of day or the day of the week when interviews were scheduled. In general, most preschoolers were scheduled early in the morning or mid-afternoon and the eight to ten year-olds were scheduled in the morning or late afternoon. One adult interview took place in the evening.
5. A total of 205 interviews were conducted to obtain the 180 interviews for this data base. Four interviews comprised a pilot study. One interview was disqualified on two accounts. The preschool child recalled material from a different film and the interviewer wore a police uniform. Twelve interviews were unable to be fully transcribed due to technical problems with the initial recording and eight interviews conducted in the latter half of the study contained the incorrect gender combination.
6. Although considerable care was taken to ensure subjects were not informed that the study involved a memory recall task, it became apparent, during the course of the interview or the de-briefing, that 11 subjects had some prior knowledge of the memory task. Investigation revealed that a school principal inadvertently mentioned "the experiment on children's memory" to the eight children involved from one elementary school. The remaining three cases involved children (two pre-schoolers and one eight year-old) whose parents were not

Appendix B-3 cont'd.

fully aware of the need to keep their child un-informed about the memory recall task. These interviews were subsequently tagged for later investigation of the possible significance of this information.

7. While viewing the stimulus film, one four year-old boy in the control condition displayed a startle response to the sound of the golf-club swing and later responded with moderate distress when the music portrayed the tension build-up as the boy ran to the car prior to releasing the brake. The child was easily consoled and the interview then proceeded as usual. His mother later reported that the family had just recently acquired a TV, after living four years in fairly remote areas, and that her son was particularly sensitive to harsh sounds and music in general, and particularly to tension-building music accompanying TV shows.
8. Three interviewers offered a pre-school child a snack during the interview. Due to time constraints, one 8 year-old boy ate his lunch, and five pre-school children finished their snack during the interview. Considering the idiosyncratic nature of the interviews as a whole, including interviewing styles and unexpected events (e.g. a fire alarm interruption, a bee buzzing in the room, a child's toy on the table, a mother's parting words "I don't think she'll be able to remember a thing!"), the presence of food or the interaction surrounding it was not considered a significant distraction.

Appendix B-3a

Complex String Example

The example is taken from an interview in the 8-10 year-old sample. The initial spontaneous error ('The boy started the car'(E1)) occurred at turn #32, and the string sequence then began at turn #303. In contrast to simple strings, this rather lengthy example demonstrates the recursive nature of the extended error sequence. Rather than list the status codes for each pair of turns, the correct detail is that the boy released the emergency brake before pushing the car.

- Int.: So he walks into the car. (x) O.K. / And turns it on.
 Int.: Turns on, now are the keys in the car? / Yes.
 Int.: So he turns the ignition on. / Yeah and then he pushed..
 Int.: Did he have to release 'he brake? / No.
 Int.: No, just turns the car on? / Yeah and then he pushes..
 Int.: Was the key in the car? / No. He, like he had it on the side of the car, or something and uh..
 Int.: What do you mean? / I don't know, it just showed something on the side right there, inside the door and he just pulled something back and then he pushed it. He gave it a little push and then it went down into the water.
 Int.: I want to see if I got this, got the picture wrong here. Does he open the car door and get into the front seat? / Yeah.
 Int.: The driver's seat? / Uh-huh. (Y)
 Int.: And then what did you see him do? / Um, I see him start the car up and then he shuts the door.
 Int.: Does he just turn the key? / Yeah...Push the um, the um, the..right there.
 Int.: Uh-hum. Is it a button that he has to start the car with? / Yeah and he pushed that and then he shut the..
 Int.: Where is that button? / Um it's on the side of the car. Right..
 Int.: On the outside of the car? / No, in the inside by the door. Here's the door and it's open and it's about right there.
 Int.: Is it near, can you see the steering wheel? / Uh, um, yeah.
 Int.: I see. Pushes the button. / And um, he gets out.
 Int.: Can you hear the start? / No.

Appendix B-3a cont'd

- Int.: You don't hear the motor go on? / No.
- Int.: How can you tell it started then? / Because well, I'm not sure if he started it, but then he went in the back and he pushed it. Her gave it a little push like that. And then it started going down the hill, rolling down the hill.
- Int.: O.K. So he opened the car door. / Yeah.
- Int.: And did you see him actually turn the key? / No.
- Int.: Or did he just.. / It was just a little..
- Int.: ..little switch.. / Uh, um. He didn't turn the key. It was right.. that..and then he was in the driver's side and he put on that side and then...
- Int.: So it was something that stuck out? / Yeah. It, yeah. And it looked like that. It was bent over like that.
- Int.: Uh-huh. / But then, um, that's like to stop it... and then um, then he quickly got out of the car, shut the door, and went in behind the car and he pushed it. And it started rolling down the hill. And into the water. And the boys were both right there.

Appendix B-4

All Conditions: Means and Standard Deviations for Length of Interview (in Minutes) by Age-Group (3), Condition (2) and Gender (2)

Grand \bar{M} = 18.89 (SD = 13.85)
 N = 180

		Condition					
		Control		Blind		Informed	
Age Group	Sex n	M	F	M	F	M	F
Pre-School	\bar{M} SD	4.4 1.6	4.2 2.3	28.0 8.1	28.8 13.2	27.4 8.0	25.6 9.3
8-10 Years	\bar{M} SD	4.8 2.8	4.1 2.4	25.8 13.6	23.9 14.3	29.2 10.1	23.9 8.1
Young Adults	\bar{M} SD	7.4 4.2	5.9 2.0	20.4 16.8	19.8 11.5	32.0 17.9	23.6 8.1

Appendix B-5

All Conditions: ANCOVA Results Comparing Length of Interview (in Minutes) across Age-group (3), Condition (3) and Gender (2)

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig. of F
Age-Group	73.810	2	36.906	.370	.691
Condition	16888.344	2	8444.172	84.747	.000
Gender(G)	196.365	1	196.365	1.971	.162
Grp X Cond	702.022	4	175.506	1.761	.139
Age X Gender	73.811	2	36.906	.370	.691
Cond X Gender	213.144	2	106.572	1.070	.346
Grp X Cond X G	60.689	4	15.572	.152	.962
Residual	6140.600	162	99.640		

Appendix B-6

Blind and Informed Conditions: ANOVA
 Results Comparing Length of Interviews
 (in Minutes) across Age-group (3),
 Condition (2) and Gender-Combination (4)

Source of Variation	Sum of Square	DF	Mean Square	F	Sig. of F
Age-Group	245.0	2	122.5	.830	.439
Condition	187.5	1	187.5	1.271	.262
Sex-Comb (SC)	547.4	3	182.5	1.237	.301
Grp X Cond	470.4	2	235.2	1.594	.208
Age X SC	593.8	6	99.0	.671	.673
Cond X SC	425.0	3	141.7	.960	.415
Grp X Cond X SC	555.3	6	92.6	.627	.708
Residual	14162.8	96	147.5		

Appendix B-7

All Conditions: Means and Standard
 Deviations for Time Interval between
 Film Viewing and Beginning of Recall
 Interview Across Age-Group and Gender

Grand \bar{M} = 24.3 (SD = 7.47)
 N = 180

		Condition					
		Control		Blind		Informed	
Age Group	Sex n	M	F	M	F	M	F
Preschool	\bar{M}	23.2	22.5	25.8	25.2	27.6	24.0
	SD	3.3	3.1	4.8	6.8	13.4	8.0
8-10 Years	\bar{M}	18.9	21.6	24.9	22.3	29.2	27.6
	SD	3.0	13.6	4.6	8.8	6.9	6.5
Young Adults	\bar{M}	19.1	19.4	24.3	25.4	30.8	26.0
	SD	1.5	1.5	4.3	5.2	9.4	6.3

Appendix B-8

All Conditions: ANOVA Results Comparing Time Interval across Age-Group (3), Condition (3) and Gender (2)

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig. of F
Age-Group	14.2	2	7.106	.143	.867
Condition	1376.5	2	688.272	13.814	.000
Sex	53.4	1	53.356	1.071	.302
Grp X Cond	251.4	4	62.839	1.261	.287
Age X Sex	9.7	2	4.839	.097	.907
Cond X Sex	129.5	2	64.739	1.299	.276
Grp X Cond X Sex	81.3	4	20.322	.408	.803
Residual	8071.4	162	49.823		

Appendix C-1

All Conditions: Means and Standard Deviations
for the Total Number of Turns and the Percent
On-Topic Turns across Age-Group, Condition
and Gender or Gender-Combination

		CONDITION							
Total Turns		Control			Blind		Informed		
Age-Group	Sex-Comb.	n	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	
Pre-School	F-M	10	25.6	10.9	209.2	131.1	181.2	31.5	
	F-F	10	19.4	9.1	154.2	65.4	216.6	101.4	
	M-F				206.2	47.5	192.2	76.9	
	M-M				252.8	113.8	197.0	70.5	
8-10 Years	F-M	10	8.9	2.3	119.0	78.9	165.8	62.4	
	F-F	10	8.4	2.9	178.0	139.6	211.6	87.2	
	M-F				212.8	99.6	209.8	91.6	
	M-M				164.2	49.3	197.2	63.3	
Young Adults	F-M	10	5.9	2.6	122.8	56.4	158.6	111.3	
	F-F	10	7.2	1.9	106.6	90.4	117.0	20.1	
	M-F				155.4	121.0	137.8	110.9	
	M-M				92.4	58.4	203.2	68.1	
Percent On-Topic Turns		Blind				Informed			
Age-Group	Sex-Comb.	n	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>			
Pre-School	F-M	5	79.8	26.6	71.1	18.8			
	F-F	5	95.2	1.5	86.6	11.9			
	M-F	5	70.4	16.4	80.7	13.0			
	M-M	5	77.0	20.8	81.8	12.3			
8-10 Years	F-M	5	78.4	17.0	90.5	12.2			
	F-F	5	86.7	12.7	90.9	10.1			
	M-F	5	88.6	9.0	81.1	11.8			
	M-M	5	87.1	10.8	77.4	25.8			
Young Adults	F-M	5	92.5	15.1	89.5	9.3			
	F-F	5	96.2	5.8	83.4	31.3			
	M-F	5	91.9	9.3	88.0	11.2			
	M-M	5	88.4	6.0	95.2	9.8			

Appendix C-2

Control Condition: ANOVA Results Comparing Number
of Turns across Age-Group (3) and Gender (2)

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig. of F
Age-Group	3028.03	2	1514.02	39.61	.000
Gender	43.35	1	43.35	1.13	.292
Age X Gender	157.50	2	78.75	2.01	.137
Residual	2164.10	54	38.22		

Appendix C-3

Blind and Informed Conditions: ANOVA Results
Comparing Number of Turns across Age-Group (3),
Condition (2) and Gender-Combination (4)

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig. of F
Age-Group	87918.1	2	43959.0	5.87	.004
Condition	9576.5	1	9576.5	1.27	.261
Sex-Combination	16745.5	3	5581.8	.75	.528
Grp X Cond	10752.3	2	5376.1	.73	.491
Age X Sex	25985.0	6	4330.8	.57	.747
Cond X Sex	9850.2	3	3283.7	.44	.726
Grp X Cond X SC	35320.0	6	5886.7	.78	.583
Residual	719450.0	96	7494.3		

Appendix C-4

Blind and Informed Conditions: ANOVA Results
Comparing Percent On-Topic Turns across Age-Group
(3), Condition (2) and Gender Combination (4):

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig. of F
Age-Group	2147.7	2	1073.9	4.606	.012
Condition	50.9	1	50.9	.219	.641
Sex-Combination	840.1	3	280.0	1.201	.314
Grp X Cond	49.5	2	24.8	.706	.899
Age X Sex	991.6	6	165.3	.709	.643
Cond X Sex	185.7	3	61.9	.266	.850
Grp X Cond X SC	1757.3	6	292.9	1.256	.285
Residual	22379.7	96	233.1		

Appendix D-1

Blind and Informed Conditions: Means and Standard Deviations for the Total Number of Closed Questions and the Percentage of Questions Classed as Leading across Age-Group, Condition and Gender-Combination

		CONDITION								
Age-Group	Sex-Comb.	n	CQ Total		% Leading Questions					
			Blind	Informed	Blind	Informed				
			<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Pre-School	F-M	5	20.0	15.6	27.4	12.8	22.2	10.9	27.3	8.3
	F-F	5	21.6	15.6	29.8	10.2	47.9	30.9	31.2	5.9
	M-F	5	28.6	28.4	36.4	26.5	27.3	26.9	37.8	17.7
	M-M	5	37.2	28.7	31.6	11.0	24.9	7.1	34.9	7.7
8-10 Years	F-M	5	27.4	25.9	39.4	13.4	51.1	7.4	35.9	6.9
	F-F	5	33.4	29.2	55.0	24.9	49.3	12.1	38.9	8.6
	M-F	5	47.2	31.9	45.0	21.1	41.5	9.2	36.5	6.1
	M-M	5	29.2	8.7	45.4	15.2	39.9	14.6	46.5	9.1
Young Adults	F-M	5	22.2	23.8	27.4	13.9	44.4	20.2	42.0	10.9
	F-F	5	26.8	22.8	24.4	15.0	48.4	29.5	36.3	12.9
	M-F	5	28.4	30.5	33.0	24.9	41.3	4.6	39.3	11.1
	M-M	5	8.2	5.5	42.2	15.8	51.1	30.2	41.4	5.8

Appendix D-2

Blind and Informed Conditions: ANOVA
 Results Comparing Closed Question Total
 (Quantity) across Age-group (3),
 Condition (2) and Gender-Combination (4)

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig. of F
Age-Group	2751.8	2	1375.9	3.103	.049
Condition	1569.6	1	1569.6	3.539	.063
Sex-Combination	1439.1	3	479.7	1.082	.361
Grp X Cond	175.7	2	87.9	.198	.821
Age X Sex	1989.2	6	331.5	.748	.613
Cond X Sex	151.3	3	50.4	.1214	.952
Grp X Cond X SC	3238.4	6	539.7	1.217	.304
Residual	42572.8	96	443.5		

Appendix D-3

Blind and Informed Conditions: ANOVA
 Results Comparing Proportion of Closed
 Questions Classed as Leading across Age-
 group (3), Condition (2) and Gender-
 Combination (4)

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig. of F
Age-Group	3102.6	2	1551.3	7.79	.001
Condition	687.4	1	687.4	3.45	.056
Sex-Combination	486.3	3	162.1	.81	.489
Grp X Cond	481.8	2	240.9	1.21	.303
Age X Sex	1627.4	6	271.2	1.36	.230
Cond X Sex	708.9	3	236.3	1.19	.319
Grp X Cond X SC	1652.6	6	275.4	1.38	.229
Residual	18717.6	94	199.1		

Appendix D-4

Means and Standard Deviations for the Closed Question Total and Proportion of Questions Classified as Leading across Interviewer Job-Category and Level of Education

Closed Question Total

Job-Category	Pre-school			8-10 Year-olds			Young-Adults		
	n	<u>M</u>	<u>SD</u>	n	<u>M</u>	<u>SD</u>	n	<u>M</u>	<u>SD</u>
Educ-Counsel	5	24.4	11.4	8	34.4	23.8	12	27.1	24.4
Psychology	11	20.3	13.5	9	32.0	16.7	10	21.9	20.1
Law	4	23.8	20.1	8	41.8	19.5	6	48.2	15.6
Policework	9	43.8	27.4	4	46.5	29.9	1	19.0	.0
Social Work	11	29.9	12.5	11	38.8	28.3	11	19.2	12.3

Degree	Pre-school			8-10 Year-olds			Young-Adults		
	n	<u>M</u>	<u>SD</u>	n	<u>M</u>	<u>SD</u>	n	<u>M</u>	<u>SD</u>
No Degree	9	43.8	27.4	5	39.8	22.5	3	13.7	9.2
BA	11	24.6	14.3	8	36.9	25.4	5	17.0	3.8
MA/LLB	10	24.7	15.0	22	36.2	24.1	27	30.0	21.7
Ph.D.	10	25.1	13.1	5	44.0	18.7	5	25.2	25.5

Proportion of Questions Classified as Leading (%)

Job-Category	Pre-school			8-10 Year-olds			Young-Adults		
	n	<u>M</u>	<u>SD</u>	n	<u>M</u>	<u>SD</u>	n	<u>M</u>	<u>SD</u>
Educ-Counsel	5	36.2	20.7	8	41.6	9.3	12	44.1	14.7
Psychology	11	35.9	23.6	9	40.8	7.8	10	50.0	22.5
Law	4	27.2	14.3	8	43.1	9.9	6	40.8	5.4
Policework	9	28.4	14.6	4	40.5	10.0	1	42.1	.0
Social Work	11	29.7	13.0	11	44.6	14.0	11	36.8	18.5

Degree	Pre-school			8-10 Year-olds			Young-Adults		
	n	<u>M</u>	<u>SD</u>	n	<u>M</u>	<u>SD</u>	n	<u>M</u>	<u>SD</u>
No Degree	9	28.0	14.7	5	42.0	8.5	3	33.9	7.9
BA	11	36.4	16.2	8	40.7	13.8	5	28.4	23.0
MA/LLB	10	23.7	11.0	22	44.3	10.0	27	47.4	16.3
Ph.D.	10	37.8	23.4	5	37.7	7.3	5	39.7	9.6

Appendix D-5

Means and Standard Deviations for Scoring
Reliability Measures

	Rater One		Rater Two	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Spontaneous Material				
Amount	77.8	37.0	73.0	35.1
Accuracy	90.1	7.7	91.9	5.5
 Closed Question Material				
Quantity	21.7	11.6	21.3	13.5
Accuracy/Total	92.4	6.7	90.0	8.3
Accuracy/leading Questions	93.0	11.1	97.0	4.9
Accuracy/Misleading Questions	90.8	9.2	79.8	18.2
 Rater Three				
Quantity	13.1	5.8	13.4	7.8
Accuracy/Total	91.0	12.0	87.0	13.0
Accuracy/Leading Questions	98.0	5.8	96.0	10.1
Accuracy/Misleading Questions	88.0	15.2	86.0	16.9

