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Training parents use of the ZPD and the acquisition of story-telling skills in children

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Training Parents:

Use of the ZPD and the Acquisition of Story-telling Skills

in Children

by

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Abstract

Research has demonstrated that tutorial use of Vygotsky's Zone of Proximal Development during dyadic problem-solving enhances the subsequent, independent performance of the learner. It has also been demonstrated that use of the ZPD can be increased through tutorial use of the contingent pattern of intervention identified by Wood and Middleton (1978). The present study was designed to develop and evaluate one procedure for training mothers to use the contingent pattern of intervention during a dyadic story re-telling task. It was hypothesized that an increase in maternal use of the contingent pattern would result in increased use of the children's ZPD, which, in turn would enhance the children's independent story re-telling skill. The results supported the hypothesis: the training procedure did significantly increase maternal use of the contingent pattern of intervention and iternal use of the children's ZPD. The children in the trained condition displayed enhanced story re-telling skills in their ability to produce significantly more information from those story grammar constituents of Stein and Glenn's (1978) story grammar found in previous research to be the most central constituents.

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The importance of social context for cognitive development, including the development of linguistic, metacognitive and problem-solving skills, is the axiom of the work of the Russian developmentalist, Vygotsky (eg. 1978). Western psychologists have extended this notion to the investigation of the dynamics of the social interactions in adult-child learning situations. A number of studies have demonstrated both the short- and long-term effects of the type of adult-child interactions Vygotsky deemed to be extremely important in cognitive skill acquisition. Recently, researchers have shown some success in applying, and in training adults to use, intervention strategies based on these studies. This study was intended to evaluate the effectiveness of one method of training mothers to be good Vygotskian tutors in a cognitive domain with clear social roots: the development of story-telling skills. A review of the research which relates Vygotsky's theory to adult-child interactions will follow a summary of the major, pertinent findings in the area of story comprehension and production in both adults and children. Studies which integrate these two fields, either directly or indirectly, will then be discussed. Finally, a few studies which demonstrate the positive effects on children's cognitive development of intentional adult use of interaction strategies based on Vygotsky's theory will introduce the hypothesis of this research study.

Researchers interested in cognitive organization have recently turned to the investigation of recall of complex linguistic material, and, in particular, of stories. The type of stories investigated are typically folktales or what Johnson and Mandler (1980) describe as "stories from the oral tradition" which show characteristic structural regularities as compared to other forms of text. Although such stories obviously vary in content, each contains a similar underlying structure of ordered units or constituents. A number of researchers have proposed models, or story grammars, which describe this constituent structure and the rules for the ordering and connections of constituents. At present, there are two branches of story grammars in the psychological literature: one originally proposed by van Dijk and Kintsch (1978) and another by Rumelhart (1975).

A number of story grammars have grown from Rumelhart's original model. This include models proposed by Johnson and Mandler (1980), Mandler and Johnson (1977), Rumelhart (1977), Thorndyke (1977) and Stein and Glenn (1979). Although there are some differences in the constituents proposed by the various models, each contains a version of the following structure for a well-formed story from the oral tradition. The first constituent presented is the setting, which introduces the main character (protagonist) and usually gives some background information for the story. The setting is followed by an episode or by a number of consecutive episodes which describe(s) the main event(s) of

the story. Each episode also has a number of ordered, causally connected constituents. These include a beginning constituent in which the protagonist is faced with some problem or happenstance The development of the episode consists of the protagonist's reaction to the beginning constituent which leads the protagon. to form plans and act in pursuit of a goal. This is followed by the outcome or consequence of the goal pursuit. The ending constituent of the episode includes a reaction to the preceding events, either through a character of the story or by the teller (Mandler, 1984). The organization of more complex stories is accounted for in these models by rules of concatenating and embedding episodes. In Thorndyke's model these story elements are arranged in a hierarchical structure with the constituents proposed in his model subsuming the actual propositions of the story being analyzed. Stein and Glenn (1977) label the 6 basic information units in sequence as: setting, event, internal response, attempt, consequence and reaction.

Research has been aimed at attempting to discover how these structural regularities affect our processing of such stories. This line of investigation originates from Bartlett's (1932) notion of story schemas. Based on his observations that stories are not recalled verbatim but are reconstructed by the re-teller, Bartlett suggested that people use pre-existing mental schemas to guide their comprehension and recall of stories. He defined a schema as "an active organization of past reactions and knowledge which are always operating within any well developed organism."

(Bartlett, 1932, p. 26).   Since its conception, researchers have refined Bartlett's notion of schema to develop models of story comprehension and recall which take into account the structural regularities   (internal   organization)   of   stories.   These proponents of story grammars define a schema as a mental structure which reflects the underlying structure of simple stories, including the basic constituents and rules people use to process them.   Kintsch and van Dijk (1978) make the analogy: "A schema may be compared to a structure with many open slots that stand in specified relations to each other; the 'macrostructure' is obtained by filling in these slots with labels that subsume the material from a particular story."

Another hypothesized type of mental structure, similar to schemas, that has been related to story understanding in adults is a script.   As defined by Schank and Abelson (1977), this is a mental representation of the sequence of actions called for in a familiar   situation.   The model   contains certain basic or obligatory events in sequence and predicts open slots for optional objects and events and what .hey may contain, and appropriate roles in the action and who can fill them. This skeletal sequential structure is called up in context and is filled in as needed with context-appropriate optional slot fillers and details (Nelson, 1979, p. 256). Scripts differ from schemas in that scripts are purported to be used in any familiar situation, rather than for specific types of material, such as stories.   Scripts describe event sequences only, whereas schemas

include both event knowledge and state (factual) knowledge such as the setting.

Mandler and Johnson (1977) describe a story schema as "an idealized internal representation of the parts of a typical story and the relationships among those parts." (p.111). The schema is proposed to work as a general framework with slots for the various elements to be filled as a story is encoded. The framework directs attention to certain aspects of the story, and assists in keeping track of preceding story information. It also marks whether some part of the story has been completely presented to the listener and so can be stored in memory or is incomplete and therefore must be kept in mind (Mandler and Johnson, 1977). Many studies have provided evidence on various aspects of the psychological validity of story schemas (that is, whether or not such schemas are used in the comprehension and recall of stories). These studies are based on the hypothesis that if story grammar models do characterize the internal mental schemas used to process stories, variations in the canonical structure of presented stories will result in predictable differences in comprehension and recall. It has been demonstrated that people are more likely to recall the central material from story constituents than elaborations on these units (e.g. Black and Bower, 1977; Mandler and Johnson, 1977; Stein and Glenn, 1979). The information which is forgotten in gist recall (recall of the essence of the story) is also most likely to be those aspects of stories that subjects judge to be less

important (Brown & Smiley, 1977). Since the theory is able to predict which aspects of stories people will tend to remember or forget, there is evidence that the units proposed by these models are used as retrieval cues to prompt recall of the information stored in the proposed openings for these units in the mental schema.

There is also evidence that the basic constituents have demonstrable effects as units in the processing of stories. Stories presented with all their constituents in the correct sequence are better recalled than those with missing constituents or those with their constituents presented in a randomized order (e.g., Mandler and Johnson, 1977; Stein and Glenn, 1979). Another aspect of the psychological validity of story schemas for which there is support is the main ordering of constituents proposed by story grammars. Researchers have demonstrated that when stories are reduced to their simplest or clearest form, they have only one comprehensible, canonical sequence. When a constituent is moved from its canonical position, comprehension time (measured by the length of time to read that constituent) is increased, regardless of the constituent moved or the distance it is moved. Evidence that information from the most general constituents (the setting, theme and resolution as defined by Thorndyke, 1977) is most important in metacognitive judgements of knowledge of stories as a whole also supports the validity of a grammar-based story schema (Pratt, Luszcz, Mackenzie-Keating & Manning, 1982).

The psychological reality of story schemas, that is, whether or not they represent the structure of human memory and whether or not people can access knowledge of that structure, has been challenged by some researchers. Johnson-Laird and his colleagues (e.g., Garnham, Oakhill & Johnson-Laird, 1982; Johnson-Laird, 1982) have argued that story grammars are unable to account for a number of factors involved in analyzing stories, including the infinite number of propositions that could possibly fill the terminal nodes proposed by story grammars and the semantic constraints that connect these propositions. They propose, instead, that stories are interpreted through models specific to each particular story and that each model includes explicit rules for the referential cohesion and plausibility of the story being analyzed. Peterson and McCabe (1983) also state that there is no convincing evidence of a one-to-one correspondence between memory and episodic structure. They suggest, rather, that the structures of story grammars are simply reflections of the regularities of the expressions of language used to organize the telling of stories. They further suggest that these regularities are habits that are formed through experience and function to reveal and promote expectations in the listener.

Whether or not story grammars actually do represent the contents of memory is not particularly important to the basic theory of this study. What is important is the assumption made by both proponents and opponents of story grammars alike: that people gain knowledge through experience which then guides their

comprehension and production of stories. Story grammars are used
in this study in order to operationally define the type of
knowledge of stories and story-telling that children learn
through interactions with adults. As Mandler (1984) states: "A
grammar is a convenient notational system, ideally suited for
describing simple structures of the type involved in stories."
(p. 19). Whether this notational system (a grammar) shows an
explicit correspondence or mapping to internal psychological
"structures" (schemas) is not critical to present purposes. The
story grammar-based schema proposed by Stein and Glenn (1979)
will be used both as a label for the type of knowledge children
internalize through experience with stories and as a notational
system to identify the separate aspects of stories that they
learn.

Development of the story schema

Mandler (1984) describes a story schema as a "mental reflection of the regularities that the processor has discovered (or constructed) through interacting with stories" (p.18). Researchers have applied this notion of story grammars to the study of how this mental reflection develops. Initially, much of this research was aimed at evaluating the validity of claims made by Piaget (1969) and others (e.g., Fraisse, 1963) that children who have not yet attained the concrete operational stage as defined by Piaget (below 7 years of age) are unable to form an orderly reconstruction of a story due to their lack of reversibility of thought (from Brown, 1975). According to Piaget, the stories of preoperational children are "purely egocentric, i.e., events are linked on the basis of personal interest and not on the real order of time." (Piaget, 1969, p.272). Fraisse (1963, p.243) claimed that children's memories of stories are "completely jumbled up, for they have not learned to reconstruct their past, this is shown by the haphazard way in which they retell stories, for the order of events depends more on their interests or on incidental associations than on reality."

Researchers attempting to test the validity of these claims have provided inconsistent results. Stenning and Michell (1985) investigated story-production and comprehension (through questions of key sequences of a story) in children 5 to 10 years

old. They concluded from their results that story-telling skills in 5 year olds are limited by a lack of understanding. However, by the age of 7 years, children are capable of comprehending stories although they do not spontaneously express much of this knowledge in their story-productions.

Conversely, Peterson and McCabe (1983) found that by the age of 5, children's narratives begin to reflect the basic elements of a story schema. These authors analyzed stories about actual experiences of 4,5,6,7,8, and 9 year old children produced during conversation with the experimenter. One of the three methods of analysis used was based on Stein and Glenn's (1979) story grammar. Peterson and McCabe found that almost all the narratives included orientations and consequences, whereas very few, even for the older children, included reactions. They also found a number of developmental changes. The older children tended to produce significantly more standard structures and to differ in the type of structure they preferred. Younger children were more likely to produce descriptive and action sequences while the older subjects were more likely to produce complete episodes, defined as including a consequence and at least two of the categories of events, motivating states and attempts (adapted by Peterson & McCabe from Glenn & Stein, '980). The number of complete episodes produced rose steadily from about one third of the total structures produced in the youngest group to one hundred percent in the eight and nine year olds. The data also

evealed a developmental increase in the tendency of the children to include attempts and initiating events in their narratives.

Mandler and Johnson (1977) found similar results. First grade children were able to recall settings, beginnings and outcomes but had difficulty recalling attempts, reactions and endings. The recall of fourth graders was similar with a slight increase in recall of attempts, while adults recalled settings, beginnings, attempts and outcomes equally well and endings were again less well recalled. The authors conclude that "even the younger subjects are sensitive to the structure of stories and have schemata which organize retrieval in a fashion similar to adults" (p. 145).

Poulsen, Kintsch, Kintsch and Premack (1979) compared comprehension and memory for stories in 4 and 6 year old children. They found that both groups were able to describe a sequence of pictures when the pictures were organized in a normal story order. When the pictures were presented in a scrambled order, the 6 year olds tried to form a logical sequence using inference while the 4 year olds resorted to primitive labeling of the pictures. These authors interpret their results as reflecting a developmental change from 4 to 6 years in the acquisition of adult-like story schemas.

