AFFECT AND MEMORY:
AN INVESTIGATION OF A LEARNING TASK THAT UTILIZES AFFECT AS AN AID TO MEMORY

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ABSTRACT

This thesis explored through experimental and correlational conditions the relationship of affect and memory. Some of the individual and situational factors that were associated with the variance in performance were identified. One hundred and twenty children between nine and twelve years of age in three widely separated schools participated in the study. The children were provided with lists of words to learn by using five learning tasks. A learning task that involved affect achieved memory performances that were quantitatively greater than the results achieved after other learning tasks.

The empathic ability of the children was measured through an analogue. The children responded how individuals felt in certain video excerpts. The empathic ability of the children was related significantly to memory performances achieved after the learning task that involved affect.

A questionnaire was answered by the children that gave their perceptions of their mother's and their father's behaviours and feelings. Various statments appeared that were consistently and significantly related to the empathic ability of the children. These items indicated that the factors of support, anger-anxiety, and demand were differentially related to the empathic ability of the children.

A model of relationships that included the child's perceptions of the parents, the empathic ability of the child, and memory performances achieved after the learning task that involved affect was presented. Some implications for classroom implementation were advanced.

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My family each contributed their special gifts that were appropriate at the time. Erik drew a maze in the beginning stages of the project that accurately pictured many of the stages that were encountered. Kevin offered his wit and steady competencies. Lis knew what was happening throughout the project's many stages and kept two things in clear perspective: where we were at the present moment and where we were going.

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Chapter One

Affect and Memory: The General Research Problem

A. General Psychological Theory and Research into the Relationship of Affect and Memory

The study of the relationship between affect and memory has a history that extends to the beginnings of psychology. As yet, no generally accepted theory, agreed base of empirical findings, or recognized operational definition of affect and memory has emreged.(Zimiles, 1981) In a review of the relationship between affect and memory Rapaport(1961) began with the disclaimer that he was in no position to define emotion or memory and even less the influence of emotion on memory. The aim of this thesis has been to investigate the relationship between affect and memory. The project has been delimited to a practical study of the effect of affect on memory in the learning process.

1. The Quality of Affect and Memory

Through the first half of the twentieth century there were many studies that attempted to relate emotion and memory. Findings from these studies were not able to be accounted for by any one theory. Dutta and Kanungo(1975) noted five theoretical positions that concentrated upon the quality of the affect, i.e., whether the affect was pleasant or unpleasant, and the effect of the quality upon memory.

The Hedonistic Position stated that recall was founded on a motive

of pleasure. Forgetting was supposedly founded on a motive of displeasure.

The Tension System Position stated that unresolved or uncompleted experiences, which were usually assumed to result in an unpleasant feeling, were more likely to be recalled.

The Personality Type Position proposed that some types of people tended to recall more pleasant experiences and to forget unpleasant experiences. Some other types of people would tend to forget the pleasant experiences and to recall the unpleasant experiences.

The Contextual Position included aspects of the individual's frame of reference indicated by values, attitudes, and desires. The match-mismatch patterns of the experience with the individual's frame of reference were used to explain differential recall. An individual recalled more of those experiences that matched the individual's frame of reference.

The Retroactive Inhibition Position assumed that people were more likely to forget unpleasant experience over time because the experience seemed incomplete. The incomplete experience possibly evoked competing responses which tended to lessen the probability of recall.

These theories focused upon the quality of the affect as a prime determiner of recall. However, there were contradictions amongst the theories. The hedonistic theory stated that pleasant events were remembered and unpleasant events were forgotten. The tension system theory stated that pleasant events were forgotten and unpleasant events were remembered. None of the theories was consistently successful in experimental tests to a degree that would demand acceptance. The quality of the affect associated with an experience was not reliably associated with either the recall or forgetting of that

experience.(Dutta and Kanungo, 1975)

The Hedonistic Position generated much research and controversy. Freud (1915,1938) explored the relationship of affect and memory through the psychoanalysis of forgetting. Through the analysis of instances of forgetting Freud and his followers aimed to develop a therapeutic procedure which was expected to increase awareness and insight. As a consequence there developed a theory of the particular relationship between affect and memory. Freud's followers tended to interpret the relationship dichotomously: that pleasurable experiences were remembered and unpleasant experiences were forgotten. Some of Freud's anecdotal examples and even some of his theoretical writing appeared to give validity to this simplification and extension. For example, "The forgetting in all cases is proved to be founded on a motive of displeasure." (Freud, 1938, p.96.)

Electric shocks were administered in conjunction with material to be learned, presumably to test Freud's theory of repression. However, McGranahan(1940) criticized the extension of repression to include the effect any unpleasant experience would have upon memory. He thought of repression as an unconscious phenomenon functioning to prevent a painful experience coming into awareness. It was not a general explanation to explain all forgetting, although works such as The Psychopathology of Everyday Life (Freud, 1938) appeared to extend the generalizability of repression to explain common instances of forgetfulness.

If an individual forgot an experience, the Freudian interpretation indicated that there was a possibility of repression. The psychoanalytic literature bore out the possibility that some experiences were not recalled because of repression. However, as a

global principle to account for all forgetting, repression was not reliable enough to explain memory and forgetfulness. Factors other than the quality of the affect seemed to be prepotent. Colgrove, Kowalewski, and Susukita (Rapaport,1961) around the turn of the century asked children whether they could remember pleasant or unpleasant experiences better. The findings showed that there tended to be a match between the personality type of the subject and the quality of the experience as to how well the different experiences were thought to be recalled. Washburn (Rapaport, 1961) showed that some individuals had predominantly optimistic tendencies and others had predominantly pessimistic tendencies. These tendencies related systematically to recall in that optimistic individuals tended to recall more pleasant experiences. Pessimistic individuals tended to recall more unpleasant experiences.

Much of the research and the theoretical approaches to the relationship of affect and memory have concentrated on examining the effect of the quality of the experience upon retention. Other researchers have explored and championed the intensity of affect as one of the prime explainers of differential retention.(Dutta and Kanungo, 1975) The results from each have been equivocal.

2. The Intensity of Affect and Memory

Dutta and Kanungo (1975) offered the theoretical proposition that the intensity of perceived affect would more ably account for variability in the amounts of recall in studies of learning and memory. They found that adjectives ascribed to a positively perceived group were rated with more intensity than the same adjectives ascribed to an

unknown group. Further, the adjectives rated with more intensity were more likely to be recalled. Dutta and Kanungo concluded that the recall and forgetting of the adjectives was best explained by the intensity with which the word was perceived. The adjectives that were experienced with more intensity were more likely to be recalled than those adjectives which were rated as neutral.

The series of experiments performed by Dutta and Kanungo used adjectives applied to the subjects' tribal group and the same adjectives applied to a fictitious tribal group. This confounded the familiarity and record of past experiences with the intensity of the rating of the adjectives. For example, one adjective was "polite." The report read for one sample, "The Bengali are a polite people." Another part of the sample read a different report on a fictitious group, "The Lanpani are a polite people." The first group rated the word, "polite," with more intensity, e.g., strongly pleasant, than the second group rated the same word, e.g., mildly pleasant. The first group also recalled the word, "polite," more often than did the second group. Dutta and Kanungo attributed this difference in recall to the intensity of the rating. In other words at the time of acquisition, the first group experienced the word with greater intensity of emotion than did the second group. However, it would be difficult to assume that intensity was the only difference between the two groups' experience. It was likely that the subjects in the first group had greater and more specific visualizations of the Bengali people being polite. It would not be surprising that their visual, verbal, and emotional associations would be richer than those experienced by the second group reading the words about an unknown group. It can be seriously questioned whether it was the intensity of the rating of the

word that led to greater recall or some other uncontrolled factor.

All of these six positions tried to explore the relationship of affect and memory within narrow confines. The research involving the relationship of affect and memory was frequently not conducted in a broad enough frame of reference to provide generalizability and a sense of meaning. There was a lack of comparison with other effects upon memory. Also investigations were frequently not done within a controlled set of circumstances within the scientific framework of testing an hypothesis that could be proved false.

3. The Individual as Active in Memory Processes

Subjects involved in memory research were frequently assumed to be passive responders to the experimental conditions. A significant contribution to the theory of active subject participation in memory processes was made by Bartlett (1932). He studied the distortions and forgettings of his subjects as they tried to recall a story that had been told to them. He believed that the systematic nature of the distortions and omissions pointed to the high probability that his subjects were not passive recorders of information for future repetition, but were active in that they made an effort to achieve some sense of meaning. If the story did not make sense to them, they changed it so that meaning was present for them. For Bartlett memory was not a passive receptacle for stimuli to be stored in and drawn from for verbatim reproduction at a later time. The individual was active and this activity increased the probability of recall. However, the content of what was recalled could not be readily predicted. Bartlett noted that one of the most frequent responses when asked to recall an

event was for the person to give an emotional reaction to the event first and then to give other information. Bartlett's observations suggested that emotion may be an integral part of the process of memory acquisition, storage, and subsequent recall.

B. The Anatomy and Physiology of the Brain and Its Relation to Affect and Memory

1. The Limbic System and Memory

A further important body of knowledge about cognition and its relationship with affect came from the studies of the brain itself. The human brain could be considered as the most complex, single item in the universe.(Sagan, 1975) With upwards of ten billion neurons in each brain there is an enormous and largely unknown and untapped capacity. The possibility of more functions and processes than are usually recognized cannot be lightly dismissed. Most of our knowledge of the processes of the brain came from direct electrical or chemical stimulation of a particular location or by studying the behaviour and self reports of organisms with damaged sections of the brain. Arnold (1970) identified the limbic system as central in many processes. For example, after the individual perceived a stimulus, the action taken toward or away from the object would originate from the affect which came in large part from the limbic system.

The limbic system is a group of functionally related structures in the brain, important in the regulation of emotion. MacLean (1978) developed a model that located functions within the brain that accounted for individual and species development. The development of

the triune brain was cumulative and inclusive. MacLean triangulated the anatomical boundaries for the triune brain by a functional, behavioural, and anatomical analysis of the brains of different organisms.

2. The Triune Brain

MacLean identified the triune brain in humans as composed of three distinct components. The reptilian complex was the most basic and oldest brain component. Physically, this was at the top of the spinal cord. It controlled only a few behaviours that were mostly concerned with the preservation of the organism and the species. Routine, precedent, and ritual were important characteristics of behaviours that originated from this part of the brain.

Surrounding the reptilian complex was the limbic system. Mammals that had an intact limbic system cared for their young and were guided in behavioural choices by emotion. Hamsters that had their neo-cortex removed still appeared to be normal hamsters in their play and in other recurring behaviours. By contrast, monkeys that had damaged limbic systems did not behave like normal monkeys.

Surrounding these two major divisions was the neo-cortex. This area dealt with the abstractions of ideas, inventions, thought, and the preservation of these. Hart (1975, 1981) has applied the triune brain model to education and Isaacson (1975) has applied it to psychology.

Figure 1. The Triune Brain, after MacLean, 1978.

MacLean considered the limbic system to be of critical importance in integrating the inner and outer world of an individual.

> "Hence, it is significant that in the manufacture of experience pertaining to personal identity and memory, the limbic cortical cells utilize and combine messages pouring in from both the inside and outside world, whereas, as we shall see, the cells of the new cortex are primarily occupied with events in the outside world." (MacLean, 1978, p. 332)

This integration of the inside and the outside worlds could bring about a personal involvement in the world. Neurological research with human subjects showed that those individuals who did not have an intact limbic system were curtailed in their involvement in events around them.

A patient, known only as H.M., who was suffering from severe epileptic attacks had the hippocampus from the limbic system removed. This surgery stopped the epileptic seizures but had an unexpected side effect. H.M. could not learn anything new. H.M. could not even recall how to travel a few blocks to arrive at his new home after he had lived in it for several years. In addition he could carry on a stimulating conversation with a new acquaintance in the morning, yet he could not remember meeting the individual if they came together in the afternoon. (O'Keefe and Nadel, 1978)

According to Rosin (1976) the limbic system was like a source of energy that was necessary to keep the motor of cognition running. The limbic system could be damaged through diseases such as encephalitis, the herpes simplex virus, a vitamin and nutritional deficit that led to Korsakoff's syndrome, or a tumour. Damage to the limbic system was found to be related linearly and negatively to memory acquisition, storage, and recall. In addition the limbic system was strongly implicated in affect. The hippocampus appeared to be of critical importance in the process of learning new information. Other organs of the limbic system were involved in modulating eating, drinking, and sexual behaviour. The structure and physiology of the brain indicated that affect and memory were closely related. L'Hermitte and Signout (1976) concluded that the entire hippocampal-mammillary system was necessary to form a memory trace. Miller (1978) believed that for mammals intact limbic and reptilian systems were necessary for normal information processing.

3. Related Studies

Some current research and theory noted the apparent specialization of the hemispheres of the brain.(Bogen, 1977) The right hemisphere was more adept at identifying faces in a crowd and working out spatial tasks. The left hemisphere was more adept at words and numbers. However, a hemisphere could learn and execute a task that was normally associated with the other hemisphere in case of damage. Thus, a normal stroke victim whose left cerebral hemisphere was damaged would initially lose the ability to speak. This individual could learn to speak again through the re-education of the right hemisphere. The younger the individual at the time of suffering the damage the easier the re-education was.

Corballis (1980) urged caution in accepting the asymmetrical functioning of the brain hemispheres because no structural differences were detected between the hemispheres. He also argued that functional differences were overemphasized at the expense of functional overlaps, and that inferred, mythical elements such as the good right hand and the evil left hand had become superimposed onto the conceptualization of the brain's functioning with little empirical support. Schlesinger (1980) and Corballis agreed that while there was reason to be skeptical of many of the extravagant applications of cerebral differences in information processing, there was no reason to abandon the study of the structure and functioning of the brain as a unit and as it was divided into its hemispheres.

The tasks of the hemispheres were not divided between cognition and affect.(Bogen, 1977) Each hemisphere had its own affective apparatus. The limbic system was firmly attached and critically

necessary for the effective functioning of both hemispheres. Emotions were not confinable to one hemisphere. Although generated in one hemisphere, the emotional effects tended to spread rapidly through both hemispheres. Sperry (1982) suggested that this affective component could play an important part even in cognitive functioning.

The success of desensitization also appeared to be dependent on the involvement of affect. Desensitization was a therapeutic process that involved a visualization of a tension-inducing situation which was in competition with the relaxation response. Lang(1979) noted that desensitization was most successful when the imagery produced a physiological change that was indicative of a high amount of fear. Desensitization was not as successful when the subjects reported verbally that during the visualization they were highly afraid but showed no physiological change. The limbic system's involvement was critically important for the success of the subject learning to be comfortable and less anxious. By utilizing both visualization and emotional involvement the subject became more personally involved than if just words and images were used. One could conclude that these subjects learned to relax because they were personally involved during the desensitization process.

Lazarus and his associates (Lazarus, 1968; Lazarus, Averill, and Opton, 1970) showed that cognitive appraisals of situations were able to modify the intensity and quality of the emotions experienced. They showed subjects identical movies with different introductory soundtracks that were designed to increase threat or to encourage denial of the content of the film. Subjects were able to modify the affect cognitively.

Studies by Valins(1970) and Schachter(1975) both involved

deception of subjects. In Valin's study subjects were given false reports of their emotional arousal while looking at photographs of nudes. Subjects were influenced by the experimenter's false information more than their own awareness of their emotional arousal. Schachter aroused subjects by an injection of noradrenalin and put subjects into different environmental conditions which greatly influenced their interpretations of their arousal. These studies by Lang, Lazarus, Valins, and Schachter point to the high, mutual involvement of the limbic system and the neo-cortex, the feeling and the thinking parts of the brain.

C. Physiological Measurement of Affect

1. Lack of Reliable Relationships

The literature recounting the efforts to measure and quantify physiological arousal and to relate it systematically to cognition, especially self-reports of emotional conditions, has been littered with ambiguous results. The physiological measures taken reflect the individual's adjustment to the environment and as such involve the individual's balancing of a unique physiology, a unique cognitive set, capability and content, and the environment. Some (Weinstein et al., 1968) noted correlations of self report and physiological measures that averaged r=.03 with a range of r=-.15 to .31. Part of the variability was attributed to individuals who consistently misreported their emotional state as compared to their physiological arousal. Repressors had higher physiological arousal than their self report indicated and sensitizers had lower physiological arousal than their self report

indicated.

Burdick (1978) noted that measurements made at the same time would be highly self-correlated. There would also be short term and long term movements that would vary with the subject's health, size, drug intake, present digestive requirements, and cognitive perceptions of the environment. As well, the interaction of the time of the day with the individual's biological rhythm could further cloud any attempt to correlate physiological measures with emotional self-report.

Barham and Boersma (1975) reported that psychologists from the Soviet Union had identified an orienting response to a stimulus in the environment that better prepared the organism to receive and respond to that stimulus. This concept was similar to attention and arousal. During the orienting response, there was a skeletal, head, eye, general muscle, and facial response as well as heart rate, galvanic skin response, and pupil dilation change. But Barham and Boersma showed that all of the indicators of the orienting response were not usually active upon the presentation of a stimulus. There were very low correlations between the different indicators. There was no global series of physiological changes that was reliably associated with the presentation of a unique stimulus nor was there a consistent correlation of self report to physiological measures.

2. Task Difficulty and Physiological Measures

Kahneman and his associates (Kahneman, 1973; Kahneman et al, 1969; Kahneman and Beaty, 1966) tried to determine the predictive power of physiological measures by correlating them with objective standards of task difficulty. By giving subjects tasks that had

systematic levels of difficulty, such as mathematical problems, and measuring physiological reactions they obtained significant correlations of task difficulty with physiological response. Pupil dilation correlated with task difficulty r=.79. Galvanic skin response correlated with task difficulty r=.48. Heart rate correlated with task difficulty r=.25. These physiological measures were somewhat effective at identifying the task difficulty for a subject. The measure was not reliable between subjects to determine a comparative amount of individual effort being expended on the task.

Ahern (1978) also found that pupil dilation was a sensitive indicator of the demands of the task. Supposedly, with more difficult tasks the subject put in more effort which was reflected by the increased dilation of the pupil.

Beatty and Wagoner (1978) found similar effects yet were unable to identify how activation related to and accounted for different levels of effort required for the levels of difficulty required in information processing. Activation was not a unitary event. Even though pupil dilation was a good indicator, it was still a peripheral indicator. The central process involved in thinking and memory was not tapped.

3. Pupil Size and Affect

Some folk lore surrounded the relation of pupil size to preference. Hess (1965) observed pupil dilation varying with the content of pictures that subjects were observing. He concluded that individuals liked those items which were accompanied by larger pupils and disliked those associated with smaller pupils. These findings can be questioned as an enlarged pupil upon the presentation of a nude

could also indicate other cognitive events apart from a simple indication of preference. Shock and surprise could increase pupil dilation. Complex value conflicts of a moral nature could involve extra cognitive demands which could be reflected in the size of the pupil.

Hakarem(1974) also questioned Hess' experimental methods. Under low light conditions the dilation of the pupil was very unstable. In addition the emotionality of the subject to the target material could not and was not adequately established or identified.

White and Maltzman (1978) read neutral, pleasant, and unpleasant descriptive passages to subjects and monitored their pupil change. Pupils were larger during both the pleasant and unpleasant passages and did not change during the neutral passages. There was no contraction of the pupils during the unpleasant passages.

Pupil dilation appeared to be the most accurate and reliable physiological indicator for certain cognitive events. It distinguished the task difficulty for each individual but it was not effective at distinguishing the affective response of pleasantness or unpleasantness nor the intensity of the affective response. Could pupil dilation discriminate those tasks which involved more semantic meaning from tasks which were more involved in surface analysis?

Krimsky and Nelson (1981) measured pupil dilation in a 2 X 2 design. They provided two levels of difficulty, hard and easy, over two kinds of information processing, structural and semantic. As expected subjects recalled more after semantic and hard tasks. There was a difference in pupil dilation between hard and easy tasks. There was no difference in pupillary response between semantic and structural tasks. Therefore, it appeared that not even the best of the

physiological indicators would be able to differentiate the quality of physiological arousal (pleasant or unpleasant) nor the meaningfulness of the learning task.

D. Cognition and Affect in Schools

What was the impact on educational psychology and classroom practice of the findings that thinking and feeling were highly interactive?

1. The Utilization of Affect for Educational Purposes

Reigenluth(1980) summarized the methods to help students relate what was to be learned to what the student already knew. However, in this extensive review of educational literature not one reference was made to the affect of the student as an initial state, as involved in the learning process, nor to the possibility that the new information would be associated with an emotional tone. The report referred to methods that related new material to the learner through the logical relationships of being superordinate, coordinate, subordinate, analogic, or arbitrary. The teacher was encouraged to teach subsumptive sequencing, synthetic relationships, and mnemonic strategies. All of these tasks were typical of those carried out in the neo-cortex. The involvement of the limbic system in new learnings was completely ignored. This omission of emotion, affect, and feelings was not atypical especially in the area of cognitive psychology and classroom observation research.

Some instruments designed to record what occurred in classrooms

included a category that noted the affective behaviour of the participants. One of the most widely used observational category systems was the Flanders Interaction Analysis Category System.(Flanders, 1960) This instrument had one category for the teacher verbally accepting and clarifying the feeling of the student. The coding directions specified that if the teacher accepted or clarified the feeling of a pupil in the time period, the response was to be coded in this category even if the teacher's behaviour could be coded in any other category. The results from classroom observation using this scale showed that the category of teacher accepting or clarifying pupil feeling was very rarely used. Usually less than one percent of teachers' classroom behaviours were in this category.(Flanders, 1960; Flanders, 1970)

The Flanders Interaction Analysis Category System focused solely on teacher and pupil verbal behaviour. Research using this system thus found that teachers very rarely referred verbally to the feelings of their pupils. The non-verbal expression of affect and non-verbal reaction to affect were not noted in this category system. There was the possibility that another strata of emotional communication was present. In addition Flanders noted the frequency of events. He did not judge the salience of events. The one instance in a lesson where a teacher responded to a student's feeling may have had an importance that would have been lost in a frequency count.

In a New Zealand observation analysis of teacher classroom verbal and non-verbal behaviour Steffens(1978) found that the observed teachers usually did not verbally or non-verbally accept, identify, or attempt to clarify any pupil feeling. This was based on the observation of fifteen teachers from three schools from standard two to

form two. Only classroom interactions of the teacher with one pupil at a time were classified. Only once out of over 2,700 teacher verbal responses was the feeling of a pupil identified. Non-verbally the teachers on average gave one indicator of paying attention to the student one-half of the time. For the other half of the time the teacher gave no non-verbal indication of paying attention to the student even though the two of them were conversing. The visible indicators of attention were touch, eye contact, facing the student, leaning toward the student, and being on the same eye level as the student.

Patterson (1977) noted that schools long had aims that included the self-realization of each pupil and good human relationships both with individuals and social groups. Yet, the affective dimension was not incorporated into what happened in school life.

Eisner(1973) traced the separation of affect from cognition back to Plato's distinction of the life of feeling and the life of thought. Eisner believed that it was convenient to separate affect and cognition, but the total elimination of affect through the structure and content of classroom curricula and teacher behaviour was not useful.

2. Affect in the Curricula and in Teaching Models

A wide range of educators devised curricula that they believed would assist in the affective development of the pupil. They also encouraged the development of teacher skills and attitudes that were appropriate for the aims that came to be identified with affective or humanistic education.

Joyce and Weil(1980) grouped the non-directive teaching methods of Rogers(1969), the development of creativity through synectics (Gordon,1961), awareness training built on the encounter groups of Shutz(1967), and Glasser's(1969) classroom meeting model together as personal teaching methods that would respond to the needs of the individual.

Miller(1976) noted an even wider range than Joyce and Weil of educators who were aware of the affective realm. While not all who were grouped together in his model would necessarily agree with their placement, the categorization scheme served to alert educators to the great range of alternative approaches that were available.

The Developmental Model emphasized the biological and social growth of the child. Those who followed this model believed that given the right mixture of support and challenge, the individual would develop through a hierarchy of stages. The ego development model of Erikson(1950), the psychological education model of Mosher and Sprinthall(1970), and the moral development model of Kohlberg(1968) were examples of the developmental model.

The Self-Concept Model emphasized how the individual felt about self. The teacher's task was to assist the student to have a positive self-regard by accepting the student and the student's goals. Values clarification exercises (Simon, Howe, and Kirschenbaum, 1972), classroom meeting strategies (Glasser, 1969), and the self-directed learner of Rogers(1969) were examples of the self-concept model.

The Group Sensitivity Model emphasized the acquisition of interpersonal skills learned within varying amounts of structure. Communication skills (Carkhuff, 1984a), the variety of encounter and sensitivity groups (Schutz, 1967), human relations training of the

National Training Laboratory group, and transactional analysis (Berne, 1967) were examples of the group sensitivity model.

The Consciousness Expansion Model emphasized the largely untapped variety of experiences that were usually neglected in the structured curriculum of western education. Asian meditation methods (Herzog, 1982), and the predominantly gestalt exercises of confluent education (Brown, 1971) were examples of the consciousness expansion model.

Important in each of the four models was the attempt to incorporate the affective domain into the classroom. Confluent education and values clarification attempted this incorporation by replacing some of the cognitive curriculum and maintaining a separation between the two curricula. Those who taught transactional analysis as well as the group processing and relating skills of the National Training Laboratory believed that they were in possession of a better way of life and sought to educate the psyches of their students without referring to the traditional curricula of the school.

It was almost as if many curriculum developers became aware of a new dimension of experience. They became so engrossed in this experience that the original purposes of education and the means by which they were accomplished were bypassed. Rubin(1977) believed that these writers were not aware of public expectations and the resultant dissatisfaction of the public when the expected activities and goals of schools were not met.

3. Affect for Educational not Therapeutic Aims

Rubin(1977) and Jones(1968 and 1973) were concerned that there was often a blurring of distinctions between what psychiatrists did and

what some educators did.

Each noted that educators were not psychiatrists. Frequently the activities conducted in the name of psychological, humanistic, or affective education could not be distinguished from psychotherapeutic interventions. Jones differentiated the educational model from the psychotherapeutic model at several points. Jones claimed that teachers stimulated the imagination of a group of pupils. Pupils were led to creative learning by gaining mastery of their imagination. On the other hand psychotherapists stimulated the imagination of individual patients to accentuate helplessness and anxiety. Teachers wanted creative learning. Psychotherapists wanted anxiety. Jones saw a large difference between creative learning and anxiety; between mastery and helplessness; between a group and an individual. Emotion for the psychotherapist was something to be controlled and expressed. That was the desired end point of successful therapy. For Jones emotion was potentially valuable in education. Jones believed that the subject's personal relevance would be increased by involving the student in exploring personal and emotional reactions to the subject matter.