Appendix E

All Conditions: Means and Standard Deviations for Spontaneous Recall Amount Across Age-group and Condition

Age-Group	CONDITION					
	Control		Blind		Informed	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Preschool	21.8	10.2	39.2	19.6	43.2	23.7
8-10 Years	55.5	29.5	96.7	30.0	99.5	23.1
Young Adults	93.1	34.0	92.7	39.1	131.9	44.3

Appendix E-1

Blind and Informed Conditions: Means and Standard Deviations for Spontaneous Recall Amount across Age-group, Condition and Gender-Combination

Age-Group	Sex-Comb.	n	CONDITION			
			Blind		Informed	
			<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Pre-School	F-M	5	36.8	6.1	33.0	17.2
	F-F	5	41.0	17.3	48.6	22.4
	M-F	5	37.0	22.6	52.2	37.4
	M-M	5	42.0	30.7	39.0	13.1
8-10 Years	F-M	5	90.6	26.1	94.6	23.7
	F-F	5	103.6	34.4	106.4	22.7
	M-F	5	102.2	42.7	87.0	27.7
	M-M	5	90.2	19.9	109.8	16.7
Young Adults	F-M	5	102.8	25.9	128.6	38.5
	F-F	5	103.6	46.7	104.8	23.9
	M-F	5	98.2	38.5	113.8	43.1
	M-M	5	66.2	41.5	180.4	31.9

Appendix E-1a

Blind and Informed Conditions: ANOVA
 Results for Spontaneous Recall Amount
 across Age-group (3), Condition (2) and
 Gender- Combination (4)

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig. of F
Age-Group	113202.6	2	56601.3	63.25	.000
Condition	7053.3	1	7053.3	7.88	.006
Gender	887.0	3	295.7	331	.803
Grp X Cond	8551.5	2	4275.7	4.78	.011
Age X Gen-C	3075.7	6	512.6	.57	.751
Cond X Gen-C	8082.1	3	2694.0	3.01	.034
Grp X Cond X Gen-C	13571.5	6	2261.9	2.53	.026
Residual	85915.6	96	895.0		

Appendix E-2

All Conditions: Means and Standard Deviations for
 Spontaneous Recall Accuracy Across Age-Group and
 Condition

Age-Group	CONDITION					
	Control		Blind		Informed	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Preschool	95.5	4.6	83.7	6.4	84.1	5.9
8-10 Years	96.1	3.2	92.4	3.6	91.5	3.6
Young Adults	96.5	1.8	96.0	3.8	94.3	3.3

Appendix E-3

Control Condition: Means and Standard Deviations
for Spontaneous Recall Amount and Accuracy
Across Age-Group and Gender

Age Group	Gender n	Amount		Accuracy	
		M 10	F 10	M 10	F 10
Pre-School	<u>M</u>	24.5	19.1	94.30	96.64
	<u>SD</u>	12.1	7.5	5.65	3.14
8-10 Years	<u>M</u>	54.0	57.0	95.20	96.90
	<u>SD</u>	37.5	20.6	3.50	2.90
Young Adults	<u>M</u>	101.7	84.4	96.57	96.41
	<u>SD</u>	39.8	26.3	2.04	1.55

Appendix E-4

Control Condition: ANOVA Results Comparing
Spontaneous Recall Amount across Age-Group and
Sex

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F
Age-Group	50815.0	2	25407.5	35.35	.000
Sex	646.8	1	646.8	.90	.347
Age X Sex	1040.4	2	520.2	.72	.490
Residual	38809.9	54	718.7		

Appendix E-5

Control Condition: ANOVA Results
Comparing Spontaneous Recall Accuracy
across Age-Group and Sex

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig. of F
Age-Group	10.5	2	5.3	.457	.636
Sex	24.9	1	24.9	2.159	.148
Age X Sex	16.7	2	8.4	.725	.489
Residual	622.4	54	11.5		

Appendix E-6

Control Condition: Results of Chi-Square
Tests of Differences between Age-Groups
in Proportion of Error-Free Subjects

Age-Group	n	Frequency of error-free subjects	Proportion of error-free subjects
Pre-Schoolers	20	8	.40
8-10 Year-olds	20	5	.25
Young Adults	20	0	.00

	df	Chi-Square	p
Overall Chi-Square Test of Group Proportions	2	9.62	.008

Group Pairs	Proportion	df	Chi-Square	p
Pre-school-8-10 Year-olds	.40 .25	1	1.03	.310
Pre-school-Young-Adults	.40 .00	1	10.00	.002
8-10 Year-olds-Young-Adults	.25 .00	1	5.70	.017

Appendix E-7

Means and Standard Deviations for Spontaneous Recall Amount and Accuracy Across Interviewer Job-Category and Level of Education

Spontaneous Recall Amount

Job-Category	Pre-school			8-10 Year-olds			Young-Adults		
	n	<u>M</u>	<u>SD</u>	n	<u>M</u>	<u>SD</u>	n	<u>M</u>	<u>SD</u>
Educ-Couns	5	30.8	17.5	8	93.1	30.8	12	110.0	43.6
Psychology	11	40.7	17.4	9	106.0	30.6	10	114.9	46.5
Law	4	24.8	11.1	8	91.9	9.6	6	158.3	32.5
Police-work	9	54.2	32.5	4	90.0	22.6	1	103.0	
Social Work	11	41.7	13.6	11	102.5	30.8	11	88.2	40.9

Degree	Pre-school			8-10 Year-olds			Young-Adults		
	n	<u>M</u>	<u>SD</u>	n	<u>M</u>	<u>SD</u>	n	<u>M</u>	<u>SD</u>
No Degree	9	54.0	32.7	5	91.0	24.7	3	75.0	24.6
BA	11	36.6	12.6	8	108.8	30.3	5	109.6	35.0
MA/LLB	10	34.9	14.6	22	98.3	26.6	27	115.5	43.8
Ph.D.	10	41.0	20.9	5	86.8	21.7	5	120.2	72.1

Spontaneous Recall Accuracy

Job-Category	Pre-school			8-10 Year-olds			Young-Adults		
	n	<u>M</u>	<u>SD</u>	n	<u>M</u>	<u>SD</u>	n	<u>M</u>	<u>SD</u>
Educ-Couns	5	78.7	7.9	8	92.1	3.8	12	94.7	4.4
Psychology	11	83.4	5.3	9	91.7	4.1	10	96.4	3.1
Law	4	82.3	4.6	8	91.6	3.6	6	92.5	1.8
Police-work	9	86.2	4.3	4	92.0	3.1	1	95.1	
Social Work	11	85.5	6.6	11	92.3	3.9	11	96.0	3.6

Degree	Pre-school			8-10 Year-olds			Young-Adults		
	n	<u>M</u>	<u>SD</u>	n	<u>M</u>	<u>SD</u>	n	<u>M</u>	<u>SD</u>
No Degree	9	86.2	4.8	5	92.3	3.0	3	97.9	2.5
BA	11	84.5	7.1	8	93.4	2.9	5	97.0	2.0
MA/LLB	10	82.6	5.6	22	91.7	3.5	27	94.2	3.8
Ph.D.	10	82.5	6.5	5	90.6	5.7	5	96.5	2.8

Appendix F

Blind and Informed Conditions: Means and Standard Deviations for Accuracy based on Closed Questions across Age-Group, Condition and Gender-Combination

Leading Questions

Age-Group	Blind				Informed			
	Gender Comb	n	<u>M</u>	<u>SD</u>	Gender Comb	n	<u>M</u>	<u>SD</u>
Pre-School	F-M	5	88.6	18.6	F-M	5	85.1	16.6
	F-F	5	80.6	24.5	F-F	5	85.7	11.0
	M-F	4	84.9	10.8	M-F	4	90.4	7.0
	M-M	5	75.8	15.5	M-M	5	86.3	15.5
8-10 Years	F-M	5	98.2	3.9	F-M	5	95.2	4.9
	F-F	5	92.1	7.5	F-F	5	93.1	7.9
	M-F	5	85.5	21.2	M-F	5	96.5	3.9
	M-M	5	94.9	5.3	M-M	5	93.1	10.1
Young Adults	F-M	5	98.1	4.3	F-M	5	96.2	5.6
	F-F	5	99.2	1.8	F-F	5	84.3	12.9
	M-F	5	90.0	14.9	M-F	5	96.3	6.2
	M-M	4	97.5	5.0	M-M	5	91.8	8.3

Misleading Questions

Age-Group	Blind				Informed			
	Gender Comb	n	<u>M</u>	<u>SD</u>	Gender Comb	n	<u>M</u>	<u>SD</u>
Pre-School	F-M	5	76.5	19.5	F-M	5	86.6	17.6
	F-F	4	86.7	13.2	F-F	5	77.8	12.4
	M-F	5	90.3	12.9	M-F	5	73.1	8.8
	M-M	5	84.7	15.6	M-M	5	81.1	14.4
8-10 Years	F-M	5	88.3	7.7	F-M	5	82.9	3.9
	F-F	5	91.2	9.2	F-F	5	82.5	11.1
	M-F	5	87.8	10.5	M-F	5	91.9	9.8
	M-M	5	79.5	11.9	M-M	5	84.1	10.8
Young Adults	F-M	5	78.6	13.2	F-M	5	87.9	11.9
	F-F	4	91.5	5.5	F-F	5	84.7	19.8
	M-F	5	88.4	9.9	M-F	5	90.7	9.4
	M-M	5	84.3	20.5	M-M	5	93.7	7.3

Appendix F Cont'd

Closed Question Total					Condition			
					Blind		Informed	
Age- Group	Gender Comb	n	<u>M</u>	<u>SD</u>	Gender Comb	n	<u>M</u>	<u>SD</u>
Pre- School	F-M	5	78.3	13.2	F-M	5	85.9	15.6
	F-F	5	88.2	11.6	F-F	5	79.5	9.5
	M-F	5	89.6	12.5	M-F	5	77.3	13.2
	M-M	5	81.9	14.1	M-M	5	84.1	8.6
8-10 Years	F-M	5	93.3	4.9	F-M	5	87.5	2.5
	F-F	5	91.5	7.7	F-F	5	86.9	9.3
	M-F	5	87.1	4.1	M-F	5	93.6	6.6
	M-M	5	84.6	6.9	M-M	5	88.3	8.5
Young Adults	F-M	5	85.1	9.6	F-M	5	91.1	8.3
	F-F	5	95.4	3.4	F-F	5	85.4	11.0
	M-F	5	88.6	6.6	M-F	5	92.5	6.5
	M-M	5	91.9	7.4	M-M	5	93.4	2.9

Appendix F-1

Blind and Informed Conditions: MANOVA
 Results for Accuracy based on Leading
 and Misleading Questions across Age-
 group (3), Condition (2) and Sex
 Combination (4)

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig. of F
<u>Between Subjects</u>					
Age-Group	3652.6	2	1826.3	10.08	.00
Condition	12.5	1	12.4	.07	.79
Gen-C	92.6	3	30.9	.17	.92
Grp X Cond	40.0	2	20.0	.11	.90
Age X Gen-C	274.3	6	45.7	.25	.96
Cond X Gen-C	384.9	3	128.3	.71	.55
Grp X Cond X Gen-C	1714.8	6	285.8	1.58	.16
Residual	16667.2	92	181.2		

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig. of F
<u>Within Cells</u>					
Question Type (QT)	1283.5	1	1283.5	6.68	.01
Group x QT	637.8	2	318.9	1.66	.19
Cond x QT	1.9	1	1.9	.01	.92
Gen-C x QT	722.3	3	240.8	1.25	.30
Grp x Cond X QT	465.9	2	232.9	1.21	.30
Grp x Gen-C x QT	227.2	6	37.9	.20	.98
Cond x Gen-C x QT	478.3	3	159.4	.83	.48
Grp x Cond x Gen-C x QT	724.3	6	121.7	.63	.71
Within Cells	17685.7	92	192.2		

Appendix F-2

Results of Paired T-tests Examining Differences
Between Accuracy based on Leading and Misleading
Questions

Change Score		<u>M</u>	SD	df	t	p
Entire Sample n=120	Leading	89.8	14.9	115	2.73	.007
	Misleading	85.0	12.7			
Pre- School n=40	Leading	81.9	20.2	37	.10	.921
	Misleading	81.5	14.3			
8-10 Years n=40	Leading	93.5	9.6	39	3.26	.002
	Misleading	86.0	9.7			
Young Adults n=40	Leading	93.9	9.2	37	2.23	.032
	Misleading	87.4	13.2			

Appendix F-3

Results of Paired T-tests Examining Differences
Between Accuracy Scores based on Spontaneous and
Closed Question Material

Change Score		Means	SD	df	t	p
Entire Sample n=120	Spont	90.3	6.6	119	3.54	.001
	CQ	87.5	9.6			
Pre- School n=40	Spont	83.9	6.1	39	.49	.629
	CQ	83.1	12.1			
8-10 Years n=40	Spont	92.0	3.6	39	2.62	.012
	CQ	89.1	6.8			
Young Adults n=40	Spont	95.2	3.6	39	3.7	.001
	CQ	90.4	7.6			

Appendix F-3a

Blind and Informed Conditions: ANOVA
 Results for Closed Question Percent
 Accuracy Based on Leading Questions
 across Age-group (3), Condition (2) and
 Gender- Combination (4)

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig. of F
Age-Group	2195.5	2	1097.7	7.799	.001
Condition	19.0	1	19.0	.135	.714
Sex-Combination	351.1	3	117.0	.831	.480
Grp X Cond	385.5	2	192.7	1.369	.259
Age X Sex	287.5	6	47.9	.340	.914
Cond X Sex	603.7	3	201.2	1.430	.239
Grp X Cond X Sex-C	579.7	6	96.6	.686	.661
Residual	13090.5	93	140.7		

Appendix F-3b

Blind and Informed Conditions: ANOVA
 Results for Closed Question Percent
 Accuracy based on Misleading Questions
 across Age-group (3), Condition (2) and
 Sex Combination (4)

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig. of F
Age-Group	611.5	2	305.7	1.877	.159
Condition	16.7	1	16.7	.103	.749
Sex-Combination	203.7	3	67.9	.417	.741
Grp X Cond	366.9	2	183.5	1.126	.329
Age X Sex	381.7	6	63.6	.391	.883
Cond X Sex	795.3	3	265.1	1.628	.188
Grp X Cond X S-C	938.6	6	156.4	.960	.456
Residual	15311.9	94	162.8		

Appendix F-4

Means and Standard Deviations for Accuracy Scores
based on Closed Questions across Interviewer Job-
Category and Level of Education

Leading Questions

Job-Category	Pre-school			8-10 Year-olds			Young-Adults		
	n	<u>M</u>	<u>SD</u>	n	<u>M</u>	<u>SD</u>	n	<u>M</u>	<u>SD</u>
Educ-Counse 5.9	5	80.1	15.4	8	94.5	8.7	12	95.8	
Psychology 9.7	11	78.4	21.5	9	93.1	12.9	10	95.4	
Law 4.9	4	69.6	46.9	8	90.2	5.9	6	93.3	
Policework .0	9	87.5	12.0	4	97.5	5.0	1	100.0	
Social Work 13.3	11	88.3	9.2	11	93.8	11.3	11	90.5	

Degree	Pre-school			8-10 Year-olds			Young-Adults		
	n	<u>M</u>	<u>SD</u>	n	<u>M</u>	<u>SD</u>	n	<u>M</u>	<u>SD</u>
No Degree .0	9	87.2	12.0	5	97.4	4.3	3	100.0	
BA 15.7	11	88.7	12.5	8	93.1	13.1	5	89.2	
MA/LLB 8.4	10	88.0	15.0	22	94.0	7.2	27	93.9	
Ph.D. 9.9	10	74.6	17.6	5	87.8	15.9	5	95.6	

Appendix F-4 cont'd

Means and Standard Deviations for Accuracy Scores
based on Misleading Questions across Interviewer
Job-Category and Level of Education

Misleading Questions

Job-Category	Pre-school			8-10 Year-olds			Young-Adults		
	n	<u>M</u>	<u>SD</u>	n	<u>M</u>	<u>SD</u>	n	<u>M</u>	<u>SD</u>
Educ-Couns	5	77.9	19.4	8	83.9	12.9	12	83.6	12.8
Psychology	11	78.0	13.3	9	87.7	9.0	10	91.9	9.5
Law	4	72.7	19.5	8	84.3	9.7	6	92.7	5.0
Policework	9	91.0	6.1	4	89.4	11.6	1	90.9	.0
Social Work	11	83.5	14.3	11	86.3	8.2	11	84.5	17.8

Degree	Pre-school			8-10 Year-olds			Young-Adults		
	n	<u>M</u>	<u>SD</u>	n	<u>M</u>	<u>SD</u>	n	<u>M</u>	<u>SD</u>
No Degree	9	92.1	5.9	5	87.2	10.9	3	77.9	24.2
BA	11	83.6	13.7	8	86.7	6.8	5	87.1	11.3
MA/LLB	10	75.2	17.6	22	85.6	10.6	27	87.9	12.5
Ph.D.	10	77.5	13.1	5	85.8	11.4	5	90.5	11.3