One partial explanation for these seemingly inconsistent results concerning the development of story schemas in young children is the increase in the methodological (and theoretical) difficulties which arise when using implicit methods to tap

cognitive abilities. This increase results from attempting to infer thought from language in individuals whose linguistic abilities may not be as fully developed as their cognitive abilities. Researchers have shown that the assessment of thought from language can lead us to underestimate children's cognitive abilities (e.g., Donaldson, 1978). Brown (1975) provided empirical evidence that the difficulties that preoperational (5 year old) children have in recounting stories in the originally presented order are due in part to their immature expository skills. The fact that the children in this study were able to recount the correct order of a story when their memory was assisted through recognition or reconstruction demonstrates that young children do have at least some of the skills necessary to re-tell stories. Thus, Brown (1975) concludes that "It is the task of retelling the story verbally that presents difficulties for the young child." (p. 164). In order to overcome this obstacle, some researchers have employed aids designed to measure children's narrative skills beyond their linguistic limitations. For example, Brown (1976) and others (eg. Poulsen et al, 1979), used pictures in order to measure young children's ability to sequence the constituents of stories. The children's task in Brown's study was to choose the four pictures they had seen during the story-telling from a total of 8 pictures and to arrange those four in the proper sequence. Using this method, Brown was able to conclude that the regeneration of ordered information is well within the problem-solving capacity of

preoperational children. Others have used a question-asking method designed to specifically tap children's understanding of stories (e.g.,Stenning and Michell, 1985; Hall, Cole, Reder and Dowley, 1977).

Another reason for the disparate results found is that this line of research is attempting to measure a structure which is changing through development. Most researchers agree that schemas are formed through experience: "from experiencing hundreds of such stories (simple stories or folktales) over their lifetime, people acquire this abstract framework about simple stories" (Bower, 1976, p. 532). McConaughy, Fitzhenry-Coor, Howell (1974, p. 391) suggest that there are two types of story schemas: an ideal (text grammar) schema and the listener's current cognitive structure. A match to the ideal schema will depend on the general age of the story perceiver, his or her level of experience with stories and storytelling and the type of comprehension task involved. Thus, researchers focusing on different aspects of story telling skills may be looking at different aspects of story telling schemas which seem to develop at varying rates.

McCartney and Nelson (1981) presented children with stories organized around familiar scripts (e.g., dinnertime, bedtime). They demonstrated that children's scripts guide their comprehension of stories, suggesting that script-type knowledge is an important foundation for the development of a story schema. Since a script is a kind of model of repeated familiar experience

which is called into play in the appropriate verbal or
situa ional context, the level of schema development is
intricately related to the type and amount of experience any
particular child has had and the relationship of this experience
to the content and task demands for any particular story-telling
task. Mandler an1 Johnson (1977) present a similar argument in
their notion that story schemas are constructed from two sources.
One source is exposure to stories, and the information gained
includes knowledge about the sequencing of events in stories.
The other source comes from general experience and includes
knowledge about causal relations and action sequences. Peterson
and McCabe (1983) suggest that information about action sequences
is more accessible to young children than information about the
cause of, or events that initiate, action. These authors found a
negative developmental trend in the tendency to produce Reactive
Sequences, which are characterized by a set of changes that
automatically cause other changes with no planning involved.
They suggest that "...the greater proportion of reactive
sequences...may be evidence that ...the younger (children) are
the more they are manipulated by the environment. Because of
their powerlessness, they may not see the purposes behind the
actions of other (older) people." (p. 94).

Experiential Basis of Schema Acquisition

The importance of experience in development has been demonstrated in research focused on the investigation of parents' and adults' role in children's cognitive and linguistic development. Evidence has shown repeatedly that the quality of parent-child interactions is an important factor in children's cognitive and linguistic development. The types of interactions studied range from play (Sachs, 1980) to parenting style (Baumrind, 1967). Ninio a Bruner (1978) studied the role of the mother in the interactions during book reading of a mother and her child from eight months to one and a half years of age. The dialogue of the mother and child revealed the mother's changing "theory" of her child as he progressed through merely pointing to pictures, to babbling to finally providing the actual labels for the pictures. The authors conclude that the mother's role in the development of labelling is to structure the interaction in such a way that her feedback reinforces behaviour that is appropriate to the child's developing abilities.

Research has also provided evidence that the quality of instruction from adults and others is very important in the acquisition of story-telling skills. Eisenberg (1985) examined the early development of the ability to discuss past experiences. Earlier research in this area has found that the two central features of children's early conversations about the past are that they are almost entirely elicited and maintained by an adult

and that they are "routines" in both form and content (cf. Sachs, 1983). Eisenberg examined the changes that take place as children move from these adult-guided routines to talking about their past in a more novel, independent fashion. She found that this development can be described as following three rough phases. In the initial phase, that majority of the content of the conversations is provided by the adult. The adult's role is to maintain conversation by asking simple wh- questions and those that can be answered with a yes or no. Also as in earlier studies, Eisenberg found that these conversations involved simple routines with a limited range of topics. In the second phase, Eisenberg found that children are "much less dependent on the scaffold provided by the adult's questions" (p. 193). However, at this phase most of the topics are still highly familiar to the children in that they involve topics most often elicited by the adults and only general script-like knowledge of the event. In the final phase, Eisenberg found a decrease in the reliance on these types of familiarity. The conversations involve the description of specific experiences, but the children often still fail to take into account the fact that the listener does not have all the information that the child does. In this phase the adult's role is to continue to provide the child with indirect experience with events through conversations, so that the child can develop the structures necessary for both understanding and describing events. Thus, Eisenberg found that the role of the adult progressed from engaging the child in and maintaining

highly structured conversations of general script-like knowledge of past events, to a decreased responsibility for maintenance of less structured conversations about the more specific aspects of events. She suggests that adult-child conversations also function to help the child develop the mental structures necessary for remembering events and for talking about those events. Eisenberg concludes that "conversations with adults very possibly indicate to children not only that talking about their experiences is an appropriate activity, but that socioculturally it is an important activity" (p. 203).

Vygotsky's theory of cognitive skill acquisition

The emphasis on social context in the work of Vygotsky (e.g. 1978) makes this theory particularly well-suited as a framework for investigating the development of story-telling skills (and of linguistic skills in general). Central to Vygotsky's theory is the notion that the structure of individual mental functioning is derived from social interactions, and that these functions are first experienced on the "interpsychological" plane (between individuals) and are then internalized to occur on the "intrapsychological" plane (within as individual). Complex mental functions, such as thinking, language, reasoning, problem solving and logical memory are developed through social interactions with others and thus have organizational properties that reflect those interactions. Vygotsky believed that an analysis of the social organization of a child's problem-solving efforts, including both immediate social interactions and the child's cultural background, is essential to an understanding of cognitive development and its "cultural origins". Vygotsky suggested that, because instruction leads development, adults or more competent others can enhance a child's development towards his or her potential level in any particular area of cognitive development.

Vygotsky's theory stresses the importance of the type of interactions a child has with more expert individuals in determining the child's cognitive development in that area. A

number of researchers have examined adult-child interactions during learning or problem-solving tasks in order to delineate the ro e of the adult from Vygotsky's perspective. Bruner (1985) defined this role to be "to assume the responsibility for accomplishing the goal" in adult-child problem-solv'r: tasks by providing the skills necessary to bridge the gap between the child's recognition of the goal and his or her capabilities to ieach that goal. Wood, Bruner and Ross (1976) used a Vygotskian framework to analyze the adult's role in an adult-child dyadic model-copying task. They suggest that the adult assumes the responsibility of goal attainment by "scaffolding" the task for the child. The process of scaffolding involves the adult assuming the components of the task that the child is initially unable to perform independently. Wertsch, McNamee, McLane and Budwig (1980) also found that the adult in an adult-child dyad functions to plan, regulate and reflect on the problem-solving task at hand. The adult's role as tutor is to assume the strategic responsibility for directing the child's behaviour in the direction of goal attainment. Thus, the adult allows the child to extend his or her current skills and knowledge to a higher level of competence on the interpsychological plane.

Renshaw and Gardner (1987) studied the relationship between parental teaching strategies and goals in a dyadic puzzle solving task. Rather than looking at the immediate goals necessary to complete the task, Renshaw and Gardner interviewed parents about the more global goals they assumed when asked to assist their

child. Results of the interviews showed that half of the mothers construed their goal as teaching their child, while the other half saw their goal as assessing or testing the child. The authors found that these goals were related to the types of interventions offered by the mothers. "Teaching" mothers tended to provide more indirect verbal and non-verbal interventions, particularly questioning and object labelling. "Testing" mothers, on the other hand, tended to use more direct types of interventions, particularly directives, negations and completing the task for the child. Furthermore, they found these differences in teaching strategies were related to the children's performance. Children of teaching mothers used object and position labels more often that children of testing mothers. Renshaw and Gardner interpret this relationship as indicating that mothers who view their goal as teaching their child apply a more effective teaching strategy which allows their child to internalize the guidance they provide. The relationship found for f thers was not as clear. However, for mothers at least, it seems that in addition to providing the types of support necessary to obtain the goal of task-completion, effective tutorial intervention is facilitated by assuming the global goal of teaching, rather than assessing, the child during adult-child problem-solving tasks.

Vygotsky claimed that the adult can maximize the child's development towards competent independent functioning by providing interventions in what he defined as the Zone of

Proximal   Development (ZPD).   This is "the distance between the actual   developmental level as   determined by independent problem solving   and   the   level   of   potential development as determined through problem solving under   adult guidance or in collaboration with   more capable peers" (Vygotsky, 1978, p.   86).   The ZPD for any child   is defined by the child's   current level of ability in the task at hand at one end and by the joint efforts of the adult and child   at the other.   Therefore, the   width of the ZPD varies for   different children on   the same task   and for the same child across different   tasks.   Furthermore, as the   child becomes more skilled in a   specific task and as he is   able to internalize and grasp as   his own some of   the aspects of the   task, the width of the zone changes as   the child's skill develops microgenetically. Campione, Brown, Ferrara and Bryant (1984)   suggest that the width of   the   zone   is   an   indication   of   readiness;   a   narrow zone indicates   that the child   is not ready   to participate at a more advanced level than her or his unaided performance indicates.

Researchers have focused on testing Vygotsky's argument that the   only   effective   learning   and   teaching is that which +akes place   within the   learner's zone of proximal development.   Wood and   Middleton (1975) operationally defined   the ZPD, or,as they call   it,the region   of sensitivity to instruction, by initially organizing adult interventions   into a   hierarchy scaled   by the degrees of information these interventions conveyed to the child. A child's ZPD for any task   could then be defined as the level of instruction just above the level where the child shows consistent

success with the least amount of adult intervention. These authors found that mothers who tended to provide instruction within their child's ZPD were also those who displayed a greater sensitivity to their child's success or failure by providing interventions contingent on their child's responses. This sensitivity to feedback helped the mothers to offer instruction within the child's ZPD through a practice that Wood and Middleton labelled the "contingency rule". They defined this rule as following the pattern: if the child succeeds, when next intervening offer less help; if the child fails, when next intervening take over more control. Their results showed a significant positive correlation between the proportion of mothers' interventions within the ZPD and their use of this shift rule. Their results also showed that there was a large amount of variability in the mothers' use of the shift rule and in the proportion of interventions in the child's zone of proximal development. In another experiment, Wood and Middleton (cited in Wood, 1980) demonstrated that although some mothers rarely followed a shift pattern of intervention, other mothers were able to consistently do so with both their own and with others' children.

Pratt, Kerig, Cowan and Cowan (1988) applied these definitions in their analysis of the problem-solving interactions of both mothers and fathers with their pre-schoolers. Their results parallel those of Wood and Middleton (1975), providing validity for their operational definition of the ZPD and support

for their proposed shift pattern. Pratt et al. also found
individual differences in the parents' tendency to provide
instruction in the ZPD and to follow a shift pattern of
intervention. These differences were related to Baumrind's
(1967) concept of authoritative parenting. Parents who were
rated as more authoritative showed greater use of their child's
ZPD and of Wood's shift rule than parents rated as less
authoritative.

Wood, Wood and Middleton (1978) designed an experiment to
test whether or not the correlation between adult use of a
child's ZPD and that child's subsequent level of independent
success was actually a causal relation. In this study, an
experimenter was trained to use four tutorial strategies, one of
which, a "contingent" strategy, involved the shift pattern
identified by Wood and Middleton (1975). The results support
Wood and Middleton's (1975) hypothesized relationship between use
of the shift rule and use of the ZPD. Their results also support
Vygotsky's argument by demonstrating an experimental effect of
their experimenter-cum-tutor's use of the children's ZPD on the
subsequent, independent success of those children, compared with
the other three experimental conditions. They were able to
successfully demonstrate "that an adult can be taught how to
bring about predictable results with a child with little or no
recourse to information about or experience with that child."
(Wood, Wood and Middleton, 1978, p.144).