However, Ebel(1972) noted that schools were established and maintained for the teaching of functional knowledge. He saw affective education as irrational in that feelings were a result of behaviour or achievement. Feelings were unteachable and they were transient.

Scriven(1973) also criticized those who encouraged the use of emotions as a guide to life. Emotion could be included as one element to be evaluated with other data in reaching a decision. For Scriven reason was the final arbiter.

Educators knew that emotion was significant in motivation.(McTeer, 1972) If an experience was pleasant, it contributed to the pupil's

perseverance with that experience. In addition activity toward a goal was frequently because the pupil perceived the possibility of a pleasant experience. The particular motivation of an individual was a product of the conditions in the environment and the feelings of the individual.

Carkhuff(1984b) attempted a systematic approach by which affect and cognition could be interactively incorporated in the classroom. He and his associates provided teachers with an outline of the skills involved in identifying, discriminating, and communicating in the affective domain.(Carkhuff and Pierce, 1977) They also provided teachers with an outline of the skills involved in identifying, planning, and delivering the content of the curriculum.(Berenson, Berenson, and Carkhuff, 1979) As well he offered the integration of these two skill areas to develop teachers so that they were more able to know the thoughts and feelings of their pupils and who were also able to provide the appropriate teaching programmes for these pupils.

In a summary of research findings (Aspy and Roebuck, 1977) teachers who were trained in these two skill areas had pupils with higher school attendance rates, greater scholastic achievement, and fewer discipline problems than a control group of teachers.

4. Piaget and the Relationship of Affect and Cognition

Piaget has had a tremendous impact upon educational and developmental psychology. Yet, as he admitted, "Freud focused on emotions, I chose intelligence." (Decarie, 1978, p.183) Piaget gave only a small place in his work to outline the development of affect. He noted three principles regarding affect and intelligence.

> 1. The Principle of Indissociability. Both affect and intelligence were always present and could not be separated. Neither was first or causative. Affect and intelligence were complementary. Emotion could accelerate, delay, or disturb what Piaget called mental acquisitions. For Piaget affect was like fuel to a car. However, affect had no effect on the structure of intelligence.
>
> 2. The Principle of Functional Parallelism. Just as intelligence developed according to a structure, so also did affect have a parallel, developmental structure. While Piaget did not fully develop, test, and make explicit the parallels, he hinted that intelligence provided the structure and affect provided the dynamic for the development.
>
> 3. The Principle of Interaction. Piaget believed that the development of intelligence occurred within an affective relationship with other people. The play of ideas would have affective components that were important in many ways. But for Piaget affective development and the theories that accounted for the scanty data were "damned provisional." (Decarie, 1978)

Piaget provided a base for understanding motivation that was in opposition to the psychoanalytic and drive theorists and that widely accepted by stimulus-response advocates. One wishes that he had given a fuller account of his insights.

> "All interaction with the environment involves both a structuring and evaluation. . . We cannot reason, even in pure mathematics, without experiencing certain feelings, and conversely, no affect can exist without a minimum of understanding or of discrimination." (Piaget, 1947, p.6)

5. Other Studies

Recently, Zajonc (1980, 1984) raised the possibility that affect could come before any cognitive process. This possibility arose because of a number of indicators, from various research findings, none of which comprised full evidence. People appeared to like or dislike something without knowing what it was. Bartlett's research indicated that people frequently reported how they felt first and then later gave the content of a remembered experience. Possibly, animals in fear escaped to a safer place and only then analyzed what they had run from. There was a rapid emotional reaction and a lack of control over the emotion in many situations. People had difficulty in verbalizing affective states. Physically colour was made up of brightness, hue, and density, but individual preferences were not related to these factors. The limbic system was a more primitive system than the neo-cortex. These pieces pointed to the possibility that affect could occur before thinking. Zajonc proposed the progression of stimulus, sensory process, affective reaction, recognition, and feature discrimination which led to further affective and thinking reactions.

Criticism of the primacy of affect was not long in arising. O'Malley (1981) noted that whenever the self was involved, there would be both affect and cognition. The affective judgment could be false, as rabbits ran from many things and situations that were not dangerous. If cognition included beliefs about objects, then the possibility arose that affect was also included in cognition.

Lazarus (1980, 1984) maintained a refusal to separate affect and cognition and resisted attempts to increase the importance of affect over thinking.

Still others (Goodyear and Bradly, 1981) appreciated that affect

was included in the human equation. In their counselling experience people were not changed by information alone. Decision making methodologies that neglected the affective components were doomed to failure. People had difficulty in justifying and explaining their emotions. Yet, the affect had an experiential validity that went beyond the cognitive content. People were influenced in the decision making process by the emotional value that was given to the content.

Bower (1981) noted that cognitive psychology was currently trapped into emphasizing the thinking process as modeled by a computer The cognitive model did not in and of itself exclude affect. The cognitive information processing model could include emotions if research was conducted that gave evidence that the affective influence was significant and could be applied beneficially.

Bower had earlier worked with the assassin of Robert Kennedy and reported that the individual remembered the assassination only when he was highly aroused and in a state similar to that when the murder took place. Bower recognized the possibility that the affective state of the individual at the time of learning and at recall could be important factors.

Bower hypnotized susceptible subjects and put them into a happy or sad mood by asking them to return to a happy or sad event in their lives. In this mood they learned a list of words. Then, all subjects were put into the other mood and they learned a second list of words. For the recall tests all subjects went back into a happy mood by remembering another happy event. Subsequently, they were put into a sad state and tested. Subjects recalled more when they were in the same mood at the time of recall as when they learned the list. He called this the mood state dependent retention effect. Bower also

noted that people attended more to events that matched their emotional state. He called this the mood congruity effect. In addition Bower found no difference in the amount learned whether the subjects were in a happy or sad mood.

For Bower the effect emotion had on cognitive processes was pervasive. There was a straightforward matching of mood at time of learning with mood at time of recall. People who were sad recalled more sad events. In addition people interpreted events according to their mood. Events were selected that matched the present mood. Bower also noted that intensely experienced events were more likely to be recalled.

E. Summary

Studies of the anatomy and physiology of the brain showed that affect and memory were closely related. However, efforts to specify the exact nature of this relationship were not successful. There were difficulties in identifying the role of affect in the classroom. Some educators stimulated affect in the classroom by borrowing heavily from psychotherapeutic techniques. However, the utilization of affect for achieving the traditional aims of education was rare. The next chapter will explore one learning task that related affect and cognition.

Chapter Two

The Effects of Learning Tasks on Recall

A. Research Associated with the Levels of Processing Metaphor

1. The Levels of Processing Model

One of the more powerful variables that is associated with increased retention of material to be learned is referred to as a learning task. What the individual does with the material while paying attention to it has a large effect upon the probability of recall. This is parallel to the finding from paired associates learning that the manipulation of response meaningfulness has a substantial effect on learning outcomes whereas the manipulation of stimulus meaningfulness has much less effect.(Reese and Lipsitt, 1970) The learning task can be performed with the intention that the material is to be recalled at a later time. This is known as intentional learning. If the learning task is done without the knowledge that recall of the material is to be tested, it is known as incidental learning.

The relationship between the kind of learning task and memory performance is well known and based on experiments that were first performed in the nineteenth century. Kirkpatrick (1894) developed three lists of ten words each that represented items that were common at that time. The words in list one were presented aurally, one every two seconds. Those in list two were written on a blackboard one at a time for a similar period of time then erased. The objects named in list three were presented. The subjects (379 pupils from primary

school through to university) wrote down all the items that they could remember after each complete presentation. Included in his findings were results that pointed to primacy and recency effects, the difference between recall and recognition, the effects of immediate and delayed recall, the power of using imagery as an aid to recall, the effects of different learning tasks, the benefits of associations, and individual differences. Kirkpatrick pointed to many potential fields for further investigation and practical implementation in the classroom. These potentials were not more fully drawn upon for more than half a century as the behaviouristic model was the dominant paradigm. The importance of the subject's activity with the material was neglected in favour of approaching learning from the perspective that emphasized external inputs. There were very few researchers who went against the behavioural tide.

More recently, the effect of the learner's activities while learning has been investigated by workers interested in the levels of processing hypothesis.(Craik and Lockhart, 1972) According to this hypothesis, the amount of information accurately recalled was a product of the quality of attention given to that information while it was in the short term store. Two corollaries flowed from this basic position.

1. Memory was unaffected by repetition at a constant depth of processing.

2. Memory increased as the depth of processing increased.

The amount of time that an item was in the short term store and the number of repetitions given to that information was thought to have no influence on the amount of recall. What was hypothesized to make a difference in recall was the quality of the processing. Deeper

processing was thought to elaborate the information to a greater extent which affected the depth and spread of the associated links that would be attached to the information. The deeper that an item was processed, the greater the probability of its recall.

There have been numerous experiments that have supposedly demonstrated this effect. Yet, none of them have adequately explained and operationalized the depth of processing metaphor to free it from being a tautology. Thus, these experiments have not been successful in testing the depth of processing hypothesis. As Nelson(1977) concluded, the evidence confirmed only that different processing methods had different results.

This model of memory and recall has done much to stimulate research. However, there has been dissatisfaction with the model even to the extent that Wickelgren(1981) declared the hypothesis dead and buried and no longer relevant. He came to this conclusion because

1. semantic processing did not guarantee a high level of learning,
2. high performance on memory tests was not guaranteed by semantic processing,
3. much learning happened after lower levels of processing, e.g., repetition, and
4. there was frequently no difference in the forgetting rate between material that had been learned after a structural or a semantic learning task.

Craik(1979) has since modified the levels of processing metaphor to state that the amount of information recalled depended upon the amount of elaboration achieved by the subject. The amount of

elaboration depended on the task itself, the familiarity and fluency of the subject with the task, the nature of the material, and other characteristics of the subject. The end result of including all of these variables was an idiosyncratic encoding of the material. According to Craik, with deeper levels of processing there were more individualistic interconnections with other material. Craik saw the model as a tool to integrate research findings and to stimulate new research. Yet, because of the lack of an independent validation of the levels of processing, the most that could be concluded from this research was that different learning tasks had different results when recall was tested.(Horton and Mills, 1984) Nelson(1977) saw the hypothetical model as a powerful image that was immediately clear, yet explained nothing.

Be that as it may, a piece of information from this research has emerged that deserves more study. Without being committed to the levels of processing model one of the most effective learning tasks in terms of the amount of material accurately recalled was requiring the subject to give a pleasantness rating to the material. The original studies that explored this effect will be described. Then, attempts to explain the effect will be presented, followed by the development of a possible model that could establish this so far isolated facet of information within a larger body of knowledge that has practical applications.

2. Pleasantness Rating and Memory

Hyde and Jenkins (1969 and 1973) in a series of experiments performed multivariate analyses on the effects of different learning tasks on memory. They replicated the findings of others that associated material was more fully remembered than non-associated material. Additionally, subjects, who intended to remember, recalled more than subjects who did not. When taken in isolation, each of these effects was significant. However, an even more powerful variable was the nature of the learning task.

University students in a large lecture hall were randomly given one of five learning tasks to perform on the material which was twenty-four words. These tasks were to:

1. rate the word on a five point pleasant to unpleasant scale,
2. estimate the frequency of usage of the word on a five point scale from very frequent to very infrequent,
3. check if the letter "e" or "g" was in the word,
4. judge whether the word was a noun, verb, or adjective, or
5. judge whether the word could fit into a given sentence frame.

The word was presented orally and the subjects had three seconds to respond on their answer sheet. At the end, they were asked to recall as many of the twenty-four words as they could. The results are shown in Table 1.

Table 1. The Relationship between Several Learning Tasks and Performance on a Recall Test (Hyde and Jenkins, 1969)

Learning Task	Words out of 24 Recalled
Pleasantness rating	14.35
Frequency of usage	12.40
Part of speech	8.90
Check "e" or "g"	7.95
Sentence frame fit	7.05

The subjects who gave a pleasantness rating to the material recalled the most. This learning task was the most effective method of these five learning tasks for those subjects with the material that was given.

Numerous learning tasks involving the recall and recognition of words and pictures have been tested. Giving a pleasantness rating has been compared with most of these learning tasks and found to be the most effective learning task in terms of the total amount recalled and recognized. Among the learning tasks reported in the literature are those listed below.

Give a pleasantness rating.
Can it be held in the hand?
Can it be used as a weapon?
Is it man made?
Is it active or passive?
Does it fit a category?
Is it familiar?
Is it concrete?
What is the number of attributes?
How strong is its image?
How frequently is it used?
How meaningful is it?
Is the face likable?
Is the face honest?
Create a story with these.
Construct links between these.
Read in inverted typography.

Battig (1979) compared seven of the above methods and found that giving a pleasantness rating was the most efficient learning task for both recall and recognition tests. Subjects were presented with a total of thirty-six words. Each subject processed twelve of the words by one learning task, twelve by two learning tasks, and twelve by three tasks. The subjects were given the same amount of time whether they had one, two, or three learning tasks to perform. Subjects recalled more of the words that had been processed by more tasks. There was a positive correlation between number of tasks performed and the number of words recalled. However, the strongest influence was from the main effect of the learning task.

Table 2. The Amount of Recall and Recognition under Different Learning Tasks (Battig, 1979)

Learning Task	Percentage Correct	
	Recall	Recognition
Pleasantness Rating	26.4	92.8
Familiarity	20.0	79.9
Concreteness	18.9	83.2
Number of Attributes	18.7	86.5
Imagery Strength	17.7	81.6
Categorizability	15.3	78.5
Meaningfulness	14.8	83.5

Toglia and Battig (1978) also rated 2,854 words on each of seven characteristics.(See Table 3) Thus, each of the chosen words was rated for pleasantness, familiarity, concreteness, number of attributes, imagery, categorizability, and meaningfulness. There were strong intercorrelations between concreteness, imagery, and categorizability that indicated that these factors could not be separated for most words in the English language. The ratings for pleasantness were relatively independent of the other dimensions. This independence could have resulted because the pleasantness dimension engaged an emotional component that was not engaged in any of the other ratings.

Table 3. Correlations between Dimensions for 2,854 Words, (Toglia and Battig, 1978)

	IMG	CAT	MNG	FAM	NOA	PLS	Mean
Concreteness	.83	.89	.43	.32	.39	.22	.52
Imagery		.91	.68	.56	.54	.27	.64
Categorizability			.59	.49	.52	.28	.61
Meaningfulness				.82	.75	.31	.60
Familiarity					.55	.27	.50
Number of Attributes						.39	.52
Pleasantness							.29

In another study giving a pleasantness rating appeared to be beneficial for maintaining items in the iconic store as well as the verbal store. In a study using individual photographs of seventy-two faces (Bower and Kurlin, 1974) subjects viewed each photograph for five seconds and judged the sex, likableness, or honesty of the individual in the photograph under intentional or incidental conditions of learning. Under the intentional conditions of learning the subjects were informed that they were to be tested later on their recognition of faces. Under the incidental learning conditions the other subjects were given a cover story that the experimenters were testing the reaction time of the subjects in making a decision. No data was collected on reaction times for the three learning tasks. For the recognition of faces the intention to remember was not of critical importance. Judging the sex of the individual was not as effective a learning task as the other two methods.

Table 4. The Recognition of Faces as a Function of Three Learning Tasks (Bower and Kurlin, 1974)

Learning Task	Accurate Recognition	
	Intentional	Incidental
Likableness	80	75
Honesty	76	81
Sex	56	60

3. Initial Propositions to Explain the Effectiveness of the Pleasantness Rating Learning Task

Was there a more familiar, underlying mechanism that could account for the findings? One method that was suggested was that of repetition. Or was this task effective because the task required the subjects to make a ranking along a continuum? Possibly any task that required the subject to rate or rank the material would be effective and the affective component would be shown to be of no import.

Postman and Kruesi (1977) acknowledged that judging the pleasantness of material was one of the most powerful methods of learning. However, they initially believed that this success could be explained by utilizing an extant learning task that had already been well researched, i.e., repetition. They hypothesized that subjects developed a pleasantness scale by comparing items to each other. By doing this, the subjects rehearsed the material more frequently than under the other learning tasks. For example, item "A" was judged to be a "3" on a pleasantness scale when it was shown initially. Then, item "B" was compared to "A" first and then placed on the scale. Item "C"

was compared with both "A" and "B" and then ranked. Possibly, this learning task encouraged increased item repetition which led to improved recall. Postman and Kruesi hypothesized that if the item was compared to a standard that was external to the given material, there would be less item repetition and hence less recall.

They attempted to separate the components of a rating that was derived by comparing to a standard independent of the material and a rating that was derived from inter-item comparisons. Their four learning tasks were as follows:

1. rating the pleasantness of the meaning of the word,
2. rating the pleasantness of the sound of the individual syllables of the word,
3. rating the frequency of usage of the word, and
4. rating the frequency of usage of the component syllables.

Table 5. Learning Tasks and Repetition: An Inferential Study (Postman and Kruesi, 1977)

Learning Task	Number of Words Correct out of 24	
	Incidental	Intentional
Pleasantness of Meaning	10.31	9.63
Pleasantness of Syllable Sound	6.38	7.31
Frequency of Word Usage	7.44	9.31
Frequency of Component Syllables Usage	4.69	5.50

It can be questioned whether the experiment demonstrated the effectiveness of giving a pleasantness rating in terms of repetition.

The subjects learned more words when the learning task focused on the complete word instead of just the syllables of the word. The subjects were tested only on complete words as the measure of the effectiveness of the learning task. It was not surprising that the learning tasks of rating the pleasantness of the word's meaning and the frequency of the word's usage were the two best methods. Of these two methods rating the pleasantness of the meaning of the word was superior.

One interesting result was that under the pleasantness rating learning task the subjects recalled on average 10.31 words under the incidental learning conditions and an average of 9.63 words under the intentional learning conditions. In all other results the subjects recalled more after knowing that they were going to be tested for recall than if they were not informed. The experimenters did not analyze or report the statistical significance of this difference. Possibly, it was a chance happening without significance. Several other understandable options could be advanced. This result was atypical of most comparisons of incidental and intentional conditions of learning upon subsequent recall.

One possible reason for the better results for the pleasantness rating learning task after the incidental learning conditions than after the subjects were informed that they were to be tested was that the pleasantness rating learning task was not a familiar learning task for the subjects. They were able to use it effectively in a relaxed manner under the incidental conditions. When the other subjects were directed to use the pleasantness rating learning task and informed that they were to be tested, possibly these subjects used the task perfunctorily and shifted to a less effective, but more familiar, learning task.

Another possible explanation for the differential results under the incidental and intentional conditions considered the attention of the learner. If the attention of the subject was concentrated on the word to be learned and the affect it was associated with, then it was more likely that the word was retained than if the attention of the subject was diffused through the word, the knowledge that a test was to come, the unfamiliarity of the pleasantness rating learning task, and the personal preference and past experiences with other learning tasks. All of these could lead to diffusion of the attention. If this were true, it would indicate that there could be a positive relationship between the intensity of the affect experienced in regard to the material to be learned and subsequent recall.

As all four methods required the subjects to rate and evaluate along some dimension and because the recall results showed differential results, the act of rating and evaluating per se cannot be used to explain the effectiveness of one of the learning tasks.

Possibly, the subjects created an internal comparison scale when they gave a pleasantness rating and this led to repetition of the words. Possibly, the subjects compared the frequency of the usage of the word to an external standard. There was a difference between the recall after the pleasantness ratings and frequency ratings, but it has not been established that this was because of increased item repetition. There was a difference between the amount of recall after rating the pleasantness of meaning and the pleasantness of syllable sound, but it has not been established that this was because of increased item repetition.

The effectiveness of repetition as a learning task has been questioned. This conclusion was drawn from an experiment by Craik and

Watkins(1973) that showed that maintaining an item over one, five, or twelve intervening items had no significant effect on recall. In this experiment subjects were presented a series of words one at a time. When a signal was given, the subject was required to say the last word in the series that began with the letter "g". Sometimes, the subject had to maintain the "g" word for only one instance before another "g" word took its place. At other times, the "g" word had to be maintained, presumably by repetition, over five or twelve words before the appearance of another "g" word. At the end of the word series, the subject was asked to recall as many of the "g" words as possible. There was no difference in the recall of "g" words that had been maintained for a short or a long period. Subjects were able to recall and forget all "g" words equally well. Simply to maintain a piece of information for a longer time span was not enough to improve recall in this setting. It can be inferred that increased item repetition was not likely to be the mechanism that could account for the level of recall after a learning task that required the material to be evaluated in terms of its pleasantness.

Further support for this position came from the work of Nelson (1977) who presented twenty words to his university subjects. They repeated the word once or twice during a standard length of time. The subjects who repeated the word twice recalled significantly more words than those who repeated it only once. Further work (Nelson and Vining,1978) showed that although it required ten repetitions of a structural analysis of a word to equal the recall established by a semantic learning task done once, the long term recall was equal. Once the material had been acquired, there was no superiority of recall of material learned by either method.

It should be noted that repetition could not be eliminated as one method of learning material to facilitate recall. Ebbinghaus in his experiments on the recall of meaningless syllables showed that repetition was an aid to recall. Repetition was an effective , if somewhat inefficient, learning task. This result would point to the likelihood that repetition was not the underlying mechanism for learning when giving a pleasantness rating because of the speed at which the original learning task was performed.

B. Problems for Research

1. Problem Development

The response of the subject in giving a pleasantness rating recorded the tone of the emotional reaction and the strength of the reaction. The tone was pleasant, neutral, or unpleasant. None of the reports noted above analyzed whether the subjects recalled more or less when they gave a pleasant, neutral, or unpleasant rating. There is a school of thought that tries to provide pleasant experiences for children in the belief that pleasant experiences are more likely to be recalled than unpleasant ones. In addition these educators believe that pleasant experiences translate into positive self-concepts. These educators would hypothesize that the material that was rated as pleasant would be more likely to be recalled than that which was judged to be unpleasant. (Slife and Rychlak, 1981)

However, evolutionary biologists and anthropologists have stated that both emotional reactions were conducive to establishing a memory that had a high probability of being recalled when necessary. Both

reactions were judged to be important for survival. Thus, the organism would be more likely to flourish if it could remember pleasant experiences such as the nuts that were nourishing and the places where the water was clear and pure, and the unpleasant experiences such as the plants that were bitter and the place of danger. (Kety, 1976; Plutchik, 1980; Tiger,1979)

These possibilities were briefly tested in an educational setting. Fitzgerald and Ausubel(1963) found that whether secondary school pupils were positively or negatively inclined toward a given subject matter had no effect on the retention of the material when general knowledge was held constant.

There is uncertainty whether the recall and recognition of material learned by giving a pleasantness rating may be superior when the response is pleasant or equal after pleasant and unpleasant responses.

Likewise, none of the reports analyzed whether the strength of the reaction was related to the performance on the tests of recall and recognition. It was unclear whether material was learned differentially according to the strength of the reaction. Kleinsmith and Kaplan(1963; Baddeley, 1976) reported that strong physiological reactions have been detrimental initially to the immediate recall and recognition of material. However, this material associated with a strong physiological reaction was recalled more effectively at a later time. It was unclear whether the intensity of the self-report of the subject was related to performance on recall and recognition measures. In addition there has been little reported work on the possible interaction between the tone and the strength of the rating on subsequent recall measures. It appeared that making a pleasantness

rating was a powerful learning task that led to superior recall. Yet, what was this effectiveness based on? There was a lack of clarity as to

1. the factors in the task that led to improved recall,
2. the factors associated with the learner that led to improved recall, and
3. the theoretical framework that explained these factors most adequately.

By far the majority of subjects used in the above experiments were undergraduate university students. This immediately raised the question as to the generalizability of the effects. Several research questions appeared to be appropriate at this stage.

2. Research Questions

1. Are there any procedural features of the learning task that could be associated with differential outcomes?

1 a. Does the subject's response, whether pleasant or unpleasant, relate to subsequent recall?

1 b. Does the strength of the subject's response relate to subsequent recall?

2. How does the pleasantness rating learning task compare with other learning tasks in regard to memory outcomes?

2 a. Are the pleasantness rating and repetition learning tasks equally effective?

2 b. Are various well known learning tasks such as association,

imagery, and surface analysis equally effective as the pleasantness rating learning task?

3. Is there variability in performance using the pleasantness rating learning task?

4. Are younger, non-academically selected subjects able to use the pleasantness rating learning task effectively?

Chapter Three

Pilot Study

An experimental pilot investigation was conducted to explore whether the pleasantness rating learning task was effective with younger learners. The sample was ten Form II pupils who were the entire graduating class from a rural school. There were five males and five females. Five were twelve and five were thirteen years old. This investigation was performed with a small sample before committing resources to a larger sample.

A. Operationalization

1. Material to be Learned

Individual words have frequently been chosen to test learning effects. It could be questioned how effectively the learning of single, unconnected words would relate to more complex learning materials such as concepts or skilled procedures. Generally, it was found that when more complex materials were reduced to simpler elements, the learning of the simpler elements proceeded more efficiently and the performance of the complex whole was gained more easily. This was the foundation of many of the reductionists. (Skinner, 1968; Gagne, 1970; Harte, 1975) One of the bases of many complex learning aims could be traced back to individual words. This thesis is making no test as to the effectiveness of the pleasantness rating learning task with more complex materials.

A list of one hundred words was developed which was used as the pool of material that subjects were expected to remember. From the first three levels of the New Zealand Council for Educational Research Spelling List(1968) were selected words that were also in the Paivio, Yuille, and Madigan (1968) list which quantified values for each noun on the dimensions of imagery, concreteness, and meaningfulness.

The words in the spelling list were used by almost all New Zealand primary schools as a basis for graded spelling lessons. By the end of standard two, most children would have been exposed to these first three levels in their spelling lessons. In addition it could be expected that the children would be quite familiar with all of these words as they were drawn from words frequently encountered in speech and the reading series including supplementary readers provided to New Zealand schools were built on these words. School reading journals also utilized the spelling lists as a basic source for suitable words.

Paivio, Yuille, and Madigan (1968) established norms for three possible characteristics of nouns. One thousand words were presented over time to university students who rated each word on a seven point scale with low imagery and high imagery being the end points of the scale. Subjects judged the ease with which an image arose when reading the word. The overall mean for imagery on their list was 4.97 with a standard deviation of 1.93. The mean for the fifty words which were used was 6.17 with a standard deviation of 0.91. The sample used had a higher mean value and was more restricted in range than the 925 words that Paivio, Yuille, and Madigan (1968) used.

The same 925 words were rated on a seven point concreteness scale with the extremes of the scale labeled highly abstract and highly concrete. The mean for concreteness was 4.95 with a standard deviation

of 3.51(sic). The mean for the sample was 6.33 with a standard deviation of 1.03. The sample had a higher mean value than the total list used by Paivio, Yuille, and Madigan(1968).