Closed Question Total

Job-Category	Pre-school			8-10 Year-olds			Young-Adults		
	n	<u>M</u>	<u>SD</u>	n	<u>M</u>	<u>SD</u>	n	<u>M</u>	<u>SD</u>
Educ-Couns	5	78.0	16.8	8	87.7	9.7	12	88.0	8.8
Psychology	11	79.2	9.6	9	90.5	5.2	10	93.5	6.7
Law	4	76.1	18.3	8	86.5	8.2	6	93.1	4.1
Policework	9	91.1	6.0	4	93.0	4.4	1	94.7	
Social Work	11	85.3	11.2	11	89.4	5.0	11	88.5	8.2

Degree	Pre-school			8-10 Year-olds			Young-Adults		
	n	<u>M</u>	<u>SD</u>	n	<u>M</u>	<u>SD</u>	n	<u>M</u>	<u>SD</u>
No Degree	9	91.9	5.7	5	91.8	4.4	3	85.4	16.2
BA	11	85.7	11.5	8	88.7	4.4	5	88.4	7.8
MA/LLB	10	76.9	14.2	22	89.0	8.3	27	91.0	6.8
Ph.D.	10	78.6	11.5	5	87.7	5.1	5	92.4	6.3

Appendix H

Results of ANOVAS Comparing Proportion of Total Error Associated with Discourse Features as well as with Individual Sub-Types*

		<u>M</u>	<u>SD</u>	df	F	p
DF	-Total Proportion					
	Pres	.21	.15			
	8-10	.19	.14	2	.85	.43
	Yg-Ad	.16	.123			
DF1	Pres	.07	.07			
	8-10	.04	.06	2	2.05	.11
	Yg-Ad	.03	.09			
DF2	Pres	.04	.07			
	8-10	.06	.09	2	.23	.79
	Yg-Ad	.05	.17			
DF3	Pres	.03	.05			
	8-10	.07	.09	2	2.48	.09
	Yg-Ad	.03	.09			
DF4	Pres	.04	.08			
	8-10	.01	.04	2	.58	.51
	Yg-Ad	.03	.16			
DF5	Pres	.04	.06			
	8-10	.02	.04	2	2.67	.07
	Yg-Ad	.01	.05			

* - All post hoc tests were non-significant

Appendix H-1

Results of ANOVAS Comparing Relative Standing of
the Age-Groups across Successive Accuracy Scores
with DF Error Subtracted

		Spontaneous Points				Closed Question Points			
		Mean	df	F	p	Mean	df	F	p
DF1	Pres	83.9				85.9			
	8-10	91.9	2	64.7	<.001	90.4	2	7.76	<.001
	Yg-Ad	95.2				91.5			
DF2	Pres	83.9				86.6			
	8-10	91.9	2	62.8	<.001	92.0	2	8.86	<.001
	Yg-Ad	95.2				92.7			
DF3	Pres	84.0				87.7			
	8-10	92.1	2	63.0	<.001	94.0	2	12.98	<.001
	Yg-Ad	95.2				94.1			
DF4	Pres	84.3				89.0			
	8-10	92.1	2	58.4	<.001	94.3	2	11.28	<.001
	Yg-Ad	95.2				94.5			
DF5	Pres	85.1				89.2			
	8-10	92.2	2	53.3	<.001	94.4	2	11.11	<.001
	Yg-Ad	95.3				94.5			
Post differences Hoc and Tests	Significant differences between all three pairs of group means at .05.				Significant between pre-school older age-groups only.				

Appendix H-2

Results of ANOVA Comparing Differences in Overall Change Scores across age-groups

	Spontaneous Points					Closed Question Points			
	n	<u>M</u>	df	F	p	<u>M</u>	df	F	p
Pres	40	1.19				6.10			
8-10	40	.27	2	8.16	<.001	5.31	2	1.45	.240
Yg-Ad	40	.09				4.07			

Appendix H-3

Chi-Square Results Comparing Age-group Differences for Only Those Interviews Having DF Change Scores Greater than Zero

	Spontaneous Points					Closed Question Points				
	n	Proportion	df	Chi-Square	p	n	Proportion	df	Chi-Square	p
Pres	13	.33				33	.80			
8-10	9	.25	2	4.57	.102	31	.78	2	8.81	.012
Yg-Ad	3	.13				22	.53			

Groups	df	p	Groups	df	p
1 & 2	1	.54	1 & 2	1	.08
1 & 3	1	5.59	1 & 3	1	6.76
2 & 3	1	2.05	2 & 3	1	5.49

Appendix H-4

Results of paired t-tests examining differences
between the two sets of change scores

	Change Score	Change Score		df	t	p
		<u>M</u>	<u>SD</u>			
Entire Sample n=120	Spont	.51	1.38	119	-9.04	<.001
	CQ	5.16	5.43			
Pre- School n=40	Spont	1.19	2.19	39	-5.08	<.001
	CQ	6.10	5.43			
8-10 Years n=40	Spont	.27	.49	39	-7.35	<.001
	CQ	5.31	4.37			
Young Adults n=40	Spont	.09	.27	39	-3.99	<.001
	CQ	4.07	6.25			

Appendix H-4b

Results of ANOVAS Comparing Relative Standing of
the Age-Groups across Accuracy Scores with DF
Error Removed for Leading and Misleading Questions

		Leading Questions				Misleading Questions			
		<u>M</u>	df	F	p	<u>M</u>	df	F	p
DF1	Pres	87.5			*	83.0			
	8-10	96.1	2	6.65	.002	86.5	2	1.59	.208
	Yg-Ad	96.4				87.8			
DF2	Pres	87.5			*	84.6			
	8-10	96.4	2	6.72	.002	89.0	2	2.11	.126
	Yg-Ad	96.2				89.6			
DF3	Pres	88.4			*	85.9			*
	8-10	96.7	2	5.84	.004	92.1	2	4.65	.011
	Yg-Ad	96.2				92.0			
DF4	Pres	94.2				86.4			*
	8-10	97.0	2	1.34	.267	92.3	2	4.68	.011
	Yg-Ad	96.2				92.5			
DF5	Pres	94.2				86.7			*
	8-10	97.0	2	1.34	.267	92.5	2	4.45	.014
	Yg-Ad	96.2				92.5			

* - Post hoc test indicates pre-school sample significantly different from the two older two age-groups.

Appendix H-5

ANOVA Results Comparing Relative Standing of the Age-Groups across Accuracy Scores with DVS Error Removed

	Spontaneous Points				Closed Question Points			
	<u>M</u>	df	F	p	<u>M</u>	df	F	p
Pres	90.23				92.37			
8-10	92.96	2	13.91	.001	94.99	2	1.96	.146
Yg-Ad	95.28				94.49			
Post Hoc Tests	Significant differences between all three pairs of group means at .05.				Significant differences between pre-school and older age-groups only.			

Appendix H-6

Results of ANOVA Comparing Differences in Overall DVS Change Scores Across Age-groups

	Spontaneous Points					Closed Question Points			
	n	<u>M</u>	df	F	p	<u>M</u>	df	F	p
Pres	40	5.14				3.18			
8-10	40	.72	2	46.69	.001	.59	2	16.12	.001
Yg-Ad	40	.03				.00			
Post Hoc Tests	Significant differences between all three pairs of group means at .05.					Significant differences between all three pairs of group means at .05.			

Appendix H-7

Chi-Square Results Comparing Age-group Differences
for Only Those Interviews Having DVS Change Scores
Greater than Zero

	Spontaneous Points					Closed Question Points					
	n	Proportion	df	Chi-Square	p	n	Proportion	df	Chi-Square	p	
Pres	33	.83				19	.48				
8-10	19	.48	2	52.18	.001	7	.18	2	8.81	.012	
Yg-Ad	1	.02				0	.00				

Groups	df			p		Groups	df			p	
1 & 2	1			10.77		1 & 2	1			8.21	
4 & 3	1			52.38		1 & 3	1			24.92	
2 & 3	1			21.60		2 & 3	1			7.67	

Appendix H-8

Results of Paired T-tests Examining
Differences Between the Two Sets of Change
Scores

	Change Score	Change Score		df	t	p
		<u>M</u>	<u>SD</u>			
Entire Sample n=120	Spont	1.96	3.41	119	2.17	.032
	CQ	1.26	2.98			

Pre- School n=40	Spont	5.14	4.34	df	t	p
	CQ	3.18	4.37	39	2.14	.039

8-10 Year-old n=40	Spont	.72	.94	df	t	p
	CQ	.59	1.48	39	.49	.626

Young Adults n=40	Spont	.03	.19	df	t	p
	CQ	0.00	.00	39	1.00	.323

Appendix I-1

Blind and Informed Conditions: Means and Standard Deviations for Extension Units without Fabrications and Proportion of Errors Extended across Age-Group

Age-Group	CONDITION				
	Extension Units			Proportion of Error Extended	
	n	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Pre-School	40	1.6	1.6	.16	.19
8-10 Years	40	1.8	1.7	.13	.12
Young Adults	40	.7	1.0	.06	.10

Appendix I-2

Blind and Informed Conditions: Results of Chi-Square Tests of Differences between Age-Groups in Proportion of Interviews Containing One or More Extension Units

Age-Group	n	Number of Interviews with Extensions	Proportion of Interviews with Extensions
Pre-Schoolers	40	29	.73
8-10 Year-olds	40	27	.68
Young Adults	40	17	.43

	df	Chi-Square	p
Overall Chi-Square test Group Proportions	2	8.67	.013

Group Pairs	Proportion	df	Chi-Square	p
PreSchoolers-8-10 Year-olds	.73 .68	1	.24	.626
Preschoolers-Young-Adults	.73 .43	1	7.37	.007
8-10 Year-olds-Young-Adults	.25 .43	1	5.05	.025

Appendix I-3

Blind and Informed Conditions: Results of Chi-Square Tests of Differences between Age-Groups in Proportion of Interviews Containing One or More Fabrications

Age-Group	n	Number of Interviews with Fabrication	Proportion of Interviews
Pre-Schoolers	40	19	.48
8-10 Year-olds	40	2	.05
Young Adults	40	0	.00

	df	Chi-Square	p
Overall Chi-Square test Group Proportions	2	37.7	<.001

Group Pairs	Proportion	df	Chi-Square	p
PreSchoolers-8-10 Year-olds	.48 .05	1	18.7	<.001
Preschoolers-Young-Adults	.48 .00	1	24.9	<.001
8-10 Year-olds-Young-Adults	.05 .00	1	2.05	<.152

Appendix J-1

Blind and Informed Conditions: Means and Standard Deviations for Total Errors Retracted and Proportion of Error Retracted across Age-Groups

Age-Group	CONDITION				
	Error Retractions			Proportion of Error Retracted	
	n	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Pre-School	40	2.0	2.0	.15	.13
8-10 Years	40	1.7	1.5	.12	.11
Young Adults	40	1.1	1.6	.10	.13

Appendix J-2

Blind and Informed Conditions: Results of Chi-Square Tests of Age-Group Differences in Proportion of Interviews Containing Retractions

Age-Group	n	Frequency of error-free subjects	Proportion of error-free subjects
Pre-Schoolers	40	37	.78
8-10 Year-Olds	40	39	.83
Young Adults	40	25	.53

	df	Chi-Square	p
Overall Chi-Square test Group Proportions	2	10.0	.007

Group Pairs	Proportion	df	Chi-Square	p
PreSchoolers-8-10 Year-olds	.78 .83	1	.313	.576
Preschoolers-Young-Adults	.78 .53	1	5.49	.019
8-10 Year-olds-Young-Adults	.83 .53	1	8.21	.004

Appendix K-1

Blind and Informed Conditions: Means and Standard Deviations for the Amount and Accuracy of Interviewer Reports across Age-Group, Condition and Gender-Combination

Age-Group	Sex-Comb.	n	Amount				Accuracy			
			Blind		Informed		Blind		Informed	
			<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Pre-School	F-M	5	24.2	8.1	26.0	14.4	82.8	4.4	84.6	4.9
	F-F	5	26.0	14.8	30.3	10.7	88.2	3.4	77.9	11.5
	M-F	5	26.6	21.6	24.5	14.8	83.1	10.8	82.4	10.5
	M-M	5	27.4	21.7	28.2	14.1	84.5	13.9	87.1	7.2
8-10 Years	F-M	5	67.8	29.0	63.2	11.1	93.9	3.5	93.7	3.0
	F-F	5	75.6	26.1	84.8	21.6	91.6	4.8	92.8	4.6
	M-F	5	59.0	25.0	72.8	29.7	94.6	1.9	91.9	5.1
	M-M	5	60.4	16.8	72.4	22.5	92.0	5.1	91.9	4.0
Young Adults	F-M	5	67.0	35.0	76.6	13.7	96.1	2.4	96.9	2.2
	F-F	5	64.8	23.2	54.3	10.2	93.5	4.3	92.9	2.2
	M-F	5	49.5	28.2	53.3	8.1	93.3	4.2	92.9	3.1
	M-M	5	40.8	14.3	112.0	54.1	98.1	2.4	93.9	7.5

Appendix K-2

Blind and Informed Conditions: ANOVA Results Comparing Report Amount across Age-Group (3), Condition (2) and Gender-Combination (4)

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig. of F
Age-Group	41770.3	2	20885.1	39.289	.000
Condition	2325.4	1	2325.4	4.374	.039
Gender-C	1496.3	3	498.8	.938	.426
Grp X Condition	1516.4	2	758.2	1.426	.246
Grp X Gender-C	3657.7	6	626.3	1.178	.325
Cond X Gender-C	3083.9	3	1028.0	1.934	.130
Grp X Cond X Gen-C.	6188.6	6	1019.8	1.918	.073
Residual	46247.7	87	531.6		

Appendix K-3

Blind and Informed Conditions: ANOVA Results
 Comparing Report Accuracy across Age-Group (3),
 Condition (2) and Sex Combination (4)

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig. of F
Age-Group	2621.7	2	1310.8	36.115	.000
Condition	8.4	1	8.4	.232	.631
Sex-Combination	60.2	3	20.1	.553	.648
Grp X Cond	6.5	2	3.2	.089	.915
Age X Sex	77.3	6	12.9	.355	.905
Cond X Sex	50.7	3	16.9	.466	.707
Grp X Cond X Sex-C	256.6	6	42.7	1.178	.325
Residual	3157.8	87	132.7		

Appendix K-4

Blind and Informed Conditions: Oneway ANOVA Results
 Comparing Interviewer Report Error Proportions Due to
 Repeated Spontaneous Error, Closed Question Error and
 Incorrect Inferences on the Interviewer's Part across
 Age-Groups

Proportion Due to	df	F	P
Spontaneous Error	2	.632	.530
Closed Question Error	2	4.649	.012
Incorrect Inferences	2	5.613	.005

Appendix K-5

Means and Standard Deviations for the Amount and Accuracy of Report Material across Interviewer Job-Category and Level of Education

Report Amount

Job-Category	Pre-school			8-10 Year-olds			Young-Adults		
	n	<u>M</u>	<u>SD</u>	n	<u>M</u>	<u>SD</u>	n	<u>M</u>	<u>SD</u>
Educ-Couns	5	18.8	6.4	8	61.9	22.3	12	59.9	21.5
Psychology	11	26.2	11.4	8	74.8	27.8	9	84.0	46.9
Law	4	20.8	21.4	7	70.1	21.6	5	91.4	32.1
Policework	7	35.0	19.9	4	70.5	17.7	1	33.0	.0
Social Work	10	27.5	11.8	11	70.3	22.8	9	47.6	13.2

Degree	Pre-school			8-10 Year-olds			Young-Adults		
	n	<u>M</u>	<u>SD</u>	n	<u>M</u>	<u>SD</u>	n	<u>M</u>	<u>SD</u>
No Degree	7	35.9	19.5	5	72.0	23.7	3	41.7	7.5
BA	10	21.4	6.7	8	69.8	14.5	4	56.8	8.0
MA/LLB	10	27.6	16.7	21	71.3	24.1	24	67.3	25.6
Ph.D.	10	24.4	12.0	4	55.8	28.1	5	89.8	67.2

Report Accuracy

Job-Category	Pre-school			8-10 Year-olds			Young-Adults		
	n	<u>M</u>	<u>SD</u>	n	<u>M</u>	<u>SD</u>	n	<u>M</u>	<u>SD</u>
Educ-Couns	5	83.7	9.6	8	93.6	4.2	12	95.5	3.7
Psychology	11	85.6	5.4	8	90.6	3.8	9	94.9	4.2
Law	4	73.4	12.6	7	93.2	2.2	5	95.0	2.8
Policework	7	88.4	6.3	4	93.7	3.3	1	94.0	.0
Social Work	10	83.2	8.7	11	93.2	4.6	9	95.3	2.9

Degree	Pre-school			8-10 Year-olds			Young-Adults		
	n	<u>M</u>	<u>SD</u>	n	<u>M</u>	<u>SD</u>	n	<u>M</u>	<u>SD</u>
No Degree	7	87.7	6.1	5	93.2	3.1	3	95.1	2.4
BA	10	82.3	9.0	8	93.8	4.1	4	94.8	2.7
MA/LLB	10	78.9	9.8	21	92.7	3.9	24	95.4	3.6
Ph.D.	10	87.9	5.9	4	90.6	4.6	5	94.7	3.9

Appendix L

Scoring Details

A. Spontaneous Recall: Control Condition

For the two younger samples, additional question prompts used in the control condition were first reviewed in order to ensure the conservative criterion was observed. Material elicited by questions which did not meet the criterion (five points involving three pre-school subjects) was excluded from the scoring. The content of subjects' spontaneous recall was then divided into three types of units termed correct details, inferences and errors.

1. Correct Details

Correct details of information or memory points referring to action or descriptive content were classed as simple or complex. Simple details were identified as any person, object, action, event, state, description or location recalled by the subject and readily observed in the film. Once identified, the item was not scored again unless it referred to a separate action, event or state. In the example below which illustrates four details, and all examples to follow, the boundaries of the details are underlined.

e.g. Subj.: The boy pushed the car into the water.