Other researchers have defined Vygotsky's ZPD from a broader

perspective. Griffin and Cole (1984) argue that "next-step" and scaffolding versions of the ZPD, which they feel are difficult to differentiate empirically, may be synonymous with the ZPD for many purposes but fail to take into account the social origins of mental functions. They propose instead a broader definition of the ZPD based on Leont'ev's (1981) theory of "leading activity". According to this theory, individuals progress through different types of activity, some of which have been incorporated into their everyday functioning and others of which are the current leading activities that they are attempting to incorporate into their everyday functioning. Griffin and Cole argue that the ZPD is defined by the point of greatest divergence between everyday activities and a leading activity, where the individual reorganizes his or her prior functioning in order to incorporate the leading activity. If some activity is not a leading activity, the individual has either already reorganized his or her actions or cannot benefit from the ZPD for the activity. According to Griffin and Cole, the advantages of defining the zone through leading activites rather than using a next-step or scaffolding definition are that it "provides for a notion of societally-provided progressions" while creating a gap between social organization and a leading activity where the child can create novel analyses without being limited by the adult's knowledge in that activity. It can be assumed that developing story telling skills is a leading activity for young children. However, they are not encouraged to be particularly creative in

this area since it has a societally defined structure. Thus, for the purposes of this study, a scaffolding interpretation will be appropriate for analyzing the development of story-telling skills. Yet, it will be important to keep in mind that the benefits of offering instruction within the ZPD are limited by the type of activity and the individual's age and leading activity.

Two studies to date have investigated the role of tutoring in the ZPD and story-telling skills. Like the experimenter in Wood et al.'s(1978) study, McNamee (1980) was able to provide tutorial interventions in a story-retelling task that were adapted to the child's ZPD. She did this by initially providing each child with a minimal amount of structure and support and increasing her support in gradual increments only when the child revealed that (s)he could not continue the story-retelling task without it. By continually requiring the children to reach beyond their current level of story-retelling skill, McNamee found that after only a few sessions the children were able to assume more of the task themselves. Both the quantity and the quality of interactions necessary to successfully complete the task decreased over a short period. At the initial retelling, approximately half of the children required only low-level general interactions, while the other half required more structure and specific support in order to complete the story-retelling. After only three sessions of joint retelling with the experimenter, all the children were able to successfully

retell a story with only a minimum of support from the experimenter. In Vygotsky's terminology, then, the children who initially needed more external support, were able to internalize the strategy of the task and to move from the interpsychological to the intrapsychological plane of self-regulation in this domain because they were provided with interventions within their ZPD.

Pratt, Kerig, Cowan & Cowan (unpublished ms.) conducted a study designed to examine the relationship between parental use of their child's ZPD during a story-retelling task at 3 years and the children's independent story-retelling skills at 5 years. At both ages, each child was told a story two times by an experimenter. At 3 years, after the story-tellings, parents attempted to elicit the story from their child. The probes used by the parents were arranged in a hierarchy according to the amount of structure they provided to the child. Arranged from least to most structured, these probe categories were General Story Probes, Recapitulations, Supportive Continuations, Specific "Wh-" Questions, and Closed "Yes-No" Questions. The authors found that many of the 3 year olds could produce very little story information and so their ZPD was deemed to be at the Yes/No Question Forms level. However, some of the 3 year olds were able to re-tell more story information and their ZPD was considered to be at the less supportive "Wh-Question Forms" and "Supportive Continuations" levels. The amount of story information produced by the dyad at age 3 was found to be positively correlated with percentage parental ZPD use during the task. At five years,

after the story-tellings, the children were asked to re-tell the story to the experimenter in order to obtain a measure of independent story retelling skills.   Results showed that the percentage of parental ZPD use at age 3 by both mothers and fathers was significantly and positively related to the amount of information that the 5 year olds were able to produce independently.   This result supported the authors' prediction that "those parents making more effective use of the ZPD would subsequently have children with better independent story-telling skills" (p. 8).   This prediction was based on the assumption that more extensive use of the child's ZPD in tutoring should be associated with better acquisition of independent skills by the child. Partialling out the effects of the amount of story recall by children at age 3 did not substantially alter these longitudinal correlations.   The results also showed, for the mothers only, several other correlations between the types of interventions used at 3 years and independent story-retelling at 5 years of age.   These include a significant correlation between maternal use of recapitulations and the child's subsequent independent story- retelling skill.

Parent training research

In light of the evidence supporting the effectiveness of tutoring children within their zone of proximal development and the fact that there is much individual difference in adult spontaneous use of the zone, it would be ideal to formulate a

procedure for training adults to be effective Vygotskian tutors. Wood, Wood and Middleton (1978) were able to successfully train their tutor to provide instruction within the zone of proximal development for the children in their study. The authors do not provide specific details of the method they used to teach the tutor this type of interaction strategy. However, they do suggest that she based the form of her interactions on what they call the "shift rule".

There is evidence that parents can be successfully trained to adapt their tutorial interventions to their own children's ZPD in an addition problem solving task (Reeve,1987). Reeve observed mothers teaching their 4 to 5 year old children to solve simple addition problems. Based on the type of interactions observed, the mothers were identified as using one of three teaching techniques: "scaffolding", "directing", or providing inconsistent support. Based on Wertsch et al.'s (1980) concept of scaffolding and on Wood and Middleton's (1975) identification of the contingent strategy of intervention, mothers who offered direction contingent on their child's previous response to intervention, were classified as scaffolders. Mothers who assumed responsibility for the task and offered concise direction and demonstrations to their child were classified as directors. Half of the mothers in each of these groups were taught the principles of scaffolding and encouraged to use this teaching strategy. Post-test results revealed that the children of the trained directing mothers improved in their independent addition

problem- solving skill, although their performance was similar to that of the children of mothers in the untrained scaffolding group. Furthermore, the independent performance of the children of mothers in the trained scaffolding group improved even more than that of the children in either of these other groups. Thus, it appears that mothers in both the scaffolding and directing groups were able to benefit from the training provided by the experimenters in terms of their ability to provide effective teaching interactions.

In a recent experiment, Robins (1987), I attempted to train university students to provide interventions within the ZPD of 3 and one half to 4 and one half year old children on a blocks copying task and a matrix sorting task. The tutor training took place at the university shortly before the student volunteer went to a nearby daycare center where the tutorial sessions were held. The training procedure was based on instructing the "tutors" to use the shift rule as identified by Wood and Middleton (1975). It was expected that instructing the trained tutors to offer the child less help when the child succeeded and to offer him or her more help after failure would increase the percentage of interventions within the child's ZPD. No evidence for improved tutoring was found, however. Furthermore, the training procedure resulted in a surprising effect: the correlation between shift-rule use and percentage ZPD use was negative for the trained tutors, yet positive for the untrained tutors. Conversely, the training procedure did not have a similar effect

on any of the correlations between other indices of tutorial support used in the experiment. The fact that the training procedure only affected the relationships involving shift-rule use suggested that this procedure had somehow disrupted this relationship which had appeared in several previous studies during tutorial sessions (e.g., Pratt et al., 1988; Wood & Middleton, 1975). Informal interviews with the trained tutors lead to the hypothesis that this disruption may have been caused by the fact that applying the shift rule was a difficult task which distracted the tutors during the interventions. From this observation, Robins (1987) suggested that this rule of contingent shifting of levels of intervention is only one by-product of effective Vygotskian tutoring. I concluded that perhaps a more successful training program would involve training the tutors to identify successful and unsuccessful interventions and to adopt the role of teaching during tutorial interventions (Renshaw & Gardner, 1987). In this way, the tutors would be inclined to follow the shift rule naturally in order to teach the child the task but the tutor's attention would not be overly directed to consciously trying to follow the rule.

The purpose of the proposed experiment is twofold. The main purpose is to assess the effectiveness of one method of training parents to be more effective Vygotskian tutors. The training procedure is designed to enhance the parent's ability to bridge and adapt the cultural definition of story-telling to their

children's developing story-telling skills. The focus of the procedure is to increase parental use of the shift pattern of intervention identified by Wood and Middleton (1975) as a method of enhancing parental use of the ZPD. Another goal is to provide empirical support for the results of McNamee (1980) and Pratt et al. (unpublished ms.) which suggest that children develop narrative skills through interaction with others and that the effectiveness of the interactions from a Vygotskian perspective is clearly related to the subsequent independent story-telling performance of the children. Inherent in this goal is the subsidiary goal to attempt to provide empirical evidence for the suggestion made by many researchers that story-telling skills are developed through experience with stories which provides children with the information necessary to build mental structures, . story telling schemas, which guide and determine their story-telling ability.

A third objective of this study is to determine whether or not there are affective correlates of working within the ZPD. For the tutor, providing interventions within the child's zone may be positively rewarding in a fairly straight-forward manner, particularly if the tutor approaches the task with the goal of teaching the child. That is, the tutor's goal is achieved more effectively and efficiently and this may result in a positive affective state for the tutor. However, for the child the manner of reinforcement is not as straightforward. A good Vygotskian tutor is continually shifting levels of intervention so that the

child is required to stretch beyond his or her current level of ability. This style of intervention results in a higher proportion of failures in terms of carrying out the steps necessary for task completion than would a style that offered interventions at or below the child's current performance level. Yet, it may be rewarding to receive interventions within the ZPD which optimize the amount of learning, or the internalization of cognitive skills, of which the child is capable. That is, learning in the ZPD may provide an optimal amount of intrinsic motivation, which Hunt (1971) defines as "motivation which is inherent in information processing"(p.1).

This suggestion can be supported, in part, based on the theory of cognitive competence proposed by McReynolds (1971). He suggests that new information is either unassimilable and so is ignored, or is assimilated through the process of "cognitive innovation". His theory states that in order to optimize cognitive functioning, the amount of unassimilated material must be kept at a minimum in order to minimize anxiety, while the process of cognitive innovation must occur at an optimal rate in order to maximize the pleasure associated with cognitive motivation. It seems that tutoring within the ZPD would satisfy both these optimization rules and thus result in a positive learning situation for the child. When the tutor scaffolds the task, (s)he minimizes the amount of information the child cannot assimilate, thereby reducing the child's anxiety related to learning the task. At the same time, the tutor provides

interventions just above the child's current level of performance which can optimize the amount of new information the child can assimilate into his or her cognitive structures. McReynolds also proposes a third cognitive optimization rule. He states that in order for cognitive innovation to occur, the individual must create cognitive structures, or frameworks, for the incorporation of new data. These structures must have the characteristics of being unclosed, of providing the type of structure capable of elaboration and development, and of being defined in terms of an end state. Interventions within the ZPD can be seen as providing the learner with the information necessary to construct these types of structures. Griffin and Cole's (1984) definition of the ZPD expresses this dimension in their claim that individuals can benefit only from interventions within the ZPD if the particular activity is one of the individual's leading activities. McReynolds offers the suggestion that a third principle of cognitive motivation is the tendency to maximize the completion of cognitive commitments. In order to offer instructions within a learner's ZPD, the tutor's interventions must gradually move toward the goal of exposing the learner to all the skills necessary for completing a task independently. Thus the tutor provides the learner with the awareness, through experience in the interpsychological plane, that superstructures for completing tasks exist. The learner can then complete these cognitive commitments through the tutor providing the knowledge and subskills necessary to sustain an adequate innovation rate until

the cognitive structure is fully elaborated. Overall, then, interventions within a learner's ZPD seem to fulfill the three principles proposed in McReynolds' model of cognitive motivation. Therefore, it is probable that learners may find that being offered interventions within their ZPD is an intrinsically motivating and positive experience.

METHOD

Subjects

The subjects were eighteen 3 and one half to 4 year old children and their mothers. Previous observations (Pratt et al., unpublished manuscript) have indicated that while children below the age of five are in the process of acquiring a story schema, at three years, parents are able to elicit only a few responses from their children. However, by the age of five years, children's story schemas are comparatively well developed and so they are able to retell simple stories with relatively little adult direction. Therefore, in order to obtain the optimal amount of information pertinent to this study, this intermediate age group was selected.

Eleven of the mother-child dyads were contacted through a local daycare facility; the mothers were sent an introduction letter and consent form. The remaining seven dyads were contacted through informal contacts (three were friends of one of the mothers at the daycare, three were contacted through the Victorian Order of Nurses office in Halton and one was contacted through a fellow student). The age range of the mothers was from thirty to thirty-eight; they all worked at least part-time and were in the middle and upper- middle economic brackets. All but one of the mothers (in the control group) were married and had more than one child. Approximately half of the children in each group had older siblings while the other half had younger

siblings. All of the mothers had completed high school and many had some post- secondary education.   These mothers read the introduction letter and signed the consent form before the first session.

Design

The experimental design was a mixed design, with the pre-, immediate post-, and delayed post-training sessions as the within subjects factor and with training/no training as the between subjects factor.

Materials

The three stories used in the story retelling task were written or selected so that they conformed to the story grammar proposed by Stein and Glenn. Although there are some slight differences between the Stein and Glenn story grammar and grammars proposed by other authors, this grammar was selected because it has been used a number of times to analyze children's stories (e.g., Peterson and McCabe, 1983; Stein and Glenn, 1979; Pratt, Kerig, Cowan and Cowan, 1988). Thus, the Stein and Glenn story grammar analysis has shown reliability across a number of studies which provided comparison data for this study.