Paivio and his associates obtained a measure of meaningfulness by showing the same words to the subjects who wrote down all of the associations that they could think of for one of the words in thirty seconds. This procedure was originally developed by Noble(1952). The basic hypothesis was that highly meaningful words would have more associations which would be shown by a higher number of words written in a given time span. The mean for meaningfulness was 5.81 with a standard deviation of 1.21. The mean for the sample was 6.84 with a standard deviation of 0.86. Thus, all three characteristics had higher mean values and were more restricted in range than the total list used by Paivio, Yuille, and Madigan(1968). All three measurements for the sample taken from the spelling lists which were in the calibrated list were skewed in the expected direction, i.e., the selected words had a higher imagery value, were more concrete, and were more meaningful than those words not selected.

The pool of one hundred words was randomly divided into ten lists of ten words each. The ten resulting lists were tested for similarity using the data for concreteness, imagery, and meaningfulness.(See Table 6)

Table 6. The Range of Imagery, Concreteness, and Meaningfulness for Five Lists of Words

	Word List Number				
Range	1	2	3	4	5
High	I		M		I,C
Middle	C,M	C,M	I,C	I,M	M
Low		I		C	

Key: I = Imagery C= Concreteness M = Meaningfulness

To accentuate the possible effects of these three characteristics upon recall and recognition word lists shown in Table 6 were chosen to be the lists that were shown as material to be remembered. The other fifty words were retained to be included as distractors in the recognition test. These words were similar to those used as material to be learned.

2. Learning Tasks

The learning tasks were those activities the learners did with the words during the few seconds the word was on the screen and the response required on paper. The five activities were considered to be common strategies to improve memory. Included here is the transcript of the tape recorded directions given to the students.

Tape Recorded Directions

> You will be shown a word on the screen briefly. During the time that it is on the screen, look at the word and do the task that you have been given. When the word goes off the screen, very quickly mark your paper and be ready for the next word.

Pleasantness - Unpleasantness

Find section one on your paper. It says pleasantness - unpleasantness. When you are shown a word on the screen, think how pleasant or unpleasant it is. For example, see the word "SOIL" on the screen. Some people will think soil is pleasant because plants grow in it. They will put a circle around "P". Some other people will think soil is very unpleasant because it makes things dirty. They will put a circle around very unpleasant. Some will think that soil is neither pleasant nor unpleasant. For them it is neutral. They will circle the letter "N". There is no correct answer. What is important is that you look at the word and think how pleasant or unpleasant it is for you. And you put a circle that shows how you feel about the word.

Similar Item

Find section two on your paper. It says similar items. When you are shown a word on the screen, think about other words that are similar. For example, see the word "GAME" on the screen. Some people will think of the words play, four-square, and tic-tac-toe. They will have thought of three similar words and will put a circle around the number three when the word goes off the screen. If you can think of no similar words, put a circle around zero. If you can think of more than four similar words, put a circle around four plus. There is no correct answer. What is important is that you see the word and try to think of words that you think are similar, and that you put a circle around the number of words that you have thought of.

Repetition

Find section three on your paper. It says repetition. When you are shown a word on the screen, say the word several times silently to yourself. Keep repeating the word to yourself until it is taken off the screen. Then put a circle around the number of times that you have repeated the word. For example, some people will repeat the word twice. They will put a circle around the number two. Some people will repeat the word five times. They will put a circle around five plus. There is no correct answer. What is important is that you look at the word and repeat it silently. And you put a circle around how many times you repeated the word.

Letter "e" or "g"

Find section four on your paper. It says letter "e" or "g". When you are shown a word on the screen, look to see if the word has either the letter "e" or the letter "g" in it. If the word has either of these letters, put a circle around yes. If the word has neither of these letters, put a circle around no. For example, see the

word "SOIL" on the screen. It has no "e" or "g" so you would circle no. See the word "MEDICINE" on the screen. It has the letter "e" in it so you would circle yes. There is a correct answer. What is important is that you look at the word and check if there are any letters "e" or "g" or both of them in it and you put a circle around yes or no.

Imagine self

Find section five on your paper. It says imagine yourself. When you are shown the word on the screen, imagine yourself being on TV with that item. For example, see the word "MEDICINE" on the screen. Some people could imagine that they are in a hospital going around giving medicine to every person that they meet. They are able to imagine themselves with the word. If you are able to imagine yourself and the word together in any situation, put a circle around yes. If you cannot see yourself and the word together, put a circle around no. There is no correct answer. What is important is that you try to see yourself with the word and you put a circle around whether you are able to see yourself with the word or not.

3. Memory Tests

Following the suggestions of Craik (1979), memory was assessed twice; immediately after acquisition by free recall and after an interval of time and other activities by recognition.

B. Procedure

The research design for the pilot study was a 5X5X2 analysis with incomplete blocks due to the small sample.

Subjects were tested individually with the order of both the learning tasks and the word lists being varied randomly. With a small sample it was not possible to systematically cross each learning task with each word list. This could have led to some distortions in the data which could not lead to a totally confident interpretation whether the effect was due to the characteristic of the list or the task.

However, there was thought to be enough crossing of tasks and lists that some general indication of main effects could be gained from the pilot study.

After listening to the general directions, each subject was given directions for one of the learning tasks which were randomly ordered. The first word was shown on a screen at eye level, approximately 1.5 metres from the subject. The word was projected from an overhead transparency which darkened the entire screen except for the word. The subject recorded a response on the paper as required by the learning task and resumed looking at the screen. The screen was blank for approximately twice as long as the word was on the screen. The timing was measured to be approximately three seconds on and six seconds off.

At the end of using one learning task with ten words, the experimenter asked a mental arithmetic question to disrupt repeating of the words.

Immediately after answering the one question, the student wrote down all of the words that could be remembered from the ten presented. Then, the student was given another learning task and another ten words to respond to according to the tape recorded directions. The next mental arithmetic question was asked and the student wrote down all of the words that could be remembered from the second list. This procedure continued until all five learning tasks, word lists, mental arithmetic questions, and free recall tests were completed.

The student was asked individually to compare all of the learning tasks and to explain the basis for the judgments. Then, the subject was asked what was usually done to remember information, how successful this method was, and other personal tactics used to remember information.

After the ten minute interview, the subject was given a list of one hundred words in alphabetical order which included the fifty words that had been presented as well as the fifty distractors which were drawn from the similar pool. The subject was directed to choose fifty words that were presented previously on the screen.

C. Data Analysis

Most of the experiments testing the effectivenenss of the pleasantness rating learning task took one of two forms. In some (Hyde and Jenkins, 1969) over one hundred university students in one room were randomly given one of five learning task directions. Thus, one student was instructed to process the given word with imagery, the next student was instructed to process the same word at the same time by repetition, and so on. The word was given to all of the students at the same time aurally. At the end of the list of words, each student wrote all of the words that could be recalled. Students were randomly assigned to a learning task and all were provided with the same material to learn.

Some (Hyde, 1973) presented the material to be learned to a class of under thirty students all of whom learned the list using the one method. The same list was also learned by another class of university students using another method. Subsequently, these intact group results were compared.

The second of these experimental designs was not completely elegant because of the assumption of group equivalence. However, there were a large number of subjects(20 to 30+) in each group who were randomly assigned by group to one of five learning tasks. The

experimenters working with these large numbers were able to quickly obtain data that allowed them to test for differences in learning outcomes that could be attributed to the learning tasks.

These procedures were judged to be unsatisfactory for younger students for several reasons. Schools did not have large pools of relatively similar individuals to be split into five experimental conditions. It was also considered risky to consider schools as equivalent units to which learning tasks could be randomly assigned. Further, it was desirable to test the effect of the learning tasks over four grade levels as well as the further division of sex to extend the generalizability of the findings. It was expected that there would be a relatively large amount of variability that would be attributed to differences in the students that existed before the experiment. This variability was important. It was hoped to identify some of the sources of the between student variability instead of attributing it to the unknown of experimental error. For these reasons it was decided that each subject would experience each of the five chosen learning tasks. The memory results for the subjects would be analyzed using a repeated measures design as suggested by Winer (1971) and operationalized by the Statistical Package for the Social Sciences (Hull and Nie, 1981) In this method of data analysis each subject was observed under each of the treatment conditions. The average correlation of the individual's five memory scores was accounted for and thus eliminated from the experimental error. If the student's scores were self-correlated, the experimental error mean square would be reduced and the F-ratio of the main effects would more sensitively show their contribution to the variance. Thus, repeated measures provided a statistical control on the differences between the subjects

that existed before the experiment began. In effect the ten students in the pilot study undergoing five learning tasks would provide data equivalent to fifty students doing one learning task each.

D. Results

1. Free Recall and Recognition by List

There were five different lists of ten words each. As shown in Table 6 (page 49 each list tended to accentuate or diminish the strength of one or more of the characteristics of imagery, concreteness, or meaningfulness. As the words in each list were learned by different methods by different subjects an analysis of variance was done to determine whether there was any systematic variance in the amount of recall or recognition that could be attributed to the lists. Table 7 summarizes this information.

Table 7. ANOVA by List for Recall and Recognition

	Recall by List		Recognition by List	
	Mean	S.D.	Mean	S.D.
List 1	5.1	2.64	7.1	2.51
List 2	5.1	2.08	8.8	1.40
List 3	5.6	1.51	8.9	1.60
List 4	5.7	1.77	8.8	1.23
List 5	5.4	1.96	7.9	2.51

ANOVA Free Recall by Lists

Source of Variance	SS	df	MS	F	
Lists	3.08	4	0.77	0.1878	NS
Residual	184.7	45	4.10		
Total	187.78	49			

ANOVA Recognition by Lists

Source of Variance	SS	df	MS	F	
Lists	24.6	4	6.15	1.65	NS
Residual	167.9	45	3.73		
Total	192.5	49			

The two analyses of variance point to the high probability that there was no significant difference in the free recall or recognition of the material that could be attributed to the characteristics of the lists. In these circumstances the lists can be considered to be equivalent. Thus, a group of words that tended to have high imagery values did not differ from a group of words that tended to have low imagery values as measured by the amount that was recalled or recognized. The same could be said about the factors of concreteness

and meaningfulness. These three factors as quantified by Paivio, Yuille, and Madigan (1968) did not contribute significantly to the listwise variance in recall or recognition. The memory of students for List 1 appears to be lower than that for the other lists. This list was used by seven of the ten students on learning tasks which were shown to be less effective,i.e., repetition and detecting the letter "e" or "g". The other lists were more evenly distributed among the learning tasks.

2. Free Recall and Recognition by Learning Task

There were five different learning tasks which also had differing response modes. The five learning tasks and their response modes were:

Task	Response
Detection of the letter "e"or"g"	Circle Yes or No
Imagine self with the word	Circle Yes or No
Repeat the word silently	Circle Number of Times Word Repeated
Associate Similar Words	Circle Number of Words Associated
Make a Pleasantness Rating	Circle a Position on a Scale

An analysis of variance was performed to determine whether there was any significant difference in the amount of recall or recognition that could be attributed to the tasks.

Table 8. ANOVA by Learning Task for Recall and Recognition

	Recall by Task		Recognition by Task		
	Mean	S.D	Mean	S.D.	Total out of 20
Pleasant	6.3	1.77	9.4	.70	15.7
Imagine	6.1	1.79	9.3	.95	15.4
Associate	5.8	1.75	9.5	.53	15.3
Repeat	4.9	1.45	7.1	1.79	12.0
"e"or"g"	3.8	2.15	6.2	2.44	10.0

ANOVA Free Recall by Learning Task

Source of Variance	SS	df	MS	F	Prob
Between People					
Sex	0.02	1	0.02	.005	NS
Residual	32.88	8	4.11		
Within People					
Task	95.00	4	23.75	12.77	.0001
Task X Sex	5.08	4	1.27	0.68	NS
Residual	59.52	32	1.86		
Total	192.50	49			

ANOVA Recognition by Learning Task

Source of Variance	SS	df	MS	F	Prob
Between People					
Sex	6.48	1	6.48	0.79	NS
Residual	65.60	8	8.20		
Within People					
Task	38.28	4	9.57	3.18	.026
Task X Sex	9.32	4	2.33	0.77	NS
Residual	96.40	32	3.01		
Total	216.08	49			

The analyses of variance point to the very high probability that the differences in the amount recalled and recognized by the subjects cannot be attributed to chance. The learning tasks made a difference

for these younger learners as to the amount that they were able to recall and to recognize.

These results with New Zealand Form II students were similar to the results obtained by various experiments conducted with university students. In general the amount of successful recall and recognition was affected more by the learning task than by characteristics of the material or by the behavioural response required. Subjects circled a yes or a no for both "imagine yourself" and "check 'e''g'" learning tasks. Also, subjects circled a number to indicate how many times they had done the required activity for both associating similar words and repeating the word. Yet the number of words recalled and recognized was significantly different even though the response required was identical. This difference was attributed to the learning task.

E. Conclusions and Further Directions

The pleasantness rating learning task appeared to work with younger students in a manner similar to university students. The results of the tests given to the small sample were supportive of further investigation of the phenomenon of good memory performance after giving a pleasantness rating. Two directions were considered to be worthy of further extension. One was to extend the numbers in the sample and to lower the age range. This was a straight forward push toward greater and more confident generalization and as such would not need extensive justification.

The second direction was an attempt at explaining the development and correlates of individual differences. What follows is a rationale followed by an exploration that will attempt to unravel some of the

possible factors associated with those individuals who perform well with the pleasantness rating learning task and those who do not. Simple explanations for performance that considered only the procedural features of the task and the material did not adequately account for either the successful attainment of a high memory standard nor did it explain the variance in individual performance.

Chapter Four

Social Sensitivity and Its Relationship to Pleasantness Rating

A. Characteristics of Subjects and their Relation to Recall and Recognition

In the pilot study there was variation in the total amount of material recalled and recognized by subjects. In addition there was variation as to the effectiveness of the various learning tasks. Some subjects performed more effectively using other learning tasks than giving a pleasantness rating, even though on average, it was the most effective learning task. What were the characteristics of the subjects that accounted for some of the variation in outcome?

1. Intelligence

One variable that was frequently associated with learning outcomes was some measure of global intelligence such as IQ. However, intelligence need not be considered as a unitary construct. Piaget (1947) considered the development of intellect through several stages. The highest level of development for Piaget was the stage of formal operations when the individual could manipulate and evaluate abstract constructs. This required both creatively associating various pieces of information and evaluating the appropriateness of the results.

Wallach and Kogan (1965) explored the correlates of intelligence and creativity. A sample of 151 students was evaluated on several measures of intelligence and divided into high and low intelligence

groups. These students were also divided into high and low creative groups. The students who were in the high creative half were less defensive and were open to exploring material which may have caused others some anxiety. These less defensive individuals were in Wallach and Kogan's term, physiognomically sensitive. Physiognomic sensitivity was the non-defensive awareness of the individual to emotional changes. This sensitivity was inversely related to defensiveness. For Wallach and Kogan physiognomic sensitivity represented a fusion of intelligence and creativity. This was relevant for the present study because some of the variance in memory after the pleasantness rating learning task may be accounted for by physiognomic sensitivity. Possibly, those subjects who were the most aware of emotional changes were more able to utilize the pleasantness rating learning task.

Gardner (1984) also noted that some individuals were more able than others to process intrapersonal and interpersonal information. These people were able to ensure the smooth functioning of the wider community. According to Gordon, the chief product of human intellect was a society that held together. Gordon put forward a theory of multiple intelligences which included linguistic, musical, logical-mathematical, spatial, bodily-kinesthetic, and personal intelligences. These domains were areas of potential intellectual competence that were distinct from each other. Of special relevance for this thesis were the intrapersonal and interpersonal intelligences. These included access to one's own feeling life and the ability to notice and make distinctions among other individuals, in particular, among their feelings, temperments, and intentions.

Belmont (1978) hypothesized that some individuals recalled more and were more intelligent because they spontaneously used more

effective learning tasks. Thus, there was the possibility that performance on criterion measures could be levelled out if the initial familiarity with both the material and the learning task could be made equal for all subjects. Belmont trained five year olds to use imagery as a learning task. They were then able to recall sixteen out of twenty-one items that had been presented to them as words. One inference from this research was that subjects who were supposedly more intelligent were more fluent and practiced in using learning tasks, such as giving a pleasantness rating and imagining, that were more effective than other learning tasks. If Belmont was correct, an attempt to include an intelligence measure would confound the results and approach a tautology.

2. Developmental Processes

Most of the findings from the research on cognitive processes and cognitive-affective links were assumed to be generalizable to most populations. This was a strong generalization to be drawn from experiments performed only on university students. On the other hand developmentalists looked at a segment of cognition or behaviour evidenced in an adult and frequently assumed that at one time in the individual's development that it was not there. They then wondered how it developed. Both assumptions, that of universality and of development, needed testing.(Flavell and Ross, 1981) Was the effectiveness of giving a pleasantness rating related to certain developmental links? Flavell and Ross and Zajonc(1981) believed that the affective response was early, not only in terms of response to any material, but also in the developmental history of the subject.

However, they acknowledged that it was largely an unknown development. Presumably, if the child had an emotional response to material at an early age, the learning task of giving a pleasantness rating could also be effective with young children.

Yarrow(1981) believed that there was an interaction of the emotional reaction, the cognitions, and the motor behaviour of the infant that led to the development of all three spheres. For example, the infant experienced an event, there was an emotional reaction and a physical reaction, the event was stored in memory, and it was then available for recall. Thus, from an early age the infant would be able to discriminate and hold in memory the characteristics of familiar people and events that were associated with emotional reactions. The pleasantness rating learning task could be derived from this procedure.

One necessary progression of skills to perform the pleasantness rating learning task seemed to be that the child would first experience an emotion upon presentation of the material, then be aware of the emotional response, and finally report it. In other words the child would have to be self-aware.

One explanation of the development of the individual's awareness of self grew out of the insights of Mead (1934; Hall and Lindzey, 1957; Light, 1979). Mead provided a sketchy theory of mental development which was consistent with his conception of the development of the self in a societal setting. Mead believed that a individual knew himself only to the extent that the individual knew others. At first, there was no self because he believed that an individual could not enter his own experience directly. This knowledge of others was first achieved by a child with the individual that Mead called the important other. Frequently, for children this important other was a

parent. The important other reacted to the child as an object of attention. As a consequence, the child began to think of self as an object who had attitudes and feelings. Initially, the child responded to herself as others responded to her. In a figurative way of speaking by knowing an important other the child was given a platform outside of self to use to observe self as an object of attention. Mead's self was formed through social interaction.

Instead of gaining an awareness of one's emotional responses through introspective exercises and the examination of individuals in isolation, Mead pointed to the possibility that the individual would interact with significant others, understand them first, and then understand self. Thus, the emotional awareness of one's self developed and was associated with an awareness of the emotions of important others in the first instance which then generalized to an awareness of others and to an increasing awareness of self.

Another finding from the research done in the framework of considering the child as a social being has been that the child, at all stages of development, was more capable of taking the roles of other people than Piaget originally thought. Shantz (1975) in reviewing the growing literature related to the development of social cognition defined role-taking as the the cognitive processes in knowing and understanding another individual. Along with this development in the ability of understanding the other person was the increase in ability to understand one's self. Role-taking was the activity or ability to take the position of another and to infer that person's perspective. It was not a general class of shared behavioural expectations which sociologists use to define role. Role-taking was more of a minute to minute performance.

In general Shantz (1975) found that:

> measures of intelligence related to role-taking skills between r=.20 and .40.
>
> Pre-school children were aware that others had a different visual perspective. They adjusted their verbal explanations somewhat to the different characteristics of their listeners. They were able to infer with accuracy the feelings of the other individual from facial cues or from the situation. They described the other individual in terms of physical appearance and gave an evaluation of the other person based on a personal framework.
>
> Children from five to seven were quite similar to the pre-school children except that they could more readily infer and consider the intentions of the other person. This inference could be easily swamped by the child being aware of the disapproval of an adult or by some large, negative results of the other person's behaviour.
>
> Children in middle childhood could infer accurately the feelings of others who were in unfamiliar situations. When they described others, a greater proportion of the information would be in terms of the inner characteristics of the other which had been inferred. At this age, the children also became aware that others could be aware of what they were thinking.
>
> During adolescence individuals could more accurately infer the feelings of others and explain them. They were aware that their self could be the object of the thoughts of a third person. There were additional refinements in the power and accuracy of their role-taking abilities.

Flavell (1968) conceived of four necessary steps for one to be considered successful at role-taking.

> 1. The individual had to be aware of the existence of another.
>
> 2. The individual had to be aware that it was necessary to take an inference of the other individual's perspective.
>
> 3. The individual made an inference.

4. The individual applied the information from the inference.

Higgins (1981) questioned whether there was actual role-taking at an early age or whether some other factor or factors could account for the accurate performance of the young child. He saw the ability to take on roles being contingent upon the ability to consider an increasing number of factors, e.g., behaviour, consequences, intentions, and internal personal information. Not only was the development of role-taking contingent upon the ability to consider a greater number of factors, but also upon the ability to inhibit one's own self. He saw that to be accurate in some role-taking situations demanded little more than identifying the context or audience or a common social reference person . ("That person is old. My grandmother is old. My grandmother felt such and such in a similar situation. That person who is also old feels the same as my grandmother.") To be an adequate role taker required the individual to be able to receive and relate multiple pieces of information, control and possibly inhibit personal responses, and have a good store of social knowledge. There were the dangers of making Type I and II errors in attributing role-taking ability. Some people had the ability, but did not use it. Some people did not have the ability to role-take, yet were able to appear to role-take accurately because they imagined how they would feel if they were in that situation. In many common, social situations this was sufficient to role-take accurately.

B. Egocentricity or Role Taking in Young Children?

Piaget (1926) concluded from his studies that children could not

take the perspective of another.

> "How then are we to characterize the stage of understanding between children before the age of seven or eight? It is no paradox to say that at this level, understanding between children occurs only in so far as there is contact between two identical mental schemas already existing in each child. In all other cases the explainer talks to empty air. He has not, like the adult, the art of seeking and finding in the other's mind some basis on which to build anew." (Piaget, p. 133)

Flavell(1968) in summarizing Piaget's findings concluded that this social isolation could be broken mainly through peer interactions that involved conflicts and arguments that forced the child to consider other's viewpoints. The egocentric thought patterns and behaviours could only gradually decrease after the child was seven or eight.

Piaget derived this picture of the young child as being locked in an egocentric world from several crucial observational studies.(Piaget and Inhelder, 1956) In one the child was seated looking at a three dimensional papier-mache construction of three mountain peaks and the surrounding countryside. Each mountain was distinct in some way from the others. The child was shown a doll that was placed on the other side of the mountain. The child was asked to describe what the doll could see. The children younger than seven or eight could not do this task. According to Piaget they were egocentric.

Two recent researchers have restructured this task and have shown that much younger children can take the perspective of another more accurately than Piaget suspected. Donaldson (1978) constructed several doll sized walls.

Then Donaldson showed the child a doll of a policeman and a doll of a child. The policeman was placed in the setting and the child was

asked to hide the doll of the child where the policeman could not find the child. Many four year old children could do this task as well as identifying appropriate hiding places when two policemen were placed at different locations in the setting. Not only were the children able to take the perspective of another, they were able at the same time to take the perspectives of two other individuals.

Donaldson interpreted the discrepancy between her findings and Piaget's in that the child had a clear understanding of the motives and intentions of the experimenter and the characters in the play. Hiding was a concept that was readily accessible to the children. Piaget's mountain task was more abstract and not drawn from the experiences of the children. It was suggested that there was a possibility that the experimenter who loved the mountains of Switzerland had not decentred in considering the feelings and plans of what the children could do and so drew conclusions that overstated reality.

Even Piaget's findings of the lack of object permanence in infants was questioned. Donaldson reported that an infant stopped reaching for an object if it was covered. Yet, if the lights were turned off, the infant kept reaching toward the object in the dark. Also, infants were shown to look in the same direction of their mother's gaze. These findings tended to shake the early foundations of egocentricity. In many settings the young child to some degree was able to get out of self and enter into another's world.

Donaldson held that too frequently the formal system of the theorist and educator was presented to children. Children apprehended the context of the experiment (the meaning of the setting, the verbal and non-verbal messages present) and frequently drew different conclusions from what was expected. In reality though the children

tried to make the situation meaningful. For example, when the question was, "Are there more red candies or candies?", the children substituted what was to them a more meaningful question, such as, "Are there more red candies or yellow candies?" Donaldson showed through restructuring the situation, the young children were able to distinguish between the quantity in a set and a sub-set. Any interpretation of these findings must include the conclusion that children were active in shaping the information that they received to make sense.

Working independently, yet with similar techniques and reaching similar conclusions, Light (1979) intensively studied a sample of fifty-six four year old children. The children performed various role-taking tests such as whether they would place a figure right side up for a person sitting opposite, identifying a face that expressed the feeling that was appropriate for a story, finding a hiding place similar to the Donaldson task above, and other tasks. They were tested for intelligence, their mothers were interviewed, they were observed interacting with their mothers, and they were followed up after they had been in school for six months. Some of the findings follow.

Role-taking ability correlated between .29 and .61 with intelligence.
Role-taking ability was significantly and positively related to:
children who played games with rules
children who played symbolically
mother's educational level
mothers who kept a low profile in interactions with the child
children who were punished infrequently physically
children who were successful in social adjustment at school

children who learned to read quickly at school

children who spoke appropriately for different individuals

children who had concentrated, individual interactions with an adult.

There was no relation to play or amount of play with peers with role-taking ability.

There were no social class differences either.

These findings supported Mead's approaches and raised questions about Piaget's and Flavell's emphasis upon peer pressure as the mechanism that developed an appreciation of the other's viewpoint. Also, the degree of egocentricity of young children was questioned.

> "From early infancy the child appears to show some sensitivity to alternative visual perspectives, but that such sensitivity will probably only be manifest in very simple situations where the instructions are explicit and the content of the perspectives uncomplicated. Development from this point onwards is towards a greater disposition to take perspectives and a greater ability to construct the content of another's perspective, so that perspective taking becomes manifest in more, and in more complex situations. We are suggesting, then, a gradual development of perspective-taking abilities which has already begun by the second or third year of life and which is quite well advanced by the end of the preschool period. . . . Known features of the behaviour of preschool children thus lend some weight to the findings of the role-taking studies which have been reviewed. Such children undoubtedly do behave egocentrically in a host of ways, but their egocentrism is far from complete and does not constitute nearly as tight a strait-jacket as has often been supposed." (Light, 1979, pp. 20,25)

If children from an early age had some proficiency at being able to perform clearly specified role-taking tasks, it can be inferred that they would be likely to have some proficiency in being aware of their own emotional reactions to material that was to be learned. Thus, it

could be likely that the pleasantness rating learning task would be an effective learning task for those children who had role-taking ability. It could also be inferred that those children who were poor at role-taking would be more likely to be poor at being aware of their own emotional reactions and for them the pleasantness rating learning task would possibly not be an effective learning task.