Complex details were identified as idea units which indicate a more abstract understanding of the film content as in the use of terms such as 'threat,' 'coercion' and 'revenge' or the if-then logic of the teenagers' threat. The subject thus demonstrated the ability to abstract different relations and to infer antecedent and consequent conditions. As can be seen in the example below, a complex detail (indicated by braces { }) may encompass a number of simple details.

e.g. Subj.: {They were going to throw his boots in the water if he didn't give them the balls}.

2. Inferences

Inferences were identified as interpretations or conclusions derived from the logic of an observable sequence of events and classed as one of five types. In all examples below, inferences are enclosed by the circumflex (^).

1) Practical Inferences (I1): Inferences which were reasonable and obvious, such as filling in an obvious gap due to the lack of an ongoing sequence of events, were identified as practical inferences.

e.g. Subj.: In the morning ^he got dressed^

2a) Semantic Inferences (I2S): Imposed meanings which were directly tied to the context but not obviously indicated in the film (i.e. reasonable but not obvious) were identified as semantic inferences.

e.g. Subj.: ^He rigged up his own scooper^

2b) Evaluation and Exaggeration Inferences (I2E): Imposed meanings which were identified as evaluations or exaggerations of the film content were classed in this group. As can be seen in the following examples referring to the teenagers, this type of inference may contain subjective and evaluative components.

e.g. ^disgusting types^ e.g. ^rowdy boys^
 e.g. ^headbanger types^

3) State Inferences (I3): Obviously correct inferences regarding a character's feeling (e.g. unhappy, depressed), state of mind (e.g. thinking, reluctant), character attribute (e.g. bullies, mean) or motivation (e.g. wanted to scare) were identified as state inferences.

e.g. Subj.: The two older boys were ^mean^ to him.
 e.g. Subj.: He just sat there ^thinking^

4) Future Inferences (I4): Any action or state which could reasonably follow the sequence of actions in the film was identified as a future inference.

e.g. Subj.: ^boy went home^ at the end
 e.g. Subj.: ^the boy ran across the bridge home^ (093)

In cases where an inference shared more than one inference sub-type (e.g. state and future inference), the future inference overrode all other inference types.

5) Incorrect Inferences (I5): Incorrect inferences were identified as comprehension errors i.e. an obvious mis-understanding or mis-interpretation of the film contents. In the examples below incorrect inferences are enclosed in square brackets.

e.g. Subj.: The boy could push the car [^because he had strong muscles^].
 e.g. Subj.: Boy hears a [^car^] from the house.

3. Errors

Spontaneous recall error material was classed in terms of its relation to the actual film content. Nine error sub-types are outlined as follows:

1) Mis-Perceptions (E1): Mis-identifications of actions, people, objects, functions or locations were scored as mis-perceptions and included elaborations of action or descriptive content which was not actually shown. Errors in the examples below, and all examples to follow, are enclosed in square brackets.

e.g. [turned on] the car
 [caddy]
 washed balls [at home]
 fighting over [balls]
 boy [swings at] the ball
 [tossing and turning] (in bed)
 teens arguing over [balls]

2) Modifier Errors (E2): Modifier errors were classed in one of two groups, along the adjective-adverb distinction. Descriptive errors (E2M) were incorrect items referring to colour, quantity or type e.g. [sweat]-shirt, [police]-car, [convertible] etc.. With the exception of the boy's footwear, all errors in reference to clothing were also classed in this group.

Errors referring to incorrect descriptions of action, dialogue, manner or style were classed as E2L errors and included 'turns of phrase' or figurative expressions which were not further elaborated, clearly misleading or 'not quite right.' Errors referring to the film dialogue were also classed in this group.

- e.g. Subj.: The boy [walked] out of his house.
 e.g. Subj.: Give us the balls [please].
 e.g. Subj.: [Get in the car kid].

Although it was unclear in some cases whether an error should be classed as a misperception, a modifier error or an incorrect inference, misperceptions generally involved some kind of action as opposed to the remaining two error types.

- e.g. Subj.: Water went to the other side of the [[^]farm[^]].

3) Sequential errors (E3): Sequential errors were identified when correct items or state inferences which were misplaced in the sequence of film events. This did not include omitted material in the sequence of events. In the example below, the sequence error is counted in addition to the scoring of the item points.

- e.g. Subj.: He pushed the car [and then] sat on the swings.

Due to limitations in narrative sequencing abilities, sequence errors were not classed in the spontaneous recall of pre-school subjects.

4) Direction errors (E4): Direction errors were identified as reversals in the description of an action (e.g. boy [putting balls in] the water vs taking them out) or transaction (e.g. boy wanted to [buy] vs sell the balls).

5) Pronoun Errors (E5): Pronoun error were identified as the incorrect use of a pronoun, e.g. 'his' car' instead of 'their car'.

6) Vocabulary Errors (E6): Vocabulary errors were identified when the material was incorrect or inappropriate for the action, object or state described but contained some aspect of correct semantic content. Explanations are enclosed in parentheses.

- e.g. the boots [melted] (instead of 'sank')
 e.g. [stars] on the car (rather than flowers)
 e.g. they looked like [robbers] (125)
 e.g. he was [in the ocean] (rather than the stream)
 e.g. boy found [eggs] (rather than golf-balls)

7) Estimate Errors (E7): Estimate errors were identified as obviously incorrect estimates of age, size or distance etc..

8) Fabrications (E8): Fabrications were identified as significant additions which clearly contradicted the film content and distinguished from mis-perceptions and incorrect inferences by their 'made-up' quality.

- e.g. Subj.: The man pushed the car and got the other man. (E8) (071-74)

9) Extended Errors (x+): The final error category was identified when an initial error was elaborated by the subject and thus classed as an error extension (E+). In the example below, the initial sequence error (E3) is followed by its error code in parentheses and then the error extension.

- e.g. Subj.: The boy took the balls home (E3) to clean.
 And then he came back to the golf-course. (x+) (053)

B. Blind and Informed Conditions

Since the content and length of each turn-pair varied tremendously both within and across interviews, a combination of quantitative and descriptive scoring was applied to each turn-pair across the following ten categories:

1. Spontaneous Recall Content
2. Interviewer Content
3. Question Formats
4. Question Status
5. Question Features
6. Response Codes
7. Response Status
8. Response Features
9. Retractions
10. Error Classifications

The first category involved two spontaneous recall units in addition to those identified as correct details, inferences and errors outlined for spontaneous recall in the control condition. Categories two through five applied to interviewer material and categories six through nine applied to subject material. The ninth category identified the manner in which errors were corrected or retracted and the tenth category screened both spontaneous and closed question errors for those associated with various elements of context (discourse features) as well as errors which could be clearly attributed to the subject's developmental status (i.e. cognitive and linguistic abilities).

1. Spontaneous Recall Content

Regardless of the manner in which recall was elicited, subjects' spontaneous recall content was scored first, according to the simple or complex items, inferences and errors as outlined in the control condition. Three additional units were scored as follows:

1) **Negative Points:** If a subject defined an item by its absence (i.e. offered a negative definition), it was scored if it added meaningful detail not recalled in any other form. In the examples below and all examples to follow, the question and response are separated by a slash (/).

e.g. Int.: What was his (the boy's) reaction? / He didn't cry.

Spontaneous errors were also assigned in cases where the subject stated 'X' was not the case when it actually was the case.

e.g. Subj.: It (the scooper) wasn't a strainer. (E1) (082-95)

2) **'Didn't Show Status'(\$):** If a subject spontaneously recalled 'It didn't show X' the material was assigned 'didn't show' status (\$).

2. Interviewer Content

Interviewer utterances or statements which did not focus on the film content were classed in a general content category and included rapport-building material, non-specific turn-taking utterances (e.g. 'Uh-huh'), task orientation and instruction, reinforcements, exclamations and general comments.

3. Question Formats

Questions regarding the film content were classed in one of four formats according to the focus of information requested or the type of information advanced for confirmation. In cases where

two or more questions occurred within one turn, each question was numbered in sequence and scored as follows:

1) **Open Format:** Open format questions requested information and ranged from a general to specific focus.

- i) **General-Open (T1)**
 - a) Tell me about the film.
 - b) What was it about?
 - c) What was it like?
- ii) **General-Focus (T2)**
 - a) What else happened?
 - b) What happened after/next?
 - c) How did it start/end?
 - d) What did he look like?
 - e) What was he wearing?
- iii) **Comprehension (T3)**
 - a) Why/how did he do that?
 - b) How did you know/could you tell that?
- iv) **Specific Focus (T4)**
 - a) What colour was the car?
 - b) How many/How old?

2) **Repeat Format:** Interviewers often repeated or paraphrased material from one or more previous turns and gained the subject's agreement or confirmation before asking the next question. Repeat format questions which contained material from or referring to the immediately preceding turn were distinguished from those containing material from two or more previous turns and from those containing a summary of previous material.

3) **Closed Format:** Closed format questions contained or advanced one or more new items of information requiring confirmation by the subject and were classed in one of the following two groups:

- i) **Regular Yes/No Format**
 - a) Did he pick up his boots?
 - b) Was it a sunny day?
 - c) Was anyone hurt?
- ii) **Choice Format**
 - a) Did he stay there or did he go home?
 - b) Did it sink or float?
 - c) Were they little, medium or big?

Questions which required or incorporated an inference occurred in both the open (required) and closed (incorporated) question formats. In these cases, the inference was also coded according to the inference subtypes 1-4 outlined for spontaneous recall content (i.e. practical, semantic, state and future inferences etc.)

i) **Open**

- e.g. Int.: What would he have felt like when they did that? (state inference)
- e.g. Int.: What did the boy do after they ran out of the water? (future inference)

ii) Closed

- e.g. Int.: They got out of the car? (practical inference)
 e.g. Int.: Was the boy playing hooky? (semantic inference)
 e.g. Int.: Was he mad at them? (state inference)

iv) Mixed Format: Questions which maintained the open-closed format distinction despite the surface form prompting a yes/no response were assigned mixed format status. Questions requesting 'more' information were classed as a variation of the general-focus (T2M) or specific-focus (T4M) open question as follows:

- e.g. Int.: Anything more? or What else was it about? (T2M)
 e.g. Int.: Anything more about the car? (T4M)
 e.g. Int.: Do you remember what colour the car was? (T4M)

Questions which combined the open/closed format but maintained the closed format as primary, were classed in the regular closed question group.

- e.g. Int.: Was there any explanation as to why the boy went back to the park?

4. Question Status

To identify the extent to which material advanced in a question was leading in the correct sense (c) or misleading (x), one of four status scores was assigned as follows:

- 1) Primary Status
- 2) 'Didn't Show' Status
- 3) Mixed Status
- 4) Extended Error Status

1) Primary Status: Primary status scores identified the main content or information advanced in closed questions as correct (c) or incorrect (x). In the examples below, the question is followed by a status score in parentheses.

- e.g. Int.: Was the little boy all alone? (c)
 e.g. Int.: Did he (the boy) come out of the pond to talk to the boys? (x)

i) Choice Format: For choice-format questions, each alternative was assigned a primary status score to produce three basic combinations as follows:

- xx - both alternatives are incorrect
 cc - both alternatives are correct
 cx - one alternative is correct and one alternative is incorrect

ii) Multi-Status: Separate status scores were assigned to two or more questions in sequence as well as to single questions which advanced two or more bits of information. The example below contains a practical inference ('Does he leave the pond?'), and a mis-leading closed question ('With his boots on?').

- e.g. Int.: Does he leave the pond (I1-c) with his boots on (x) and go away? (088-99)

For cases in which the material advanced in the question referred to two or more elements and a correct response would be 'yes and no,' the question is scored as two separate questions.

e.g. Int.: And those guys, they were wearing t-shirts too? (c,x) (one teen was wearing a t-shirt)

iii) Incorrect Assumption (WA): Although primary status scores were mainly associated with closed questions, incorrect and usually implicit assumptions contained in open questions were also considered misleading (coded 'WA' for wrong assumption). In the examples below, the explanation is enclosed in parentheses after the slash.

e.g. Int.: Who was in the car when it went in the water? (WA) / (No-one was in the car.)

e.g. Int.: Show me. We can make a pathway here. (WA) / (No pathway was shown.)

2) 'Didn't Show Status: To distinguish questions regarding an obvious fact which was not indicated in the film, from those incorporating inferences or incorrect assumptions, the 'didn't show' status (coded \$) was assigned to both open and closed questions (including those involving inferences).

a) Open Question

e.g. Int.: What was the boy's name? (\$)

e.g. Int.: Where did the paddle (E6) come from? (\$) (061-101)

b) Closed Question

e.g. Int.: Did the boy have a name? (\$)

c) Questions Involving Inferences

e.g. Int.: What does he want the money for ? (I4-\$) / (094-13)

In cases where the status of the question was unknown or unclear due to ambiguous semantic intent or the use of an external comparison, no status score was assigned.

e.g. Int.: Was the boy just being normal? (069-197)

e.g. Int.: Were they as old as your Dad? (061-122)

3) Mixed Status: Questions which were not clearly leading or misleading, i.e. they required some qualification to the yes/no response to merit a clear correct or incorrect status, were assigned one of two mixed status scores.

i) Interpretation (M1): Mixed status type 1 (M1) was assigned to questions which were open to interpretation along one of the following dimensions:

a) literal vs. pragmatic interpretation (LP)

e.g. Int.: Did they call him? / (The boy noticed them after one teen cleared his throat.)

b) plural vs singular (PS)

e.g. Int.: Did they have golf-clubs in their hands? / (One teen carried one club) (069-109)

c) inference vs. overt behaviour (IO)

e.g. Int.: Did he seem scared? (The boy did not appear scared in his overt behaviour. Note that if subject offered 'the boy was scared' as spontaneous material, a spontaneous point would be scored.)

d) subjective judgement (SJ)

e.g. Int.: Did he run out fast?

e) contextual frame (CF)

e.g. Int.: When the car went into the water there was a man in it? (It is not clear whether the question refers to a man in the car or a man in the water.)

e.g. Int.: Was the boy inside the car? (137-19) (The boy reached inside but did not get inside the car.)

ii) Choice Format (M2): Choice format questions were assigned a mixed status score (M2) when one or both of the alternatives was partially correct, each was correct at a different time in the movie, or the correct answer required additional clarification.

e.g. Int.: Were they boys or men? (155-81)

e.g. Int.: Were they (balls) hard to find or did he know where to go?

e.g. Int.: Did they look friendly or mean?

e.g. Int.: Was it a happy or sad story? (066-46)

4) Extended Error Question Status: Questions which extended or elaborated previous errors were assigned an extended error status score (x+). In the example below, the question is based on the subject's initial error identifying the golf-balls as eggs (E6).

e.g. Int.: How did the eggs (E6) keep from breaking in the boy's pocket? (x+)

5. Question Features

In addition to question format and status, questions were also scored in terms of one or more of the following five features:

1) Tag (T) and Negative (N) Features: As can be seen in the examples below, tag questions and those containing a negative or a combination of both a tag and a negative, incorporate a response bias in that they 'pull' for either a 'yes' or 'no' response.

i) Tags

a) He turned it on did he?

b) So he turned it on huh?

c) He pushed it, right?

d) Blue car. Is that right?

e) Your final shot I assume is the car disappearing under the water is it?

- ii) **Negative** a) He didn't turn it on?
 b) Were they not mad at him for the car?
- iii) **Combination** a) But there weren't any swings in this movie you saw, were there?
 b) They weren't laughing though were they?

4) Specific Features: A variety of additional features characterizing interviewer questions is listed as follows:

Future would question (FW)	Checking question (CH)
Implied question (IMP)	Mis-hears (MH)
Confronts inconsistency (CIN)	Re-labels (REL)
Obviously wrong question (OB)	Requests an external comparison (OSC)
Ambiguous semantic intent (AMB)	Requests an estimate (EST)
Interviewer offers word (IOW)	

5) Structural Features: Structural features were identified as contextual frames of reference which accompanied material relating to task orientation and instructions as well as questions. These features were classed into five major groupings as follows:

- techniques (drawing a picture or making a list of points)
- relational frames (joint venture, "I've not seen the film" or "Today our job is to...")
- re-instate context aids ("Picture in your mind.")
- imposed frames (urge to remember)
- side comments (SC) "That makes sense." or "I don't believe it!"

6. Responses Codes

Responses to questions were distinguished as follows:

NR - no response
 - agreement to non-status material
 O - off-topic material
 \$ - It didn't show that.
 NA - does not answer the question
 IDK - I don't know, I don't remember
 B - Because

1) Expressed Degree of Certainty: Responses to yes/no questions were classed in one of the following 4 categories:

a) Confirm	b) I Don't Know (IDK)	c) Disconfirm
I think so	I don't recall	I don't think so
Sort of	I didn't see that	Not really
Yeah-maybe	I don't remember	Maybe not
	I didn't notice	
	I'm not sure	

d) Equivocal Responses (EQ): The fourth category was reserved for responses which were equivocal i.e. those which did not clearly confirm or disconfirm the material advanced in the question.

e.g. Int.: Posters on the bedroom wall? (x) / Possibly (EQ)

The decision to force less than certain responses into the yes/no category was not arbitrary. Scoring at this stage was restricted to the transcripts and a thorough analysis of the relationship between accuracy and expressed degree of certainty would entail verbal as well as non-verbal information. In addition to response qualifications (e.g. 'I think' or 'sorta'), a hesitant or less than certain quality accompanying the yes/no responses clearly offered information to the interviewer, which was not available when scoring the transcripts. As can be seen in the example below, the hesitant quality in the subject's response influenced the subsequent instruction.

e.g. Int.: Did it (the boy's shirt on the first day) have a collar like this? (gesturing to button shirt) (x) / I think so. (x)
 Int.: Not sure, you don't have to... if you don't remember, you can say I don't remember. / I'm not sure.