The stories described events centered around one main character (protagonist) such as an animal or child (see Appendix A). Each story contained three episodes. Past research and observations (Pratt et al., 1988; unpublished manuscript) indicate that children at the age of four years are often able to independently retell less complex stories (i.e., those with one or two episodes). Therefore, in order to obtain data that contain a number of parent-child interactions, this more complex story design was chosen. Each episode contained the constituents of event, internal response, attempt, consequence and reaction.

Procedure

The study consisted of three phases. In all three phases, each mother and child dyad listened to the experimenter read one of the stories two times. The presentation order of the stories was counterbalanced so that each of the stories was presented to one third of the dyads, first, second or last. The decision to tell the stories to the mothers was based on two factors. One factor is that by letting the mothers know the actual story they were helping their child to retell, they would be able to offer a wider range of interventions than if they were unfamiliar with the story content. This is related to the second deciding factor, which is that this format is more comparable to other adult-child teaching situations where the adult is of course competent in the task at hand.

After the story presentations, each child was asked to re-tell the story to a third party, a stuffed animal. The mother was then told that she should feel free to assist her child in retelling the story whenever she felt her child required help. The initial pretest retelling was recorded, transcribed and coded (see coding method).

The mother-child dyads were randomly assigned to either the training group or the control group. Each of the mothers in the training group received training while the mothers in the no-training group were exposed to a similar experience in order to keep the conditions as comparable as possible (see training

method). The children and mothers in both groups were then told a second, di .erent story which the children were again asked to retell to the stuffed animal. The recordings of this second phase were then transcribed and coded using the same measures as in the first phase. The measures obtained on this second story retelling task were compared to those on the initial retelling in order to determine whether or not there are any immediate effects of the maternal training procedure. The training was expected to increase maternal use of the child's ZPD during the interactions of the story retelling task. This increase in maternal use of the child's ZPD was in turn expected to be associated with an improvement in the story retelling skills of the children of the trained mothers. In the final phase, after a period of approximately two weeks, the dyads in both groups were told a third story and the children were again asked to retell it. This final recording was also transc.ibed and coded in order to measure both the long-term effects of the training and any improvements in story-telling skills in the children of the trained mothers relative to those of the children in the control group.

After each of the three story re-telling sessions, both the mother and child were asked to complete the affective scales (see Appendix B). It was expected that these affective measures would be associated with the percentage of interventions offered within the child's region of sensitivity to instruction. The training

was expected to contribute to an increase in positive feelings associated with the story re-telling task for both the mothers and the children, since it is expected to increase maternal use of the region of sensitivity.

Coding

Parental Interventions. Interventions (or attempts to help the child re-tell the story) by the mothers were coded according to a hierarchy based on Pratt et al. (1988; undated manuscript) and McNamee (1980). This hierarchy describes the interventions in terms of the amount of support provided to the child by the parent (see Appendix C and Table 1).

The first level of intervention, which provides the least amount of support and structure to the child, is an affirmation or a Pause of 5 seconds or more. Interventions at this level inform the child only that more information is expected. The next level of support provided to the child is the Clues to Continue level, which includes clues to start and to end the story re-telling, and repetitions of child-produced information. An example of a Clue to Continue is "What was the story about?". In coding this type of intervention, a distinction was made between Clues to Continue re-telling the story and more specific clues to continue re-telling a certain aspect of the story. Interventions at this level serve to affirm the information and to infer that more story information is expected. Specific Questions are considered to be the next most structured type of intervention. These questions are attempts to elicit specific story information by focusing on particular aspects of the information already elicited. An example might be to ask "What did the dog do when Spotty growled at him?". Interventions at

the next level, Giving Choices, serve to give the child a clue as to the next bit of information expected. An example of a Giving Choices intervention is "Did he run off or did he stay and fight?" in which the parent provides both the correct answer and an incorrect alternative, and "Did he just lay down and go to sleep?" in which the parent provides only the incorrect alternative. In the actual coding hierarchy, this level of intervention was separated into two levels of intervention, with two alternative questions viewed as providing less structure to the child than one alternative questions. The most structure-providing interventions are "Provides information" statements, in which the parent provides story information directly to the child. Here an example might be "He ran away as fast as he could, didn't he?".

Interventions were coded in one of these exclusive categories. The children's responses to these interventions were coded as successes or failures. A successful response was one in which the child provided more story information, or responded correctly to a maternal intervention by indicating that some suggested information was not in the story. Failures 'ere responses where the child did not, or was unable to, respond. The greatest amount of child success was expected to occur at the lower levels of the hierarchy, while the higher levels were expected to result in the least amount of successful child responses.

This type of hierarchical ordering of interventions has been

found in previous research to be a valid method of coding the level of structure and support provided to the child by the adult. (Pratt et al., 1988, unpublished manuscript; McNamee, 1980; Wood and Middleton, 1975). Validity in these studies is evidenced by the observation that there tends to be an increase in the percentage of successful interventions with an increase in the level of parental support.

Parental success. The pattern of parent interventions and child responses for each dyad were analyzed in order to determine each child's region of sensitivity, based on the operational definition provided by Wood and Middleton (1975). This region was defined as being at the level of intervention one level above the highest level which results in consistent child success. The amount of maternal ZPD use was then measured as the proportion of maternal interventions provided at this level. Maternal intervention patterns were also analyzed, to measure each mother's percentage of correct shifting. This measure is based on the observation made by Wood and Middleton (1975) and Pratt et al. (1988) that parents who offer the highest proportion of interventions within their child's ZPD also follow a pattern of shifting the level of their interventions contingent on the child's response. The interactions were also analyzed for the type of story information that the mothers attempted to elicit. The story component probes used were the six components of the Stein and Glenn (1979) story grammar.

Central Measure. The developmental literature demonstrates that children tend to produce some constituents of the story schema earlier than others. For example. Peterson and McCabe (1983) found that the younger group of children in their study (four and five year olds) consistently included orientations (settings) and consequences in their personal narratives while the other story constituents were produced only by the older group (six to nine year olds). Other researchers, (Glenn and Stein,1978; Mandler and Johnson,1977; and Nezworski, Stein and Trabasso,1982) found similar results in their story recall studies. However, unlike Peterson and McCabe, these researchers also found that young children are able to recall initiating events equally well. A number of researchers have found that these constituents, setting, initiating event and consequence, are also most salient in adult recall experiments (e.g. Glenn, 1978; Mandler, 1978) and are perceived as more important story units (Omanson, 1982). In view of these findings, we separated the story constituents probed for by the mothers and produced by the children into two major categories. These were the central story information (the average of setting, event and consequence constituents) and the non-central story information (the average of attempt, internal response and reaction constituents). These measures were used to analyze the level of information retold by the children and the type of story information elicited by the mothers during the dyadic sessions.

Training procedure

The training procedure consisted of two general phases. In
the initial phase, the mothers were introduced to the concept of
teaching their child to tell stories, and to the most effective
method of interacting with their child from a Vygotskian
perspective (see Training Script, Appendix D). The rationale for
asking the mothers to adopt a teaching strategy when interacting
with their child is based on the results of Renshaw & Gardner's
(1987) study which found that mothers who did so naturally were
more effective Vygotskian tutors.

The second phase of the training consisted of the mothers
reading, with the experimenter, examples of an adult interacting
with a child during a story re-telling session. The mothers were
asked to decide whether or not the mother in the transcript had
correctly used the shift pattern of intervention to determine the
level of support she provided to her child in each intervention.
The mothers were also asked to explain why or why not the level
was correct and to provide a correct shift in intervention where
necessary. These examples were from an actual videotaped pilot
session and so were typical of the interactional procedure
described to the mothers in the first phase of training. Reeve
(1987) used a videotape and, as an alternative to practice, it
seems less time consuming and more practical in that the mothers
had an opportunity to see examples of the interactions rather
than being introduced to them as concepts only. Written examples

from a videotaped session were used, rather than the actual videotape, in order to allow the mothers the time to have an opportunity to compare the interventions used with those on the hierarchy of interventions. The mothers were also asked to look at each example and to explain why each intervention was in the correct or incorrect direction and to provide interventions in the correct direction when the mother in the example did not. In this way, the mothers were exposed to interactions that they might not have spontaneously used otherwise and were also given some practice in selecting interventions which followed the strategy of offering more help when the interaction failed and less when the interaction was successful. The mothers were also given the goal of identifying each child response to each interaction as indicating that the interaction was successful or not. This was designed to direct the mothers' attention to the effectiveness of each intervention in order to sensitize them to their children's responses during the sessions and perhaps automatically cause them to shift the amount of support they provide accordingly.

List of Dependent Measures

Obtained at Each Story Re-Telling Session

<u>Measure</u>	<u>Definition</u>
Child's Region of Sensitivity	One level above (less maternal intervention) the highest level of intervention which results in consistent child success (defined as a higher ratio of success than failure)
Percentage Maternal ZPD Use	Number of interventions offered in the child's Region of Sensitivity, divided by the total number of maternal interventions
Percentage of Correct Maternal Shifting	Number of shifts in the correct direction (less help after success, more help after failure) within a maximum of 2 levels, divided by the total number of shifts
Percentage of Maternal Attempts to Elicit Each Story Component	Number of attempted elicitations for each story component (setting, event, attempt, internal response, consequence and reaction) and for each general story probe (general character and general event probes) divided by the total number of attempted component and general probe elicitations

Number of Items of Each Story   Amount of each story component spontaneously

Component ₌pontaneously Produced   produced by child (based on parsing of

by Child*   each component according to the amount of

                                          story information each contains)

* During dyadic story re-telling

Results

Hierarchy of interventions

Attempts by the mothers to elicit story information were coded as belonging to one of seven exclusive categories of interventions. These interventions were organized in a hierarchy according to the amount of support theoretically offered to the child by each intervention. Inter-rater reliability for two independent judges for these seven categories established on a sample of 8 transcripts, was .79. The children's responses to these interventions were coded as successes if more of the story was produced, or as failures if no story information was produced. Responses to level 5 (Supplies Information) interventions were not coded as successes or failures, due to the fact that at this level the mothers provided the story information to the child and, therefore, no responses were necessary. Inter-rater reliability for the success or failure of children's responses was .989. The hierarchy of maternal interventions and percentage of child success at each level are presented in Table 1. As this table indicates, the percentage of child success generally increases with the amount of maternal support offered to the child, providing evidence of validity for the organization of the hierarchy.

Table 1

Hierarchy of Maternal Interventions

and Percent Child Success

At Each Level for Both Groups

Level		Percent Child Success
1	Pause or Affirmation	.404
2	Clues to Continue (e.g. "Then what happened?")	.445
2B	Specific Clues to Continue (e.g. "What did she do after the race?")	.641
3	Specific Questions (e.g. "What was the little girl's name?")	.583
4	Hints or Two Alternative Questions (e.g. "Did he go home or did he stay?")	.705
4B	One Alternative Questions (e.g. "Where did she live -- in the city?")	.803
5	Story Information Provided	---

Training effects on maternal shifting patterns

The pattern of maternal interventions and children's responses was analysed to determine the percentage of maternal shift rule use, the measure directly trained. This measure was defined as the number of correct shifts in intervention level relative to the total number of shifts in intervention level, including remaining at the same level. A correct shift was defined as one which followed the "rule" of offering more help to the child when the child had been unable to produce more of the story, and of offering less help when the child had been successful in producing more of the story (following the work of Wood & Middleton, 1975). After a level 5 intervention, only failures to shift to a higher level of intervention, i.e., remaining at the same level, were coded as incorrect. Shifts to any other level of intervention were not coded as correct or incorrect after a level 5 intervention, and coding for shift rule use was simply resumed after the next intervention. The rationale for this practice in coding the data was that the child's responses to immediately preceding interventions theoretically determined the mother's choice of intervention level, and as responses to level 5 interventions were not coded, the shift also could not be coded.