The empathy training programmes of Carkhuff (1984a), Gazda (1977), and others could be appropriate interventions to develop some of the empathic abilities. These authors utilized a reliable methodology to develop empathy in a wide range of people. It could be hypothesized that those who were poor at role-taking could develop the appropriate skills. With these skills, they possibly could use the pleasantness rating learning task as effectively as others who were initially skilled at role-taking. This could be an area for further experimental study.

Another possibility to account for the evidence of role-taking capability in young children was that empathic behaviour was "hard wired" into most humans. Hoffman(1975) gave accounts of infants and young children who exhibited behaviours that could be interpreted as indicating empathy. Two day old infants cried with signs of distress when a recording was played of another infant crying in distress. Two month old infants followed the direction of their mothers' gaze and looked in the same direction. Hoffman also gave accounts of toddlers of twenty months observing an age mate crying, going away to locate their comfort device, offering this to the crier, noticing that the crier was not comforted, and then going and retrieving the crier's comfort device which was successful at stopping the observed distress. Even if empathic behaviour was "hard wired" into most humans at birth,

there remained the possibility that the ability could be interfered with by environmental conditions offered by parents or others.

The presence or absence of empathic abilities in a child could have been affected by one or more developmental determinants. Bateson(Open University, 1981) noted several categories of determinants. Some determinants start something happening (initiation), some determinants make it easier for something to happen without actually starting it somewhat in the nature of a catalyst (facilitation), and some determinants help something to continue that has already started (maintenance). These descriptive labels were helpful in bringing some order to the study of the acquisition and maintainance of complex behaviours. Possibly, the empathic ability of the child depended upon critical incidents to initiate, facilitate, and maintain this complex skill.

Hoffman(1975) showed that a few day old infant who was exposed to the sound of another infant in distress reacted with a distress cry. The child's display of empathy could be facilitated by the presence of certain conditions in the background that were necessary but that did not actually cause the empathic behaviour. Light(1979) pointed out several factors that could be considered to facilitate and not impede the development of empathy. Empathy training programmes (Carkhuff, 1984a) could be beneficial in the maintainance and enhancement of empathic skills.

C. Summary

One possible source of variation on performance in using the pleasantness rating learning task could be variation in an awareness of

one's own emotional reaction. This awareness could be conceived as having the two developmental components; being aware of others and being aware of self. Those who were more aware may perform more successfully using this learning task. One possible method of identifying this ability could be through measuring role-taking and empathic ability. The operationalization of this concept is outlined in the following chapter.

Chapter Five

Empathy as a Source Variable for the Pleasantness Rating Learning Task

A. The Definition and Operationalization of Empathy

Hornblow(1980) concluded from a study of the literature on empathy that empathic performance varied between and within individuals, emerged in the course of development subject to considerable influence of situational factors, could in part be learned after a relatively short training period, was important in interpersonal communication and psychotherapy, and tended to be negatively related to personality disturbance. He also noted difficulties in defining, conceptualizing, and measuring empathy.

Two major strands have evolved in the literature in attempting to define empathy. One strand has identified empathy as a vicarious, emotional arousal on the part of one person that is congruent with the emotional arousal of another person both in the amount and the direction of arousal. The other strand has emphasized the cognitive ability of the person to know how the other is feeling. The actual emotional arousal of the two individuals is independent.

1. Empathy as Matched Feelings Between Two People

One major theorist who utilized the first definition of empathy was Martin Hoffman.(1975,1976,1978,1981) Frequently, he attempted to explain interpersonal behaviours, especially those that were altruistic, by inferring a vicarious, empathic arousal. According to

Hoffman people who saw another individual in distress had a marked physiological reaction before they attempted to help. The intensity of the affective arousal was positively related to both the speed of moving to help and to the perceived severity of the other's distress. Upon helping the distressed individual, the physiological indices of arousal in the helper decreased, whereas, the physiological arousal of those who did not help remained high. Hoffman thus concluded that altruistic behaviour was positively related to an emotional arousal and that this arousal was inferred to be empathic; the helper was judged to feel as the victim felt.

Hoffman noted that certain role-taking tests (Piaget and Inhelder,1956; Flavell 1968) appeared to show that children were not empathic until they were seven or eight years old or on some tests with greater intellectual demands, even older. However, Hoffman believed that if the cognitive requirements of the task, especially verbal components, were beyond the ability of the subject, the empathic level of the child would be masked. For Hoffman the child could be empathic at a much younger age and moreover, the child's ability could be observed. He provided several accounts of a child under two who observed another child in distress and who acted to comfort the child in ways that were appropriate and specific for that child. Hoffman inferred that the child was empathic.

To be empathic for Hoffman required that the subject (1) had an arousal of affect and (2) that it was of the same quality and direction as the model's affect. Physiological measures provided quite strong evidence that young children through to adults were capable of the first part of empathy. However, there have been no reliable and valid measures that have showed the second requirement of empathy to be

present in subjects. While the model could be in pain, the subject's arousal could have meant pleasure. While the model could be indicating pleasure, the subject's arousal could be amazement. Even physiological measures were troublesome in confirming the first part of the definition. Possibly the skin conductance showed arousal but there was no facial response or vice-versa.(Barham and Boersma,1975) What has been lacking for this approach has been a method of accurately identifying any vicarious arousal that was in the same direction and quality as the other individual's affect. Only then could the subject be accurately identified as empathic. Another difficulty of obtaining an appropriate measure hinged on the theoretical definition of empathy as the vicarious arousal of an affect without any consideration of the role of cognition in empathy. As soon as the subject was asked to report on his emotional state, the cognitive ability of the subject, which included social sensitivity, could influence the subject's self-report.

2. Empathy as a Knowing How a Person Feels

Others considered empathy to be a cognitive skill. Piaget utilized the verbal reports of children who were given a task to determine their ability to decentre which Piaget considered to be critical for empathy. As noted above, Piaget's task (Piaget and Inhelder,1956) involved a complex constellation of skills, any of which if not present could produce a negative result and indicate that the subject could not decentre. There was the model of three mountains which was not a familiar object of play. Then, the child was required to leave his "eye-in-the-sky" and to take the perspective of an

imagined individual on the mountain who on the scale of a human to a mountain would be microscopic. The child was required to report verbally what could and could not be seen from that perspective. The unfamiliar play object and procedure, the immense difference in scale, and the verbal report were all functional requirements that called upon abilities other than perspective taking let alone the decentring ability that Piaget was studying. His conclusions greatly overstated the failure rate of children's ability to decentre. Their failure rate could just as well be attributed to peripheral skills that had no relation to the central skill of knowing how the other was experiencing the world.

Piaget's emphasis upon empathy as a cognitive knowledge of how the other felt was followed by one of his American popularizers and extended into various tests that became known as identifying the child's ability to role-take.(Flavell,1968) These role-taking tasks required the child to report, to identify, or to communicate non-verbally in some manner the perspective, thinking, or feeling of another individual. No attempt was made to investigate whether the subject's and the other individual's feelings matched. These alterations enabled the child's ability as a social being to be more clearly delineated. Some related investigations showed that given optimum conditions, quite young children could appear to know how another felt.

Borke (1971) presented three to eight year old children with pictures of a child in familiar situations. The subject was only required to point to a stylized picture of a face that showed one of four emotional expressions as to how the child in the picture felt. The results indicated that most of the children were able to accurately

know how another child felt. The young subjects were empathic when using this procedure and accepting Borke's inferences.

This interpretation was criticized by Chandler and Greenspan (1972) because the picture of the other child was too blatant a presentation of the relevant clues, the situations were too socially stereotypic, and the task did not require the subject to consider any other individual's feeling as the "correct answer" could be obtained with a totally self-referential approach,i.e., "How did I feel when I was given a present?"

Borke (1972) rejoined that one could frequently be accurate in knowing how another felt by being self-referential as noted by Chandler and Greenspan. Since this approach was so frequently accurate, it was a satisfactory strategy to employ in the exhibition and development of empathy. It met the need to know how another individual felt. Even the consideration of this question at such an early age was not considered possible by Piaget. In addition Borke criticized Piagetian measurement approaches for determining young children's empathic ability as they frequently required too many peripheral cognitive skills.(Borke, 1983)

B. Summary and Conclusions as to a Definition of Empathy

Research pointed to the likelihood that children at an earlier age than supposed by Piaget had some rudimentary, empathic skill of knowing how another person felt, especially if the target person and the situation were similar to the child and the child's past experience. The research based on a definition of empathy that included feeling as the other felt had too many inferential links to be considered accurate

and appropriate for this thesis.

It is commonly experienced that one feels pain when exposed to the pain of others and that this vicarious experience of pain has led some to act helpfully, even altruistically. However, laboratory and naturalistic studies have not been able to reliably or validly identify this empathic ability to feel as the other feels. Neither have these studies been able to develop a measure that is free of any cognitive modification of the measured response. Indeed this may be part of the problem. It may be impossible to measure any empathic response that is free from cognitive influence. If the subject feels as the other feels, this internal state must be communicated to be known. In the act of communicating, whether verbally or non-verbally, cognitive influences would be hard to avoid. Those who have proceeded to measuring empathy as knowing how the other feels have avoided some measurement problems. In so doing they may have failed to explore a fundamental human process. For this thesis the empathic ability of the child will be measured by asking the child how does another individual feel. The other individual will be of a similar age to the subjects and in easily understood situations that are rich in contextual clues.

C. The Choice of an Instrument to Measure Empathy

There appear to be two particular traps to avoid in the measurement of empathy. One is having a task that requires too many peripheral skills, the failure to perform any of which would indicate a failure of the central skill. Thus, the subject would be falsely judged incapable of empathy. This is frequently referred to as a Type

I error. Piaget's mountain perspective taking appears to have suffered from this mistake.

The other danger is having a task that allows the subject to be successful through alternative approaches instead of only utilizing the central skill. Thus, the subject would be falsely judged capable of empathy. This is frequently referred to as a Type II error. Borke's point-to-the-face task appears to have suffered from this mistake. The children could be successful even though they never considered the other person. Their actual method of choosing their response was not explored.

Another consideration that should also enter into the choice of an instrument to measure empathy is that of the developmental stages of this ability. Instead of considering empathy as being totally present or absent in an individual's repertoire of skills, more could be gained by noting the range of factors that is contained within the concept of empathy. Thus, the experimenter's task becomes more descriptive in outlining the conditions necessary for the subject to exhibit some given characteristic of empathy. Some of Piaget's eight year olds could not give an empathic response when the difference in scale was too great, when the experience was very different from their past experience, when the apparatus was unfamiliar to them, and when the verbal demands were too great. Some of Borke's three year olds were able to give an empathic response when the sex of the other was the same as their sex, the situation was common with their past experience, they could communicate non-verbally by simply pointing, and they were only required to make gross distinctions in the feelings of the other. From these experiments it would be wrong to conclude that the eight year old subjects of Piaget were not empathic and that the three year

olds of Borke were fully empathic.

Describing the conditions under which the individual was capable of empathy could remove some of the patently unsubstantiated and exaggerated claims as to the nature of the child's ability to understand another. For example, Sturm and Jorg(1981) in applying Piaget's insights to the appropriateness of information passed over television to young children stated that children under eight could not take the perspective of anyone else. However, sixty to eighty-five percent of four year olds were able to assume accurately the perspective of an owl in a tree. Instead of a global pronouncement that children were or were not able to be empathic, it would be more constructive to outline the developmental sequence of the capacity for empathy and to identify where on that continuum the individual performed.

One approach to the problem of quantifying emotional reports was to ignore the question of accuracy. Gordon(1976) considered each different label of a feeling as the description of a different emotion. He also noted that emotions had an evaluative connotation. The concepts of emotion, affect, and feelings were usually synonymous in most researcher's usage. Accuracy in identifying an emotion was a problem because the intention of the individual was not always available. When the intention was available, the degree of self-awareness and expressive ability of the individual clouded the issue. Also, there was a tremendous variability in the way in which any one emotion could be expressed both by an individual and between different individuals. Thus, there was no standard dictionary of emotional behaviour and its interpretation. If two people put two different emotional labels on one standard behaviour, Gordon concluded

that there was no possibility of judging the correctness of the conflicting labels. He accepted each label as descriptive of one emotional name that was in the subject's vocabulary. Gordon was more concerned with the range and variety of emotional labels available to his subjects. In general Gordon found that adults were familiar with many emotional states. But adults could not agree on one word for one emotional behaviour.

Gordon showed fifteen movie excerpts, to six to fifteen year old children. He asked them to recall at the end of the film how they thought an individual felt at a particular time in the film. Older children gave more various interpretations. Even the six year olds in total gave thirty-two different possible emotions for the fifteen situations.

Table 9.
Mean Unique Emotions Identified by Children at different Ages

age	6	7.5	9	12	15 Years Old
Unique Emotions	7	8	9	9	12

There were no sex differences in the number of emotions identified. Older children were more specific and also voluntered more cognitive responses that inferred the individual's intentions or morals. Even six year olds were able to make these inferences when asked. The experimenter found that cognitive responses were frequently provided when the subject was asked for feelings. Gordon found variation as to the total number of unique emotional words that were offered as descriptors of how individuals felt in the fifteen movie

excerpts. Some of this variation was accounted for by the age of the child.

After a child had identified a feeling, the experimenter asked when the child had experienced that feeling. In eighty percent of the time the feeling was experienced with other people, especially family members. Very rarely was the school setting identified as a place where feelings were experienced. (Gordon, 1976)

In contrast to Gordon the ability to accurately identify an emotion was shown to be a reliable skill that could be acquired with training and was a skill that related to other meaningful, human benefits. Carkhuff (1969,1984a), Ivey (1971), and others developed skill training packages to increase the ability to accurately identify feelings. As well, these researchers found that accurately identifying feelings was important in counselling outcomes, in the amount of self-disclosure in a helping setting, in the attitude of children to school, in the quality of communication in a marriage, and in the compliance of patients to taking prescribed medication. These findings indicated that while Gordon's hesitation was based on logical inferences and the perception of difficulties, there were benefits in being able to accurately identify the other person's emotion. For these reasons it was seen as appropriate to develop an empathy measuring device for children that would be suitable and understandable to them, that would yield reliable scores on both the individual's range of unique emotions that could be identified, and the accuracy with which this was accomplished.

Several short, unconnected, video-taped excerpts, drawn from live and acted story lines, that used children from the same age as the sample that was to be used were gathered. These excerpts were shown to

twenty-five nine and ten year old children to test the comprehension of the children and to measure the range of variability for unique responses and accuracy of responses that were elicited. Several incidents were dropped because the target person's emotion was not readily understood, the incident had too many side events that were confusing, or the incident was possibly upsetting. The events that were chosen had clear, central characters who were similar to the sample population, were rich in contextual information, and were not blatantly obvious in identifying how the individual felt. Thus, it was expected that the video excerpts would measure in part the empathic abilities of the sample fairly. The video excerpts were shown to twenty adult,counsellor trainees who had had a minimum of 100 hours training in counselling. An agreed list of feeling words was developed for each excerpt.

D. Antecedent Conditions associated with the Development of Empathy

If this link from performance on the pleasantness rating learning task to the ability to be empathic was substantiated, the next research question would be concerned with the development of empathy. Piaget and Flavell pointed to the conflict provided by peers' viewpoints acting on the child as the method of change and development of empathy. They hypothesized that individuals progressed through a set developmental pattern, each stage having a specified mode and process of thought. By being exposed to an individual in the next stage the subject and his mode of thought would be thrown into conflict which would eventuate in change and accommodation with the next stage taking priority. The amount and quality of peer interaction was most critical

in their viewpoint. Such a conclusion has not been substantiated by research.

As noted before, Light(1979) found that for four year old children there was no relation between role-taking ability and play or amount of play with peers. Stronger associates with the child's ability to understand another were found in the mother's educational level, mothers who kept a low profile in parent-child interactions, and children who had concentrated, individual interactions with an adult. As well, the children more skilled at role taking played more games with established rules, learned to read more quickly at school, and had received less physical punishment than children less skilled at role-taking. The child's interactions with adults were more critical for the development of empathy than interactions with peers. This finding supported Mead's approach to the socialisation process. The child became aware of self by intensive interactions with adults.

It would be tempting to hypothesize a simple one-to-one causative path such as the parents who were empathic and supportive would have children who were empathic and aware of self. Such would be the simplest model. This approach has attracted numerous researchers. Yet, what has proved to be more accurate have been explanations that recognize multiple factors interacting to produce given outcomes.

Webster (1979) found strong patterns of parental influence on adolescent behaviours, achievements, and attitudes. He used an empirically defined three factor model of home influence (high-low support, high-low anxiety, high-low initiative which included anger, regulativeness, and demand). These factors in interaction with the intelligence and personality of the adolescents accounted for a large proportion of the variation in school and wider social outcomes. The

patterns of parenting were highly efficient predictors of student outcomes. For example, two groups were compared: (A) adolescents whose parents were high in support, low in anxiety, and high in demand (B) adolescents whose parents were low in support, high in anxiety, and high in demand. Discriminant analysis showed that 83 percent of the time students were correctly classified as to their parent's group by knowing how the student answered a family questionnaire, whether the student respected the father, how the student scored on a happiness scale, and how emotionally stable the student was. Those in group (A) had more favourable outcomes on all scales. Thus, the combined parental factors as perceived by the adolescents formed parenting styles that were more predictive of outcomes than simple one factor parenting styles. It was highly likely that the family, that intimate group of significant others, had a strong influence upon the child's ability to be empathic.

As this thesis is attempting to explore the background of children's ability on the pleasantness rating learning task it would be wise to utilise methods that have proved capable of measuring the family structures and behaviours in a framework of appropriate scale. One method would be to proceed as did Light(1979) interviewing and observing the parent, the child, and the parent-child interaction both in the laboratory and at home. Light conducted his work with a small sample but still involved a team of professionally trained co-workers. Such an operational scale would be beyond this investigation as the sample is larger out of the necessity to include enough subjects at each of several age levels.

One method that has been successful at reliably and validly identifying actual and perceived behaviours and relationships has been

to utilise the reported perceptions of children. In the classroom children have been more accurate at describing teacher behaviour than the self-report of teachers as judged by neutral observers. In a review of the literature exploring the accuracy of teacher self-report out of six studies there was not one that found any systematic relation between what a teacher reported and the teacher's observed behaviour. (Hook and Rosenshine, 1979) However, pupil judgments and observations have proven to be stable and accurate when compared to those made by neutral, third party observers.(Borich, 1975) Naturally, pupils cannot judge what they do not know. Pupils have been reported to be accurate in judging the level of teacher knowledge, clarity, fairness, discipline, sympathetic understanding, businesslike manner, and liveliness. Even when judging global perceptions of teaching ability, children have been very close to the judgment of neutral observers, including trained professionals. These studies also showed that there was no relation between student opinion and the rank of the student in the class. Even the dullest child was on average more accurate at judging teacher behaviours than the teacher and/or school administrators.

Thus, it would not be unreasonable to expect that children could accurately report on the relevant parental behaviours as they experienced them. It was expected that the child could report accurately on a range of parental behaviours. However, a possibility of distortion of the data would appear if the instrument expected the child to report accurately on the feelings of the parent. The child with high empathic ability would be more likely to identify accurately parental feelings than the child with low empathic ability. The data from the entire sample as to the feelings of the parents could be

distorted in an unknown manner. Hence, the relationship of parental feelings to the empathic ability of the child could be clouded. It would be likely that most of the children could report with accuracy those parental behaviours that were most apparent. This would be consistent with the findings that explored the effectiveness of children reporting on the classroom behaviour of teachers.(Borich, 1975) Children were able to report accurately familiar behaviours and less able to report observations that were beyond their developmental level. Furthermore, it would be most likely that the degree of accuracy at reporting parental feelings would be related positively to the empathic ability of the child. Empathically skilled children would accurately report their parents' feelings. Empathically unskilled children would not report accurtately their parents' feelings. In order to detect the relationship of parental feelings to the empathic ability of the child it may be necessary to select only those students who showed empathic ability and to use them as a sub-group to test the relationship of the perception of parental feelings to the empathic ability of the child.

One instrument that explored the perceptions of adolescents of their parents and that produced significant relationships between these perceptions and various social and academic outcome measures was The Family Life Questionnaire developed by Webster(1972). This instrument contained 150 statements drawn from a larger pool that were easily understood by intermediate school pupils. The questionnaire was administered originally to over 2,000 secondary school pupils. The results were factor analyzed and the four statements which loaded most strongly on the five main factors were identified. Only these statements were included in a modified Family Life Questionnaire.

These statements were given to a group of twenty-five eight and nine year old children. The length of the questionnaire and the wording of the statements appeared to be appropriate for use in this study. The scoring results from the five main factors appeared to contain enough variability to indicate that all of the children were not answering with a similar mind set.

Chapter Six

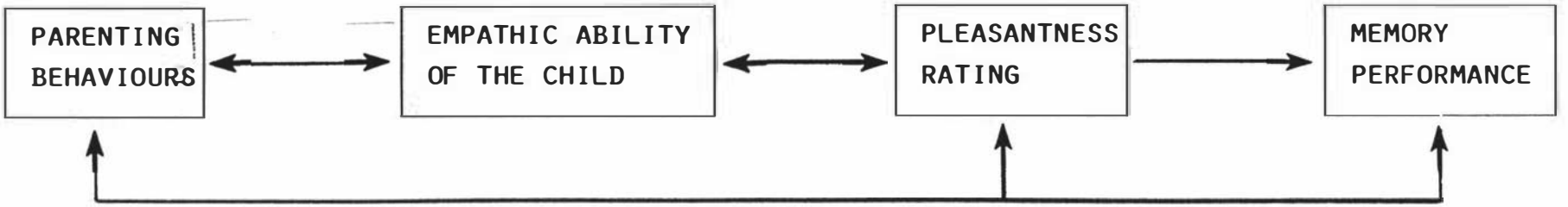
Experimental Design and Research Procedures

A. Summary and Research Questions

From the literature reviewed and the findings of the pilot study it appeared that the pleasantness rating learning task produced high recall and recognition. This phenomenon was stable over different content items, different methods of presentation, an extended age range, and with a variety of experimenters. Various explanations were unsuccessful at further explaining this phenomenon. Heightened physiological response, repetition, intelligence, and the quality of the affect were not capable of explaining the phenomenon. An analysis of the task requirements pointed to the possible explanation that the subject's level of empathic development could account for some of the variance. There was the possibility that subjects who were more aware of the feelings of other people were more sensitive to their own feelings, and thus more able to utilize the pleasantness rating learning task than were subjects who were not aware of the feelings of other people. Was the family the institution that accounted for the variance in empathic ability among children? Was the family background also directly associated with performance on the learning tasks? These relationships and their operational measuring instruments were summarized in Figure 2. It should be noted that the full model was not constructed to detect or indicate causation especially as to the relationship between parenting behaviours and the empathic ability and memory performance of the child. The model and the investigation were

not designed to test whether the empathic ability of the child was "hard wired" in Hoffman's (1975) understanding or solely a product of developmental influences.(Flavell, 1968) The procedures used would only indicate a relationship and the strength of the relationship between parenting behaviours and the empathic ability of the child and the child's memory performance. The relationship between the empathic ability of the child and the pleasantness rating memory results was also tested as a correlational relationship. Only the learning tasks were experimentally tested by assigning all pupils to set conditions and observing the memory outcomes.

MODEL



DEFINITION

The behaviours of the m. and f. as perceived by the child	The ability to know how another child feels	A learning task that uses affective reaction to the material to be learned	The percentage of information accurately remembered to information presented

INSTRUMENTATION

Family Life Questionnaire (modified version)	Video excerpts	Five learning tasks	Free recall Recognition

DATA

Level I - standard factor scores for f. and m. support, anxiety, anger, demand, regulativeness	Empathic fluency Empathic accuracy	Pleasantness rating Imagery Association Repetition Surface analysis	Free recall Recognition
Level II - derived factor scores for f. and m.			
Level III - raw data for f. and m.			

Figure 2. Hypothetical Relationships between the Variables: The Model, Definitions, and Operationalizations.

B. Hypotheses

1. The Influence of Learning Tasks on Memory Performances

There are five formal hypotheses concerned with the influence of learning tasks on memory performances. The formal statement of each hypothesis will be followed by an operational statement of the hypothesis which will be testable. The five hypotheses in this section involve tests of differences of means. The five learning tasks are associating, giving a pleasantness rating, imagining, making a surface analysis, and repeating. Memory performances are measured by immediate, free recall and delayed, cued recognition tests. The general hypothesis is that the learning task influences the subsequent memory performances.

a. The pleasantness rating learning task will produce quantitatively greater memory performances than a surface learning task.

This formal statement leads to the following testable hypothesis:

> The pleasantness rating learning task will produce quantitatively greater mean scores on recall and recognition tests than the mean scores after a letter identification learning task.

b. Learning tasks which use the meaning of the material will produce similar memory performances.

This formal statement leads to the following testable hypothesis:

> Associating, imagining self with the word, and the pleasantness rating learning tasks will produce similar mean scores on recall and recognition tests.

c. The pleasantness rating learning task will rank as the most effective learning task of those examined in this thesis.

This formal statement leads to the following testable hypothesis:

> The mean for total memory, composed of the mean scores for recall and recognition tests, achieved after the pleasantness rating learning task will be quantitatively greater than the mean scores for total memory subsequent to the other learning tasks.

d. The response to the pleasantness rating learning task whether pleasant or unpleasant will produce similar memory performances.

This formal statement leads to the following testable hypothesis:

> Pleasant and unpleasant responses on the pleasantness rating learning task will produce similar mean scores on recall and recognition tests.

e. The intensity of the response on the pleasantness rating learning

task will be positively associated with memory performances.

This formal statement leads to the following testable hypothesis:

> More extreme responses on the pleasantness rating learning task will produce quantitatively greater mean scores on recall and recognition tests than will results from responses that are mild or neutral.

2. The Relationship of Empathic Ability and Memory Performances

There are two formal hypotheses concerned with the relationship of empathic ability and memory performance. The formal statements of the hypotheses will be followed by subsidiary, operational statements of the hypotheses which will be testable. These hypotheses in this section involve measures of relationship. Emotional ability is measured by the number of unique emotional behaviours identified and the level of accuracy in identifying emotional behaviours. The general hypothesis is that memory performances achieved after the five learning tasks are differentially related to empathic ability.

a. Memory performances, previously shown to be enhanced by the pleasantness rating learning task, will be positively related to empathic ability.

This formal statement leads to the following testable hypotheses:

> The recall and recognition scores achieved after the pleasantness rating learning task will be positively related to the number of unique emotional behaviours in video excerpts.
>
> The recall and recognition scores achieved after the pleasantness rating learning task will be positively related to the level of accuracy in identifying emotional behaviours in video excerpts.

b. Memory performances achieved after the five learning tasks will be differentially related to empathic ability.

This formal statement leads to the following testable hypothesis:

> The recall and recognition scores achieved after the pleasantness rating learning task will be more strongly related than will the other learning tasks to the number of unique emotional behaviours identified and the level of accuracy in identifying emotional behaviours in video excerpts.