7. Response Status

In addition to the accurate and error points assigned to the subjects' spontaneous recall, primary and extended error status scores were assigned to closed question responses as follows:

1) **Primary Response Status:** Depending on the status of the question, including those advancing practical, semantic and future inferences, the subject's response was classed in one of the following possible combinations:

		Response	
		c	x
Question	c	c/c	c/x
	WA or x	x/c	x/x
	cx	cx/c	cx/x
	x+	x+/c	

Examples of questions and responses for each combination follow below:

c/c leading question / correct response

e.g. Int.: Was the car big? / Yes.

x/c mis-leading question / correct response

e.g. Int.: Did the boy cry for help? / No.

WA/c incorrect assumption / correct response

e.g. Int.: What were the teens doing on the lake? / They weren't on the lake.

cx/c choice question / correct response

e.g. Int.: Did he pick up his boots or leave them? / Picked them up.

c/x leading question / incorrect response

e.g. Int.: Did they offer him money? / No.

x/x mis-leading question / incorrect response

e.g. Int.: Were there other kids in the playground? / Yeah.

cx/x choice question / incorrect response

e.g. Int.: Was the car big or little? / Little.

x+/c extended error question / correct response

e.g. Int.: Did he catch any fish? (E1) / No.

i) Status of 'Didn't Show' Responses: 'Didn't show' responses to all closed questions, including those advancing practical, semantic and future inferences, were assigned primary status scores as warranted.

e.g. Int.: What was the boy's name? (\$) / It didn't show. (\$-c)

e.g. Int.: Where'd the paddle (E6) come from? (\$) / They just had it. (\$-c) (061-101)

e.g. Int.: Did the boy get his boots? (c) / It didn't show. (\$ x)

ii) Double Scoring: Although there was a clear distinction between spontaneous and closed question points in most cases, when both occurred in response to a closed question double scoring applied as follows:

a) The closed question and spontaneous material were both correct

e.g. Int.: Did he have shorts on? (x) / No. Pants rolled up. (c,2)

e.g. Int.: Did he find any golf-balls before meeting the guys? (c) / He had about six. (c,1)

b) One response was correct and the other was incorrect

e.g. Int.: Was it a blue car with dots on it? (c) / It was a white car. (x,1) (072-9)

In contrast, if both responses were incorrect, the spontaneous material was considered an error extension as outlined in the next section.

2. Extended Error Response Status (x+)

Responses which extended or elaborated a previous error were assigned extended error status. Depending on the status of the interviewer's question, extended error responses were classed as either single or double extensions, with two or more extensions referring to the same material constituting an error string.

i) Single Extensions: Single extensions were identified when the initiating error was repeated by the interviewer and then extended by the subject. As can be seen in the examples below, the extension is clearly made on the part of the subject.

a) Interviewer echoes the spontaneous error

e.g. Subj.: He put the keys in. (E1)
Int.: Put the key in. (Echo) / And started the car. (x+)

b) Interviewer questions inconsistency created by error.

e.g. Subj.: The boy washed the golf-balls at home (E1).
Int.: When did you see that, because he didn't have any golf balls with him when he got home? (c). / He collected some and he went home before he went back to the stream.(x+)

c) Subject extends closed question error

e.g. Int.: They had long pants on? (x) / No, shorts. (x,E2M+) (061-168)

ii) Double Extensions: In contrast to single extensions, double extensions were identified when the interviewer extended an initial error and the subject either agreed to it or extended it further (x+ / x+).

a) Subject agrees to the interviewer's extension

e.g. Int.: So when he went home did he go to a house? (c) / Yes, (c) a cabin (E1).
Int.: And was that in the bush too? (x+) / Uh, I think so. (x+)

b) Subject further extends the interviewer's extension

e.g. Int.: How did he keep the eggs (E6) from breaking when he took them out of his pocket? (x+) / They were cracked when he took them out.(x+)

e.g. Subj.: Boy was trying to find food. (E1)
Int.: Why was he trying to find food? (x+) / Because he didn't have any money. (x+)

iii) Error Strings: Isolated occurrences of single or double extensions were next distinguished from those which occurred over a sequence of turns, constituting a string of errors. In addition to one or more extensions, error strings varied widely in terms of length, form and content. For practical purposes, strings were classed along two dimensions, the first relating to complexity and the second relating to the content or degree of fabrication.

a) Complexity: Without regard to length, error strings were classed as simple, mixed and complex.

(1) Simple Strings: Simple error strings were identified as a more or less cohesive set of extended error turns, with the boundary clearly defined by a concept or idea unit. In the first example below, three double extensions (with the third assigned repeat format) follow the subject's initial error. Scoring is located in the left-hand column.

e.g. Int.: Do you have any idea how the boy discovered them? (the balls) / He, um, I'm not sure what they're called, but they're something that you can take anywhere. You hold them in your hand and it has something if there's something under the um, ground or something, and un, then it will make a noise. And then wherever it makes the noise, you'll um, look for it and see what it is and that. (E1)

- Int.: It's kind of like those machines that you see people using on great big fields? / Yeah.
 Int.: To find money? / Yeah.
 Int.: Did this little boy have a machine like that? / Yeah. (097-118)

The second example illustrates a simple string containing repetitions as well as extensions.

- e.g. Int.: Was it a long sleeve like this one or a short sleeve? / It was a long shirt sleeve.
 Int.: Oh, a long shirt. / A long, a long shirt sleeve.
 Int.: Oohh. / Short sleeve. Between.
 Int.: Oh, so. Maybe it was up here (points to elbow). Did he have the sleeves rolled up? / Yeah.
 Int.: Did he roll them up in the movie? / Yeah.
 Int.: So he wouldn't get them wet? / Yeah. (130)

(2) **Mixed Strings:** In addition to single or double extension and repetitions, mixed strings contained spontaneous and closed question points (both correct or incorrect).

- e.g. Subj.: The boy was fishing. (E1)
 Int.: Did he catch any? / No.
 Int.: I wonder what would he do with the fish once he caught them? / He would eat them, cook them and eat them, home and cook.
 Int.: He would. How would he get them home if he caught them? / He would cut them and..
 Int.: Cut them yeah. / And then put them in a bucket home.
 Int.: Oh did he have a bucket then to bring home? / No.
 Int.: No bucket. / He would take them in his hand. (079)

The next example, located at a later point in the same interview, demonstrates a shorter string related to the first.

- Subj.: He forgot his fishing rod.
 Int.: What else did he forget? / Fish.
 Int.: You mean he left the fishing rod and everything? /Yeah.
 Int.: So he left the fishing rod and.../ He took the fish home.

(3) **Complex Strings:** Complex strings were identified when the logic of successive question-response turns over-rode any number of previously correct responses, creating complex recursive loops referring back to previous responses either within, or prior to, the string. An example of a complex string is illustrated in Appendix B-3a.

b) **Degree of Fabrication:** Error strings which were anchored in the subject's perception of the film events contained no fabrications. In contrast, strings which involved a clear fabrication were distinguished on the basis of the fabricated content.

Fabrications which embellished some aspect of the film material were classed as film-based fabrications. In the examples below, fabrications (E8) are indicated by bold-type within square brackets.

- e.g. Int.: That's the eight year old that you're drawing now. And they were swimming? (repeats E1) / Yeah.
 Int.: Um-hum. And they were swimming and they saw this car coming fast. / Yeah but [**this guy is run over**]. (E8)

- Int.: Oh oh. So he's smiling and still, he was run over and he's still smiling? / No, he's blaaah.
- Int.: Oh, I see that's the way he is, he's unhappy. / Right.
- Int.: And was he hurt when the car ran over him? / Yeah.
- Int.: Uh-hum. / And there was the guy that pushed the car.
-
- Int.: Did he break something? / Yeah.
- Int.: What did he break? / **His leg.**

Error strings classed as story or fantasy-based contained 'make-believe' or fantasy content which was unrelated to the film even. With one exception, all story-based fabrications began as an embellishment of some aspect of the film material before the 'make-believe story' began to unfold. The distinguishing feature was that the make-believe story became dominant in the subject's responses to interviewer questions.

- e.g. Int.: Somebody was in the sea (repeats E6). What were they doing there? / They were trying to catch some [whales]. (E8)
-
- Int.: So when he pushed it what happened? / It fell in the sea, everybody in the sea got out of the sea.
- Int.: Oh were there alot of people in the sea? / Yeah.
- Int.: How many? / (holds up five fingers)
- Int.: Five people? / Yeah five people.
-
- Int.: So what happened to the boy after he pushed the car in the sea? / The boy was going into the whale and the whale ate the boy. (etc.)

8. Response Features

The subject's contribution was also scored in terms of one or more of the following features:

- 1) changes the topic:
 - i) associates material from external context (ASSOC)
 - ii) immediate context (drawing, microphone etc.) (IC)
 - iii) external context (home, friends etc.) (EC)
- 2) reversal error (REV)
- 3) uncooperative (UNC)
- 4) indicates desire to finish or wants to go (WTG)
- 5) subject questions the interviewer (SQ) e.g. 'What do you call those things?' (130-54)
- 6) unclear reference
- 7) meta-communication ('I didn't say that.')
- 8) ego-centric and concrete responses
- 9) idiosyncratic responses
- 10) literal vs figurative expressions ('his lake')
- 11) no response dilemma (NRD)

9. Scoring of Error Corrections and Retractions

Corrections or retractions of both spontaneous and closed question error were classed in one of the following nine groups.

- 1) Immediately corrected error (ICE)
- 2) Later Spontaneous Correction - Acknowledged (LAT)
- 3) Later Spontaneous Correction - Unacknowledged (DEFAULT)
- 4) Correction after Interviewer Echoes Response
- 5) Retraction after Interviewer Repeats Previous Error in Review
- 6) Correction in Response to Question Regarding
- 7) Correction in Response to Interviewer's Error Extension
- 8) Correction in Response to a Structuring Technique
- 9) Correction in Response to a Checking Question

10. Error Classifications

Spontaneous and closed question errors were screened for those which could be associated with various features in the discourse context and those associated with the subject's developmental status.

1) **Discourse Features:** Discourse features were classed in one of five groups:

(1) **Lack of a Shared Referent (DF1):** In situations where it was clearly apparent that the interviewer and the subject were not referring to the same aspect, temporal frame of reference or subjective judgment about the film detail, a discourse feature DF1 was scored.

e.g. Int.: Was the boy wearing a jacket? (x) / Yes. (x,D1-T) (A jacket was worn on the second day only.)

(2) **Embedded Errors (DF2):** In cases where a closed question error was embedded in the interviewer's summary of film material or in a multi-status question, a discourse feature (DF2) was scored.

D2-1 Error embedded in summary material

e.g. Int.: So the men took off (x) his boots and then after he gave them the balls they threw the boots in the water. / Yeah. (x,D2-1)

D2-2 Error embedded in multi-status question

e.g. Int.: Did he (the boy) take his shoes off? (x,c) / Yeah. (x,c,D2-2) (144-51) (He took his boots off.)

(3) **Momentum Errors (DF3):** Momentum errors were classed according to the degree to which the closed question contained a response bias (i.e. the question pulled for a 'yes' or 'no' response).

D3-1 Question in declarative form

e.g. Int.: He got right in the car. (x) / Yeah. (x)

D3-2 Question with tag form

e.g. Int.: He got right in the car didn't he? (x) / Yeah. (x)

D3-3 Question with negative form

e.g. Int.: Oh but he didn't get in the car did he? (c) / Yes he did.(x)

D3-4 Question with assertive form

e.g. Int.: Oh I know what you mean. It looked like wheat? (x) / Yeah. (x,D3-1) (142-208)

e.g. Int.: Oh he started off playing ball with the man did he? (x) / Yeah. (x-D2) (071-20)

(4) Repeat Process Errors (DF4): The fourth discourse feature encompassed the following three error types:

D4-1) initial correct material, whether spontaneous recall or in response to a question, followed by an incorrect response the second or third time the same or similar question is posed. (130-231)

D4-2) initial 'I dont' know' response followed by an error when the interviewer posed one or more further questions regarding the same material.

D4-3) questions lacking a particular focus

e.g. Int.: What were they all doing? / Nothing.

e.g. Int.: Did they do anything? / No. (097-116)

(5) Accommodation to Prompts (DF5): The final discourse feature identified situations in which errors were associated with an interviewer's prompt or an element of context. These prompts were more indirect than the incorrect material advanced in mis-leading questions and occurred within one or across a number of turns.

D5-1) Subject's error is associated with the interviewer's side comment (SC).

e.g. Int: Someone pushed two men's car in the water? Who did that? / Not me.

Int: No I bet it wasn't. Cars are heavy aren't they? (SC) / But anyway that boy was strong there (I5) and he pushed it into the water. (The tag in this case is considered secondary to the side comment.) (139)

D5-2) Subject's error incorporates material introduced earlier by the interviewer.

e.g. Int.: Rubber boots? (x) / Yeah. (x)

Subj.: ...And the gay said 'Hey they're rubber.' (E2L, D6-2) (148-92)

D5-3) Error occurs after subject has indicated a lack of interest in reviewing the film material or a desire to finish and the interviewer continues.

e.g. Int.: What was scary, can you just tell me about the scary ending? What was it? / Ah, I told you about it.

- Int.: But I don't remember what you said. / I said ah ah ..
 Int.: What was scary about it? / The man pushed it the car into the ocean, and got the other man. (E8)
 Int.: I see, OK, and it just ended there? / Uhm-uhm.
 Int.: And what happened to the little boy? / He got pushed right into the ocean, and he never find his way home.
 Int.: That's the end of the story? / Yeah, that's the end of the story.
 Int.: Why did the man push the car into the ocean? / Cause he wanted to, cause he wanted to.
 Int.: Was the little boy inside it? / Yeah. (071-72, end)

D5-4) The subject's error is associated with a question containing an incorrect assumption (WA).

- e.g. Int.: What kind of shoes was he wearing? (WA) / I forget.
 Int.: Forget. / I think they were runners. (E1,D6-4) (089-158)

D5-5) Error associated with an implicit logic embedded in the question or urge to remember.

- e.g. Int.: How could a little boy push a big car? / The boy was strong (15, D5-5) (062-56)
 e.g. Int.: So what else was famous about that boy? Did he whistle? / Like this. (S whistles)
 Int.: So he whistles a little tune when he walked along? / Yeah. (127-091) (Note: in this example 'what else was famous' is considered the implicit logic.)
 e.g. Int.: Try to remember./ (Baseball fabrication) (144)

2) Developmental Status Error Screen (DVS): The screening of errors attributed to the subject's developmental status error was extremely conservative and included the following:

(1) all vocabulary errors, initial fabrications and ego-centric perceptions

- e.g. creek or stream identified as 'beach'
 e.g. hill identified as 'mountain'
 e.g. the car 'hit' the men
 e.g. Who was in the film? / Me.

(2) estimate errors in relation to the subject's age or size

- e.g. Int.: Was he older than you? (c) / No, he was smaller than me. (x, E7+) (061-24)

(3) comprehension errors involving inferences

- e.g. Int.: Do you think the boy went to school? (c) / No. (x) (137-28)
 e.g. Int.: Could the car have killed them? (c) / No, (x) they just ran. (076)

(4) obvious acquiescence errors

e.g. Int.: Anything on their heads? (the teens) (x) / No, yeah they did...uhm a hat like this. (drawing) (x,E1+) (078)

(5) switch in reference error

e.g. Int.: And then what happened? / He (the boy) just did the thing he wanted to.
Int.: Who, the man did? (x) / Yeah. (x)

(6) responses to evaluation questions

e.g. Int.: Was it a funny movie? (x) / Yeah. (x) (138-68)

(7) responses to open questions type 3

e.g. Int.: Why did the boy push the car? / Because it was old.
e.g. Int.: How did he push the car? / **He was strong.**

(8) responses to obviously misleading questions

e.g. Int.: He went up and knocked on the door of the car and said 'hello, hello, let me in?' (x) / Yeah. (x) (063-77)

(9) mis-perceptions or modifier errors representing the three highest frequency errors

e.g. Subj.: Boy turned on the car. (E1)
e.g. Subj.: Boy was playing. (E2L)
e.g. Subj.: Boy was fishing. (E2L)

(10) Obvious contradictions with no explanation

e.g. Int.: Was the car going down or staying still? / It was going down but it was staying still. (x) (062-136)

APPENDIX L-1

SCORING DECISION RULES

This appendix is organized in nine sections. Sections one through five correspond to basic decision rules involved in scoring turns, spontaneous recall, questions, responses and error retractions. Section six outlines the major issues involved in scoring more complex question/response material and section seven lists the rules for scoring discourse feature and developmental status errors. Section eight lists basic film details as well as scoring examples for particular content.

Familiarity with the stimulus film is required for adequate comprehension of the decision rules outlined in this appendix.

1. Counting Turns

- 1) Non-specific utterances or prompts on the interviewer's part such as 'Huh-huh', 'I see' or exclamations, were generally counted as full turns in the counting of turn pairs.
- 2) The lack of a direct verbal response to a question was considered a response in the counting of turn-pairs (coded NR).
- 3) In distinguishing on-topic from off-topic turns, the former included the following:
 - (1) orienting material referring to task instructions or specific film details
 - (2) material related to the actual drawing of the film content
 - (3) turns involving lengthy fabrications

2. Scoring of Spontaneous Recall

1) Sequential Scoring

- (1) Due to the sequential nature of the scoring procedure, subsequent recall regarding the same material was scored only if it offered new item content.

e.g. The boy gave them the balls, he threw them.