The mean percentages of shift rule use for the training and control groups of dyads for each session are presented in Table 2. Due to an insufficient number of shifts (fewer than 4 per

session), measures were not obtained for two dyads in the control group: one for sessions 2 and 3, and one for session 3 only. The reason for the low number of interventions provided by the mothers in these dyads is unclear; it may have been that they felt that their children did not require any support. A condition(2) by session(3) analysis of variance using a pre-planned contrast between session 1 versus sessions 2 and 3 was conducted. For statistical purposes, a comparisor between sessions 2 and 3 was also conducted. The results of this last comparison for all dependent measures was not relevant to this study and so, for this analysis and analyses of the following dependent measures, the results of this comparison are not reported. The analysis of variance revealed a significant effect for condition, $F_{(1,16)}=21.03$, $p<.001$, and a significant session contrast, $F_{(1,29)}=10.87$, $p<.01$. The interaction between condition and the session contrast was not significant, $F_{(1,29)}=1.51$, n.s. However, given the nature of this study, a priori plans were made to conduct both between and within group comparisons of each dependent measure before and after the training procedure. Therefore, for this measure and for the following measures, planned comparisons were carried out despite the lack of a significant interaction between condition and session. Planned analyses of condition differences at session 1 showed no differences between the two groups, $F_{(1,16)}=1.82$, n.s. A two-way Condition(2) X Session(2) analysis was used to compare the mean percent shift rule use for sessions 2 and 3 across

conditions.   The results revealed a significant effect due to condition, $F(1,16) = 69.5$, $p < .001$, and no other effects.   This was clearly due to the higher percentage use of the shift rule by the trained group versus the control group (73.07% versus 51.43%, respectively).   Finally, a pre-planned contrast for session 1 versus sessions 2 and 3 was conducted for each treatment condition   separately, to assess   changes in shift   rule use over sessions.   The   results showed a significant effect for this contrast for the trained group, $F(1,24) = 18.96$, $p < .001$ (55.01% use of the shift rule for session 1 versus 72.68% use for the average of sessions 2 and 3).   However, there was o significant effect of this contrast for the control group (43.57% for session 1 versus 52.01% for sessions 2 and 3 combined).

Table 2

Mean Percent Correct Maternal Shift Rule Use for Each Group and Session

Session	Experimental Group	Control Group
1	55.01	43.57
2	73.06	51.26
3	72.30	52.76
Overall	66.79	48.82

Maternal use of the region of sensitivity to instruction

Following the work of Wood and Middleton (1975), the children's responses to maternal interventions were employed to determine each child's "region of sensitivity to instruction". This region was defined as being one level above (i.e. less support than) the highest level of intervention at which the child was at least 67% successful. To provide sufficient data for the analysis, the seven levels of intervention were grouped into 4 more general regions on the basis of similarities in child success percentages (see Table 1). The intervention regions of levels 1 and 2, levels 2B and 3, levels 4 and 4B, and level 5 were re-coded as regions 1,2,3, and 4 respectively. A summary of each child's region for each session is displayed in Table 3. No regions could be defined due to a lack of variation in the level of intervention offered by the mothers in two of the dyads in session 3, including one dyad in each group. No significant differences between the two groups were found for any session, using separate analyses of variance for each session, or in a repeated measures, condition(2) X session(3) analysis. Nor were there any other significant effects in these analyses.

The frequency of maternal use of the region of sensitivity to instruction was then calculated as a percentage of the total number of interventions offered during the session. These measures are also shown in Table 3. Again, measures for two dyads for session 3, one dyad in each group. were not obtained because they lacked variation in the level of intervention. A

condition(2) X session (3)   analysis of variance, using a
pre-planned contrast between percent maternal use of the region
of sensitivity at session 1 versus sessions 2 and 3 was
conducted. A significant effect for this comparison was found,
$F(1,30)=5.63$, $p<.05$, and a borderline significant interaction
between this comparison and condition was found, $F(1,30)=3.04$,
$p=.091$.   An analysis of variance revealed no significant
differences in percent maternal use of the region of sensitivity
to instruction between the two groups for session 1,$F(1,16)=.828$,
n.s. A two-way analysis of variance was used to compare the two
groups at sessions 2 and 3.   The results revealed only a
borderline effect of condition in the predicted direction,
$F(1,16)=$ 2.85, $p=.111$. An effect due to training was found in a
session(3) analysis of variance using a pre-planned comparison of
session 1 versus sessions 2 and 3 for the experimental group.
This effect resulted from a statistically significant comparison,
$F(1,23)=8.10$, $p<.05$ (the means were 23.17% for session 1 and
47.26% for the average of sessions 2 and 3). An analysis using
this same comparison showed no practice effects for the control
group, $F(1,23)=.18$, n.s. (the means were 29.56% for session 1 and
32.83% for the average of sessions 2 and 3).

Table 3

<u>Mean Region of Sensitivity to Instruction</u>

<u>and</u>

<u>Mean Percent Maternal Interventions Within These Regions</u>

Session	Experimental Group		Control Group	
	Region	Percent Use	Region	Percent Use
1	1.667	23.167	1.667	29.556
2	1.667	48.778	1.222	31.978
3	1.675	ʿ5.750	1.500	33.675
Overall		32.981		31.662

Percent maternal use of each hierarchy level

The mean percent use of each level for each group and session is shown in Table 4. A condition(2) X session(3) analysis of variance, using a pre-planned contrast between session 1 versus sessions 2 and 3, was conducted. Significant interaction effects were found for the use of level 4B, $F(1,32)=5.07$, $p<.05$, and for the use of level 5, $F(1,32)=4.42$, $p<.05$. The interaction effect for the use of level 1 approached significance, $F(1,32)=3.55$, $p=.07$. Significant comparison effects were found for the use of level 1, $F(1,32)=4.72$, $p<.05$, for the use of level 2, $F(1,32)=8.75$, $p<.05$, for the use of level 3, $F(1,32)=5.29$, $p<.05$ and for the use of level 4B, $F(1,32)=12.20$, $p=.001$. The results for the effect of condition revealed a significant effect for the use of level 3, $F(1,16)=6.09$, $p<.05$. The effects for the use of level 1 and of level 5 approached significance, $F(1,16)=3.31$, $p=.09$ for level 1 and $F(1,16)=2.85$, $p=.111$ for level 5.

Analyses of variance were conducted for use of each level at session 1 only. There were no significant differences between the two conditions at session 1 for any level. A separate analysis of variance was also conducted for sessions 2 and 3. A significant effect was found for the use of level 5, $F(1,16)=4.95$, $p<.05$, resulting from a lower use of level 5 by the mothers in the trained group. Borderline significant effects due to condition were found for the use of level 1, $F(1,16)=3.8$, $p=.07$

and level 2, $F(1,16)=3.38$, $p=.085$, due to a higher use of these levels by the mothers in the trained group. Use of level 3 also showed a borderline condition effect, $F(1,16)=3.5$, $p=.08$, with less use of level 3 by the trained group. No significant effects due to session or to the interaction of session and condition were found. Analyses of variance for the trained group only with a pre-planned contrast of percent level use at session 1 versus that at sessions 2 and 3 revealed a significant increase in use of level 1, $F(1,24)=4.87$, $p=.037$, an increase in use of level 2, $F(1,24)=7.73$, $p=.01$, a decrease in use of level 3, $F(1,24)=4.53$, $p=.044$ and a decrease in use of level 4B, $F(1,24)=8.50$, $p=.008$. Separate analyses for the control group showed no significant or borderline effects due to this session contrast.

Table 4

Mean Percent Maternal Use of Each Level for Each Group and Session

Level	Session	Experimental Group	Control Group
1	1	.060	.064
	2	.180	.047
	3	.220	.102
2	1	.110	.104
	2	.254	.203
	3	.270	.130
2B	1	.104	.059
	2	.082	.067
	3	.070	.061
3	1	.398	.449
	2	.236	.346
	3	.274	.370
4	1	.083	.154
	2	.088	.117
	3	.094	.143
4B	1	.183	.076
	2	.053	.046
	3	.036	.046
5	1	.113	.091
	2	.057	.183
	3	.024	.131

Percent successful maternal interventions

The mean percentages of successful interventions for each
group at each session are shown in   Table 5.   The frequency of
maternal interventions resulting in successful responses from the
children was calculated as a percentage of the total number of
interventions offered. A condition(2) X session(3) analysis of
variance using a pre-planned comparison of percent successful
interventions at session 1 versus that at sessions 2 and 3 showed
no significant effects: effect of condition,$F(1,16)=2.89$, n.s.,
effect of session contrast,$F(1,31)=0.0157$, n.s., and effect of
the interaction of the contrast and condition,$F(1,31)=0.822$, n.s.
A separate analysis of variance comparing these measures for both
groups at session 1 only showed no significant difference,
$F(1,16)=2.35$, $p=.144$ for condition.   An analysis of variance was
then conducted to compare the percent successful interventions
for sessions 2 and 3 for the two groups.   The results revealed no
significant effects due to condition, $F(1,16)=0.802$, n.s., due to
session,$F(1,15)=0.190$, n.s., or due to the interaction of
condition and session.$F(1,15)=0.019$, n.s.   Separate analyses of
variance, comparing percent successful interventions over
session, were done for the training and control groups, using a
pre-planned comparison of session 1 with sessions 2 and 3
combined.   These analyses showed no significant effects.

Table 5

Mean Percent Successful Maternal Interventions for Each Group and Session

Session	Experimental Group	Control Group
1	.527	.674
2	.537	.596
3	.576	.610
Overall	.546	.627

Children's production of central story elements

Each story contained 17 sentences representing 17 story grammar constituents: two Settings as well as three episodes including one Event, one Internal Response, one Attempt, one Consequence and one Reaction for each episode. These 17 constituents were then parsed into one, two or three information items, depending on the amount of information contained in that specific sentence. Each item of information produced by the children during the dyadic story re-telling was then coded for the type of constituent to which it belonged. A percentage of the total amount of story information of that constituent type produced by each child was then calculated. These percentages were then totalled over the three Central measures (Setting, Event, and Consequence constituents) and the three Non-Central measures (Attempt, Internal Response and Reaction) produced by

the child. The total possible number of information items was 15 for the central measure and 12 for the non-central measure. The greater amount of information contained in the central measure relative to the non-central measure is consistent with the results of information analyses in previous studies (e.g. Omanson, 1982). The average percentages of central and non-central constituents, plus the total average story information, preduced by the children for each session and group are presented in Table 6.

The central percentage was analyzed in a Condition(2) X Session(3) repeated measures analysis of variance, using a pre-planned contrast between session 1 versus sessions 2 and 3. The results showed a significant effect for the session contrast, $F(1,32)$ =8.05, p<.05, due to an increase in the later sessions in production of central constituent information. However, there was no significant effect due to condition, nor was there a significant interaction between condition and the contrast, $F(1,32)=1.54$, n.s. Planned analyses of condition differences at session 1 showed no differences between the two groups, $F(1,16)=.673$, n.s. A repeated measures analysis of variance comparing the children's average Central measure production in the two groups for sessions 2 and 3 revealed a significant effect due to session,$F(1,16)=5.29$, p<.05, and no other significant effects. A pre-planned contrast of session 1 versus sessions 2 and 3 was conducted for each treatment condition separately to assess changes in recall of the central story information over

the sessions.   The results for the training group showed a

significant effect for the   contrast, $E(1,24)=4.89$, p<.05, due to

an increase   in central constituent production   at sessions 2 and

3.   The results of   the analysis of   session differences for the

control group showed no significant effects.

Table 6
Mean Percent Child Production of Central Measure
for Each Group and Session

Session	Experimental Group	Control Group	
1	.297	.366	
2	.420	.383	
3	.506	.480	
Overall	.408	.409	.409

Average Non-central measure production

Session	Experimental Group	Control Group	
1	.209	.223	
2	.308	.425	
3	.399	.317	
Overall	.305	.322	.313

Average of Total Information Produced

Session	Experimental Group	Control Group	
1	.253	.295	
2	.364	.404	
3	.452	.398	
Overall	.356	.366	.361

Mothers' probes for central story constituents

The mothers' interventions at levels 3,4,4B, and 5 for each session were coded for the type of constituent for which the intervention probed. Interventions at levels 1,2 and 2B could not be coded in this manner because, by definition, they did not specify any story constituent. The maternal probes for central constituents were calculated as a total percentage of probes for Setting,Event, and Consequence constituents relative to the total number of probes at levels 3 to 5. The average percentages of maternal probes for central material are presented in Table 7. Due to an insufficient number of interventions, data were not available for 4 dyads in the trained group, 2 for sessions 2 and 3, 1 for session 2 and 1 for session 3; and for 3 dyads in the control group, 1 for all 3 sessions, 1 for session 2 and 1 for session 3.

This central constituent measure was analyzed in a Condition(2) X Session(3) repeated measures analysis of variance using a pre-planned comparison of the percentage of maternal probes for central story information at session 1 with that at sessions 2 and 3. The results revealed no significant effects. A planned analysis of variance of condition differences at session 1 revealed no significant effect due to condition, $F(1,15)=0.550$, n.s. A two-way repeated measures condition(2) X session(2) anova was used to compare the mean percent maternal probes for central story information at sessions

2 and 3 across conditions. The results revealed no significant effects. Separate analyses using a pre-planned contrast of session 1 versus sessions 2 and 3 were conducted for each group separately. The results showed no significant effects of session for either group. Despite this lack of any group differences, it is interesting to note that mothers at most sessions for both groups showed an excess of probes for central story information (the expected percentage was 55.5%). This suggests that adults generally focus children's attention differentially on these aspects of the story structure.