3. The Relationship of Perceived Parenting Behaviours and the Child's Empathic Ability

There are five formal hypotheses concerned with the relationship of perceived parenting behaviours and the child's empathic ability.

The formal statment of each hypothesis will be followed by two operational statements of the hypothesis which will be testable. The five hypotheses in this section involve measures of relationship. Perceived parenting behaviours are measured by factor and item scores to statements which describe the child's perceptions of the father and the mother. The five theoretical parenting factors are support, anxiety, regulativeness, demand, and anger. The general hypothesis is that there is a relationship between perceived parenting behaviours and the child's empathic ability.

a. There is a positive relationship between perceived parental support and the empathic ability of the child.

This formal statement leads to the following two testable hypotheses:

> The number of unique emotional behaviours identified will be positively associated with perceived parental support as defined by the support factor score and by individual items associated with the factor of support.
>
> The level of accuracy in identifying emotional behaviours will be positively associated with perceived parental support.

b. There is a negative relationship between perceived parental anxiety and the empathic ability of the child.

This formal statement leads to the following two testable hypotheses:

The number of unique emotional behaviours identified will be negatively associated with perceived parental anxiety as defined by the anxiety factor score and by individual items associated with the factor of anxiety.

The level of accuracy in identifying emotional behaviours will be negatively associated with perceived parental anxiety.

c. There is a positive relationship between perceived parental regulativeness and the empathic ability of the child.

This formal statement leads to the following set of testable hypotheses:

The number of unique emotional behaviours identified will be positively associated with perceived parental regulativeness as defined by the regulativeness factor score and by individual items associated with the factor of regulativeness.

The level of accuracy in identifying emotional behaviours will be positively associated with perceived parental regulativeness.

d. There is a positive relationship between perceived parenting demand and the empathic ability of the child.

This formal statement leads to the following set of testable hypotheses:

> The number of unique emotional behaviours identified will be positively associated with perceived parental demand as defined by the demand factor score and by individual items associated with the factor of demand.
>
> The level of accuracy in identifying emotional behaviours will be positively associated with perceived parental demand.

e. There is a negative relationship between perceived parental anger and the empathic ability of the child.

This formal statment leads to the following set of testable hypotheses:

> The number of unique emotional behaviours identified will be negatively associated with perceived parental anger as defined by the anger factor score and by individual items associated with the factor of anger.
>
> The level of accuracy in identifying emotional behaviours will be negatively associated with perceived parental anger.

4. The Relationship Between Children's Memory Performances and Perceived Parenting Behaviours

There are five formal hypotheses concerned with the relationship between children's memory performances and perceived parenting behaviours. The formal statement of each hypothesis will be followed by an operational statement of the hypothesis which is testable. The five hypotheses in this section involve measures of relationship. The child's memory performances are measured by immediate, free recall and delayed, cued recognition tests. Perceived parenting behaviours are measured by factor and item scores to statements which describe the child's perceptions of the father and the mother. The general hypothesis is that there is a relationship between the memory performances achieved after the pleasantness rating learning task and perceived parenting behaviours.

a. There is a positive relationship between perceived parental support and the memory performances achieved after the pleasantness rating learning task.

This formal statement leads to the following testable hypothesis:

> Recall and recognition memory performances achieved after the pleasantness rating learning task will be positively associated with perceived parental support as defined by the support factor score and by individual items associated with the factor of support.

b. There is a negative relationship between perceived parental anxiety and the memory performances achieved after the pleasantness rating

learning task.

This formal statement leads to the following testable hypothesis:

> Recall and recognition memory performances achieved after the pleasantness rating learning task will be negatively associated with perceived parental anxiety as defined by the anxiety factor score and by individual items associated with the factor of anxiety.

c. There is a positive relationship between perceived parental regulativeness and the memory performances achieved after the pleasantness rating learning task.

This formal statement leads to the following testable hypothesis:

> Recall and recognition memory performances achieved after the pleasantness rating learning task will be positively associated with perceived parental regulativeness as defined by the regulativeness factor and by individual items associated with the factor of regulativeness.

d. There is a positive relationship between perceived parental demand and the memory performances achieved after the pleasantness rating learning task.

This formal statement leads to the following testable hypothesis:

> Recall and recognition memory performances achieved after the pleasantness rating learning task will be positively associated with perceived parental demand as defined by the demand factor and by individual items associated with the factor of demand.

e. There is a negative relationship between perceived parental anger and the memory performances achieved after the pleasantness rating learning task.

This formal statement leads to the following testable hypothesis:

> Recall and recognition memory performances achieved after the pleasantness rating learning task will be negatively associated with perceived parental anger as defined by the anger factor and by individual items associated with the factor of anger.

C. Sample

Three schools from widely different geographical areas agreed to participate in the study. School A was a five teacher New Zealand school with a total enrolment of slightly more than one hundred pupils. The school was approximately fifteen kilometres from the nearest city. The children's families were equally divided between rural workers, dairy and sheep farms, village workers, dairy and meat processing, and commuters who worked in the city. Ten percent of the students in the

experiment were from minority racial groups which compares to the national average of 11.6 percent for minority racial groups.(New Zealand, 1980) The school was a full primary school with Forms I and II fully integrated and jointly administered with the rest of the Junior Primers and Standards one to four. All of the pupils enrolled in Standards three and four and Forms I and II participated in the study.

School B was a ten teacher American school with an enrolment of two hundred and thirty pupils. The school was located in a newer suburb of a central state capital based in a city of 200,000 people. The school was a parochial school attached to one church. Fees were in excess of $700 U.S. per year. The school consisted of a double unit, one-half day pre-school and kindergarten, and grades one to eight. Ten pupils were randomly selected from each of the grades four to seven who were judged to be age equivalent to the New Zealand sample. A list of the randomly selected pupils was shown to the class teacher before the experimental procedure was begun to ascertain whether an asymetrical sample had been drawn. All teachers agreed that the samples appeared to be random. At the close of the experiment, the principal informed the experimenter of the possibility that the sample drawn from the youngest class was not balanced because the four students who had been required to repeat at least one year of their education were all included in the sample. The principal thought that these students would depress any measures that involved intellectual capability. This was noted.

School C was a seven teacher American school with an enrolment of one hundred and fifty. The school was located in an older area of a central, far northern city of fifty thousand people. The parochial school drew its pupils from several congregations including at least

one rural church. The school ran a bus service for its rural pupils. Fees were approximately $400 U.S. per year. The entire school consisted of a pre-school unit conducted out of another centre, a kindergarten, and grades one to six. Grades seven and eight were transferred to the state run, junior high school system, These pupils were not available for the experiment. Ten pupils were randomly selected from each of the grades four to six.

D. Procedures

The material and procedures that were used in the pilot study were also used in the final study with several adjustments. The combinations of the word lists, learning tasks, and order of presentation were varied randomly. The words were presented to two students at a time via a computer at exactly three seconds on for each individual word, six seconds of blank screen, and so on until the ten words for the given learning task had been presented. The interview was dropped. A video of children in various settings and events was presented. At the conclusion of an event, the experimenter stopped the image, pointed to a specific child on the screen, and asked how that child had felt at that time.

This continued until all of the seven excerpts had been viewed and the child had recorded a response for each. Then, the word recognition test including all fifty words and fifty distractors was provided. The students returned to their classroom and another pair began the process. After all of the selected students in the school had completed this section, they were gathered together and given the modified Family Life Questionnaire.

Chapter Seven

Results

The data will be analyzed in four stages in accord with the model and hypotheses after a preliminary demographic analysis. The effect of five learning tasks upon memory will be explored. If the pleasantness rating learning task is shown to be an effective aid to memory, the relationship of empathy to the memory results achieved after the pleasantness rating learning task will be explored. Thirdly, if empathy is shown to be significantly associated with memory, the parental influence upon empathy will be explored. Finally, the direct influence of perceived parental behaviours upon memory results achieved after the pleasantness rating learning task will be explored.

A. Demographic Analysis

Three schools participated in this exploration. Schools A and B were equivalent in that pupils were drawn from all four age levels. School C had no pupils from the highest age level.

The principal of school B was concerned about the higher number of less academically able students that were randomly selected from level one. For this reason a comparison of memory performance on the learning tasks across the three schools at level one was performed. Inspection of mean performance over all learning tasks as shown by Table 10 indicated that there was no significance difference among the schools on memory performance at level one as shown by the analysis of variance. There was also no significant difference between the schools

when all levels were included. Means were shown in Table 11.

Table 10. Total Memory Performance by all Schools at Level One

School	N	Mean	SD	Range
A	12X5	12.43	3.57	4 to 19
B	10X5	12.80	2.89	4 to 18
C	10X5	13.54	3.10	5 to 19

ANOVA

Source	SS	df	MS	F	Prob
Between Schools	34.04	2	17.02	1.64	NS
Residual	1631.15	157	10.39		
Total	1665.19	159			

Table 11. Memory by School after Five Learning Tasks

School	N	Mean Total Recall	SD	Mean Total Recognition	SD	Total Memory	SD
A	50	4.95	1.95	8.56	1.69	13.52	3.22
B	40	5.14	1.95	8.75	1.49	13.88	3.02
C*	30	4.90	1.88	8.63	1.59	13.53	3.10
Total	120	5.00	1.93	8.63	1.60	13.64	3.13

*School C had no level four students

B. The Influence of Learning Tasks on Memory Performances -Hypothesis 1

1. Task Variance -Recall

Multivariate analysis of variance utilizing a repeated measures design (Winer, 1971) showed that the kind of learning task, the grade level, and the sex of the pupil contributed significantly to accounting for the variance associated with free recall.(See Table 12) An F-ratio for learning tasks of 95.58 with 4 and 448 degrees of freedom was highly significant beyond a probability of .0001 for this result occurring by chance. The learning tasks accounted for a significant proportion of the variance in pupil recall. Inspection of the means and a Scheffé comparison of means test showed that there were three levels of similarity. Giving a pleasantness rating and trying to imagine the word were similar to each other and significantly superior to associating and repeating the word which were similar to each other and significantly superior to analyzing a surface feature of the word.

2. Level Variance -Recall

An F-ratio of 10.34 with 3 and 112 degrees of freedom was significant beyond a probability of .001 for this result occurring by chance. The grade level of the child accounted for a significant proportion of the variance in pupil recall. Figure 4, page 114, showed the memory increase over grade levels.

3. Sex Variance -Recall

An F-ratio for sex of 6.16 with 1 and 112 degrees of freedom was significant at a probability of .015 for this result occurring by chance. The sex of the pupil accounted for a significant proportion of the variance in free recall. Inspection of the means showed that females recalled more words than males did.

4. Interaction Effects -Recall

There was one borderline case of statistical significance for an interaction. An F-ratio of 1.73 with 12 and 448 degrees of freedom was significant at the .058 level for a task by level interaction. There were different rates of recall over the four levels for several of the learning tasks. (See Figure 5, page 115

Table 12. Analysis of Variance - Recall - Repeated Measures

Source	SS	df	MS	F	Prob
Between People					
Sex	31.84	1	31.84	6.16	.015
Level	160.37	3	53.46	10.34	.001
Sex X Level	19.43	3	6.48	1.25	.29
Residual	578.74	112	5.17		
Within People					
Tasks	652.36	4	163.09	95.58	.0001
Sex X Tasks	1.62	4	.40	.24	NS
Level X Tasks	35.44	12	2.95	1.73	.058
SexXLevelXTask	9.82	12	.82	.93	NS
Residual	764.37	448	1.71		
Total	2253.99	599			

5. Task Variance -Recognition

Multivariate analysis of variance utilizing a repeated measures design (Winer, 1971) showed that the kind of learning tasks and the sex of the subject contributed significantly to accounting for the variance associated with recognition. (See Table 13)

Table 13. Analysis of Variance - Recognition - Repeated Measure

Source	SS	df	M	F	Prob
Between People					
Sex	14.82	1	14.82	4.56	.035
Level	18.08	3	6.03	1.86	.14
Sex X Level	2.01	3	.67	.21	NS
Residual	363.61	112	3.25		
Within People					
Tasks	511.41	4	127.85	95.37	.0001
Sex X Tasks	4.28	4	1.07	.80	NS
Level X Tasks	10.25	12	.85	.64	NS
Sex X Level X Tasks	13.46	12	1.12	.84	NS
Residual	600.59	448	1.34		
Total	1538.51	599			

An F-ratio of 95.37 for tasks with 4 and 448 degrees of freedom was highly significant beyond a probability of .0001 for this result occurring by chance. The learning tasks accounted for a significant proportion of the variance in recogntion. Inspection of the means and a Scheffé comparison of means test showed that there were three levels of similarity. Giving a pleasantness rating (associating) and imagining the word were similar to each other and significantly superior to

repeating the words which was significantly superior to analyzing a surface feature of the word.

6. Sex Variance -Recognition

An F-ratio of 4.56 with 1 and 112 degrees of freedom was significant at a probability level of .035 for this result occurring by chance. The sex of the pupil accounted for a significant proportion of the variance in recognition. Inspection of the means showed that females recognized more words correctly than males did.

There were no other significant main or interaction effects.

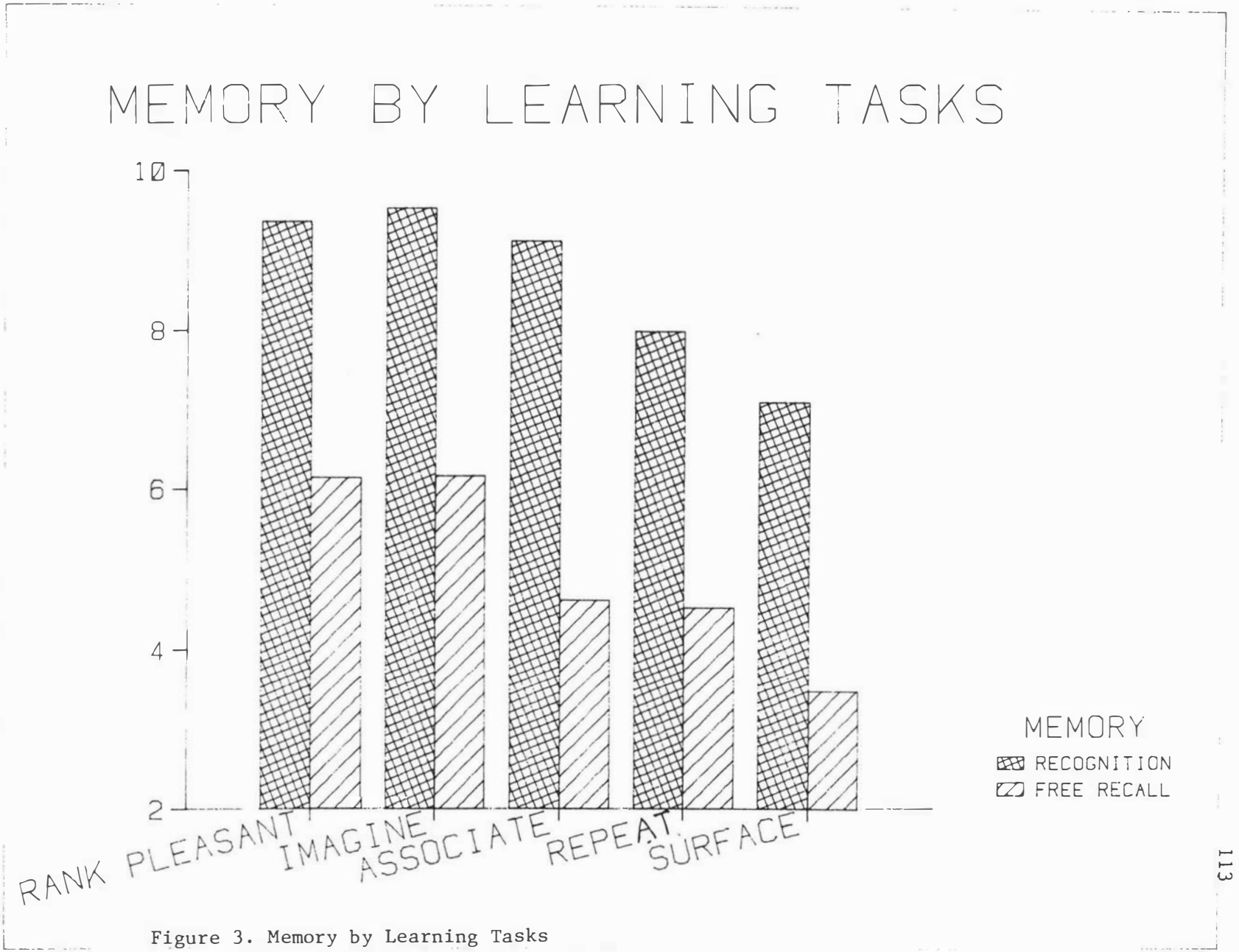


Figure 3. Memory by Learning Tasks

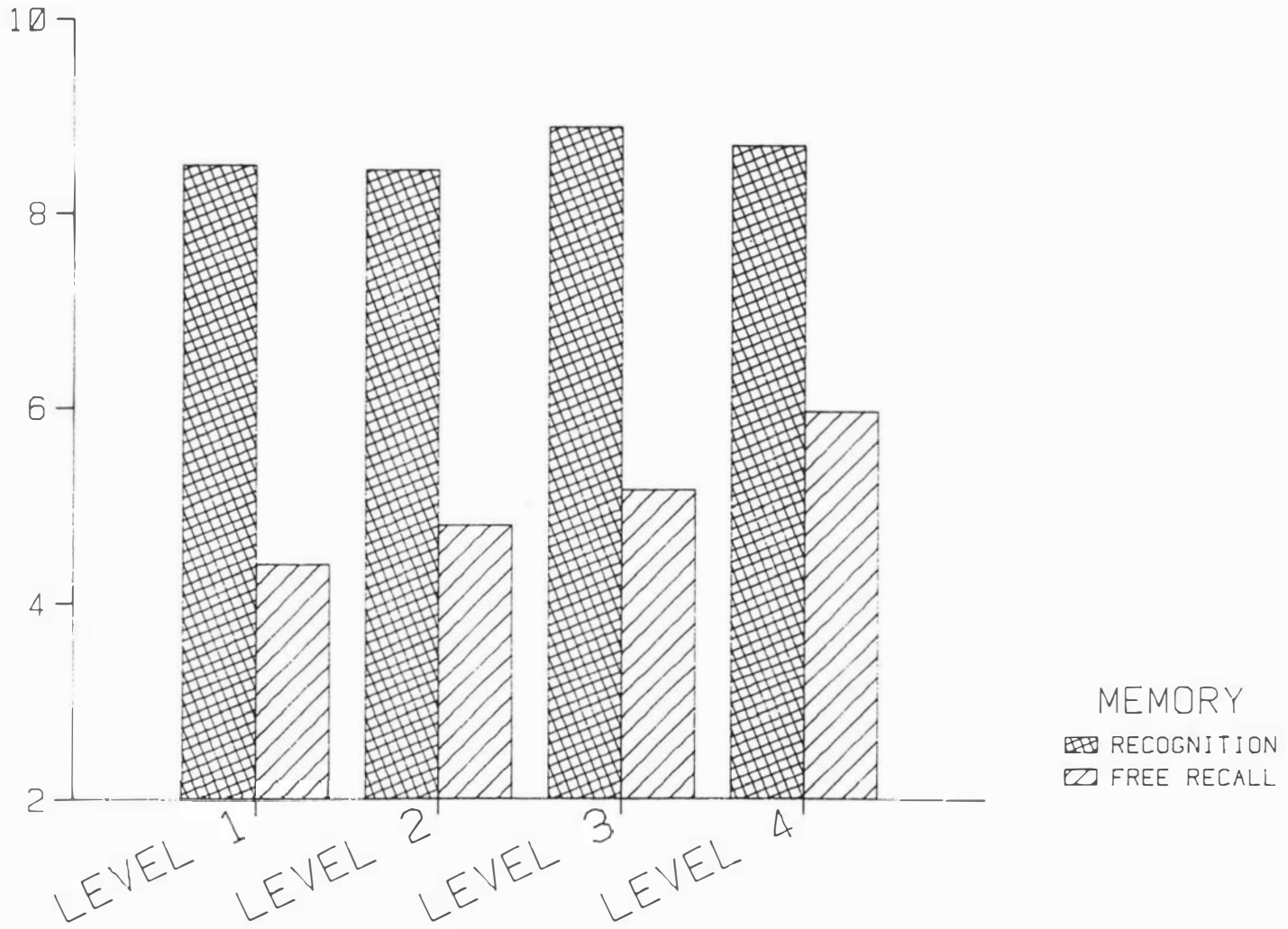


Figure 4. Memory by Grade Level

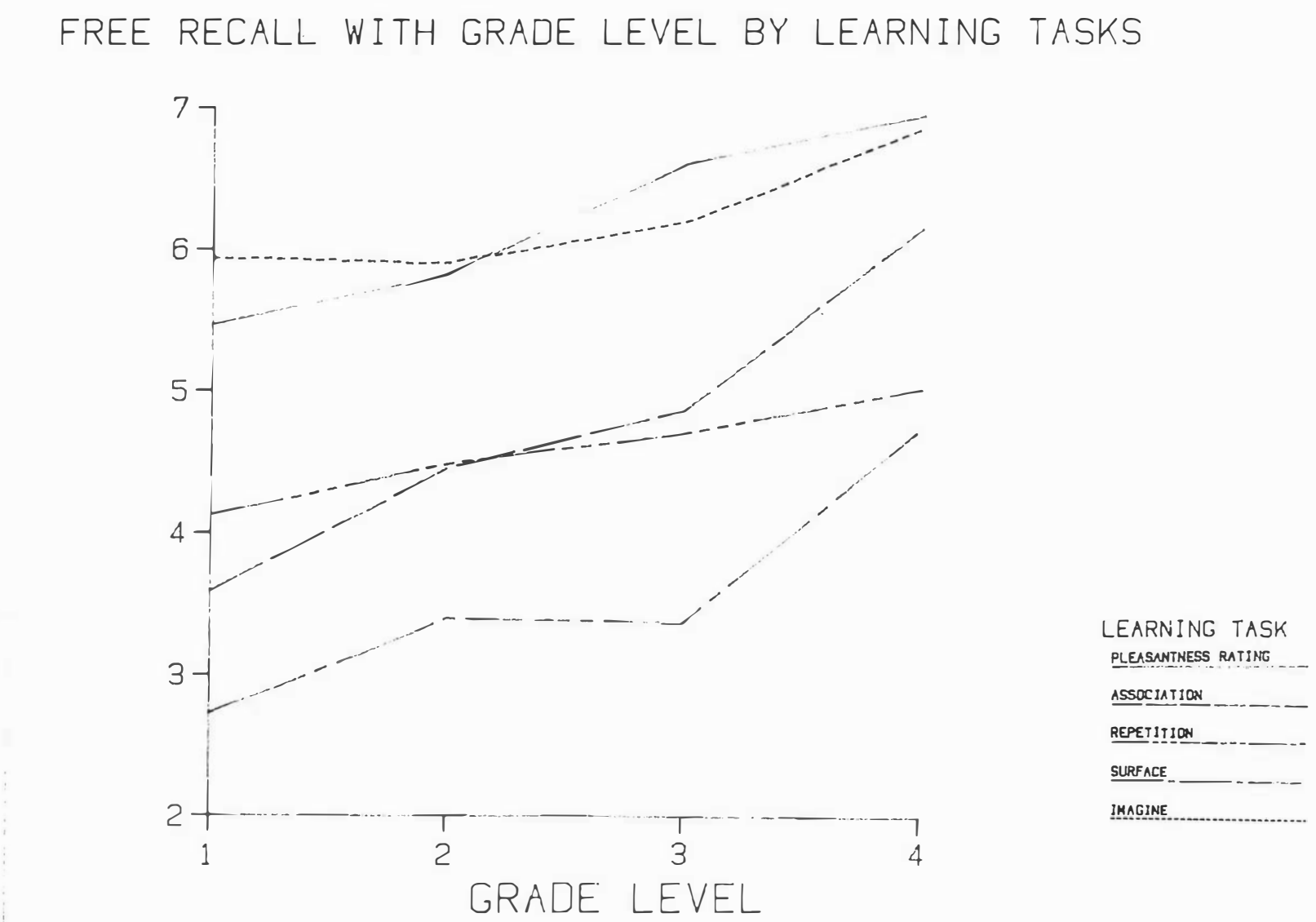


Figure 5. Free Recall with Grade Level by Learning Tasks

7. Conclusions for Hypotheses 1 a,b,c

Hypothesis 1a stated that the pleasantness rating learning task would produce quantitatively greater memory performances than a surface learning task. This was supported strongly as was seen by analyzing the task variance for recall and recognition.

Hypothesis 1b stated that learning tasks which used the meaning of the material would produce similar memory performances. These tasks were giving a pleasantness rating, associating similar words, and imagining self with the word. Giving a pleasantness rating and imagining self with the word were equal to each other and significantly superior in the number of words recalled and recognized after associating similar words. Meaning as operationalized in this research did not result in a unidimensional memory result.

Hypothesis 1c stated that the learning task of giving a pleasantness rating would rank as the most effective learning task. This was supported by the pilot study. With the larger sample imagining self was slightly more effective. This difference was not statistically significant. For this age level imagining ranked as the most effective learning task. This superiority was most marked in the recognition test.(See Figure 3, page 113)

8. Relation of Quality and Intensity of Affect to Memory -Hypotheses 1d and 1e

Hypothesis 1d stated that the response to the pleasantness rating learning task, whether pleasant or unpleasant, would produce similar memory performances. The chi-squared test results indicated that slightly more unpleasant words were recalled than could be expected.

This difference was not statistically significant. This could be attributed to the uniqueness of the words that were considered to be unpleasant. Of the 1200 words rated under the pleasantness rating learning task 645 were rated pleasant, 183 were rated unpleasant, and the majority of the remainder were rated neutral with some that were marked ambiguously.

Hypothesis 1e stated that the intensity of the response on the pleasantness rating learning task would be positively associated with memory performance. The chi-squared test results were approaching significance for recall. For recognition intensity of initial rating had no relationship to whether or not the word was recognized. (See Table 14)

Table 14. Relation of Affect Quality and Intensity to Memory

Rated	Observed	Recalled	Expected	Recognized	Expected
Pleasant	645	388	403	603	609
Unpleasant	183	129	114	179	173
Intense	340	237	208	330	321
Mild	450	259	275	415	425
Neutral	326	187	200	310	308

Chi-squared Analysis		Probability
Pleasantness to recall =	2.45	between .10 and .20
Pleasantness to recognition =	0.28	NS
Intensity to recall =	5.78	between .05 and .10
Intensity to recognition =	0.49	NS

C. The Relationship of Empathic Ability and Memory Performances - Hypothesis 2

As results showed that giving a pleasantness rating was an

effective learning task, an analysis was made of correlates of this ability in an attempt to account for some of the variance in pupil performance.