In this example, 'gave' and 'threw' were scored as separate details since 'threw' added descriptive content. If the order was reversed, however, one point would be scored since 'threw' implies that he 'gave' the balls.

Likewise, if a subject initially referred to the child as 'kid' and later as 'little boy,' a maximum of two points would be scored, the first for the reference to size and the second for gender. If a subject referred to the older boys as 'teenagers' and in response to a later question as '16 or 17,' the additional recall was scored as a separate spontaneous point since 'teenagers' encompasses such a wide age-range.

2) Errors

- (1) Repetitions of an initial error were noted but not counted in the total error score for the subject (similar to an initial mathematical error which is carried through a series of calculations). Two errors in a row, in which the second over-rides the first e.g. the balls identified as 'rocks no shells' (034) merited one error point.
- (2) The manner in which errors and sequence interact is illustrated in the example below (with error codes enclosed in parentheses immediately following the error).
 e.g. Boy played (E2L) in the water.
 Boy was catching fish (E1).
 He had a fishing rod. (079)
- (3) Errors having a more idiosyncratic quality e.g. 'he threw the car down' (159-62), following an initially correct description were not included in the error point total.
- (4) Errors immediately corrected by the subject (in a spontaneous fashion) merited an 'ICE' code e.g. 'The boy was dressed in black (E2M) or dark blue'(ICE).
- (5) If the subject replaced a correct item with an incorrect item, the error was scored e.g. 'two guys around twenty, late twenties (E7)'. Errors following initially correct material were coded as reversal errors (CX) and the initial correct point was not subtracted.
- (6) If subsequent recall offered additional information regarding the subject's previous intended meaning, a discourse feature accompanied the initial error score.

3) Dialogue

- (1) Dialogue was generally scored for its semantic content, i.e. whether or not the essence of the communication was clear, rather than the exact wording. Most errors in reference to dialogue were scored as E2L. This rule applied to incorrect descriptions of the manner in which an action occurred e.g. 'Give us the balls please.' as well as slight descriptive errors such as 'These are big ones' rather than 'good ones.'

Although it could be argued that such errors do not appear to be of consequence in the mis-leading sense, they stand as errors since the actual film detail was contradicted according to the fairly strict gist-recall paradigm used throughout the scoring procedure.

- (2) If the subject recalled a character's action or state as dialogue, a point was allowed if there was no other recall concerning the same item point. Examples follow below:

e.g. O.K. I'll sell them to you.
 e.g. The teens said they'll drop his boots in.
 e.g. Excuse me. (rather than clears his throat)

- (3) If the subject recalled the teens saying 'What are you doing?' and the boy responding 'I'm collecting golf-balls,' one modifier error (E2L) was scored rather than two.
- (4) A transcript of the film dialogue with item boundaries follows below:

Teen #1: Uh-hum (Clears throat)
 Boy: (Looks up)
 Teen #1: How're ya doing?
 Boy: Not Bad.
 Teen #1: How many ya got?
 Boy: Six.
 Teen #1: Let's have a look. Maybe we'll buy them.
 Boy: I don't think so. (Begins to move away)
 Teen #1: Guess I'd better set you straight. We're organizing things around here.. for you and everybody. You're gonna have to sell to us. Ya see that? (motions to car parked on hill) Gets us around to all the courses.
 Boy: These are good ones .. at least two dollars.
 Teen #1: Fifty cents..cash.
 Boy: I don't think I want to sell to you.
 Teen #1: (Picks up boy's boots) Ki-id. (dangles boots over water) You don't want to make it hard on yourself do you? Huh? Huh? Huh? (Makes three pretend throws)
 Boy: But I can make more selling to the members.
 Teen #1: It's up to you kid. Are they water-proof?
 Teen #2: We're only trying to do what's best for you boy.
 Boy: (Throws 2 or 3 balls to teen #2)
 Teen #1: Remember if you wanna work around here again, sell to us. (Drops boy's boots in the water)

4) Specific Content Rules

(1) **Integration:** If a subject integrated content belonging to a later point in the film as recall pertaining to an early point in the film, the item was coded (INT) but not scored as an error.

e.g. Subj.: The little boy was looking for golf-balls and he found six. (INT)

In contrast, if the material clearly contradicted the film detail an error was scored.

(2) **Clothing:** Spontaneous recall of basic clothing was scored as well as all responses to questions concerning clothing.

e.g. Subj: The boy wore a blue t-shirt

e.g. Int.: Was he wearing a shirt? (c) / Yes. (c)

With the exception of errors referring to the boy's footwear (E1), errors in reference to clothing were scored as modifier errors (E2M).

(3) **Sounds:** Although the film contained the sound but not the sight of birds, spontaneous recall of 'birds' merited a spontaneous item point. In contrast, 'garbage-truck' was scored as a reasonable but not obvious inference (I2S) since the sound could have been a dump-truck. If the subject specifically mentioned the sound or a garbage or dump-truck, a spontaneous point as well as the I2S inference was scored.

(4) Un-scored Content: Question/response material regarding the following aspects were not scored:

music	quality of film
personal opinions	moral of story
camara shots	length of film or scenes
evaluations of film	obvious material (ears on boy or film was a story or black tires on car)

In contrast, scored material included the fact that the film was in colour, real people were involved rather than cartoon characters and the absence of a title or credits.

(5) Estimates of Age, Size and Distance: Scoring examples of estimates referring to age, size and distance are listed in the final section of this Appendix. Errors with respect to time (e.g. the events over the two days) were scored as regular estimate (E7) errors.

(6) Particular Content Examples:

i) Cost of Balls

Since it was not clear whether the prices quoted (\$2.00 vs \$.50) referred to one or more balls, recall regarding this subject matter was not scored.

ii) Number of Balls

The number of balls shown in various parts of the film was less than clear. The boy actually picked up three balls (one in the grass, one in the bushes and one in the pond). Although seven balls were shown on the grass, he told the teens he found six. He then held two or three 'good' balls in his hand which he showed the teens and subsequently threw to them. Recall not in keeping with the above estimates was scored as an E2M error.

iii) 'Playing' or 'Getting in the Car' (E2L)

Spontaneous references to the boy or teens 'playing' in the water (or the boy 'playing' on the swing) as well as the boy 'getting in' the car were uniformly scored as modifier errors (E2L). Examples follow below:

boy playing in the water	boy got in car and hide
men playing in the water	boy went into car
boy played on swings	boy gets in the car
boy playing with golf-balls	boy hid in the car

Closed questions regarding this material merited a mixed status score and are discussed more thoroughly in Section 5.

3. Scoring of Questions

1) Open Questions:

(1) **Implied Feature:** Open questions which strongly implied but did not explicitly state a particular detail were coded with the implied feature (IMP).

e.g. Int.: And they (the teens) look around..(IMP) / Twenty-five years old. (156-297)

(2) **Incorrect Assumptions:** Assumptions embedded in open questions were not scored unless the assumption was clearly incorrect (in which case the question merited a WA status). Although the question in the example below assumes that something 'happened' at home, the assumption does not merit an incorrect status and the response is scored as spontaneous material.

e.g. Int.: What happened when he got home? / Nothing.

2) Closed Questions

(1) **Repetitions vs. Additional Material:** In cases where it was difficult to determine whether a question should be considered a paraphrase (repetition) of previous material or scored as a new question, the latter prevailed.

A related aspect concerned situations where the interviewer asked a series of questions around the same content. Questions which were the inverse of the first or closely related but from a different angle were scored separately. Obvious clarifications, as illustrated in the example below, were taken into account when deriving the overall accurate and error scores.

e.g. Subj.: The water was shallow.
Int.: The water wasn't deep? (c) / No. (c)

(2) **Regular Closed Questions vs. Inferences:** In determining whether closed question material merited classification as a reasonable but not obvious inference (I2S), the decision was based on the degree to which objective detail in the film supported the assumption. In the first example below, there was no objective detail in the film for the question to merit classification as an inference.

e.g. Int.: Any fishes in the stream? (x) / No. (c) (061-155)

In contrast, the inference in the next example is reasonable (but not obvious) since the boy had collected golf-balls the previous day.

e.g. Int.: Did he go back to collect golf-balls the next day? (I2S-c) / Yeah. (c)

Questions based on subject inferences were scored as regular closed questions.

e.g. Subj.: They (the golfers) were probably members of the club. (I2S)
Int.: They looked reasonably well off? (c) / Yeah. (c) (179-39)

3) Series of Questions: Questions in a series were numbered in sequence and separate status scores were assigned as warranted. Scoring examples follow below:

e.g. Int.: Did he have lots? (c) How many balls did he have? / (163-50)

e.g. Int.: What did he do with the one he scoops up? Did he put it anywhere? (c) / (163-66)

e.g. Int.: Was it like close to his house (I2S-c) or don't you know? (c) Did the movie tell you? (x) /

The next example demonstrates the scoring of three questions over consecutive turns.

e.g. Int.: Did he (the boy) have your colour hair? (c) / He, he had the same. (c)

Int.: Or my colour. (x) / He had the same. (c)

Int.: As you? (c) / Yeah. (c) (125-62-4)

4) Tentative Quality: Questions which were qualified with 'maybe' or 'probably' were scored as regular closed questions.

e.g. Int.: Maybe the golfer is his Daddy? /

e.g. Int.: They probably knew it was him? (who pushed the car)

5) Miscellaneous:

e.g. Int.: Did they have accents at all, any of them? (x) / No, I didn't notice any. (c) (179-28)

e.g. Int.: Did you recognize anyone in the film? / No. (089-35)

4. Scoring of Responses

1) Open Question Responses: In a number of cases, spontaneous recall in response to a closed question appeared to be redundant since the material had already received a spontaneous point. At this point it is important to note that the interviewer was unaware of the film contents. If the material offered additional clarifying detail, as illustrated in the example below, a spontaneous point was scored. This case is clearly distinguished from questions containing the obvious repetition of an earlier item point.

e.g. Int.: How many boys? (young boys) / One.

In a similar fashion, for situations in which the anaphoric reference was unclear, the spontaneous point was allowed.

e.g. Subj.: And he went across the bridge.

Int.: Who went across the bridge? / The boy.

In cases where the status of the response was unclear or the material offered no additional meaningful detail, a status score was omitted.

e.g. Int.: What kind of voices did they (the teens) have? / Deep. (097-71)

e.g. Int.: Where did the car go? / Down this way. (indicates on drawing) (130-199)

e.g. Int.: And then what happened? / He just did the things he wanted to. (071-23)

e.g. Int.: What does he want the money for? (I4-\$) / To do things that whatever he wanted to. (094-13)

Responses indicating accurate comprehension merited a spontaneous point. In the example below, the individual item points were previously scored and the entire response merited a complex spontaneous point (within the braces).

e.g. Int.: How come he did that? What do you think made him do that? (push the car) / {Cause they took his golf-balls and threw his beots in the water}. (156-258)

Although omissions in the sequence of film events were not scored as errors in the scoring of spontaneous recall, omissions in response to questions did merit error status. In the example below, the omission of the entire bedroom scene merits a sequence error and note that 'at the pond' would also receive a correct item point if the location had not been mentioned previously.

e.g. Int.: Where did the new scene take place? / [At the pond.] (E3) (110-348)

2) Closed Question Responses: In cases where previous material reflected on the status of a closed question response, the response was scored accordingly. In the example below, the subject had previously recalled the presence of 'trees,' and the response appears to be in reference to a different occasion in the sequence of film events. Had 'trees' not been previously mentioned, the closed question part of the response would merit an error score.

e.g. Int.: Were there trees? (c) / (NA) There was a bunch of bushes. (097-179)

If the subject did not mention the two golfers or two people in the golf-cart, when questioned about other 'people' in the film, an error was scored. If one of the two was mentioned at some point prior to the question about other 'people,' the error was not scored since the golf-cart detail was brief and the people were not clearly shown.

e.g. Int.: Any other golfers or adults in the film? (c) / No. (x)

e.g. Int.: Other adults in the film besides the golfers? (x) / No. (c)

Questions classed as a type three inference were considered similar to closed questions for scoring purposes.

e.g. Int.: Did the older boys know he had eggs (E6) in his pocket? (I3-c) / Yes. (c)

If the interviewer relabelled a detail and it was mis-leading, the error was scored if the subject did not clarify. In the example below, a discourse feature was also scored because the initial material was correct.

e.g. Subj: He threw the balls.

Int.: So the little boy just pitched them at them? (x-REL) / Yeah. (x, D4-1) (156-46)

If the subject responded correctly to a question containing a repeated error, the closed question point was scored as accurate. Likewise, if the subject repeated an error to a question assigned correct status, the error was counted twice.

e.g. Subj.: The boy found two (E2L) balls in the water.

Int.: Only one ball before the boys (teens) came? (c) / He got two balls. (x) (087-

174)

In cases where the subject responds to the interviewer's side comment as though it were a question, a regular closed question and response are scored.

e.g. Int.: I hope he smashed them with the golf-clubs. (x) / No. He pushed the car. (c) (096-26)

e.g. Int.: Oh, it (the car) sounds pretty flashy. That would be a pretty flashy car if we saw that driving down the street wouldn't it? (SC) / I saw it driving. The guys were driving it. (156-155)

If the interviewer offers a word to express the subject's non-verbal response, it was scored as a regular closed question and response.

e.g. Int.: How did he (the boy) look? / He looked like this. (S makes a face)
Int.: Smug? (x) / Yeah. (x) (159-143)

Four distinctions were made with respect to choice format questions as follows:

- i) Choice format questions containing one alternative from previous recall were scored as if the material were new.

e.g. Subj.: The boy pushed the car.
Int.: Did he drive it or push it? (xc-repeat) / No, he just pushed the back end. (c,1) (125-22)

In cases where the question alternatives were not mutually exclusive and the initial response was repeated, the response was considered a repeat.

e.g. Subj.: They walked away.
Int.: Were they laughing or did they just walk away? (cc) / They just walked away. (c-repeat) (084-66)

- ii) If the alternatives in a choice question offered two or more examples of a particular detail rather than an either/or choice, the question was scored as a regular closed question with one alternative.

e.g. Int.: Did either one have a mustache or a beard? (x) / No. (c) (170-65)

e.g. Int.: Was there a Daddy or a Mommy? (x) / No. (c) (079-10)

In contrast, correct responses to choice questions with correct alternatives (cc) were scored separately.

e.g. Int.: Was it a fixed-up car or was it run down? (c,c) / Umm once fixed up, slightly run down though. (c,c) (177-51)

- iii) For choice format questions in which one alternative contained an inference, a primary status was assigned in the regular fashion.

e.g. Int.: Did he stay in the creek or get out of the creek? (x,I1-c) / He got out (c).
(089-218)

(Note: Although the film did not actually show the boy get out of the creek, the question was scored as a choice question and was not considered a practical inference (I1) in this case.)

- iv) A final example illustrates the scoring of choice format question/response material in reference to sounds. Since reference to music was not scored, the response was considered an error.

e.g. Int.: Were there any bird sounds or any kinds of sounds? (c) / Uh, music. (x) (178-108)

5. Retractions

(1) Immediately corrected error (ICE)

e.g. Subj.: First there was this kid, like in the bushes there was someone [playing] (E2L) golf-balls, looking for golf-balls. (ICE) (081-6)

(2) Later Correction (LAT) Acknowledged by Interviewer

e.g. Int.: How many people in the sea (E6)? / Five.
(Two turns later the subject refers to 'two' people in the sea.) (067)

(3) Later Correction by Default (DEF) (Unacknowledged)

e.g. Subj.: Boy had one club and one (E2M) golf-ball. (Later the subject refers to the boy picking-up 'golf-balls')

e.g. Int.: Was the little boy older than you? (c) / Uh-huh (No). He was smaller than me. (x,E7+)

Int.: (180 turns later) How old was the little boy? / I don't know. (061-24,204)

(Note: Although the closed question error was retracted, the spontaneous estimate error remains.)