Table 7

Mean Percent Maternal Probes for Central Material

for Each Group and Each Session

Session	Experimental Group	Control Group	
1	.631	.573	
2	.808	.504	
3	.672	.625	
Overall	.704	.566	.629

Children's affective measures

The affective questionnaires filled out with the children after each session included measures on 1 to 5 Likert scales for Fun, Easy, and "Learned something new". The average responses for these variables are displayed in Table 8. A repeated measures analysis of variance with Condition(2) as the between-subjects variable and Session(3) as the within- subjects variable was conducted using a pre-planned comparison of these measures for session 1 compared to those for sessions 2 and 3. The results showed a significant interaction of this contrast and condition for the "Learned something new" variable only, $F(1,29)=4.398$, $p<.05$. There was no significant effect on any of the variables due to condition. The effects for the session contrast were significant for Easy, $F(1,29)= 4.21$, $p<.05$, due to an increased rating at later sessions for both groups. No other session effects were significant. An analyses of variance for session 1 only showed no significant differences between the two groups for any of the variables. A separate analysis for the trained group revealed a significant effect for the contrast of session 1 with sessions 2 and 3 for the "Learned something new" variable, $F(1,24)=5.34$, $p<.05$, due to a more positive rating in th later sessions. No significant effects were found for either the Fun or Easy variables for the experimental group alone. A similar analysis conducted for the control group alone revealed no significant effects for any of the three measures.

Table 8

Mean Responses for Children's Affective Questionnaire

Experimental Group

Session	Fun	Easy	Learned Something New
1	4.778	3.778	2.222
2	4.889	4.556	3.556
3	4.333	4.000	3.889
Overall	4.667	4.111	3.222

Control Group

Session	Fun	Easy	Learned Something New
1	4.111	3.222	3.111
2	4.556	4.444	2.222
3	4.667	3.556	3.889
Overall	4.444	3.741	3.074

Mothers' affective measures

The affective questionnaire responses for the mothers were scored in a manner similar to those of the children, using the scores for the 1 to 7 Likert-type rating scales as the measures of affect. The seven variables were: enjoyment, frustration, how educational each felt the session was, how useful each mother felt the session was, how difficult each felt the dyadic story re-telling task was, how willing the mothers were to do the t_ '' again and how effective the mothers felt during the task. The average responses for each measure by group and session are displayed in Table 9.

A repeated measures analysis with condition(2) as the between subjects measure X session(3) as the within subjects measure using a pre-planned contrast of session 1 versus sessions 2 and 3 combined was conducted. The results revealed borderline effects for the interaction of condition with the contrast for the educational variable, $F(1,32)= 3.56$, $p=.068$ and for the useful variable, $F(1,32)=3.91$, $p=.057$. These borderline effects appeared to result from gains in the later sessions for the trained group only. A significant effect for the session contrast was found overall for the useful variable only, $F(1,32)=4.95$, $p<.05$. No other effects were significant. Pre-planned analyses of variance comparing the measures for both groups at session 1 only revealed no significant differences between the groups of mothers on any of the seven affect measures. A two-way Condition(2) X

Session(2) ANOVA was used to compare the maternal affective measures at sessions 2 and 3 across conditions. The results revealed no significant effects. Separate analyses were then conducted for each group to assess the effect of the comparison of session 1 with sessions 2 and 3. The results for the trained group revealed a borderline significant effect for the contrast for the useful variable only, $F(1,24)=3.04$, $p=.094$. The results for the control group showed no significant effect for the session contrast on any of the measures.

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Table 9.

Mean Responses for Mothers' Affective Questionnaire

Experimental Group

Session	Enjoy	Frustrating	Educational	Useful	Difficult	Again	Effective
1	5.111	1.667	3.667	3.667	1.556	5.333	4.111
2	4.889	2.111	4.222	4.556	2.111	5.000	4.333
3	5.111	1.444	4.185	4.667	1.778	5.222	4.111
Overall	5.037	1.741	4.185	4.296	1.815	5.185	4.185

Control Group

Session	Enjoy	Frustrating	Educational	Useful	Difficult	Again	Effective
1	5.333	1.444	4.444	4.444	2.333	5.556	5.111
2	5.333	1.444	4.444	4.667	2.000	5.556	4.889
3	5.444	1.667	4.333	4.333	1.667	5.667	4.444
Overall	5.370	1.519	4.407	4.481	2.000	5.593	4.815

Correlational Analyses

Pearson correlations between the dependent measures were calculated for the two groups combined for each session. These correlations are presented in Tables 8, 9, and 10. Table 10 shows the correlations of the percent maternal use of the region of sensitivity and of percent maternal shift rule use with maternal probes for central story material, children's production of central story material, and the percentage of successful interventions by the mothers. As can be seen in the table, most of the correlations between these measures were positive, as expected. The percent maternal use of the region of sensitivity was positively and significantly correlated with maternal probes for central material in session 1, $r(16)=.43$, $p<.05$. This correlation approached significance in session 3 also, $r(16)=.33$, $p=.11$. Maternal shift rule use was also positively and significantly correlated with maternal probes for central story material $r(16)=.675$, $p<.05$, in session 2. This suggests that the mothers in the study who were more aware of the important parts of the story to be re-told also tended to be more focused on responding to their children's level of story re-telling skill. As expected, the correlation between percent maternal use of the region of sensitivity and percent maternal use of the shift rule was positive and significant in session 2, $r(16)=.45$, $p<.05$ and approached significance in session 1, $r=.35$, $p=.077$.

Table 10

Correlations of
Central Measures, Percent Successful Interventions
with
Percent Maternal Use of Shift Rule and of Region of Sensitivity

	Mothers' C.M.	Children's C.M.	Percent Success Interventions	Percent Shift Rule Use
Session 1				
Percent Use of Region	.430*	.257	-.149	.350
Percent Shift Rule Use	.109	.299	-.230	-----
Session 2				
Percent Use of Region	.033	.385	.314	.446*
Percent Shift Rule Use	.675*	.322	-.368	-----
Session 3				
Percent Use of Region	.330	-.009	-.022	.168
Percent Shift Rule Use	.038	.182	-.176	-----

*p≤.05

Table 11 shows the correlation between the percent maternal use of each level of intervention in tne hierarchy with percent maternal use of the region of sensitivity and of the shift rule, the primary dependent measures in the study. As can be seen in the table, these correlations tended to be positive, and often significant, for the less supportive levels of intervention (levels 1, 2 and 2B), and negative and often significant for the higher levels of intervention (levels 3,4,4B and 5). This pattern indicates that maternal use of the region and of the shift rule were negatively correlated with level of maternal intervention, suggesting that in order to focus in on the children's region of sensitivity to instruction, the mothers needed to offer less help to their children overall. This pattern is consistent with the results in Table 3 which show the average region of sensitivity to instruction for each group and session. These regions tend to be at the less supportive levels overall (levels 1 and 2).

Table 11

Correlations of
Percent Use of Hierarchy Levels with
Percent Use of Region of Sensitivity and of Shift Rule

	Level 1	Level 2	Level 2B	Level 3	Level 4	Level 4B	Level 5
Session 1							
Percent Use of Region	.449*	.278	.089	-.657*	.602*	-.391	.060
Percent Shift Rule Use	.481*	-.065	.558*	-.703*	.008	.233	.047
Session 2							
Percent Use of Region	.671**	.698**	.235	-.659**	-.408*	-.301	-.412*
Percent Shift Rule Use	.626*	.135	145	-.589*	.345	-.032	-.188
Session 3							
Percent Use of Region	.621*	.203	-.251	-.036	-.470*	-.102	-.456*
Percent Shift Rule Use	.377	.453*	- 124	-.263	-.267	-.103	-.494*

*$p < .05$ **$p < .001$

Table 12 shows the correlations between the mothers' and children's affective measures, and maternal use of the region of sensitivity to instruction and use of the shift rule. In general the few correlations that are significant are not consistently interpretable, suggesting that the affective measures show little relationship to the teaching measures. However, one noteworthy result is the significant, negative correlation of percent maternal use of the region of sensitivity and the mothers' affective measure of how difficult each felt the story re-telling task was in sessions 2 and 3. This correlation was also negative, but not significant, in session 1.

Table 12

Correlations of

Mothers' and Children's Affective Measures
with
Percent Use of Region of Sensitivity and of Shift Rule

	Enjoy-ment	Frus-trate	Educ-ational	Use-ful	Diff-icult	Do it Again	Eff-ective	Fun	Easy	Learned New
Session 1										
Use of Region	-.383	.137	-.424*	-.624*	-.201	-.565*	-.301	-.132	-.094	.186
Shift Rule Use	-.513*	-.137	-.201	-.203	-.063	-.478*	-.110	-.041	-.214	.200
Session 2										
Use of Region	.264	-.319	-.02	.270	-.500*	.175	-.030	.220	.065	.264
Shift Rule Use	.142	.065	.072	-.008	-.072	.035	-.185	.090	.173	.226
Session 3										
Use of Region	.175	-.170	-.047	-.027	-.505*	.186	-.287	.052	.005	-.221
Shift Rule Use	-.086	-.183	.326	-.506*	.377	-.216	-.201	-.321	-.082	-.112

*$p \leq .05$

Discussion

The present study had three major objectives. The primary goal of this study was to assess the effectiveness of one method of training mothers to be more effective tutors. Another purpose was to provide empirical evidence for the suggestion made by some story-grammar theorists that story-telling is learned through experience with stories which provides the learner with the information necessary to build an internal story-telling schema (e.g. Mandler, 1980). Subsuming this purpose is the goal to provide empirical support for the results of McNamee (1980) and Pratt et al. (1988) which suggest that this internalization process is enhanced when the story-telling experience interactions are presented in an effective Vygotskian manner. A final goal was to determine whether or not there are affective correlates of working within the learner's region of sensitivity to instruction as defined by Wood and Middleton (1975).

The major purpose of this study was to train a group of mothers to be effective Vygotskian tutors of story-telling skills and to evaluate the effectiveness of the training procedure. An effective tutor, according to previous researchers (e.g. Wood, Bruner and Ross, 1976), is one who "scaffolds" the task for the child, allowing the child to take responsibility for those aspects of the task that (s)he is capable of, and assuming responsibility for those aspects that are beyond the child's independent abilities.

The dyads who participated in this study represented a rather homogeneous group, despite the fact that they were contacted through different sources. It was necessary to look to sources other than the daycare because the mothers contacted through the daycare were reluctant to volunteer for the study. Presumably this was due to the time commitment required. In general, these dyads seem to represent a sample of the general population found in a middle to upper-middle class suburban area. It is probably safe to assume that the results found in this study would be generalizable to such a population.

In order to provide a framework for illustration to the mothers and for coding the story re-telling sessions, a list of possible maternal interventions in story re-telling was developed. These interventions were organized into a hierarchy scaled by the degrees of information, or amount of scaffolding, provided to the child, following the work of McNamee (1980), Pratt et al., (1988), and Wood et al. (1978). Each response from a child during a session was designated as successful if the child produced some further information from the story, or as a failure if she or he did not. As displayed in Table 1, the percentage of child success tended to increase as the level of maternal support increased. This result provides validity for the organization of the hierarchy of maternal interventions. This hierarchy was used to determine whether or not a mother followed the shift rule after each response from her child. A correct maternal shift was a shift to a higher level in the

hierarchy (less support) following a successful response, or to a lower level (more support) in the hierarchy following a non-successful response (following Wood and Middleton. 1975).

The training procedure used with the mothers in the experimental condition focused on an explanation of, and practice with, use of this shift rule, using this hierarchy as a framework. This aspect of the tutorial process was emphasized directly, rather than use of the region of sensitivity to instruction, in order to devise a straightforward method of instruction that could easily be adopted by the mothers. The mothers seemed to grasp the concept readily and were able to provide examples of correct shifting when required to do so and to identify incorrect shifts in the examples used in training. Before the delayed post-training session, they were shown a transcript of their immediate post-training session and their attention was directed to any incorrect shifts they had made. They were able to comprehend why these shifts were incorrect and to formulate instances of correct shifts to replace them.

Results revealed that this training method did lead to a significant increase in maternal use of the shift rule within the experimental condition in the post-training sessions. Thus, the procedure was found to be effective in training mothers to use the contingent pattern of intervention identified by Wood and Middleton (1975), raising the group's average use of this pattern from about 55 percent in the pre-training session to 73 percent of the intervention sequences in the post-training sessions.

During the immediate post-training session, the trained mothers' attention seemed to be devoted mainly to concentrating on using the shift rule. However, during the delayed post-training session, they appeared to be more comfortable with using the shift rule and were attending more to avoiding and correcting the problems they had had in the previous session. Therefore, it is very likely that given the opportunity to participate in more post-training sessions, these mothers would have become increasingly more at ease using the shift pattern and would have overcome their previous problem areas.