1. Recall and Unique Feeling Words

There was a correlation of r=.40 of the student's free recall after the pleasantness ranking and the number of unique feeling words given on the empathy measure. This was significant beyond a probability of .01 for this result happening by chance.(Glass and Stanley,1970)

2. Recall and Accuracy of Empathy

There was a correlation of r=.31 of the student's free recall after the pleasantness rating and the accuracy of the identification of feeling. This was significant beyond a probability of .01 for this result happening by chance.

3. Recognition and Unique Feeling Words

There was a correlation of r=.19 of the student's recognition after the pleasantness rating and the number of unique feeling words given on the empathy measure. This result was significant at the .03 level.

4. Recognition and Accuracy of Empathy

There was a correlation of r=.13 of the student's recognition after the pleasantness rating and the accuracy of the identification of feeling. This result was not statistically significant.

5. Conclusions for Hypotheses 2 a

Hypothesis 2a stated that memory performances, previously shown to be enhanced by the pleasantness rating learning task, would be positively related to empathic ability. This hypothesis was strongly supported for the relationship between the number of unique feeling words and free recall and recognition after the pleasantness rating learning task. This hypothesis was also strongly supported for the relationship between the level of accuracy of feelings identified and free recall after the pleasantness rating learning task. There was no strong relationship between level of accuracy in identifying feelings and word recognition after the pleasantness rating learning task. The relationship was in the hypothesized direction but did not reach statistical significance.

Table 15.
Correlation of Empathy with Memory after Pleasantness Rating

	Memory Measure	
	Recall	Recognition
Unique Feeling Words	r=.40***	r=.19*
Accuracy of Empathy	r=.31***	r=.13

***= p< .001
*= p<.05

6. Relationship of Empathic Ability to Five Learning Tasks -Hypothesis 2b

Hypothesis 2b stated that memory performances achieved after the five learning tasks would be differentially related to empathic ability. This was strongly supported. Of the five learning tasks only the memory results achieved after the pleasantness rating learning task were strongly related to empathic ability. There was a canonical correlation of Rc=.44 between the two empathy measures and the two memory variables after the pleasantness rating learning task. This canonical correlation was significant beyond a probability of .001 for this result happening by chance. The two empathy measures both loaded strongly. Unique words loaded with a coefficient of .77 and accuracy loaded with a coefficient of .41. The loadings from the memory variables were more one sided. Recall loaded with a coefficient of .93 and recognition loaded with a coefficient of .17.

Table 16. Canonical Correlation of Empathy with Memory after Pleasantness Rating Learning Task

Canonical Correlation = .44

Eigenvalue = .19
Chi-square = 22.83, df = 4, p<.001

Coefficients

Empathy Set		Memory Set	
unique words	= .77	recall =	= .93
accuracy	= .41	recognition	= .17

There was a canonical correlation of Rc = .45 between the two empathy measures and the recall measures after the five learning tasks.

This result was significant beyond a probability of .01 for this happening by chance. The two empathy measures loaded strongly. Unique words had a coefficient loading of .81 and accuracy had a coefficient loading of .36. The coefficient loadings from the five learning tasks were not as balanced. The recall after the pleasantness rating learning task had a coefficient loading of .85. All of the other coefficient loadings were between .20 and a negative .06.

Table 17. Canonical Correlation of Empathy with Learning Tasks Recall

Canonical Correlation = .45
Eigenvalue = .20
Chi-square = 26.05, df = 10, p<.01

Coefficients

Empathy Set		Learning Task Recall	
unique words	= .81	pleasantness rating	= .85
accuracy	.36	association	= .20
		surface	= .18
		repetition	= -.04
		imagery	= -.06

D. The Relationship of Perceived Parenting Behaviours and the Child's Empathic Ability -Hypothesis 3

The results in this section proceeded on several levels of assumptions which are spelled out here.

Level 1

A. It was assumed that the factors, the scoring, and the items selected to represent the factors were the same for this sample of nine

to thirteen year olds as it was for older adolescents.

B. Further, it was assumed that these parental factor scores would relate in a similar, structural manner to child as well as adolescent outcome measures.

This was the highest inferential level which was tested. Below this inferential level, there were more basic assumptions.

Level 2

A. Children in the sample perceived parental behaviours in regular, understandable patterns that could be extracted by factor analysis. This extracted pattern may or may not be similar to the patterns for older adolescents.

B. Further, it was assumed that these regular, perceived parental behaviour patterns would relate to child outcome measures.

Below this inferential level, there were even more basic assumptions.

Level 3

A. Children accurately perceived parental behaviours.

B. Further, these perceptions were communicated on the brief Family Life Questionnaire and related to child outcome measures.

Level 4

a. Empathically skilled children can accurately perceive parental

feelings.

b. Further, these perceptions related to child outcome measures.

The results will be explored on these four levels.

1. Level 1. The Relationship of Theoretical Parental Factors to Empathy and Performance on Memory Tasks

The responses on the Family Life Questionnaire were scored into the five theoretical parental factors of support, anxiety, anger, regulativeness, and demand. Each parent had five scores. The ten parental scores for each student were correlated with that student's outcome measures of empathy and memory performance. Out of the forty correlates, one reached significance at the .05 level. It was considered appropriate to test the assumptions at the second level.

2. Level 2.The Relationship of Derived Parental Behaviour Factors to Empathy and Performance on Memory Task

a. Factor Analysis of Perceived Parental Behaviours

The raw data from the Family Life Questionnaire was entered into two varimax factor analyses. One analysis was to extract the factors related to perceived mother behaviours and the other was to extract the factors related to perceived father behaviors.

The open number factor analyses extracted six mother factors and seven father factors. The first five mother factors appeared to be conceptually clean. Two of the seven father factors appeared to be

redundant in that one statement loaded heavily into two factors. Also, the other statements in the two factors were conceptually similar. In addition statements in another two factors were conceptually similar and were strongly correlated. It was decided to simplify both factor analyses by forcing the analyses to derive five factors. Three of the resulting factors for each analysis had eigen values greater than 1.00. The relative importance of the first three factors in the analysis would be considered to have more power in explaining the variance than the other factors that had eigen values with values less than 1.00.(Nie et al., 1975) This was true of the factors for both the mother's and father's behaviours as perceived by their children.

Table 18. Factor Analysis of Perceived Mother Behaviours

Factor	Eigen Value	Percent of Variance
1	3.27	40.9
2	2.02	25.3
3	1.35	16.9
4	.72	9.0
5	.63	7.9

Factor	Factor Title	Loading	Question#	Mother Behaviour
1	Support	.63	12	she understands if I feel bad
		.62	10	I can talk to her
		.60	7	she can find the best way out
		.58	4	she is there if I need her
2	Anxiety/	.67	14	her feelings are easily hurt
	Anger	.59	8	she gets upset easily
		.55	9	she yells at me
		.51	20	she gets angry quickly
3	Regulativeness	.89	15	she does not let me decide
		.63	18	does not let me stay up late
4	Demand	.72	3	tells me to work at school
		.58	2	she is pushing me to do well
		.43	13	special effort in all things
5	Mixed	.52	3	expects me to work at school
		.37	15	she does not let me decide

Table 19. Factor Analysis of Perceived Father Behaviours

Factor	Eigen Value	Percent of Variance
1	3.99	47.5
2	1.93	23.0
3	1.20	14.3
4	.67	8.0
5	.60	7.2

1	Anger-Anxiety	.75	40	he gets angry quickly
		.74	29	he yells at me
		.54	28	he gets upset easily
2	Support	.77	27	can find the best way out
		.68	32	understands if I feel bad
		.58	30	I can talk about anything
		.54	24	he is there if I need him
3	Demand for Achievement	.68	23	tells me work at school
		.55	33	a special effort in all
		.48	25	sad if I do poorly
		.44	22	is pushing me to do well
		.42	26	he worries about me
4	Regulativeness	.83	38	he lets me stay up late
		.58	35	he doen't let me decide
5	Mixed	.46	34	feelings are easily hurt
		.41	21	he rewards me with money
		.37	37	he punishes me with work

These factors were compared to those factors found with older adolescents by Webster (1975) and were found to be similar. The one major difference was that the children collapsed the separate factors of parental anger and anxiety into one factor. The younger children did not discriminate parental anxiety as separate from parental anger.

Table 20. Comparison of Parental Behaviour Factors as Perceived by Adolescents and Children

Adolescent Factors of Perceived Parental Behaviour	Child Factors of Perceived Parental Behaviour
Mother	Mother
support	support
anxiety	anxiety/anger
anger	demand
demand	regulativeness
regulativeness	mixed
Father	Father
support	anger/anxiety
anxiety	support
anger	demand
demand	regulativeness
regulativeness	mixed

While the factors remained stable and comparable over the age range, the selected items did not all load as they had with the older adolescents. The new factors were correlated with the outcome measures to test the assumptions of Level Two, B.

b. Correlation of Derived Parental Factors with Child Outcomes

Table 21. Correlation of Derived Parental Factors with Child Outcomes

Parental Factor	Empathy	Pleasantness Rating Learning		
	Unique Accuracy	Recall	Recognition	
mother support	-.04	.01	.03	-.03
mother anxiety/anger	-.08	.03	-.09	-.14
mother regulate	.12	.11	.02	.11
mother demand	-.10	.02	.06	-.21*
mother mixed	-.06	.04	-.08	.03
father anger/anxiety	-.04	.02	.00	.06
father support	.01	-.01	-.01	-.14
father regulate	.02	-.06	-.05	.02
father demand	-.10	-.10	.03	-.07
father mixed	.08	-.10	.01	-.25**

* = significant beyond .05
** = significant beyond .01

The derived factors did not relate strongly or consistently with the outcome measures. Out of the forty correlations the two significant correlations would best be treated with caution. The mother demand factor was the fourth derived factor. The father mixed factor was the fifth derived factor. Each was significantly correlated with recognition memory. These results could possibly be achieved by chance.

3. Level 3. The Relationship of Perceived Parental Behaviours to Empathy and Performance on Memory Tasks

It was considered appropriate to test whether the raw data from the parenting questionnaire would relate with the outcome measures. The raw data had been successfully simplified into factors. Possibly,

this simplification of the data had obscured the discrete effects and relationships between a particular and powerful parental behaviour and an outcome measure. To explore this possibility the raw data from the perceived mother and father behaviours were entered into canonical correlations with the two sets of outcome measures. The first canonical correlation tested the relationship of perceived parental behaviours to the empathy of the child. The second canonical correlation tested the relationship of perceived parental behaviours to the child's performance on the pleasantness rating memory task.

Table 22. Canonical Correlation of Parental Behaviours with Empathy

Canonical Correlation		Eigenvalue	Chi-square	df	Probability
mother	.57	.33	54.34	40	.065
father	.52	.27	47.07	40	NS

Coefficient for mother	Coefficient for child's empathy	
-.57 tells me to work at school	.98	unique words
-.46 will be relieved when I grow	.04	accurate empathy
-.42 yells at me		
.39 punishes me with work		

Coefficient for father	Coefficient for child's empathy	
-.64 will be relieved when I grow	1.08	unique words
-.54 tells me work at school	-.42	accurate empathy
.39 does not reward with money		

The chi-square for mother's perceived behaviours approached significance. The statistic for the father's influence was weaker. With the relationship of parental behaviours to the child's empathy weakly supported it was decided to explore whether there was a direct, parental influence on the child's performance of the learning tasks.

No significant canonical correlation was found for either parent's perceived behaviours upon the child's memory recall after the five

learning tests nor after the pleasantness rating learning task taken by itself.

Table 23.
Canonical Correlation of Parental Behaviours with Child's Recall Memory after Five Learning Tasks

Canonical	Correlation	Eigenvalue	Chi-square	df	Probability
mother	.54	.29	95.28	100	NS
father	.56	.31	102.13	100	NS

Coefficient for mother		Coefficient for Learning Task
.55	I can talk about anything	.94 imagine word
-.52	she is there if I need her	-.46 associate
-.45	she gets upset easily	-.45 pleasantness rating
-.40	make a special effort in everything	-.30 surface
		-.04 repetition

Coefficient for father		Coefficient for Learning Task
-.56	he can find best way out	-.62 surface
-.54	he gets upset easily	-.54 pleasantness rating
.48	he yells at me	.46 association
.41	will be relieved when I grow	-.37 imagine word
.40	worries about me	.08 repetition

Table 24.
Canonical Correlation of Parental Behaviours with Child's Recall Memory after Pleasantness Rating Learning Task

Canonical	Correlation	Eigenvalue	Chi-square	df	Significance
mother	.41	.17	17.71	20	NS
father	.48	.23	25.55	20	NS

4. Level 4. The Relationship of Empathically Skilled Children's Perceptions of Parental Behaviours and Feelings To Empathic Ability

There was a distinct possibility that a lack of empathic ability of some children would distort the data on those statements that asked

for the child to know how the parent felt. For this reason the students who were in the top half of the combined scores for the empathic ability measures were selected. Their empathic scores were related to the standardized scores for perceived parental behaviours, the scores obtained from the derived factors, and the individual statements. No significant correlations were obtained from the first two levels of analysis.(r= .02 to .05)

However, four of the father statements and two of the mother statements out of twenty statements were significantly correlated at the .05 level with the empathic ability of the child. Six father statements and five mother statements were significantly correlated at the .10 level with the empathic ability of the child.

Table 25. Correlation of Perceived Parenting Behaviours and Feelings with Empathic Ability of Selected Students

Mothers' Questions for 61 of 120 Students		
I can talk to her about all	r= .23	p= .04
will be relieved when I grow up	r=-.23	p= .04
tells me to work hard at school	r=-.19	p= .08
she understands if I feel bad	r= .19	p= .08
she gets tired easily	r=-.17	p= .10
Fathers' Questions for 57 of 120 Students		
will be relieved when I grow up	r=-.34	p= .005
I can talk to him about all	r= .30	p= .01
he gets tired easily	r=-.30	p= .01
he is there if I need him	r= .23	p= .04
says make a special effort in all	r= .21	p= .06
he gets angry quickly	r=-.18	p= .09
(he understands if I feel bad	r= .14	p= .16)

5. Conclusions for Hypothesis 3 and Hypothesis 4

Hypothesis 3 stated that there was a relationship between parenting behaviours and the child's empathic ability. The items selected from a larger research instrument to ascertain the child's perception of parenting behaviours showed nonsignificant relationships with the child's empathic ability when the data from the entire sample was used. The relationship was weakest for the theoretical and perceived parenting factors. The results of the canonical analysis showed a strong relationship for the mother's behaviours with the child's empathic ability. This approached statistical significance.

When the students who were in the top half of the scores on empathic ability measures were selected and their empathic ability scores were related to their measures of perceived parenting behaviours and feelings, several statements showed significant relationships. Hypothesis 3a stated that there was a positive relationship between perceived parental support and the empathic ability of the child. Four items for the father and two for the mother were significant at less than the .05 level of probability. In addition three items for the mother and two items for the father were significant at less than the .10 level of probability. Of the eleven statements in Table 25 five were from the anger-anxiety factor, four were from the support factor, and two were from the demand factor. These statements were correlated in the hypothesized direction.

Hypothesis 4 stated that there was a relationship between parenting behaviours and the memory results achieved after the plesantness rating learning task. No significant relationship was observed. The father showed slightly more influence than the mother.

Chapter Eight

Discussion

A. The Influence of Learning Tasks on Memory Outcomes

1. Main Effects

This research supported the position that what the learner did with the material to be learned was highly predictive of subsequent memory outcomes. As such the tradition begun by Kirkpatrick (1895) was continued. Of the five tasks utilized giving a pleasantness rating and imagining were superior to the other tasks. Paivio (1975 a & b) has studied and written quite extensively upon imagery and shown it to be a very effective learning task. The non-significant difference between the memory results after the pleasantness rating and imagining learning tasks raised several questions. Was there a common physiological function that could account for the common results? Was there a conceptualization of these two tasks that would account for the common results?

Affect was centred in the limbic system with effects spreading through the hemispheres. Imagery utilized some of the neural mechanisms of the visual cortex as well as the frontal cortex.(Gazzaniga, 1978). Because of the great amount of interdependent functioning of different parts of the brain and its abundant redundancy it would be extremely difficult to posit a common physiological location that could account for the similar results. Likewise, it would be difficult to prove that the two learning tasks were neurologically independent of each other. A stronger case could

be made for a common conceptualization of the two tasks.

Hyde and Jenkins(1969) in their original research explained the effectiveness of certain learning tasks on grounds that these tasks supposedly dealt with the meaning of the material to be learned. They concluded that the learning tasks that emphasized the meaning of the material to be learned would be more effective than learning tasks that did not use the meaning of the material. The findings from this thesis was that the three tasks that were considered to use the meaning of the material, namely giving a pleasantness rating, imagining the word, and developing associations, resulted in memory performance that was not equivalent. Giving a pleasantness rating and imagining were significantly better in immediate recall than associating. Associating was significantly different from repeating and giving a surface analysis for recognition. However,in the recall test memory results after associating were not significantly different from memory after repetition. Repetition could hardly be considered to be a meaningful learning task. Two conclusions were that emphasizing meaningfulness will not ensure that the content will be remembered nor will all learning tasks judged to be meaningful produce equivalent learning results.

A more accurate reformulation of the effectiveness of various learning tasks could have three levels which would be consistent with the findings from this research and parallel to the triune brain model.(MacLean, 1978) Learning tasks would be effective in decreasing effectiveness to the extent that the limbic system, the neo-cortex, and finally the reptilian complex was involved. Thus, learning tasks that encouraged a broader, experiential awareness employing visual and emotional components of the content would result in better recall than

learning tasks that emphasized neo-cortex functions such as listing and developing associations and that these neo-cortex learning tasks would be more effective than learning tasks that were repetitive or dealt only with the surface structure of the content.

This hierarchy of effectiveness for the various learning tasks mirrored part of the historical developmental of education.(Burridge, 1970) An early, and ever recurring conceptualization of formal education was that students were to acquire a number of conditioned responses through memorization by repetition. This methodology was evident in early Greek schools, medieval universities, and mass education in the twentieth century. Methods that directed the learner to develop logical associations as an aid to learning and thinking were present in the Socratic method of asking questions, the connections made by Augustine between the liberal arts and the Christian faith, and the contention of the sciences and others that relevant associations ought to exist between the classroom and life. Infrequently in the history of education was the involvement of the self of the learner considered. Early humanists such as Erasmus and Thomas More were aware of individual differences among their students. They also encouraged teachers to identify and develop the natural aptitudes and interests of their elite students. Rousseau enlarged on the importance of the learner's nature and how it could affect the educational setting. As well, Dewey considered the educational setting to include the learner, the teacher, and the subject matter with each corner of the triangle being of importance.

Carkhuff(Anthony,1985; Carkhuff, 1984b) also noted three levels of educational effectiveness as learning by acquiring conditioned responses through rote memorization, learning by attending to the

meaning of the content by establishing multiple cognitive associations, and learning by human information processing which included five procedures.

1. the acquisition and analysis of data
2. the exploration and diagnosis of self in relation to the data
3. a value choice at the most basic level being toward or away from the alternatives presented by the previous procedure
4. operationalizing a goal for human benefits
5. establishing a methodology to achieve the goal

According to Carkhuff, the ability to be aware of personal reactions to the data and to be able to perceive one's self in relation to the data and the possible alternatives were integral components in human information processing. The personal involvement of the learner with the content to be learned was a key transition point in developing effective learning strategies for Carkhuff. The learner who was personally involved was more likely to learn than the learner who was not personally involved.

This hierarchy of educational effectiveness appeared to be more potent than many of the conventional explanations at explaining variations in achievement. The tasks accounted for approximately three times more of the variance in recall than the grade level of the child and five times more of the variance than the sex of the child. The mean square for tasks was 163, for grade level was 53, and for sex was 32.(Table 12, page 110)

Considering the range of ages from nine to thirteen one would expect that the older ones would do better than younger ones on recall

tasks. Yet, results for the nine year olds after both the pleasantness rating and imagining learning tasks were not significantly different from the results of the twelve and thirteen year olds results after the associative learning task.

Time was held constant over all learning tasks. Research associated with mastery learning (Block, 1971) showed that the amount of time a student spent on task was associated with outcome measures. One implication from the findings of this thesis was to alert educators to the importance of larger, more powerful variables than time that could be invoked if what the learner did during the time could be influenced. Ten minutes spent on tasks of repetition or surface analysis would not be as useful as ten minutes spent in imagining the content or identifying one's emotional reaction to what was to be recalled.

One observation made during the experiment was that learning by giving a pleasantness rating happened very quickly and did not require much effort. The word would be on the screen for three seconds. Very soon after the word had been flashed on the screen, the student was recording a pleasantness rating for that word and looking back at the screen about the time the word went off. It was informally observed that the only other learning task that approached this speed of execution was for the surface analysis which was the least effective of the five learning tasks. The pleasantness rating learning task was effective, fast, and appeared to be effortless.

Physiological studies of the brain have shown that both emotion and memory are affected by the integrity of the limbic system. This highly integrated group of organs has ensured survival by tying together these two functions. Individuals with physiological damage to

a limbic organ (such as H.M. whose hippocampus was damaged as noted in O'Keefe and Nadel,1978) have memory difficulties. While this study does not identify or extend new information as to the physiology of the brain, it does support the findings that affect and memory are closely related. As the physiology of the brain suggests that affect and memory are closely interrelated so, this research supports the usefulness of making explicit the affect connotation of what is to be remembered. While a specific location in the brain may be of critical importance in the execution of this procedure, in general, a broad range of normal individuals can use the pleasantness rating or imagining learning tasks to advantage in having a high probability of high memory retention.

Girls did better than boys using the pleasantness rating learning task. However, several other factors should be considered in order to gain a fuller understanding of some possible limitations on this conclusion. There was a correlation of $r = -.12$ of sex to grade level. There were more girls at higher levels. This was one effect of the random selection method. There were more boys at the lower grade levels and more females at the higher grade levels. Those pupils at higher grade levels recalled and recognized more than pupils at the lower grade levels. The amount of variance accounted for by the grade level was more than the variance accounted for by the sex of the pupil. This would indicate that the influence of the grade level was more powerful than the sex of the individual in accounting for the variance in recall.

In addition when each of the memory results after the five learning tasks were correlated with the sex of the pupil, the pleasantness rating learning task showed the least amount of

relationship of the five learning tasks.

Table 26. Correlation of Pupil Sex with Memory after a Learning Task

	Pleasant	Image	Associate	Repeat	Surface
Recall	-.10	-.17	-.16	-.14	-.14
Recognition	-.04	-.17	-.17	-.10	-.16

correlation of pupil sex with grade level r =-.12
Note: Females coded as 0, Males coded as 1.

2. Interaction Effect -Recall

There was one instance of an interaction that had a borderline level of significance. There were different rates of recall over the four levels for the five different learning tasks. This is depicted by the graph in Figure 5, page 115. The two learning tasks of pleasantness rating and imagery crossed over, but at no level were they significantly different. Larger changes occurred for the learning tasks of association and surface analysis especially between the third and fourth levels. The slopes for both of these showed a large increment in recall between level three and level four. This was roughly between the ages of eleven and twelve years old. The students at the older level were able to use association skills to increase their recall memory.. The large jump in recall after the surface analysis learning task at this age was possibly also a reflection of some of the maturational effects, notably that the older students were aware of the memory expectations of the experimental situation and used personal learning tasks in the available time to improve their recall.

This result may also have been a chance event as the memory results after a surface analysis have never been reported to be equivalent to those after the pleasantness rating learning task. Extending the lines for the surface analysis and the pleasantness rating learning tasks showed that they would join after two additional years. Such an extrapolation would not be warranted.

B. The Relationship of Empathic Ability and Memory Outcomes

The level of empathic skill of the child was positively associated with memory outcomes with the pleasantness rating learning task.(Table 15, page 119) There was also a positive association of grade level with both memory outcomes and empathic skill. Memory performance after giving a pleasantness rating was positively associated with grade levels and with empathic skills. The progression through the grade levels pointed to a maturational effect that was not clearly defined nor was it manipulable. On the other hand, the level of empathic skills was open to the possibility of being manipulable experimentally.

Individuals knew their own self by first knowing others. (Mead,1934) Those who showed a greater understanding of others also had a greater and more differentiated awareness of self. One important dimension of knowing others was empathy. It was predicted that those children who exhibited more of the component skills of empathy,i.e., fluency of identifying a wide range of feelings and an accuracy of identification of feelings, would be more able to use the pleasantness rating learning task because they would be more able to differentiate their own feelings with greater fluency and accuracy. This hypothetical structure and relationship was supported by the findings.

It can be inferred that the children who were more empathic in their understanding of others were more empathic in their understanding of their own feelings. Those who responded to their own feelings with more fluency and accuracy were able to use the pleasantness rating learning task more effectively.

This empathic ability was shown by the canonical correlation (Table 17,page 121) to be strongly related to the pleasantness rating learning task and only weakly to the other learning tasks. Empathic ability did not relate to all learning tasks as a generalized, intellectual ability. There was only a weak relationship between the empathy measures and recall after all of the learning tasks except the pleasantness ranking. There was a strong relationship between the empathy measures and the amount of recall after the pleasantness rating learning task.

This result indicated that empathy was not only the possession of the intelligent. Those who participated in the study were in the general range of intelligence and were all receiving a general primary education. The extremes of the intellectually handicapped were not tested. If the full range of human intellectual abilities had been included, it could be expected that a minimum amount of intellectual ability would have been shown to be necessary to be empathic and to utilize the pleasantness rating learning task.

Counsellor training of empathy emphasized the importance of accurately identifying the other's feelings.(Carkhuff, 1984a; Ivey, 1971) In this study accuracy did not show as strong an effect as did a measure of fluency in labeling different feelings.(Tables 15-17, pages 119-121) The measured effect for accuracy was strong and significant. Those who were accurate at identifying another child's feeling did

better on recall after the pleasantness rating learning task than did those who were inaccurate. Those who were fluent, as measured by the diversity of their feeling responses, were even more adept at using the pleasantness rating learning task. This difference could possibly be an artifact of the restricted range of the accuracy responses. The possible range for accuracy was from zero to six. The range for diversity of feeling words ranged from zero to seventeen. With a larger range for accuracy an increase of variance would likely result and the correlation may have increased for accuracy.

It could be informative to develop an investigation as to the separate contribution of the skills of fluency and accuracy to memory outcomes. This could be accomplished by training one group in accurately identifying the feelings of another. This would be training in discrimination. The other group could develop their feeling vocabulary independent of considerations of accurately identifying another's feeling. A comparison of memory outcomes of these two groups after the pleasantness rating learning task could help to clarify some of the base of effectiveness of this learning task as it relates to empathy.