(4) Retraction after Interviewer Echoes or Refers to Preceding Response (E)

e.g. Subj.: They were friends (I5) (the three main film characters).
Int.: They were friends? / They were not. (74-197)

e.g. Subj.: One boot didn't get wet (or wrecked).
Int.: One went in the pool (E6) and one didn't go in the pool? (x) / Yeah. (x)
Int.: Is that right? / Two went in. (c) (70-118)

e.g. Subj.: He's (the boy) wearing blue pants, sneakers (E1), I think...
Int.: Sneakers? / Well yeah..
Int.: OK. / No, sorry, he was wearing boots. (162-36)

(5) Retraction after Interviewer Repeats Previous Error in Review (Rep)

c.g. Int.: So this little boy didn't go to school. (x-repeat) / I didn't see him go. (062-36)

(6) Correction in Response to Further Questioning (QB)

c.g. Subj.: He pushed their car in the river.
 Int.: He pushed their car? / Yeah. Their car, their convertible. (E2M)
 Int.: (118 turns later) Did it (the car) have a roof on it? / Yeah. (066-166)

(7) Retraction in Response to Interviewer's Error Extension (x+)

c.g. Subj.: Back at his house (the boy was) looking out the window and I guess a bus (15) or something came and took him to the golf-course.
 Int.: Did this guy live in the city, when you said he took the bus, took the bus from ... (x+) / I don't know if it was a bus but it looked like it was probably uh near a city. (095-41,47)

c.g. Subj.: Car bashed into two men (E1).
 Int.: Did it hurt the men? (x+) / No, it just missed them. (c) (076-13)

c.g. Int.: So what did he do when his boots were thrown in the pond? Did he go after them? (c) / No.(x)
 Int.: So he must have gone home in his sock-feet or something? (x+) / No, actually he wore them home. (c,1) (120-30)

(8) Correction in Response to a Structuring Technique (STR)

c.g. Int.: You know what this is like a test... and I'm, gonna be tested. / (subject then begins retractions) (125)

c.g. Int.: Tossed all six balls? (x) / May have.(x)
 Int.: Close your eyes. / He didn't toss all six. (117-58)

c.g. Int.: Did it (boy's shirt on day one) have a collar like this? (pointing to button shirt) (x) / Um yeah, I guess. (x)
 Int.: Not sure, you don't have to, if you don't remember you can say that 'I don't remember.' / I'm not sure. (159-20)

(9) Correction In Response to a Checking Question (CH)

c.g. Int.: Did he (the boy) hit the ball in the water? (x) / I think he threw it in the water (c) (15).
 Int.: Did you see him throw it in the water? (x) / No. (c) (069-159,165)

Note that in cases where the subject makes an obvious attempt to correct a previous error and the new material is itself an error, the correction is scored and the new error stands as spontaneous error.

e.g. Int.: He found six in the water? (x) / Yeah. (x)
Int.: --/ Or three or four and a couple in the field (E2M)

A final example illustrates an initial error associated with a discourse feature which is subsequently corrected

e.g. Subj.: The next day.
Int.: So it was the next day. / No, the same day (x,D4-1)
Int.: So not the same day. / I'm not sure, probably the next day.
Int.: Could have been the next day. / Yeah. (093)

6. Major Scoring Issues

This section outlines decision rules regarding the scoring of more complex material under the following headings:

- 1) Double Scoring
- 2) Double Scoring vs Error Extensions
- 3) 'I Don't Know' Responses
- 4) 'It Didn't Show' Status
- 5) Change of Status Responses
- 6) Multi-Status Questions and Responses
- 7) Mixed Status Questions and Responses
- 8) Evaluation Questions
- 9) Extensions and Strings
- 10) Cross Reference Examples
- 11) Discourse Feature Errors
- 12) Developmental Status Errors

1) Double Scoring: Although there was a clear distinction between spontaneous and closed question points in most cases, double scoring occurred under the following two conditions:

- (1) If the subject answered a closed question directly i.e. with a yes/no response, and offered additional spontaneous recall, both responses were scored regardless of whether the closed question response was correct or incorrect. In the examples which follow, a comma separates the response status from the spontaneous recall points in parentheses.

e.g. Int.: Were there other kids in the playground or..? (x) / Uh no. I think he was all alone. (c,1) (1 '8-77)

e.g. Int.: Did you get a chance to see in the movie what the inside of the car was like? (c) / Yes. It was black with moving stuff in it. (c,2)

- (2) If the subject **did not** answer a closed question directly (i.e. with yes/no) but offered spontaneous recall in response to the question, the yes/no response was considered implicit and therefore scored in addition to the spontaneous recall points. This rule applied to both correct and incorrect spontaneous recall.

e.g. Int.: Did the teens physically push him or throw him or (x) / Uh - they didn't touch him at all. (c,1) (179-3)

e.g. Int.: Were they coloured swings? (c) / [Greyish-brown] (c,E2M)

e.g. Int.: He must have put his hand in the water. (x) / Well he had a little gadget of some sort to> <lift them up. long scooper sort of thing. (c,2)

e.g. Int.: Did he say anything at that point? (x) / When the boys were there he did. (c,1)

e.g. Int.: Were his pants quite loose? (x) / They weren't tight or anything. (c,1) (117-156)

e.g. Int.: Young teens or older teens? (xc) / 16 or 17. (c,1)

e.g. Int.: Did the boy have a sweater or a jacket? (xx) / A shirt. (c,1)

- (3) In cases where the closed question and spontaneous responses were mutually exclusive, double scoring also applied.

e.g. Int.: Was it a convertible? (x) / Hardtop. (c,1)

- (4) In cases where the status of the implicit response is unclear double scoring was not applied.

e.g. Int.: Do you see the boy walking? (c) / He's in a bush. (158-117)

- (5) If the spontaneous material indirectly ruled out the incorrect alternative in a choice question response, double scoring was applied. In the example below, although 'river' was considered a correct alternative, stream was considered more correct and therefore scored as a spontaneous point.

e.g. Int.: Was it a river or a lake? (cx) / A stream. (c,1) (061-154)

The second example illustrates a choice format question in which the alternatives are not mutually exclusive.

e.g. Int.: Do they (the teens) have their shoes off or are they standing on the bank or ...? (cx) / They, they were actually in the stream. (c,1) (164-189)

- 2) Double Scoring vs. Error Extension:** Spontaneous error which elaborates an initial closed question error was, for the most part, scored as an error extension.

e.g. Int.: So he individually threw one ball after the other to them, is that right? (c) / No, first single then two together. (x, SE+) (169-65)

The spontaneous material in these cases was classed in one of three groups as follows:

(i) The spontaneous error did not follow directly from the initial closed question error.

e.g. Int.: They had long pants on? (c) / No. (x) Shorts. (E2M+) (061-168)

e.g. Int.: What was the boy doing outside at night-time? (WA) / Playing. (x,E2L+) (072-186)

(ii) The second group involved estimate errors following an initial closed question error. In the first two examples, the spontaneous error merits extension status because it is a direct elaboration of the initial error.

e.g. Int.: Was the lake on a golf-course? (c) / No. (x)
Int.: No? / It was far away from a golf-course. (SE+) (062-220)

e.g. Int.: Was he a boy like you? (x) / He was four. (x, E7+) (135-127)

e.g. Int.: Was he older than you? (c) / No. Smaller. (x,E7+) (061-24)

e.g. Int.: Like a big long club? (c) / That long (S holds hands 12 inches apart) (x,E7+) (139-84)

In the next two examples, although the closed question is correct, the spontaneous material is incorrect.

e.g. Int.: Was the little boy as big as you? (x) / No, he was three. (c,E7) (071-49)

e.g. Int.: Was the pond the size of this room? (x) / Smaller. (c, E7) (110-334)

(iii) The third group involved estimate errors following incorrect responses to choice format questions.

e.g. Int.: Was it (pole) as long as your arm or longer? (xc) / About that long (indicating 18 inches). (x,E7+)

e.g. Int.: Young men around Dad's age or grandpa's? (xx) / Maybe around 35 years-old. (c,E7) (158-101)

e.g. Int.: As big as me or not quite? (cx) / Higher (c,E7) (147-69)

3) 'I Don't Know' Responses: Although 'I don't know' responses to open and closed questions did not generally enter into the scoring of recall accuracy, they were considered in two circumstances.

(1) In the first example, the error regarding the pyjamas followed an initial 'I don't know' response and therefore merited discourse feature (D4-2).

e.g. Int.: Did he have his pj's or clothes on when he got up? (xc) / I don't know.
Int.: Huh-huh. / I imagine he was probably dressed in his pj's. (x,D4-2) (173-91)

- (2) The second situation involved cases in which the 'I don't know' response is elicited when the material in question was not actually shown. In the example below, since the subject has not indicated the material was not shown, the response is not scored as a correct closed question point.

e.g. Int.: Who were they? What were their names? (\$) / I don't know. (c)???? (074-78)

In contrast, the next example illustrates a checking question which places the subject's 'I don't know' response in context.

e.g. Int.: How come he went back on the second day? (\$) / I don't know. (c)
Int.: It didn't tell you that? (Ch-c) / No. (c) (156-244)

4) 'Didn't Show' Status: 'Didn't show' responses to all closed questions, including those advancing practical, semantic and future inferences, were assigned primary status scores as warranted.

e.g. Int.: Where'd the paddle come from? (\$) / They just had it. (\$-c) (061-101)
e.g. Int.: Do you think Mom and Dad were mad? (\$) / It didn't show. (\$-c) (069)
e.g. Int.: Did the boy get his boots? (c) / It didn't show. (\$-x)
e.g. Int.: Did they (the teens) run away (on day one)? (x) / It didn't even show them walk away. (\$-x) (175-108)

e.g. Int.: Did he hop over to the water (\$) (after he took his boots off) or what did he do? ((I2S-\$) / He walked. (c,I2S) (087-142)

In cases where the question involved an inference and the subject indicated the material was not shown, a regular closed question point was scored.

e.g. Int.: A car pulls up. (I1-c). / You didn't see it pull up. (\$-c) (110-52)

'Didn't show' responses combined with 'I don't know' were assigned primary status scores, with the order of the two responses reflected in the scoring. In the first example below, discourse feature D4-2 is not scored since the 'I don't know' response is secondary to the 'it didn't show.'

e.g. Int.: So he was going to sell the balls? (c) What was he going to do with them? / I don't know, it didn't show. (IDK,\$-x) (093-43)

e.g. Int.: Do they go back to their car? (c) Do they take the balls? (c) Do they put them in their pocket? (I2S-\$) / I didn't see the balls being touched. (\$-x)

e.g. Int.: And it ends with the car in the stream? (c) / I don't remember. I don't think it ends with the car in the stream but I can't remember. I think there was something else, I just don't remember. (x) (179-112)

Although open questions regarding the age of the film characters technically fall under the 'didn't show' status, the common practice of estimating a person's age warrants an exception to the general rule. If the subject offered an age estimate, the question was scored as a regular open question. In the few cases in which the subject mentioned that the age was not indicated, the 'didn't show' status was assigned to the question and a correct status to the response. Examples in both the open and

closed question format follow below.

e.g. Int.: How old was the boy? (\$) / It didn't say. (\$-c) (144-6)

e.g. Int.: Do you know how old the boy was? (\$) / It didn't say. (\$-c) (144-6)

Affirmative responses to questions regarding the name of a film character were scored as closed question practical inferences. (133-100; 135??)

e.g. Int.: Did the boy have a name? (I1-c) / Yes. (c)

A variety of examples illustrating 'didn't show' and 'I don't know' responses in combination with inferences and checking questions follow below:

e.g. Int.: What was the boy's name? (\$) / It didn't show. (\$-c)

e.g. Int.: Did the boy have a name? (\$) / It didn't say. (\$-c)

e.g. Int.: Did it (the car) sink? (x) / I didn't get to see it. (\$-x) (091-91)

e.g. Int.: Did the boys take off their shoes too or were they wearing their shoes? (cx) / I don't know, just showed up to their knees. (IDK, 1,\$-x) (089-282)

e.g. Int.: Do you know what city it (the movie) was in? (\$) / No. (c) (144-73)

e.g. Int.: Did you see the colour of his eyes? (\$) / No. (c) (144-73)

e.g. Int.: Do you know how far away it (the boy's house) was from the golf-course? (\$) / No. (c) (144-153)

e.g. Int.: Was he uh..in the summertime or was he supposed to be going to school did it say (\$) / (S nods no) (c) (145-18)

e.g. Int.: Where did they (the teens) put the balls? / I don't know, it didn't show. (IDK,\$-x) (156-138) (The balls were put on the grass.)

e.g. Int.: It was a park.. It wasn't like a playground in a school? (c) / No. (c)
Int.: Could you tell it wasn't hooked on to a school? (\$) / Well because... it didn't show. (\$-c) (097-219)

e.g. Int.: Did he (the boy) give it (the ball) to his best friend? (x) / I don't think I see'd his best friend. (\$-c) (069-136)

e.g. Subj.: He went home.
Int.: It showed him going home did it? / (Ch-x) / Well it didn't really, like the camera just sorta, and he was home and I think just getting up. (c) (175-81)

5) Change of Status: Responses merited a change of status (in either direction) when the subject actually changed the yes/no response.

- e.g. Int.: So this little boy and one of the big boys were fighting over the paddle? (x) / Yeah.. well no.. it was uh.. it was the little boy that pushed it into the water. (x->c) (061-103)
- e.g. Int.: Did it show him coming out of the water? (Ch-I1-x) / No. Oh yeah. He went I think that way (points on drawing) cause that's the dirt road and he went that way. Yeah. (c->x,I1) (097-201)

In contrast, for those cases in which additional spontaneous material clarified the meaning of the initial yes/no response, a discourse feature was scored.

- e.g. Int.: Were the men almost hit by the car? (c) / No because they ran away. (x,D1-A,1)
- e.g. Int.: Like a fishing net? (x) / Sort of but a bit smaller. (x,D1-A) (089-84)
- e.g. Int.: Did they say something when they noticed the car coming? (c) / No. This guy just said 'There's a car coming' so they both...(x,D1-A,E2L) (097-333b)
- e.g. Int.: The man was in the car? (x) / Yeah and he got out. (x,D1-T,I1) (071-11)
- e.g. Int.: Had you seen the boys (teens in the stream) before? (c) / No, just in the movie. (x,D1-A) (078-191)

Cases in which the error was due to a switch in reference between the question and the response were also scored as lack of a shared referent. In the first example below, the subject is referring to the question in the previous turn.

- e.g. Int.: Did he (the boy) give them the golf-balls maybe? / No. This man bigger than you and the little man. (X,D1-A) (121-63)
- e.g. Int.: Same two men at the lake? (c) / No, one was bigger. (x, D1-A) (062-273)
- e.g. Int.: And then what happened? He (the boy) just did things he wanted to .
Int.: Who, the man did? (x) / Yeah. (x)

The final example illustrates a change of status associated with a discourse feature.

- e.g. Int.: One of the mean boys said 'Look out!' and he (tecn #2) saw the car? (c) / Yeah. (c)
Int.: So that was when it was coming down the hill? (c) / Yeah-no, it was just before it crashed into the water. (c->x,D1-A) (099-121)

6) Responses to Multi-Status Questions: Responses to a multi-status question or a series of questions were classed in one of the following groups.

- (1) If the question referred to two people or objects and the correct response was identical for both

references, one closed question point was scored.

e.g. Int.: They had long pants on? (c) / No. (x) (061-168)

The same rule applied if the subject offered spontaneous error material.

e.g. Int.: They had long pants on? (c) / No, shorts. (x,E2M+) (061-168)

- (2) If the question referred to two people or objects and the correct response was different for each referent, the question and response merited two closed question points. In the example below, a discourse feature was also scored since the error was embedded in a multi-status question.

e.g. Int.: Did they (the teens) have long hair? (c,x) / Yeah. (c,x,D2-2)

- (3) If a response referred to just one alternative in a multi-status question without direct reference to other aspects or alternatives, just one closed question point was scored. Although the second error in the first example below appears to be left intact, the subject has chosen the correct response.

e.g. Int.: ..Sec a canoc (x) or just a paddle (E6-c) in the water? (x) / Just a paddle. (c) (061-164)

e.g. Int.: Did he go in the car and undo something? (x,c) / Just looked at something. (x,1) (061-106)

e.g. Int.: So you saw him walk into the water? (CH-I1-x) / Take his boots off. (c) (087-125)(Note in this example the response is repeated material.)

e.g. Int.: This expensive car of theirs rolls in the water and sinks. (x,x) / It may not be that expensive... (c,x, D2-2) (142-65)

7) Responses to Mixed Status Questions: Yes/no responses to questions assigned mixed status were scored according to the following decision rules:

- (1) literal over pragmatic (n=4)

e.g. Int.: Did the boy say why he pushed the car? (x) / No. (c) (061-183)

- (2) literal over generic (singular/plural) (n=7)

e.g. Int.: Did the boy have golf-clubs when he was watching? (the golfers) (x) / No. (c)

- (3) implicit over overt portrayal (n=24)

e.g. Int.: Did he seem scared? (c) / Yeah. (c)

e.g. Int.: Did the think it might hurt somebody? / No. (122-66) (This is S-J n=3)

- (4) contextual frame (n= 32)

e.g. Int: Did he go into the car? (x) / Yes. (c)

(5) choice format (n=32)

- e.g. Int.: Was it modern day or 20 or 30 years ago? (xx) / Not alot of years ago. Only a few.
- e.g. Int.: Was it a happy or a sad story? (M2) / Happy. (066-46)
- e.g. Int.: Did it (the car going into the water) scare the little boy too? (x) / No. (c) (061-294b)
- e.g. Int.: Was he (the boy) driving the car? (x) / No. (c) They weren't driving it. They were out of it and then he pushed it in the water.
- Int.: Oh they got out of the car? (I1-c)/ And then he pushed it in. (c)
(Note that this is an incorrect inference on the int.'s part regarding the sequence of events.) (061-20)

8) Responses to Evaluation Questions: Most responses to questions involving evaluations of film material, particularly those concerning subjective judgement, were not scored.

- e.g. Int.: Did you like it? / Yeah.
- e.g. Int.: Did you laugh? / No. (061-179,245)
- e.g. Int.: Were they very good? (golfers) / Yeah. (062-241)

In contrast, responses which offered detail regarding the film content (or the subject's understanding of the content) were scored.