As discussed, the underlying rationale for developing a training procedure which focused on use of the shift rule was to increase maternal use of the children's region of sensitivity to instruction within the tutoring context. Following the work of Wood and Middleton (1975), the hierarchy of maternal interventions was used to determine each child's region of sensitivity to instruction during each session. The percent maternal use of this region could then be calculated as the number of maternal interventions offered within the region, relative to the total number of interventions offered during each session. It was expected that an increase in use of the shift rule would be accompanied by a similar increase in tutorial use of the child's region of sensitivity. The results did support this prediction, as demonstrated by a significant increase in maternal use of the region of sensitivity for sessions 2 and 3 compared with the pre-test for the mothers in the training

condition only. There were no significant changes across sessions for the control group. As expected, the correlation between maternal use of the shift rule and maternal use of the region of sensitivity was positive for all three sessions, but significant for session 2 only. However, the effect of training was not as clear for maternal use of the region of sensitivity as it was for maternal use of the shift rule, as the post-test condition differences for region use reached only a borderline level of significance. An increase in the number of post-training sessions might have resulted in evidence of a stronger effect because the trained mothers might have become more adept at using the shift rule, and thus, would locate their children's region of sensitivity to instruction more efficiently (cf. Pratt et al., 1988).

Another variable which was explored in order to discover any relationship with use of the shift rule and of the child's region of sensitivity to instruction was the level of intervention offered by the mothers. A correlational analysis of maternal use of the region of sensitivity to instruction and proportional use of the various intervention levels revealed a consistent, significant positive correlation with percent maternal use of level 1 (see Table 11). This is consistent with the evidence that the region of sensitivity to instruction tended to be at lower support levels of the hierarchy for these children (as shown in Table 3). The correlational analyses also revealed significant negative relationships between maternal use of the

region of sensitivity to instruction and percent maternal interventions at the higher support levels, level 3 in sessions 1 and 2, and levels 4 and 5 in sessions 2 and 3. This also indicates that the children's regions of sensitivity to instruction tended to be in the lower support levels of the hierarchy, and mothers who gave too much support were commonly "missing" the region of sensitivity.

Analyses conducted for the training and control groups separately for percent use of each level of intervention in the hierarchy revealed that the mothers in the training condition significantly increased their use of interventions at the lower levels (Levels 1 and 2), and significantly decreased their use of interventions at the higher levels (Levels 3 and 4B). There were no significant changes over sessions in the percent maternal use of any of the intervention levels for the control group. Thus, it might be inferred that the mothers in the training condition had developed a "theory" of the levels of intervention from which their children were able to benefit the most. Such tutor "theories" are necessary to bridge and adapt the cultural definition of adequate performance on the story re-telling task to the children's developing story re-telling skills (e.g. Bruner, 1985). The training procedure apparently allowed the mothers to form such effective theories by sensitizing them to their children's feedback regarding the success or failure of the mothers' previous assistance, a necessary first step in learning to use the shift pattern of intervention.

Training Parents: The ZPD and Story-Telling Skills

A further measure that was investigated in order to discover any effects due to training was the percentage of maternal interventions that resulted in a successful response from the child. This measure was also examined in relation to parental use of the region of sensitivity to instruction in the Pratt et al. (1988) study. These researchers found that greater parental use of the region was significantly and positively correlated with the percentage of successful responses for the child. In the present study, no significant effects of training on children's success rate were found. The lack of an increase in success percentage in the present study following training was likely due to the fact that the mothers, on the whole, tended to offer interventions that were too supportive on the pre-test. The children were not often challenged with Level 1 or 2 interventions prior to training, and these levels had much lower rates of child success associated with them (see Table 1).

One objective of the training procedure was to attempt to sensitize the mothers to the success or failure of their children's responses. This step was necessary in order to teach the mothers to choose their level of intervention, contingent upon their children's responses to the previous interventions. Since the mothers, like most tutors, were not explicitly aware of their children's region, the shift rule allowed them one method of narrowing in on this region through a sort of trial and error process of evaluating the child's pattern of responses to previous interventions. As the results revealed, the percentage

of interventions which resulted in successful responses from the child was not significantly different between the trained and untrained groups. The responses from the children were probably determined by many factors, such as the mother's natural propensity to offer certain types of intervention and the child's actual level of story re-telling skills and willingness to exercise these independently. The fact that the mothers in the training condition were given the opportunity to intervene following the same average number of successful responses as the mothers in the control condition, yet were able to use the shift rule significantly more often, indicates that this aspect of the training procedure was specifically effective to the shift pattern.

The second major aim of this study was to provide experimental support for the findings of past researchers (e.g. McNamee, 1980; Pratt et al., unpublished manuscript) which suggest that children develop narrative skills through interactions with others, and that the effectiveness of the interventions from a Vygotskian perspective is related to the subsequent, independent story re-telling performance of the children. Analyses of the children's region of sensitivity during the dyadic story re-telling situation did not reveal any significant changes due to training. This is most likely due to the fact that the children in the training group were provided with effective Vygotskian tutoring for only two sessions, which may not have been sufficient to produce any significant gains for

this particular task. A study which included more post-training dyadic story re-telling sessions might have found evidence of a change in the regions of sensitivity to instruction for the children in the training condition. It was also the case that the children's regions of sensitivity to instruction on this task, at least as defined here, were quite low in the hierarchy, indicating that they could produce story information with relatively little support. Thus, ceiling effects may also partly explain the lack of any changes here.

Unfortunately, very few children were willing to independently re-tell any part of the stories. This complication was unforeseen, but may have been partly attributable to shyness and/or the mothers' presence. Pratt et al. (1988) lso observed this phenomenon in their sample of 3 and one half year olds. As well, the children heard the story only once before being asked to retell it on their own. Future studies would benefit from making allowances in their design for young children's difficulties with independent production of story information. One possibility might be to conduct the story re-telling sessions with the children without their mothers present. In this situation, the children might act more independently, since their mothers would not be available to assist them. More repetitions of the story in the initial presentation could be utilised as well.

As a consequence of the limited nature of the children's independent story re-telling, the performance of the children in

the dyadic context had to be employed as the measure of each dyad's story re-telling success, following the work of Pratt et al. (1988). The amount of information produced by the child from the three central story constituents of setting, event, and consequence was calculated as an average measure of skill development and change over the three sessions. These constituents have been found in previous research to be those that are produced earlier than others (e.g. Glenn and Stein, 1978; Mandler and Johnson, 1977) and are rated by adults as the most important story components (e.g. Omanson, 1982). The results of the analyses revealed that the children in the training group were able to re-tell significantly more central story information in the two post-training sessions than on the pre-test. However, the control group also showed considerable gains over sessions too, though these changes were not significant. In the first session, the children in the trained group produced less central story information than the children in the control group did, although this difference was also not significant. Future studies in this area could benefit from attempting to balance the two groups for this measure after the pre-test in order to obtain clearer evidence of the impact of adult input on children's storytelling. However, these results suggest that the children in the trained group were beginning to reveal an advantage in use of the central story constituents.

The interventions provided by the mothers in the training condition were more effective from a Vygotskian perspective, and
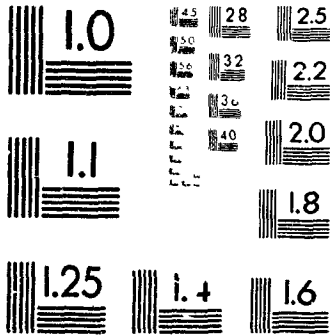
so the children in this condition may have been more readily able to internalize this information and to incorporate it into their developing story schemas. These results suggest that evidence of story-telling schema development is revealed earlier when exposure is provided in a form that increases the children's ability to benefit from this exposure, because it is within their region of sensitivity to instruction. It can also be suggested that the children in the control group would eventually come to produce more central story information, but these gains were not evidenced clearly over the relatively short time-span studied. Perhaps, the gains made by these children were slower to be manifested because the exposure to story re-telling with their mothers was not scaffolded in a way that was as easily accessible to them as it was for the children in the training condition.

Inherent in this goal was an attempt to provide empirical support for the suggestion that children develop story telling schemas through experience with stories (e.g. Mandler, 1984). Such exposure is hypothesized by the proponents of schema theory to provide children with the information necessary to build their own internal story-telling structures. Again, this goal was hampered by the lack of independent story re-telling data. During the dyadic story re-telling sessions, the children in both groups showed considerable gains in production of the central story material over the sessions. This finding is consistent with the findings of previous research, which demonstrated that these constituents are produced at a younger age than the

non-central constituents. Furthermore, the mothers in both groups provided consistently high levels of probing for central story information over the three sessions, much greater than their use of probes for non-central information. This is certainly consistent with the hypothesis that adult listeners "socialize" a particular pattern of story constituent emphasis, which may then be internalized by the child. Over only three sessions then, all of the children displayed an increase in their production of the central story constituents, regardless of the pattern of interventions offered by their mothers. Thus, we can tentatively conclude that our results do provide some support for the notion that exposure to stories and to story re-telling with more experienced others does affect the development of children's story re-telling skills. However, independent story re-telling data from the children would be needed to establish this conclusion more convincingly.

A final purpose of this study to determine if there were any affective consequences, for the children and/or the mothers, of working more frequently within the children's region of sensitivity to instruction. The children rated three qualities, "easy", "fun", and "learned something new" on simple 1 to 5 scales after each session. The results of analyses of these "affective" responses revealed that the children in the trained condition felt that they had "learned something new" significantly more often in the post-training sessions than they reported in the first session. However, the scores for the

children in the control group showed no change over the three sessions for this variable. The children in both groups felt that the story re-telling task became easier with time, a result which seems plausible and lends some indication that these youngsters were using our simple rating scales appropriately. There were no effects for the "fun" variable. For the children in this study then, there were indications on one of three variables assessed that there are positive affective correlates of working within the region of sensitivity for the learner (cf. Pratt, Green, and Savoy, 1988). However, the difficulty of using this rating technique with such young children is obvious. These results would probably be more evident in a study employing an older population and a more difficult task.

The results of the analyses of the mothers' affective scores were not consistent with our hypothesis that working within the learner's region of sensitivity would be related to the positive emotions of having performed effectively. After each session, the mothers rated their reactions on seven dimensions: how much they had enjoyed the session, how frustrating they felt the session was, how educational to their children they felt it was, how useful they felt the session was, how difficult they felt the session was, how willing they were to do it again and how effective they felt during the session. The results of the mothers' ratings on these dimensions revealed only a borderline increase in the trained group's rating on the useful dimension. The two groups did not differ on any of the other ratings. The

reason for this general lack of support of the hypothesis is unclear. It may be true that there are no consistent affective correlates of working within the region of sensitivity for the tutor. However, the lack of effects may also be due to a number of extraneous factors, such as the mothers' reaction to the task itself. For example, the mothers may have felt initially that the task was not challenging for them or for their children, and this was reflected in their subsequent affective scores. As well, the low ratings on the difficult and frustrating scales (see Table 9) may reflect a floor effect which made it difficult to illustrate any change over sessions. Furthermore, the introduction of a training regime may have made this task seem more difficult or burdensome to some in the training group during the immediate post-training session. Perhaps future studies would do well to attempt to control for other variables by including them in the affective questionnaire, and by extending the period of training to allow tutors the opportunity to become more comfortable with the new procedures.

Overall, the present study demonstrated that the procedure used in this experiment was successful in increasing maternal use of the shift rule and of their children's region of sensitivity to instruction during tutoring in a story-telling context. This procedure focused on training mothers to use the shift rule pattern of intervention identified by Wood and Middleton (1975), to attend to their children's responses in order to follow this pattern, and to adopt a teaching role with their children

(Renshaw and Gardner, 1987).   This result provides empirical support for previous studies which found a correlation between use of the shift rule and use of the region of sensitivity (e.g. Pratt et al., 1988; Wood & Middleton, 1975), and for studies which found evidence that an experimenter, trained to use the shift rule, can increase use of children's regions of sensitivity to instruction and improve skill acquisition (McNamee, 1980; Wood et al., 1978).

However, the results relating maternal use of the shift rule and of the children's region of sensitivity to instruction with the children's development of story re-telling skills were not as clear-cut as predicted.   One problem here was probably sample size.   A replication with groups larger than the current size of 9 would likely reveal more consistent evidence of improvements in children's story-telling skills.   Future studies also might find more evidence of internalization of story re-telling skills by increasing the children's tendency to produce story information independently.   This might be achieved by increasing the number of story-tellings by the exr imenter or by manipulating the retelling situation.   One possibility might be testing the children independently, without their mothers as in the studies by McNamee (1980), and by Pratt et al., (unpublished manuscript). Another suggestion for follow-up research would be to examine the children's independent story re-telling skills after a period of time for evidence of development.   An increase in the number of delayed post-training sessions with both mothers and children

could also be useful.   This would provide additional measures of maternal use of the main Vygotskian measures in this study.   It would also provide the mothers in the trained condition with more practice in using the shift rule. which might result in a higher correlation between maternal use of the shift rule and of the region of sensitivity to instruction than was found here. A further suggestion for a follow up study might be to employ each aspect of the training procedure separately in order to determine which component(s) of the procedure account(s) for the change in maternal intervention patterns.