Various studies noted before attempted unsuccessfully to explain the effectiveness of learning by giving a pleasantness rating. The level of physiological arousal, the time on task, the act of judging, the act of ranking, and repetition were all deficient as explanations for this effect. The positive relationship with empathy pointed out two areas worthy of consideration. The first was that of the structure and physiology of the brain. Many studies showed that one critical structure for all stages of memory from input, to storage, to recall was located in the limbic system. The limbic system was also of

critical importance for affect. Both affect and memory were strongly associated with this area of the brain. The structure and physiology provide a potential strategy for the acquistion, retention, and recall of information which could be utilized naturally in the flow of life. This study indicated that affect could be explicitly identified and associated with material to be learned. For many their subsequent recall of the material was superior to that of their recall after not explicitly identifying the affect associated with the material.

The second consideration was that the ability to use affect as an aid in the process of memory storage was dependent on and related to the fluency and accuracy of using this skill. Those who were more fluent and accurate at identifying feelings were more able to use this learning task more effectively. The potential was present in the structure and physiology of the brain. The potential required development. There was a benefit for using and practising this skill.

Classroom observation studies noted that affect was infrequently utilized for educational purposes. Flanders called the classroom an emotional desert. Currently, the potential was not developed in the classroom. The most likely place to account for the differential abilities in empathic abilities would be from the home.

C. The Relationship of Perceived Parenting Behaviours and the Child's Empathic Ability

The child's perceptions of parental behaviours and feelings did not show consistent and significant relationships to the child's empathic skills when the entire sample was used. Some links were present, albeit, of a weaker nature than the much stronger associations

of learning task with memory outcomes and the child's empathic skills with the pleasantness rating learning task. This was as would be expected since the initiation, facilitation, and maintenance of empathy in parent-child relations were doubtless early and were inescapably more complex than can be measured by a brief questionnaire. In addition, if Hoffman (1975) was correct that empathy was "hard wired" as a human capability, then it could be argued that empathy was a natural ability that was not so much caused by and learned from parents as potentially stifled and repressed by the parental abuse of power.

Many studies have shown the presence of a parental behaviour pattern that has been variously labeled as supportive, responsive, empathic, or loving. Furthermore, this factor has frequently been shown to be strongly related to outcome measures with children such as emotional well being, self-concept, or amount of contact with the police.(Webster,1972)

It was hypothesized in this study that the perception of parental support by itself and in complex interactions with other parenting factors could be positively related to the empathy of the child and both directly and indirectly associated with general performance on the memory tasks, and specifically memory performance after the pleasantness rating learning task. This was not established when data from the entire sample was used. It was however, supported when data from children who scored in the top half on empathic ability was used.

The children perceived a parental support factor.(Tables 18, 19, pages 124, 125) This was derived as the first mother factor and the second father factor. The factor of support was clean and easily interpretable as seen before. It was congruent with the support factor as identified by Webster(1979) with adolescents. Children from nine to

thirteen years of age readily categorized their perceptions of the parents' behaviours in one support factor that was similar to that factor perceived by older adolescents.

However, with the entire sample this factor was not related significantly to the empathy of the child, the child's general memory performance, and the child's specific memory performance after the pleasantness rating learning task. Because the perceived factor did not relate to the outcome variables, the raw data on perceived parental behaviours was entered into a canonical correlation with the two empathy measures. These results for the entire sample showed clearest results for those statements that referred to parental behaviours which were most clearly identifiable.(Table 22, page 129)

Mothers who regulated children's bedtime and did not allow them to stay up late, who did not tell their children to work hard in school but expected a generalized, special effort in all tasks, who enjoyed their children, who did not yell at their children, and who had enough energy not to be always tired tended to have children who were more empathic.

Fathers who enjoyed their children, who did not tell their children to work hard in school but expected a generalized, special effort in all tasks, and who did not reward their children monetarily tended to have children who were more empathic.

These were a compilation of parental behaviours that formed a complex relationship to the outcome measure of empathy. The mothers who were more regulative in setting boundaries had children who were more empathic. The mothers who were less angry and enjoyed their children as they were had children who were more empathic. These two factors stand out clearly.

The second and tenth variables for mothers were both associated with the demand-no demand factor continuum. However, one variable loaded negatively and the other variable loaded positively onto empathy. This suggested that there were differing bases for making personal evaluations. The parental demand for doing well at school loaded negatively and the generalized, parental expectation of making a special effort in all things loaded positively on children's empathy.

One possible explanation for this was that the pressure for doing well at school required the child to match the demands of the institution. Parental expectations of doing well at school possibly communicated to the child that the feelings, wishes, and standards of others were more important and over-riding than the child's own feelings, wishes, and standards. A generalized parental expectation that the child would make a special effort in all things by its breadth and focus necessitated that the child became self-observant to determine the success at meeting this standard. One variable demanded that the child meet the standards of an institution. The other demanded that the child knew his own standards, wishes, and feelings. Seen in this light, it was not surprising that these two loaded onto empathic performance differentially.

One variable was unexpected. The eighth variable for mothers loaded negatively onto children's empathy. The complete wording was, "She understands if I feel bad about something." The mothers who were perceived to be high in this behaviour, which was usually one expression of parental empathy, tended to have children who were low in empathy. This item could be tapping an intrusive control pattern. According to Webster (1972 and 1979) the protective parenting pattern involved empathic parents who were also anxious. It could be

hypothesized that these parents "had all of the empathy". The children were taught to look toward the parent because the parent understood how the children felt and the parents would act as they saw fit. The children were not taught to look into themselves.

Another possibility was that children who had low empathic ability were not able to discriminate their mother's understanding. This possibility was supported by the finding that the responses on this statement of the children who scored in the top half on the empathic ability measures related somewhat more strongly (r=.19, p=.08) to their empathic ability.(Table 25, page 131) This was the strength of the relationship even though the range of scores of empathic ability was halved by selecting only the top half of the sample. For the children who were in the top half on the empathic ability measures the mothers who were perceived to understand had children who were more empathic.

For the entire sample the children's perceptions of their father's behaviours did not relate as strongly to the children's empathy as did their perceptions of their mother's behaviours. Several father behaviours loaded strongly in accounting for some of the variance.

The first variable belonged to the anger-no anger factor continuum. The statement, "He gets angry very quickly," also loaded moderately strongly , -0.25. Fathers who were less angry and who enjoyed their children as they were had children who were more empathic.

The second and tenth variables were in the demand-no demand factor continuum. These were similar to the same factor for the mother. The demand for good performance in the institution was associated with children of low empathic ability, whereas, a general expectation of always making a special effort was positively associated with higher

empathic ability.

The remaining variables decreased rapidly in the amount that they contributed to explaining the canonical correlation between perceived father behaviours and children's empathic behaviour. The factor continuum of regulativeness-permissiveness also appeared consistently. Fathers who did not reward monetarily, who did not let their children stay up late, and who decided what time their children went to bed tended to have children who had more empathic ability.

Thus, for both mothers and fathers the factors of regulativeness-permissiveness, demand-no demand, and anger-no anger all were associated with children's empathic ability. What happened to the factor of support?

The Family Life Questionnaire required some level of empathic ability in order for the child to rate some parental behaviours and feelings. If the child had achieved a certain, undetermined level of empathic ability, the ratings would be meaningful. However, if the child had little empathic ability, the response to those items which requested a perception of the feelings of the parent would be meaningless. Such children could not read the signals of their parents' feelings. Furthermore, the relationship of responses from this total group to outcome measures would be difficult to interpret. In fact the factor of parental support and most of the items relating to this factor and other items which contained the requirement to identify parental feelings did not figure in the data analysis for the entire sample. Was the factor of support and items associated with parental feelings missing because they were not influential, because the entire sample could not perceive these items with sufficient accuracy and reliability, because the entire sample had not reached the

necessary developmental level, or were the measurement instruments inadequate?

The results shown in Table 25(page 131) showed that the perception of parental support was significantly related to the empathic ability of the students who scored in the top half of the empathic ability measures. Thus, one likely reason for the non-appearance of the support factor for the entire sample of children was associated with the level of empathic ability. Not all of the children had a level of empathic ability to report with reliability and validity the feelings of their parents. However, the perceptions of the students in the top half of empathic ability indicated that parental support was influential in the development of the empathic ability of the child. This was statistically significant even though there was a decrease by half in both the sample number and the range on the empathic ability measures.

Children with higher empathic ability had perceptions of parental behaviours that were similar to the perceptions of adolescents.(Webster, 1979) This could lead to the inference that one of the developmental differences between children of nine to twelve years of age and adolescents between fifteen and eighteen years of age would be in their level of empathic ability. The children with empathic ability showed perceptions similar to the perceptions of adolescents. This suggested that the presence of higher empathic ability represented advanced development.

The perceptions of father's behaviours and feelings showed slightly stronger relations to the child's empathic ability than did the perceptions of mother's behaviours and feelings.(Table 25) It could not be inferred from these results that fathers had a significantly

greater influence than mothers on the empathic ability of their children. The most evident conclusion was that fathers as well as mothers had influence on the development of the empathic abilities of their children. In addition several items were present as strong influences in the data from both the fathers' and mothers' statements. Further, the direction of the correlations was parallel. Several items related to the perceived support of the parents. Children benefited by both parents being perceived as open to talking about everything, by being there if needed, and by understanding if the child felt bad. Children also benefited when they perceived that anger was not strongly present. This was shown from the perception that these children were enjoyed by both parents now. These parents did not wish that their children would grow up in a hurry and leave. Especially for fathers, quick, angry responses were not associated with increased empathic ability of their children. In addition children benefited by perceiving that their parents had enough energy to be able to respond and participate in what the child perceived as the realistic demands of life.

There is an increasing number of options available for family life such as sole parenting, both partners working, serial relationships, as well as the traditional patterns. As no data was gathered on the style of family life that the child was living in, it would be inappropriate to infer further reasons for the strong correlations present between the perceptions of the father's behaviours and feelings and the empathic ability of the child. Perhaps, fathers were taking more part in the raising of their children and having a significant influence because of increased time spent with their children. Possibly, the amount of time was not the important factor. It could be that these

fathers practised a higher quality of interacting than previously was the case. Possibly, the children of higher empathic ability knew that their fathers exercised more control than their mothers and therefore exerted more effort to understand and be empathic with their fathers. This attention could have had a positive effect on the feelings and behaviours of the fathers. These and other explanations could be grounds for further investigations into the parental influence on the development of empathic ability.

Analysis of the data for the children defined as more empathic revealed a strong relationship between perceived parental behaviours and feelings and empathic ability. Parents who were perceived to be supportive, to have their anger under control, and to enjoy their children had children who were empathically skilled. Yet, these children were drawn from the top half of the entire sample of children. What could one infer by extending the findings to the bottom half of the sample? If the relationship held, then those children on the bottom half of the sample who gave few indications of empathic ability had parents who were non-supportive, were not available to talk about anything, did not understand how the child felt , were annoyed by the child being there, did not control their anger, and were too tired to be involved in life. Yet, these children did not perceive these behaviours and feelings. These children were too confused to be able to develop the necessary skills to be able to understand and relate to other people with understanding and empathy. They were disadvantaged and did not realize it.

Analyses carried out on the upper half of the measures of empathic ability gave support to the hypothesized model. Parental support, anger-anxiety, and demand related significantly to empathic ability.

Possibly, it was this group alone that contributed to the observed relationships between parental behaviours, empathy, memory performance, and the pleasantness rating learning task. Alternatively, those who scored in the lower half on the measures of empathic ability were able to utilize the pleasantness rating learning task independently of parental behaviours and empathic ability.

It was in order to test whether the relationship of empathic ability to the pleasantness rating learning task held across empathic abilities that a breakdown into two halves of the sample was undertaken. The entire sample's results on the two empathic ability measures were summed and correlated with memory performance achieved after the pleasantness rating learning task. Correlations were also carried out for the upper and lower halves of the empathy range. The correlations for the entire sample with recall ($r = .43$) and recognition ($r = .20$) were similar to the correlations of the individual components of empathic ability shown in Table 15(page 119). The correlations for the two halves of the sample were similar to each other and to the whole sample.(Table 27) This result indicated that the variances contained in the halves of the sample were similar. Thus, the consistency of the theoretical model was upheld for all children, whether empathically skilled or not. Empathic ability and memory performance achieved after the pleasantness rating learning task were related for the entire sample and for the separate halves. Thus, the model was sustained. Nevertheless, the possibility of a main effect of the pleasantness rating learning task cannot be dismissed.

Table 27. Correlation of Empathy with Memory after the Pleasantness Rating Learning Task for the Entire Sample and Two Sub-Groups

Group	Recall	Recognition
Entire sample	r= .43***	r= .20*
Empathically skilled	r= .31**	r= .21*
Empathically unskilled	r= .37**	r= .30**

*** p<.001
** p<.01
* p<.05

D. The Relationship Between Children's Memory Outcomes and Perceived Parenting Behaviours

The link between perceived parenting behaviours influencing learning task competency and memory outcomes was weaker than the more direct influences discussed above. Indeed, the weakness of the link was confirmed in that perceived parenting behaviours did not relate significantly as parenting factors to memory outcomes. Out of twenty correlations only one reached significance.(Tables 23 and 24, page 129)

A slightly better case was obtained by ignoring the parenting factors and entering the raw data from the parenting questionnaire directly with the memory outcomes. The canonical correlation did not reach a level of statistical significance. A general relationship of parenting behaviours to memory outcomes was indicated. What strengthened this analysis was the consistent appearance of several parenting behaviours both in this analysis and in the relationship of parenting behaviours to the child's empathy.

Mothers appeared to have a stronger influence on the development

of the empathy of their children. Fathers appeared to have a stronger influence on the development of memory skills. While the canonical correlations were not statistically significant (mother Rc=.54, father Rc=.56), they were of a magnitude that could not be dismissed easily. The relationship was in the hypothesized direction.

E. Summary of Findings Related to the Model

1. The Pleasantness Rating Learning Task and Memory

The pleasantness rating learning task was shown to be an effective learning task for the acquisition, recall, and recognition of familiar, words for children from nine to twelve years old. The quality of the affective response at the time of acquisition made little difference upon the amount of recall and recognition. There was an indication that the intensity of the affective response at the time of acquisition was positively related to the word being recalled and recognized. The intensity of affect was solely a product of each individual's reaction to the word. No effort was made to increase or decrease the intensity of the affective response to the word through selecting words of greater impact or through presenting the words in any way that would treat them unequally. Analysis of the pilot study results showed only a very weak relationship of recall and recognition to the word's imagery, meaningfulness, or concreteness as quantified by Paivio, Yuille, and Madigan.(1968)

2. The Pleasantness Rating Learning Task and Empathy

There was a significant, positive relationship between the child's empathic ability and recall and recognition after the pleasantness rating learning task. There was only a weak relationship between the child's empathic ability and recall and recognition after the other learning tasks.

3. Parental Behaviours and the Child's Empathy and Memory Performance

a. For the Entire Sample

The links between perceived parental behaviours and the child's empathic ability approached statistical significance for the mother's interactions with the child. The influence was complex. The father's influence was not as strong as the mother's influence upon the child's empathic ability. The father's influence was slightly stronger than the mother's influence upon the child's general memory performance after the learning tasks. This difference was not statistically significant.

b. For the Empathically Skilled Children

The behaviours and feelings of the parents related significantly to the child's empathic ability. Aspects of perceived parental support, regulativeness, and demand were positively related and anger-anxiety was negatively related to the child's empathic ability. The child's perceptions of both the father and mother were important in the development of empathic ability.

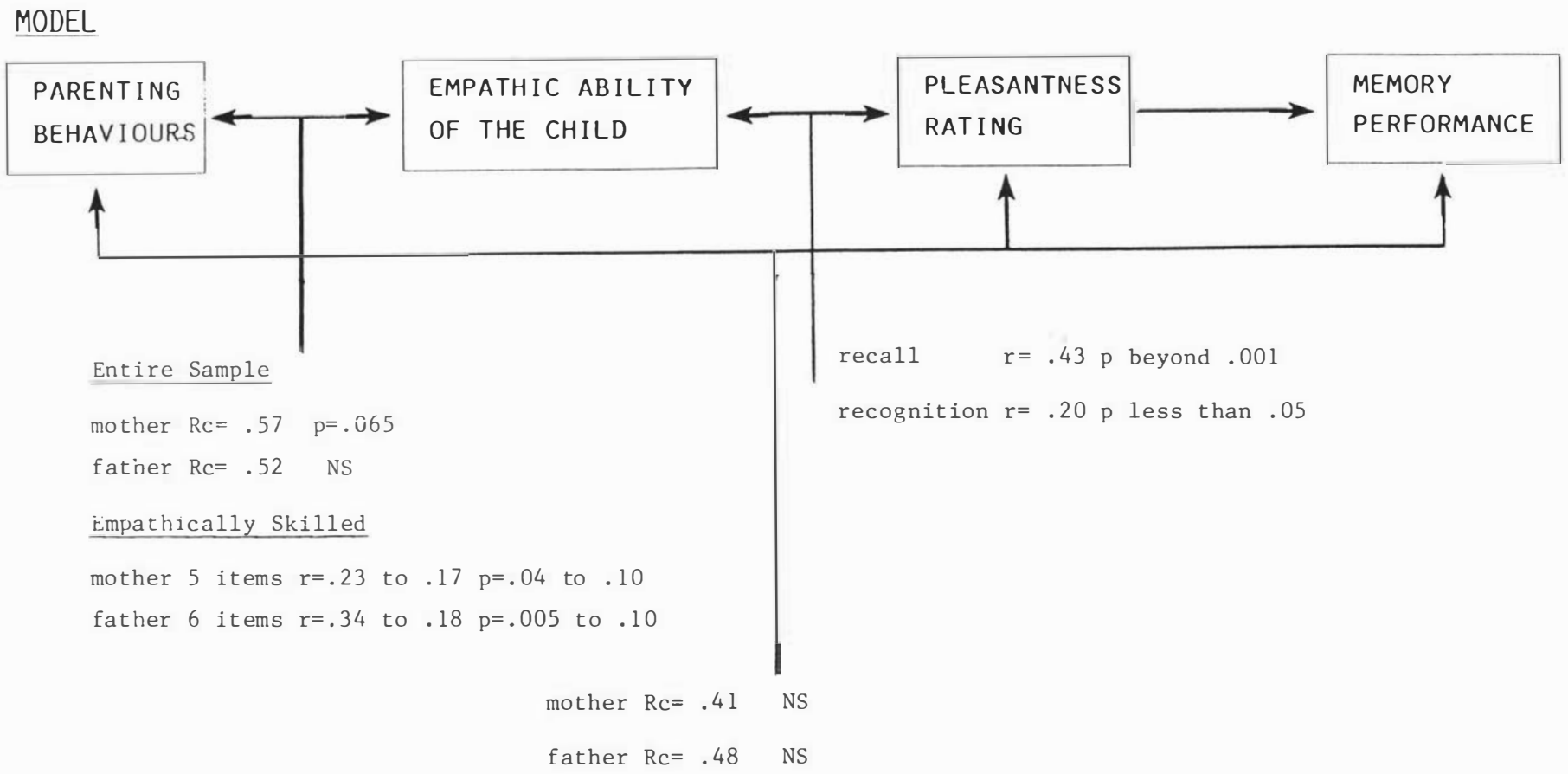


Figure 6. Demonstrated Relationships between the Variables in the Model

F. Implications for Education

1.Useful Learning Tasks

Students remembered more after they were asked to give a pleasantness rating to a word than after several other well known learning tasks. Rating the pleasantness of a word and imagining the word were two activities that were associated with the highest amount of memory. Affect was educationally useful in these controlled circumstances. Teachers could ask students to use affect as one method to increase the probability of recall. However, classroom observational research showed the absence of affect used for educational purposes.

2. The Utilization of Affect for Educational Purposes

It was not known whether teachers generally did not use affect in the classroom because of a lack of skill or a choice that use of affect would be dangerous or counter-productive to other educational goals. With the strong findings from this and other research that affect identification was a very powerful learning task, teachers and other educators would be encouraged to implement this procedure into the educative process. However, exploration into the perceptions of teachers as to the use of affect for educational purposes could uncover some important information that would guide any attempt at implementation. Hyde and Jenkins(1969) classified their more successful learning tasks as semantic in that these learning tasks were

perceived to deal with the meaning of the material to be learned. Educators could readily accept such learning tasks if they were perceived as being meaningful. However, with the failure of Hypothesis 1b to be confirmed, another descriptor could possibly be needed that would unify the pleasantness rating and imagining learning tasks and separate them from other learning tasks. One possible descriptor could be that these two tasks utilized a personal experiencing of the material. Thus these two learning tasks could be described as experiential or personal learning tasks. The teacher's guiding hypothesis could be that learning tasks that encouraged the pupil to personalize the material would result in greater amounts of learning than learning tasks that did not encourage the pupil to personallly experience the material.

In this experiment affect identification was effective as a learning task when the affect identification was private and explicit, not expanded through any form of exploration or justification, and done as a matter of course. In addition the experimenter tried to present the material in as neutral a way as possible so no item had emotional impact due to extraneous factors. These elements in the experimental process may or may not be of critical importance in the classroom implementation of the utilization of pupil affect for educational purposes. These procedures appeared to give a framework for one possible implementation that could be useful. These suggestions also need to be tested in the classroom. Those parental behaviours which were associated with the child's empathic ability could be hypothetical guidelines for teacher behaviour.(see Tables 22, 23, and 25, pages 129-131)

3. Possible Procedures in the Classroom

The words were well known to all of the children. They had information and additional content to draw upon to base their affective response. One possible principle would be that for the individual to utilize affect as a learning aid the individual should have adequate information and content knowledge. Thus, it would be appropriate to use affect identification as one of the final acts in a teaching programme. By doing this the student would have information and content to draw upon and to associate with the affective response.

The identification of an affective reaction to the content could result in an idiosyncratic, expansive association of ideas that would not necessarily by logical, true, or sound. The teacher would be required to possess additional, exploratory skills to best utilize such incidents. Some of these skills would be in listening and attending fully to the student.(Carkhuff, Berenson, and Pierce, 1977)

One danger could be in the inappropriate application of this learning task. To ask after each sum in an arithmetic sums table whether the answer was pleasant or unpleasant in the hope that the student would remember more would trivialize the individual's emotions. Many classrooms were emotional deserts. On the other hand to turn a classroom into a sea of emotion would be equally destructive of the plants of learning.

One procedure to be avoided would be to ask for a pleasantness rating before the student had acquired much information and to immediately ask the student to justify and explain the rating. This could lead to a premature closure in the acquisition of information.

There appears to be a parallel here to the nature and formation of prejudice.(Allport, 1954)

G. Further Suggestions for Study

1. Generalizability

This thesis extended the range of people with whom the pleasantness rating learning task was known to be effective. Children between nine and twelve were able to use this learning task effectively. This learning task was not the most effective task for all children. There was some variability. Some children learned more after using other learning tasks. The pleasantness rating learning task was never the weakest learning task for any individual child in the sample. Several research questions flow on in an attempt to establish where this phenomenon may be operable.

a. What is the effect on memory of the pleasantness rating learning task with even younger subjects?

b. Is there an age range where the pleasantness rating learning task is not effective?

c. What is the effect of the pleasantness rating learning task with the special education population of the intellectually handicapped, the deaf, the blind, the gifted, or the emotionally disturbed?

d. What is the effect of the pleasantness rating learning task with

larger content blocks, e.g., concepts, skills, sentences, paragraphs?

e. What is the effect of the pleasantness rating learning task with nonsense material?(e.g., nonsense syllables or memorizing in an unknown, foreign language)

f. What is the effect of subject responses other than ticking a paper to show the affective response, e.g., spoken, written, extended verbal or written explanations, silent thought responses?

g. Can empathic skills be taught to children and if so, do children who have learned empathic skills perform similarly on the pleasantness rating learning task as other children who had similar levels of empathic skills?

2. Classroom Implementation

Most of the research conducted in this area so far has been conducted in a controlled, laboratory setting. Classroom settings are considerably more complex. The general research questions centre on the key elements in implementing this learning task in the classroom.

a. What is the basis for the non-utilization of affect for educational purposes? Is it the lack of teacher skill, an active teacher choice to avoid all affect, general teacher attitudes, or some other alternative?

b. What are the teacher skills and attitudes necessary for utilizing the pleasantness rating learning task effectively?

c. What are some methods of training teachers so that they will use the methods in the pleasantness rating learning task effectively?

d. What are the effects of using the pleasantness rating learning task at different times in a learning sequence?

e. What else changes in the classrooms where affect is used for achieving educational aims?

H. Limitations of the Study

The research design and instrumentation involved choices which entailed limitations. Some of these limitations were indicated in the suggestions for further research. Several additional conditions of this research need to be borne in mind when interpreting the findings.

The students reported the strength and quality of their feelings when doing the pleasantness rating learning task. There was no attempt to triangulate the self-reports with a physical measurement of arousal or a content analysis of expressed likes and dislikes as compared with behavioural indicators.

The empathy measure also was not triangulated by exploring the process by which the student arrived at a decision as to how the individual in the televised excerpt felt. This could have aided in deciding on the level of empathic ability of the student. In addition an evaluation of everyday empathic behaviours was not included.

The findings from relating memory to the pleasantness rating learning task and empathic ability to the pleasantness rating learning task appeared firm and clear even with the limitations noted. The

findings in regard to the influence of the family background would have been the category most likely to have benefited from additional measures that more validly and reliably identified parental behaviours and feelings. In addition much information as to family structural variables such as size, marital history, and educational attainment were not explored.

Bibliography

Ahern, Sylvia. (1978) "Activation and Intelligence: Pupillometric Correlates of Individual Differences in Cognitive Abilities." Dissertation Abstracts International. 39:5:2535B.

Allport, Gordon. (1954) The Nature of Prejudice. Reading, Massachusetts:Addison-Wesley.

Anthony, William. (1985) "Human Information Resource Development in the Age of Information: A Dialogue with Robert Carkhuff." Journal of Counselling and Development. 63:372-374.

Arnold, Magda. (1970) "Brain Function in Emotion", in Black, Perry (ed.). Physiological Correlates of Emotion. New York:Academic Press.

Arvidson, G.L. (1961) N.Z.C.E.R. Alphabetical Spelling List: Book Two. Wellington:New Zealand Council for Educational Research.

Aspy, David and Roebuck, Flora. (1974) Kids Don't Learn from People They Don't Like. Amherst, Massachusetts:Human Resource Development Press.

Baddeley, Alan. (1976) The Psychology of Memory. New York:Basic Books.

Barham, R.M. and Boersma, F.J. (1975) Orienting Responses in a Selection of Cognitive Tasks. Rotterdam: Rotterdam University Press.

Bartlett, F.C. (1932) Remembering. New York: Cambridge University Press.

Battig, William. (1979) "The Flexibility of Human Memory", in Cermak, Laird and Craik, Fergus (eds.). Levels of Processing in Human Memory Hillsdale, New Jersey: Lawrence Erlbaum.