- e.g. Int.: Did you think that was very nice? (teens throwing the boy's boots in) (x) / No. (c) (062-114)
- e.g. Int.: What's the best part of the film? / The boy pushed the car in.
Int.: Was that funny? (x) / Yeah. (x) (062-378)
- e.g. Int.: Was it (the movie) funny, sad or serious? (xxc) / Serious. (c)
- e.g. Int.: Were they having fun when they were golfing? (c) / Yeah. (c) (062-267)
- e.g. Int.: Was it a big mess when the car went in? (c) / Yeah. (c)(81-56)
- e.g. Int.: Was that funny to you? (x) / No, not really. (c) (155-25)

8) Error Extensions and Strings: Extensions based on an error associated with a discourse feature were considered regular extensions. **Extensions could also be based on inferences.**

- e.g. Int.: From the way that the two older boys were talking, would you have thought that they were still in school or would you think that they might be drop-outs?
Could you tell? (\$) / Um, they might be still in school, they didn't look like the type to have jobs or anything. (EQ??) (179-29)

9) Discourse Features: The scoring of errors associated with discourse features was conservative, i.e. the error was clearly identified with an element of context. Errors associated with the lack of a shared referent for example, had to be fairly obvious and the literal meaning of the response took precedence. Although it could be argued, in the example below, that the subject is referring to the length of the river, the response is incorrect and no discourse feature is scored.

e.g. Int.: You could see the other side? (of shallow lake) (c) / No. (x) (087-116)

For cases in which more than one discourse feature applied to the response, the most obvious feature was scored. In the first example below, the boy in the film was actually wearing different boots. Although the error shared both the momentum and embedded error features, the latter was chosen.

e.g. Int.: So he's wearing the boots next time you see him? (c,x) / Yeah. (c,x,D2-2) (170-29)

In the next example, the error material was initially correct (discourse feature D4-1) and also shared the momentum and lack of a shared referent discourse features. In this case, since the correct material was indicated in the interviewer's report, the question was scored as a multi-status question and lack of a shared referent was the discourse feature chosen.

e.g. Int.: So then they go to the swings, you see them on the swings? (c,x) / Yeah. (c,x, D1-A)

e.g. Int.: Was the car going down or staying still? (xc) / It was going down but it was staying still. (X,D1-T) (062-136)

e.g. Int.: So the boys did offer \$5.00 (E2M)? (c) / No, they didn't give it. (x,D1-A,1),(097-361)

e.g. Int.: And these two men. Um, were they adults, older men, younger men? / Older...15-16. (x,D1-A,1) (097-66)

Additional examples of the lack of a shared referent follow below:

D1-A) Reference to two different aspects

e.g. Int.: Did the boy move in the stream? (c) / No, he stayed in there. (x,D1-A)

e.g. Int.: So he found a whole bunch of balls? (c) / No, I already told you, in the bushes. (x,D1-A)

D1-T Reference to two different occasions in the film sequence

D1-J) Difference in judgement or descriptive terms: In cases where there was an obvious difference in judgement, rather than an unambiguous error, a discourse feature (D1-J) was scored.

e.g. Int.: Was it a big splash? (c) / Not immensely. (x,D1-J)

e.g. Int.: Was the boy mad? (c) / No. Sad. (x,1,D1-J)

e.g. Int.: Were they (the teens) scared? (c) / No, they just ran because they didn't want to get crushed. (x,D1-J) (083-135)

e.g. Int.: Were they in danger? (c) / Not really. (x,D1-J or ??) (162-84)

10) Developmental Status Error Screen: The screening of errors attributed to the subject's developmental status was conservative and involved errors classed as follows:

DVS-1 1a) Vocabulary errors (E6)

e.g. creek or stream identified as 'beach'
 e.g. hill identified as 'mountain'
 e.g. trees or bushes identified as 'forest'

1b) Fabrications (E8)

e.g. boy looking for 'gold'
 e.g. 'bear' in the movie

1c) Ego-centric Perception

e.g. Int.: Who was in the film? / Me. (065)

DVS-2 Estimate errors in relation to the subject's age or size

Although errors regarding estimates of age, height and distance etc. were found in all three age-groups, DVS-2 errors were specific to questions in which the response was relative to the subject's age or size.

e.g. Int.: Was he older than you? (c) / No, he was smaller than me. (x, E7+) (061-24)

e.g. Int.: And these two men. Um, were they adults, older men, younger men? (cxc) / Older...15-16. (x,D1-A plus DVS-2,1) (097-66)

Responses to open questions containing an incorrect assumption were scored as closed question responses. In the next case the error is embedded and thus merits additional scoring as a discourse feature (D2-2).

e.g. Int.: What were they (the teens) doing out on the lake? (x) / Trying to catch..(x,D2-2) (062-83)

DVS-3 Comprehension errors

1) The question required an inference and response was somewhat concrete.

e.g. Int.: Do you think the boy went to school? (c) / No. (x) (137-28)

e.g. Int.: Was the boy mad? (c) / No. Sad. (x,1)

In the next example, the subject does not integrate broader context of question and thus demonstrates a concrete response to some degree.

e.g. Int.: How many balls did he find? / Three. Although the boy was actually shown picking up three balls, he told the teenagers he found 'six.'

2) Subject does not understand the meaning of the term used in the question. Although these

examples are similar to DF-1 (lack of a shared referent), they are considered DVS errors since the error is comprehension based.

- e.g. Int.: Could the car have killed them? (c) / No, they just ran. (x) (076)
 e.g. Int.: So the boys did offer \$5.00 (E2M)? (c) / No, they didn't give it. (x,1,)(097-361)
 e.g. Int.: Were they (the teens) scared? (c) / No, they just ran because they didn't want to get crushed. (x) (083-135)
 e.g. Int.: How many balls did he find? / Three.

Note that in cases where the DVS-3 category is clear but the sub-type is not, leave as DVS-3 only.

DVS-4 Obvious acquiescence errors

Acquiescence errors were scored only when the subject changed a correct response to an incorrect response.

- e.g. Int.: Anything on their heads? (the teens) (x) / No, yeah they did...uhm a hat like this. (drawing) (x,E1+) (078)

DVS-5 Switch in reference error

Switch in reference errors were restricted to cases in which the interviewer attempts to clarify the previous reference and the subject goes along with it.

- e.g. Int.: And then what happened? / He (the boy) just did the thing he wanted to.
 Int.: Who, the man did? (x) / Yeah. (x)

DVS-6 Responses to questions requiring subjective evaluations of the film content

- e.g. Int.: Was it a funny movie? (x) / Yeah. (x) (138-68)
 e.g. Int.: Was it funny when the boy pushed the car in? (x) / Yeah. (x)

DVS-7 Responses to open questions

1) Spontaneous material in response to questions lacking a particular focus (subject avoids work)

- e.g. Int.: What were they all doing? / Nothing.
 e.g. Int.: Did they do anything? / No. (097-116)

2) Spontaneous material which 'makes sense' of the question

- e.g. Int.: Why did the boy push the car? / Because it was **old**. (15).

DVS-8 Responses to obviously misleading questions (OB)

- e.g. Int.: He went up and knocked on the door of the car and said 'hello, hello, let me in?' (x) / Yeah. (x) (063-77)
 e.g. Int.: Do you think he was happy when they threw his boots in the water? (x) / I think he smiled. (x,E1+)

DVS-9 Mis-perceptions or modifier errors regarding the following content material

e.g. Subj.: Boy was playing. (E2L)

e.g. Subj.: Boy was fishing. (E2L)

All references to what the boy was doing when he released the car brake.

e.g. boy turned on the car. (E1) turned the key
 outwired the car etc. undid the clutch

In cases where errors made by older subjects shared identical content with those made in the pre-school group, the errors were classed on a case by case basis. One adult subject for example, described the golf-ball scooper as a 'big spoon' and the material was therefore classed as a semantic difference error (E6).

Errors sharing both discourse feature and developmental status error were classed just once in the initial discourse feature column.

DVS-10 Obvious Contradiction with No Explanation

e.g. Int.: Was the car going down or staying still? (xc) / It was going down but it was staying still. (x) (062-136)

Appendix L-2

Scoring Example

This example begins with the transcript followed by the scoring of spontaneous and closed questions points and the coding of specific errors.

Codes: Accurate recall points are underlined.
 Spontaneous errors are bolded.
 SNY - Subject nods 'yes'
 SNN - Subject nods 'no'

- Int: 1 Um. You saw a film. I haven't seen the film so that's what we're going to do is I would just like you to tell me what uh the film was all about, I haven't seen it so I don't have any idea.
- Subj: Well, this boy was out he was in [a lake]
- Int.: 2 Uh-huh.
- Subj.: ..or a little pond or something and two grown up boys they um came and asked him [if he wanted any boots]. And, and, and they gave him these boots he would, he would have to give them [some money].
- Int: 3 Oh.
- Subj: So, he gave them [some money] and then they dropped the boots in so they couldn't find it so it was a little short one.
- Int: 4 Hum.
- Subj: And then, and then he um pushed the car in.
- Int: 5 Well, where did the car come from?
- Subj: Oh, it was their car. That's where.
- Int: 6 Oh.
- Subj: And then but they, he - the door was left open and they opened he opened the door and did something [with the wire and something].
- Int: 7 Hum.
- Subj: **[Outwired it]**.
- Int: 8 Well?
- Subj: And then he pushed it in.
- Int: 9 Oh. Well where - I sort of lost track of it. These two boys they arrived in a car.
- Subj: Yeah.
- Int: 10a And they - what was the little boy doing in the pond?
- Subj: I don't know.
- Int: 10b Was he swimming, or?
- Subj: No. No. He was, just **[fooling around]**.
- Int: 11 Was he, was he by the pond, or was he in it?
- Subj: In it.
- Int: 12 And so these other two boys arrived in a car.
- Subj: Ya.
- Int: 13 And then they, how did they get his attention? Did they call to him or?
- Subj: No, he saw em.
- Int: 14 Oh, I see.
- Subj: First and then **[he called to them]**.
- Int: 15 Oh, he did?

Subj: Ya.
 Int: 16 And then they asked him after he called to them if they, he wanted to buy a pair of boots?
 Subj: Ya.
 Int: 17 Kinda strange isn't it?
 Subj: Ya.
 Int: 18 Cause you wouldn't think that his - those boots would fit him. Why do you think they they want to try to get him to buy a pair of boots.
 Subj: (shrugs) Cause they were too big. Like ^too big for him^.
 Int: 19 Yeah. That is kinda crazy isn't it. So then what happens - so he decided he was going to buy the boots.
 Subj.: (SNY)
 Int.: 20 And he gave them...
 Subj: The money.
 Int: 21 The money and then one guy didn't give them to him they just dropped
 Subj: No. Ya.
 Int: 22 Dropped them in the water. And then where did they go.
 Subj: Well, he got em.
 Int: 23 He got the boots?
 Subj: Yeah.
 Int: 24 How did he get em?
 Subj: It wasn't a very deep pond.
 Int: 25 Oh, I sec. So he got the boots and then what happened?
 Subj: Then he went home and [that was the end].
 Int: 26 Oh, but you sorta missed the part about the car. What did what happened to the car?
 Subj: it got pushed into the pond. [He got out] and then pushed it in.
 Int: 27 Oh.
 Subj: But, but, but the boy, but the other boys were in there.
 Int: 28 Oh, they were still in the car.
 Subj: No, they were in the pond.
 Int: 29 Oh.
 Subj: They got out of, ^they went into the pond^ and then [the boy got out] and then he pushed it in.
 Int: 30 So, he uh, the the two boys, the two bigger boys went swimming or something and so the little boy got into the car.
 Subj: No, he pushed it in.
 Int: 31 Oh. I get it. You were saying that he that he did something with the wires so I thought maybe he got into the car.
 Subj: Well he, he outwired it and/then
 Int: 32 Oh,/from the outside?
 Subj: No, from the inside.
 Int: 33 Oh, he got into the car.
 Subj: Ya, and then (he got out) and then he just pushed it in.
 Int: 34 That was kinda a neat idea wasn't it?
 Subj: Uh, huh.
 Int: 35 Cause that's what they did with the boots. They dropped them into the water. What did - did you see what happened uh after he pushed the car into the water?
 Subj: They got out.

Int: 36 Hum.
 Subj: And then...
 Int: 37 What did they look like after they saw their car going into the pond?
 Subj: Angry.
 Int: 38 Did they? I'll bet. So what was the little boy doing?
 Subj: ^He went home again.^
 Int: 39 Was he laughing?
 Subj: (SNY)
 Int.: 40 He was pretty happy, eh? He got, they did that to the boots he bought, so he did that to the car.
 Subj: Yeah.
 Int: 41a It sounds like kinda a strange film.
 Subj.: (SNY)
 Int.: 41b What did you think of it?
 Subj: (shrugs)
 Int: 42 Just a short one.
 Subj: Yeah. Short.
 Int: 43 Yeah. Well, it doesn't sound like there is too much other details in there. Is there anything else you can think of to tell me?
 Subj: That's all I remember.
 Int: 44 Was it black and white or was it colour?
 Subj: It was blue and white.
 Int: 45 Sort of black and white with a tint to it.
 Subj: No.
 Int: 46 No?
 Subj: It was just blue and white.
 Int: 47 Do you think/ it was
 Subj: It was/ a blue car with white circles on it.
 Int: 48 Oh.
 Subj: Stay on there (referring to sticker on her blouse)
 Int: 49 Do you think it was - was it an old film or a newer one.
 Subj: Um, I don't know. (Pause) I think it's a new one.
 Int: 50 Oh. And the car what kind of a car was it did it look like it was a newer one or an older one?
 Subj: Older one.
 Int: 51 How old do you think the little boy was?
 Subj: (shrugs) nine.
 Int: 52 So he was older than you?
 Subj: A little. You know what, last night the little girl she was only about, she was only 8 or 9..
 Int.: 53 Uh-huh.
 Subj: and she was in the house all alone. No one there.
 Int: 54 Good heavens.
 Subj: All alone. She was just a little older than me.
 Int: 55 Gee. That doesn't sound very right does it?
 Subj: Uh umm. No one was there.
 Int: 56 Cause if anything goes wrong they're all alone by themselves trying to handle it. How old do you think the older boys were in the film?
 Subj: [Ten].
 Int: 57 So they were just a little bit older than the than the little boy?

Subj: Little girl.
Int: 58 Oh. A little girl was in the pond?
Subj: No.
Int: 59 You were still talking about last night.
Subj: Ya.
Int: 60 I'm back, I'm back to the film. What um, the two
Subj: It was a little boy in the pond.
Int: 61 Right, yes. You said that, O.K., I lost track. Um, the two older
boys that were in the film, how old do you think they were?
Subj: I don't know. 10 or 11 or I dunno.
Int: 62 That would make them just a little bit older than the other boy.
Subj: Ya. The boy that was in the pond I think he was just 8.
Int: 63 What did he look like?
Subj: Hmm, humm, humm I don't know.
Int: 64 Can you describe what he looked like?
Subj: I forgot.
Int: 65 How about the other two boys?
Subj: I don't know. I didn't really see it so well, cause
Int: 66 Ya. Well sometimes in those kinds of films it's hard to tell what
colour people's hair is, but did they have dark hair or light coloured
hair? Like yours is such a pretty light blonde.
Subj: Strawberry-blond.
Int: 67 Strawberry-blond, yes it is gorgeous. I like the braid too. Were
the boys blond like you or were they dark?
Subj: Dark.
Int: 68 All of them? All three?
Subj: (SNY) Except for one. It was um, medium, [medium dark].
Int: 69 O.K. Well gee, I think you did a great job of telling me about that
film. I feel like I've seen it now. Doesn't actually sound that
interesting, though. It sounds like, but I don't like to watch things
that are kinda mean like that. They dropped the boots in the pond.
I don't like stuff like that very much.
Subj: Ya. They don't give to him they just drop it.
Int: 70 Yeah.
Subj: Like tricked like they tricked him.
Int: 71 Umm hum. Of course he tricked them.
Subj: Yeah.
Int: 72 So I guess it is sort of a happy ending, but not really a happy story,
is it?
Subj: (SSN)

Spontaneous Errors Summary**Screens**

Turn	Spontaneous	Type	DF	DVS	Retract
1.	lake	vocab		yes	yes
2.	if he ..boots some money	incorr. inference incorr. inference			
6.	with the wire	misperception			
7.	outwired	extension of turn 6			
10b.	fooling around	modifier error (vocab)		yes	
14.	he called..them	mixture			
25.	that was end	sequence			yes
26.	he got out	modifier			
56.	ten years	estimate			yes
61.	ten years	estimate			
68.	medium dark	modifier			

Gross 11
 retract -3
 TOTAL 8

Accurate = 39

Error = 8

Total = 47

Percent Accuracy = $(39/47) \times 100 = 83\%$

Closed Question Points

	Response	
	C	X
Leading		
Mis-Leading	8	3

CQ Quantity = 11

% Accuracy Total = 73%

% Accuracy Leading = no score

% Accuracy Misleading = 73%

Closed Question Errors

Turn	Code	Type	Screens		
			DF	DVS	Retract
1.	30.	x/x multi-status x/c	yes		
2.	33.	x/x	yes		
3.	39.	x/x			
4.	49.	cx/x mixed status			
5.	57.	x+/x+ extension of T-56			(yes)above
6.	62.	x+/x+ extension of T-61			
7.	67.	xx/x mixed status			yes

Gross 7
 mixed -2 (1 retracted)
 extension -2 (1 retracted)
 TOTAL 3

LIST OF CLOSED QUESTION ACCURATE POINTS

No.	Turn	Type	Screen
1.	9	c/c	Inference
2.	10b	x/c	
3.	11	xc/c	
4.	28	x/c	
5.	30		
6.	32	x/c	
7.	45	x/c	
8.	51	c/c	Clarification
9.	58	x/c	
10.	68	x+/c	

Gross minus screens = 10 - 2 = 8

Scoring of Interviewer Report

A little boy is playing in a pond, he is around 8 or 9. Two other boys who are older arrive in a car (they are 10 or 11) and hold up a pair of boots--they want the younger boy to buy them--he gives them money for the boots but they drop them (the boots) into the pond.

The little boy does something with the wires inside the car, then pushes it into the pond. (The two older boys are in the pond swimming) The two older boys look angry and the little boy ^goes home^ (he looks happy).

The car was blue and white, it had white circles on it. The boys were all dark-haired except for one of the older boys who was medium-dark haired.

Repeated Accurate Points = 19

Errors	Repeated	
	Spont	CQ
playing	1	
10 or 11	1	
wanted boy to buy boots	1	
money	1	
something with wire	1	
swimming		1
dark-haired	1	
medium dark	1	

Total Error = 8

Total Points = 27

Accurate = 19

Error = 8

Report Accuracy = $19/27 = 70\%$