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-Appendix A(I)-

Caroline and the Bike

SETTING	There was a little girl named Caroline. She lived in the city.
EVENT 1	Once her neighbor gave Caroline a broken old bike and some balloons.
INTERNAL RESPONSE 1	Caroline thought the bike would be good if it were fixed up.
ATTEMPT 1	So she filled up the tires with air and painted it red.
CONSEQUENCE 1	She had a nice red bike to ri now.
REACTION 1	And she was happy about that.
EVENT 2	Just then the wind blew Caroline's balloons away.
INTERNAL RESPONSE 2	She was really sad.
ATTEMPT 2	Caroline ran after the balloons as fast as she could.
CONSEQUENCE 2	But she couldn't catch up with the balloons.
REACTION 2	Caroline was sorry to lose them.
EVENT 3	The next day she heard about a bike race at her school.
INTERNAL RESPONSE 3	She thought it would be fun to be in the race.
ATTEMPT 3	So Caroline entered and pedalled very hard.
CONSEQUENCE 3	She came in first in the race and won it.
REACTION 3	Caroline felt very proud of herself.

-Appendix A(II)-

The Belinda Story

SETTING	Once upon a time, there was a little fairy named Belinda. Belinda lived in a big oak forest.
EVENT 1	One night at midnight the fairy bells began to ring.
INTERNAL RESPONSE 1	"One of the fairies must be having a party", she said to herself.
ATTEMPT 1	So she started flying.
CONSEQUENCE 1	Soon Belinda got to the party.
REACTION 1	She was very happy to be there.
EVENT 2	Tom, the old frog, was Belinda fly by on her way to the party.
INTERNAL RESPONSE 2	He became very curious.
ATTEMPT 2	So he followed Belinda.
CONSEQUENCE 2	A while later Tom got to the party too.
REACTION 2	He was very surprised.
EVENT 3	All the fairies began dancing around Tom.
INTERNAL RESPONSE 3	He got very, very dizzy.
ATTEMPT 3	So Tom hid underneath a big log.
CONSEQUENCE 3	He sat there and watched Belinda and the party.
REACTION 3	Tom felt glad that he had found a safe place to watch.

-Appendix A(III)-

The Peter Story

SETTING	This is a story about a boy named Peter. He lived on a big farm in the country.
EVENT 1	One day, Peter saw a story in the newspaper about a circus.
INTERNAL RESPONSE 1	He decided that he really wanted to go.
ATTEMPT 1	So he started off for town.
CONSEQUENCE 1	A couple of hours later, Peter got to the circus.
REACTION 1	He was happy with everything he saw.
EVENT 2	On the way home, Peter saw a little baby horse all alone.
INTERNAL RESPONSE 2	He knew that he could not leave it there.
ATTEMPT 2	So he looked and looked until he found the farm where it lived.
CONSEQUENCE 2	He took the baby horse back to the barn.
REACTION 2	And the little horse sure looked happy to be back.
EVENT 3	When Peter got home, his father was cleaning the house.
INTERNAL RESPONSE	Peter thought that he should help him.
ATTEMPT 3	So he washed all the dishes.
CONSEQUENCE 3	Soon the kitchen was all cleaned up.
REACTION 3	Peter and his father were very pleased with themselves.

Appendix B(I)

Mothers' Questionnaire

Please rate your interactions with your child during the story re-telling task on a scale from 1 to 7 along the following dimensions:

ENJOYABLE

1	2	3	4	5	6	7
not at all	a little	somewhat	moderate	quite a bit	very much	totally

FRUSTRATING

1	2	3	4	5	6	7
not at all	a little	somewhat	moderate	quite a bit	very much	totally

EDUCATIONAL (for your child)

1	2	3	4	5	6	7
not at all	a little	somewhat	moderate	quite a bit	very much	totally

USEFUL (to your child)

1	2	3	4	5	6	7
not at all	a little	somewhat	moderate	quite a bit	very much	totally

DIFFICULT

1	2	3	4	5	6	7
not at all	a little	somewhat	moderate	quite a bit	very much	totally

WOULD YOU ENJOY DOING IT AGAIN?

1	2	3	4	5	6	7
not at all	a little	somewhat	moderate	quite a bit	very much	totally

THANK YOU VERY MUCH!!

Appendix B(II)

Children's Questionnaire

Appendix C

List of Possible Interventions
from those that offer the least help to your child (at the top)
and allow your child to re-tell the story more on his or her own
to those that offer the most help to your child (at the bottom)
and can be used when your child is having problems re-telling the story.

PLEASE REMEMBER that your goal should be to help your child to learn
how to re-tell a story on his or her own. This means that you should
give him or her the least amount of help that he or she needs to
continue re-telling the story, so that eventually he or she will
be able to re-tell it with very little help or even independently.

1. Pause: a short pause or an affirmation, such as "Yes" or "Okay",
             will show your child that more of the story is expected
             and will allow him or her to continue re-telling the story
             on his or her own.

2. Clues to Continue: You can repeat what your child has just told you
             or ask him or her general questions like "So, what happened next?"
             to show your child that you expect him or her to continue re-telling
             the story without actually giving him or her any of the
             actual story information.

3. Specific Questions: When your child needs more direction, you can
             ask direct questions about what happened in a particular
             part of the story. For example "What did Spotty do when
             the dog growled at him?".
             These types of questions give more information and direction
             to your child's story re-telling.

4. Giving choices: Instead of actually giving your child some part
             of the story he or she seems unable to re-tell, you can
             provide him or her with a choice between the actual
             information and another alternative.
             For example, you can say "Did he just lay down or did he
             run around?".
             This type of question almost gives the information to your
             child, yet allows him or her to participate in the re-telling.

5. Giving the information: When your child is still unable to re-tell
             some part of the story, you can offer him or her the most
             help by actually telling the next part of the story yourself.
             This is the most help you can offer your child and it lets
             him or her go on to re-tell the next part of the story.

-Appendix D-

TRAINING SCRIPT

Thank you very much for agreeing to participate in this study and for allowing your child to participate. I'd like to explain the purpose of the experiment a little more fully. As you already know, the purpose of this study is to examine the ways that mother interact with their children during a story re-telling session. Researchers have examined how telling stories develops in children. Other researchers have looked at how parents interact with their children while the children are learning to do a task with help from their parents. This study is designed to integrate these two fields of research.

Trained Mothers Only:

Introduction

For this and the next story re-telling session, I would like to ask you to adopt two main purposes:
     (i) to teach your child how to re-tell a story (i.e. what to include when re-telling a story).

     (ii) to offer your child only as much help as (s)he needs-- this means that if your child is able to re-tell some part of the story on his or her own, try to give him or her only enough help to keep him or her going. However, if your child is having problems re-telling the story, try to offer him or her some help a little at a time until he or she can start re-telling the story on his or her own again. Here is a list of some possible ways to help your child. These are arranged from the least helpful (at the top) to the most helpful (at the bottom).

Here's a transcript of a video of a mother, Judy and her twins, Laura and Dan. I'd like to go through the transcript with you and point out some examples of where Judy successfully follows the rule of offering more help when her child is having difficulty re-telling some part of the story and of offering less help when her child is able to re-tell it alone.

Spotty and the Sheep

First example (good downshift--offering more help after problems)

Here Judy gave Laura a little bit of help (Clue to Continue) to help her to continue re-telling the story on her own, but it wasn't enough to help Laura. So then she offered Laura even more help (Specific question) but still Laura couldn't re-tell this

part of the story. Judy _stays_ at this level, rather than giving Laura more help by giving her a choice, such as "Did he live on a farm or in the city." Finally, Judy gave Laura the most help possible (Gives Information) so that Laura can finish this part of the story and move on to the next.

This is a good example of Judy offering her daughter more help, a little at a time, so that she could allow Laura to re-tell the story on her own as much as possible.

Second example (good upshift--offering less help after success)

This is a good example of Judy offering less help to Laura when she's able to re-tell the story on her own.

After Judy gives Laura that part of the story, she offers her a little less help again (Specific Questions) to see if Laura can re-tell this part of the story on her own. Laura gets this part out okay, so Judy offers her even less help the next time (Clue to Continue). Laura is able to re-tell this part of the story with only a little help, so Judy should have offered her even less help, for example by repeating what Laura had said or by pausing until Laura went on, but she didn't.

Third example (another good example of offering more help after prob's and then less after success)

Here Judy gave Laura a medium amount of help (Specific Question) but it wasn't enough to help Laura re-tell this part of the story. So Judy offered her a bit more help (Alternative) and this _is_ enough to help Laura re-tell this part. So next, Judy offers her a little less help again (Specific Question).

Fourth example

Laura was able to remember that Spotty felt good, so next Judy offered her less help (Clue to Continue). This was enough help because Laura was able to continue re-telling the story, so next Judy should have given Laura even less help but she offers her more (Specific Question). She could have given Laura less help here by repeating what Laura had said or giving her some general support to continue.

Good ending!

Smokey and the Field

First Example (good downshift--offering more help after prob's)

Here Dan is having trouble re-telling the next part of the story that Smokey ran to a big field. This is a good example where Judy gives Dan more and more help, a little at a time, until he can continue on his own. "Where'd he go?" (Specific Question) wasn't enough help, so she gave him a bit more (Giving Choices). But, Dan still can't re-tell this part of the story, so Judy offers the most help and gives it to him.

Second Example (downshift, upshift,then down again--more help)

Then Judy offers him less help again to see if he can re-tell the next part more on his own (Specific Question) ("What did he do in that field?"). But again, this isn't enough help, so Judy offers him a little more help by giving him an alternative (Giving Choices). Dan gets this part of the story. so again Judy offers him a little less help (Specific Questions). However, again Dan is having a problem, so Judy gives him more help in the form of an alternative (Giving Choices). But Dan still can't re-tell this part of the story so Judy offers him more help by actually giving him this part of the story (the most helpful level--Giving the Information).

Third Example

Once they get that part of the story re-told, Judy offers Dan less help again to let him re-tell the next part as much on his own as possible (Specific Question).

Fourth Example

Here Dan was able to re-tell the part of the story that Smokey's feeling sad, so Judy offers him less help (Specific Question). Dan gets this part of the story okay, so Judy should have offered him even less help. Instead of giving him the information and then asking a specific question, she should have asked him a more general question, like "So what happens next?" or repeated what he had just said. However, even with this amount of help, Dan can't re-tell this part of the story, so Judy offers even more help by actually re-telling this part of the story for him (Giving the Information).

Another good ending!

Untrained Mothers Only:
     This study is part of an on-going series of studies designed to examine parent-child interactions. Previous studies conducted in this area have focused on parent-child interactions in an attempt to identify different styles of intervention. The types of parent-child interventions looked at range from interactions during mealtimes to those during more structured tasks such as replicating a model made of wooden blocks. This study is designed to look at similar styles of parent-child interactions during a more language-based task, the task of re-telling a story.

-Appendix E-
(I)

January, 1988

Dear parent or guardian:

Hello, my name is Susan Robins. I am a masters student in psychology at Wilfrid Laurier University. As a requirement for my degree, I am conducting research under the supervision of Dr. Michael Pratt. My research concerns the interactions between mothers and their young children. In particular, the study is designed to examine the types of interactions mothers and their children have while the child is re-telling a story he or she has just previously been told. I am writing this letter to ask you if you would consider participating and permitting your child to participate in this study.

The project requires that we meet for three sessions; the first two sessions will be spaced one week apart and the final session will be held approximately two weeks later. The first and third sessions will consist of you assisting your child to re-tell a fairly simple story. These sessions will take approximately fifteen minutes. During the second session, I will introduce you to some of the background research related to my study followed by another story re-telling session with your child. This session will take approximately half an hour. The sessions will take place at the daycare and will be taped for later observation and analysis. I realize that many mothers who enroll their children in daycare work at least part-time and so the sessions will be scheduled to your convenience, for example when you are at the daycare to bring your child in or pick him or her up.

This research has been approved by Wilfrid Laurier University and the directors of the daycare, but your and your child's participation is contingent on your own and your child's approval. You and your child will be free to refuse to do any or all of the sessions, should either of you choose to do so.

If you agree to the potential participation of you and your child in the study, please sign the attached consent form. A brief explanation of the study will be given to the children before the first session. If you wish to have a report of the results, please indicate this on the consent form and include your address.

Thank you for your cooperation.
Sincerely,

Susan Robins

Dr. Michael Pratt
Advisor

-Appendix E-
(II)

CONSENT FORM

I agree to participate and to allow my child to participate in t.e research study concerning interventions between mothers and   their children   conducted   by   Susan Robins under the supervision of Dr. Michael Pratt of the Psychology Department at Wilfrid La'rier University. I am aware that our participation is completely voluntary, that my child's verbal consent will be obtained before the study begins and that we can withdraw from the study at any time. I give permission for my child and I to be videotaped during the sessions involved and understand that all results are confidential.

YES_____   NO_____

Signature of parent or guardian_____

Name of Child_____

Sex: Boy__ Girl__

I would like a copy of the results of this study sent to:

Name and Address:

_____

_____

_____

_____

Thank you ıor your cooperation.