Beatty, Jackson and Wagoner, Brennis. (1978) "Pupillometric Signs of Brain Activation Vary with Level of Cognitive Processing". Science. 199:1216-1218.

Belmont, John. (1978) "Individual Differences in Memory: The Cases of Normal and Retarded Development", in Gruneberg, Michael and Morris, Peter (eds.). Aspects of Memory. London: Methuen.

Berenson, Sally, Berenson, David, and Carkhuff, Robert. (1979) The Skills of Teaching: Teaching Delivery Skills. Amherst, Massachusetts: Human Resource Development Press.

Berne, Eric. (1967) Games People Play. New York: Grove Press.

Block, James H. (ed.) (1971) Mastery Learning: Theory and Practice. New York: Holt Rinehart, and Winston.

Bogen, Joseph. (1977) "Some Educational Implications of Hemispheric Specialization", in Wittrock, M.C. The Human Brain. Englewood Cliffs, New Jersey: Prentice-Hall.

Borich, Gary. (1975) The Appraisal of Teaching. Reading, Massachusetts: Addison-Wesley.

Borke, Helene. (1971) "Interpersonal Perception of Young Children: Egocentrism or Empathy?" Developmental Psychology. 5:263-269.

Borke, Helene. (1972) "Chandler and Greenspan's 'ersatx egocentrism': a Rejoinder". Developmental Psychology. 7:107-109.

Borke, Helene. (1983) "Piaget's Mountain Revisited: Changes in the Egocentric Landscape", in Donaldson, Margaret, Grieve, Robert, and Pratt, Chris. (eds.) Oxford: Basil Blackwell.

Bower, Gordon. (1981) "Mood and Memory". American Psychologist. 36:129-148.

Bower, Gordon and Kurlin, Martin. (1974) "Depth of Processing Pictures of Faces and Recognition Memory". Journal of Experimental Psychology. 103:751-757.

Brown, George Isaac. (1971) Human Teaching for Human Learning. New York: Penguin.

Burdick, James Alan. (1978) "A Review of Heart Rate Variability and Evaluation". Perceptual and Motor Skills. 47:95-105.

Burridge, Trevor. (1970) What Happened in Education: An Introduction to Western Educational History. Boston: Allyn and Bacon.

Carkhuff, Robert. (1969) Helping and Human Relations, two volumes. New York: Holt, Rinehart, and Winston.

Carkhuff, Robert. (1984a) The Art of Helping fifth edition. Amherst, Massachusetts: Human Resource Development Press.

Carkhuff, Robert. (1984b) The Productive Teacher two volumes. Amherst, Massachusetts: Human Resource Development Press.

Carkhuff, Robert and Berenson, David. (1981) The Skilled Teacher. Amherst, Massachusetts: Human Resource Development Press.

Carkhuff, Robert, Berenson, David, and Pierce, Richard. (1977) The Skills of Teaching: Interpersonal Skills. Amherst, Massachusetts: Human Resource Development Press.

Chandler, M. and Greenspan, S. (1972) "Ersatz Egocentrism: A Reply to H. Borke". Developmental Psychology. 7:104-106.

Coates, Rose Ann. (1974) The Development and Use of a Questionnaire on Children's Perceptions of Parent Behaviour in New Zealand. Unpublished Diploma in Education paper. Palmerston North: Massey University.

Corballis, Michael. (1980) "Laterality and Myth". American Psychologist. 35:284-295.

Craik, Fergus. (1979) "Levels of Processing", in Cermak, Laird and Craik, Fergus (eds.). Levels of Processing in Human Memory. Hillsdale, New Jersey: Lawrence Erlbaum.

Craik, Fergus and Lockhart, Robert. (1972) "Levels of Processing: A Framework for Memory Research". Journal of Verbal Learning and Verbal Behaviour. 11:671-684.

Craik, Fergus and Watkins, M. (1973) "The Role of Rehearsal in Short-term Memory". Journal of Verbal Learning and Verbal Behaviour. 12:599-607.

Decarie, Therese. (1978) "Affect Development and Cognition in a Piagetian Context", in Lewis, Michael and Rosenblum, Leonard (eds.). The Development of Affect. New York: Plenum.

Donaldson, Margaret. (1978) Children's Minds. Glasgow: Fontana.

Dutta, Satrajit and Kanungo, Rabindra. (1975) Affect and Memory: A Reformulation. Oxford: Pergamon Press.

Ebel, Robert. (1972) "What are Schools For?" Phi Delta Kappan. September:3-7.

Eisner, Elliot. (1973) "The Intelligence of Feeling", in Rubin, Louis (ed.). Facts and Feelings in the Classroom. New York: Viking.

Erikson, Erik. (1963) Childhood and Society, second edition. New York: W.W. Norton.

Fitzgerald, Donald and Ausubel, David. (1963) "Cognitive versus Affective Factors in the Learning and Retention of Controversial Material". Journal of Educational Psychology. 54:73-84.

Flanders, Ned. (1960) Teacher Influence, Pupil Attitudes, and Achievement. Minneapolis: University of Minnesota.

Flanders, Ned. (1970) Analyzing Teacher Behaviours. Reading, Massachusetts: Addison-Wesley.

Flavell, John. (1968) The Development of Role-Taking and Communication

Skills in Children. New York: John Wiley.

Flavell, John and Ross, Lee. (1981) Social Cognitive Development. Cambridge: Cambridge University Press.

Freud, Sigmund. (1915) "Repression", in Collected Papers, volume IV, pp. 84-97.

Freud, Sigmund. (1938) On the Psychopathology of Everyday Life. New York: MacMillan.

Gagne, R. (1970) The Conditions of Learning, second edition. New York: Holt, Rinehart, and Winston.

Gardner, Howard. (1984) Frames of Mind: The Theory of Multiple Intelligences. London: Heinemann.

Gazda, George, Asbry, F., Balzer, F., Childers, William, and Walters, Richard. (1977) Human Relations Development, second edition. Boston: Allyn and Bacon.

Gazzaniga, Michael and LeDoux, Joseph. (1978) The Integrated Mind. New York:Plenum Press.

Glass, Gene and Stanley, Julian. (1970) Statistical Methods in Educational Psychology. Englewood Cliffs, New Jersey: Prentice-Hall.

Glasser, William. (1969) Schools Without Failure. New York: Harper and Row.

Goodyear, Rodney and Bradley, Fred. (1981) "Cognition and Feeling States: Unravelling the Issues". Personnel and Guidance Journal. 59:314-317.

Gordon, Neal J. (1976) Children's Recognition and Conceptualization of Emotions in Videotape Presentations. Unpublished Ph.D. thesis: Harvard University.

Gordon, William. (1961) Synectics. New York: Harper and Row.

Hakerem, Gad. (1974) "Conceptual Stimuli, Pupillary Dilation, and Evoked Cortical Potentials: A Review of Recent Advances." in Pupillary Dynamics and Behaviour. New York: Plenum.

Hall, Calvin and Lindzey, Gardner. (1957) Theories of Personality. New York: John Wiley.

Hart, Leslie. (1975) How the Brain Works: A New Understanding of Human Learning, Emotion, and Thinking. New York: Basic.

Hart, Leslie. (1983) Human Brain and Human Learning. London: Longman.

Herzog, Stephanie. (1982) Joy in the Classroom. Boulder Creek, California: University of the Trees Press.

Hess, Eckhard. (1965) "Attitude and Pupil Size". Scientific American. 212:4:46-54.

Higgins, E. Tory. (1981) "Role-taking and Social Development: Alternative Developmental Perspectives and Processes", in Flavell, John and Ross, Lee (eds.). Social Cognitive Development. Cambridge: Cambridge University Press.

Hoffman, Martin. (1975) "Developmental Synthesis of Affect and Cognition and Its Implications for Altruistic Motivation". Developmental Psychology. 11:607-622.

Hoffman, Martin. (1976) "Empathy, Role Taking, Guilt, and Development of Altruistic Motives", in Lickona, Thomas (ed.). Moral Development and Behaviour. New York: Holt, Rinehart, and Winston.

Hoffman, Martin. (1978) "Empathy, Its Development and Prosocial Implications", in Keasey, Charles (ed.). Nebraska Symposium on Motivation - 1977. Lincoln: University of Nebraska Press.

Hoffman, Martin. (1981) "Perspectives on the Difference between Understanding People and Understanding Things: The Role of Affect", in Flavell, John and Ross, Lee (eds.). Social Cognitive Development. Cambridge: Cambridge University Press.

Hook, Colin and Rosenshine, Barak. (1979) "Accuracy of Teacher Reports of Their Classroom Behaviour". Review of Educational Research. 49:1-12.

Hornblow, A.R. (1980) "The Study of Empathy." New Zealand Psychologist. 9:19-28.

Horton, David and Mills, Carol. (1984) "Human Learning and Memory", in Rosenzweig, Mark and Porter, Lyman (eds.). Annual Review of Psychology, Volume 35. Palo Alto, California: Annual Reviews.

Hyde, Thomas. (1973) "Differential Effects of Effort and Type of Orienting Task on Recall and Organization of Highly Associated Words". Journal of Experimental Psychology. 97:111-113.

Hyde, Thomas and Jenkins, James. (1969) "Differential Effects of Incidental Tasks on the Organization of Recall of a List of Highly Associated Words". Journal of Experimental Psychology. 82:472-481.

Isaacson, Robert. (1974) The Limbic System. New York: Plenum Press.

Ivey, Alan. (1971) Microcounselling. Springfield, Illinois: Charles C. Thomas.

Jones, Richard. (1968) Fantasy and Feeling in Education. London: Penguin.

Jones, Richard. (1973) "Involving Fantasies and Feelings", in Rubin, Louis (ed.). Facts and Feelings in the Classroom. New York: Viking.

Joyce, Bruce and Weil, Marsha. (1980) Models of Teaching, second edition. Englewood Cliffs, New Jersey: Prentice-Hall.

Kahneman, Daniel. (1973) Attention and Effort. Englewood Cliffs, New Jersey: Prentice-Hall.

Kahneman, Daniel and Beatty, Jackson. (1966) "Pupil Diameter and Load on Memory". Science. 154:1583-1585.

Kahneman, Daniel et al. (1969) "Pupillary, Heart Rate, and Skin Resistance Changes during a Mental Task". Journal of Experimental Psychology. 79:164-167.

Kety, Seymour. (1976) "Biological Concomitants of Affective States and their Possible Role in Memory Processes", in Rosenzweig, Mark and Bennett, Edward . Neural Mechanisms of Learning and Memory. Cambridge: Massachusetts Institute of Technology Press.

Kirkpatrick, E. (1894) "An Experimental Study of Memory". Psychological Review. 1:602-609.

Kleinsmith, L. and Kaplan, S. (1963) "Paired-Associate Learning as a Function of Arousal and Interpolated Interval". Journal of Experimental Psychology. 65:190-193.

Kohlberg, Lawrence. (1968) "The Child as a Moral Philosopher". Psychology Today. 7:25-30.

Kohlberg, Lawrence. (1975) "The Cognitive-Developmental Approach to Moral Education". Phi Delta Kappan. June: 670-677.

Krinsky, Richard and Nelson, Thomas. (1981) "Task Difficulty and Pupillary Dilation during Incidental Learning". Journal of Experimental Psychology: Human Learning and Memory. 7:293-298.

Lang, Peter. (1979) "A Bio-informational Theory of Emotional Imagery". Psychophysiology. 16:495-512.

Lazarus, Richard. (1968) "Emotions and Adaptation", in Arnold, W.J. (ed.). Nebraska Symposium on Motivation - 1967. Lincoln: University of Nebraska Press.

Lazarus, Richard. (1982) "Thoughts on the Relations between Emotion and Cognition". American Psychologist. 37:1019-1024.

Lazarus, Richard. (1984) "On the Primacy of Cognition". American Psychologist. 39:124-129.

Lazarus, Richard, Averill, James, and Opton, Edward. (1970) "Toward a Cognitive Theory of Emotions", in Arnold, Magda (ed.). Feelings and Emotions. New York: Academic Press.

L'Hermitte, F. and Signoret, J.L. (1976) "The Amnesic Syndromes and the Hippocampal-mammillary System", in Rosenzweig, Mark and Bennett, Edward. Neural Mechanisms in Learning and Memory. Cambridge: Massachusetts Institute of Technology.

Light, Paul. (1979) The Development of Social Sensitivity. London: Cambridge University Press.

McGranahan, D. (1940) "A Critical and Experimental Study on Repression". Journal of Abnormal and Social Psychology. 35:212-225.

MacLean, Paul. (1978) "A Mind of Three Minds: Educating the Triune Brain", in Chall,J. and Mirsky, A. (eds.). Education and the Brain, 77th Yearbook of the National Society for the Study of Education. Chicago: University of Chicago Press.

McTeer, W. (1972) The Scope of Motivation. Monterey, California: Brooks/Cole.

Maslow, Abraham. (1962) Toward a Psychology of Being. Princeton, New Jersey: Van Nostrand.

Maslow, Abraham. (1973) "What is a Taoistic Teacher?" in Rubin, Louis (ed.). Facts and Feelings in the Classroom. New York: Viking.

Mead, George Herbert. (1934) Mind, Self, and Society. Chicago: University of Chicago Press.

Miller, John. (1976) Humanizing the Classroom. New York: Praeger.

Miller, Ralph. (1978) "Some Physiological Aspects of Memory", in Gruneberg, Michael and Morris, Peter. Aspects of Memory. London: Methuen.

Nelson, Thomas. (1977) "Repetition and Depth of Processing". Journal of Verbal Learning and Verbal Behaviour. 16:151-171.

Nelson, Thomas and Vining, Susan. (1978) "Effect of Semantic versus Structural Processing on Long-term Retention". Journal of Experimental Psychology: Human Learning and Memory. 4:198-209.

New Zealand Official Yearbook - 1980. Wellington: Department of Statistics.

Nie, Norman, Hull, Hadlai, Jenkins, Jean, Steinbrenner, Kevin, and Bent, Dale. (1975) Statistical Package for the Social Sciences. New York: McGraw-Hill.

Noble, C. (1952) "An Analysis of Meaning". Psychological Review. 59: 421-430.

O'Keefe, John and Nadel, Lynn. (1978) The Hippocampus as a Cognitive Map. Oxford: Clarendon Press.

O'Malley, Michael. (1981) "Feeling without Thinking? Reply to Zajonc". Journal of Psychology. 108:11-15.

Open University. (1981) "Determinants of Behaviour, Module D1". Biology, Brain, and Behaviour. Milton Keynes, Great Britain: Open University Press.

Paivio, A. (1975a) "Coding Distinctions and Repetition Effects in Memory", in Bower, Gordon (ed.). The Psychology of Learning and Motivation, volume nine. New York: Academic Press.

Paivio, Alan. (1975b) "Imagery and Long Term Memory", in Kennedy, Alan and Wilkes, Alan (eds.). Studies in Long Term Memory. London: John Wiley.

Paivio, Alan, Yuille, J., Madigan, S. (1968) "Concreteness, Imagery, and Meaningfulness Values for 925 Nouns". Journal of Experimental Psychology: Monograph Supplement. 76:3.

Patterson, Cecil. (1973) Humanistic Education. Englewood Cliffs, New Jersey: Prentice-Hall.

Patterson, Cecil. (1977) "Insights about Persons: Psychological Foundations of Humanistic and Affective Education", in Berman, Louise and Roderick, Jesse (eds.). Feeling, Valuing, and the Art of Growing: Insight into the Affective. Washington: Association for Supervision and Curriculum Development.

Piaget, Jean. (1926) The Language and Thought of the Child. New York: Harcourt-Brace.

Piaget, Jean. (1947) The Psychology of Intelligence. London: Routledge and Kegan Paul.

Piaget, Jean and Inhelder, Barbel. (1956) The Child's Conception of Space. London: Routledge and Kegan-Paul.

Plutchik, Robert. (1980) "A Language for the Emotions". Psychology Today. 13:9:68-78.

Postman, Leo and Kruesi, Elizabeth. (1977) "The Influence of Orienting Tasks on the Encoding and Recall of Words". Journal of Verbal Learning and Verbal Behaviour. 16:353-369.

Rapaport, David. (1961) Emotions and Memory. New York: Science Editions.

Reese, Hayne and Lipsitt, Lewis. (1970) Experimental Child Psychology. New York: Academic Press.

Reigenluth, Charles. (1980) Meaningfulness and Instruction: Relating

What is Being Learned to What a Student Knows. ERIC ED 195 263.

Rogers, Carl. (1961) On Becoming a Person. Boston: Houghton Mifflin.

Rogers, Carl. (1969) Freedom to Learn. Columbus, Ohio: Charles E. Merrill.

Rosin, Paul. (1976) "The Psychobiological Approach to Human Memory", in Rosenzweig, Mark and Bennet, Edward (eds.). Neural Mechanisms of Learning and Memory. Cambridge: Massachusetts Institute of Technology.

Rubin, Louis. (1973) Facts and Feelings in the Classroom. New York: Viking.

Rubin, Louis. (1977) "The Human in the System", in Curriculum Handbook: The Disciplines, Current Movements, and Instructional Methodology. Boston: Allyn and Bacon.

Sagan, Carl. (1977) Dragons of Eden. New York: Random House.

Schachter, Stanley. (1975) "Cognition and Peripheralist-Centralist Controversies in Motivation and Emotion", in Gazzaniga, Michael and Blakemore, Colin (eds.). Handbook of Psychobiology. New York: Academic Press.

Schlesinger, Judith. (1980) "Laterality and Myth Continued". American Psychologist. 35:1147-1149.

Schutz, William. (1967) Joy. New York: Grove Press.

Scriven, Michael. (1973) "Revolution Within Reason", in Rubin, Louis (ed.). Facts and Feelings in the Classroom. New York: Viking.

Shantz, Carolyn. (1975) "The Development of Social Cognition", in Hetherington, E. Mavis (ed.). Review of Child Development Research. Chicago: University of Chicago Press.

Simon, Sidney, Howe, Leland, and Kirschenbaum, Howard. (1972) Values Clarification. New York: Hart.

Skinner, B.F. (1968). The Technology of Teaching. New York: Appleton-Century-Crofts.

Slife, Brent and Rychlak, Joseph. (1981) "Affection as a Separate Dimension of Meaningfulness". Contemporary Educational Psychology. 6:140-150.

Sperry, R. (1982) "Some Effects of Disconnecting the Cerebral Hemispheres". Science. 217:1223-1226.

Sprinthall, Norman and Mosher, Ralph. (1978) Value Development as the

Aim of Education. Schnectady, New York: Character Research Press.

Steffens, Stephen. (1978) The Effects of Teacher Attending and Responding Behaviours on Pupil Achievement. Unpublished M.Phil. Thesis. Palmerston North: Massey University.

Sturm, Hertha and Jorg,Sabine. (1981) Information Processing by Young Children. Munich: K.G. Saur.

Tait, W. (1913) "The Effects of Psycho-Physical Attitudes on Memory". Journal of Abnormal Psychology. 8:10-37.

Teyler, Timothy. (1978) "The Brain Sciences: An Introduction", in Chall, J. and Mirsky, A. (eds.). Education and the Brain, 77th Yearbook of the National Society for the Study of Education. Chicago: University of Chicago Press.

Teyler, Timothy. (1977) "An Introduction to the Neurosciences", in Wittrock, M.C. (ed.). The Human Brain. Englewood Cliffs, New Jersey: Prentice-Hall.

Toglia, M. and Battig, William. (1978) Handbook of Semantic Word Norms. Hillsdale, New Jersey: Lawrence Erlbaum.

Valins, Stuart. (1970) "The Perception and Labeling of Bodily Changes as Determinants of Emotional Behaviour", in Black, Perry (ed.). Physiological Correlates of Emotion. New York: Academic Press.

Wallach, Michael and Kogan, Nathan. (1965) Modes of Thinking in Young Children. New York: Holt, Rinehart, and Winston.

Webster, Alan. (1972) Structural Relationships of Standard Environmental Personality and Ability Factors in Secondary School Adolescents. Unpublished Ph.D. Thesis. Palmerston North: Massey University.

Webster, Alan. (1979) "Adolescents and Their Home Backgrounds". A paper presented to the New Zealand Association for Research in Education.

Weinstein, Joshua, Averil, James, Opton, Edward Junior, and Lazarus, Richard. (1968) "Defensive Style and Discrepancy between Self-report and Physiological Indexes of Stress". Journal of Personality and Social Psychology. 10:406-413.

White, Gregory and Maltzman, Irving. (1978) "Pupillary Activity while Listening to Verbal Passages". Journal of Research in Personality. 12:361-369.

Wickelgren, Wayne. (1981) "Human Learning and Memory", in Rosenzweig, Mark and Porter, Lyman (eds.). Annual Review of Psychology, volume 32. Palo Alto, California: Annual Reviews.

Winer, Benjamin. (1971) Statistical Principles in Experimental Design, second edition. New York: McGraw-Hill.

Yarrow, Leon. (1981) "Perspectives on Interactional Research", in Shapiro, Edna and Weber, Evelyn (eds.). Cognitive and Affective Growth: Developmental Interaction. Hillsdale, New Jersey: Lawrence Erlbaum.

Zajonc, R.B. (1980) "Feeling and Thinking". American Psychologist. 35:151-175.

Zajonc, R.B. (1984) "On the Primacy of Affect". American Psychologist. 39:117-123.

Zimiles, Herbert. (1981) "Cognitive-Affective Interaction: A Concept that Exceeds the Researcher's Grasp", in Shapiro, Edna and Weber, Evelyn (eds.). Cognitive and Affective Growth: Developmental Interaction. Hillsdale, New Jersey: Lawrence Erlbaum.

POLICEMAN
DRESS
SUGAR
SNAKE
ROBBER
PARTY
HOME
WOMAN
SHIP
DUST

ANIMAL
ARMY
FIRE
EARTH
HOUSE
FLOWER
LAKE
LIFE
HOTEL
BOOK

KING
LIBRARY
APPLE
CORNER
ROCK
GIRL
PICTURE
QUEEN
BUTTER
MONEY

MOUNTAIN
PENCIL
WORLD
HALL
FRIEND
DOOR
MONTH
AIR
GOLD
DISEASE

ARM
POLE
WINDOW
GHOST
CHRISTMAS
BIRD
CHURCH
TREE
LOVE
MEETING

Word Lists used in Learning Tasks

NAME_____ GRADE_____ SCHOOL_____

PUT A CIRCLE AROUND EACH WORD THAT YOU RECOGNIZE THAT WAS SHOWN TO YOU BEFORE.

AIR	DUST	LAKE	SEASON	P 
ANIMAL	EARTH	LETTER	SEAT	
APPLE	FIRE	LIBRARY	SHIP	S 
ARM	FLAG	LIFE	SICKNESS	
ARMY	FLOWER	LOVE	SKIN	R 
BABY	FOREST	MASTER	SKY	
BIRD	FRIEND	MEAT	SNAKE	E 
BLOOD	FROG	MEETING	STAR	
BOARD	FUN	MONEY	STONE	I 
BOOK	GARDEN	MONTH	STREET	
BOY	GHOST	MOTHER	STRING	
BUILDING	GIRL	MOUNTAIN	SUGAR	
BUTTER	GOLD	PARTY	TABLE	
CAR	GRASS	PENCIL	TEACHER	
CAT	HALL	PICTURE	TIME	
CHAIR	HOME	PLANT	TOY	
CHRISTMAS	HORSE	POLE	TREE	
CHURCH	HOSPITAL	POLICEMAN	TROUBLE	
CITY	HOTEL	POTATO	WATER	
CLOCK	HOUR	QUEEN	WHEAT	
CORNER	HOUSE	RIVER	WIFE	
DISEASE	INK	ROBBER	WINDOW	
DOCTOR	INSECT	ROCK	WINTER	
DOOR	JAIL	SCIENCE	WOMAN	
DRESS	KING	SEA	WORLD	

NAME_____

GRADE LEVEL_____

SCHOOL_____

AGE_____

FAMILY LIFE QUESTIONNAIRE

This questionnaire is about the different ways parents bring up their children.

It is very important that we find out how fathers and mothers compare on bringing up the family. So we need to know how fathers bring up boys and how they bring up girls; and how mothers bring up boys and how they bring up girls.

That's why we have two questionnaires. One is about you and your mother and the other is about you and your father. Your answers will not be given to your parents, teachers, or anbody else.

INSTRUCTIONS

There are forty statements altogether, 20 about you and your mother and 20 about you and your father. For each question there are five possible answers in which you tell us how the statement fits your family life. Please select the response that is true of the nearest to true for your family. Put an "X" in the box alongside your answer.

Example:

My mother likes to sing as she washes the dishes.

Some children live with one parent. If you live with both parents, answer all of the questions. If you live with only your mother, answer only questions 1 to 20. If you live with only your father, answer only questions 21 to 40.

YOU AND YOUR MOTHER

1. If I do well she rewards me with money

Never
Only once in a while
Sometimes
Often
Very often

R ☐

2. I feel as if my mother is pushing me to do well

Never
Only once in a while
Sometimes
Often
Very often

D ☐

3. She tells me to work hard at school

Very often
Often
Sometimes
Only once in a while
Never

D ☐

4. She makes me feel she is there if ever I need her

Never
Only once in a while
Sometimes
Usually
Almost always

S ☐

5. If I don't do well at school I know she is disappointed

Almost always
Usually
Sometimes
Only once in a while
Never

D ☐

6. She worries that I can't take care of myself

Very often
Often
Sometimes
Once in a while
Never

X ☐

7. She can find the best way out when I've got a problem

Almost always
Usually
Sometimes
Only once in a while
Never

S

8. She gets upset very easily

Never
Only once in a while
Sometimes
Usually
Almost always

X

9. She yells at me when she tells me off

Never
Only once or twice a year
About once a month
About once a week
Almost every day

A

10. I can talk to her about almost everything

Almost always
Usually
Sometimes
Only once in a while
Never

S

11. She finds it hard to punish me

Almost always
Usually
Sometimes
Only once in a while
Never

R

12. She understands if I feel bad about something

Never
Only once in a while
Sometimes
Usually
Almost always

S

13. She says I should make a special effort in everything I do

- Never
- Only once in a while
- Sometimes
- Usually
- Almost always

D ☐

14. Her feelings are easily hurt

- Never
- Only once or or twice a year
- About once a month
- About once a week
- Almost every day

X ☐

15. She lets me decide what time to go to bed

- Never
- Only once or twice a year
- About once a month
- About once a week
- Almost every day

R ☐

16. She gets tired easily

- Never
- Only once or twice a year
- About once a month
- About once a week
- Almost every day

X ☐

17. She punishes me by making me do extra work

- Almost every day
- About once a week
- About once a month
- Only once or twice a year
- Never

A ☐

18. She lets me stay up late

- Never
- Only once or twice a year
- About once a month
- About once a week
- Almost every day

R

19. I feel she will be relieved when I grow up

- Very often
- Often
- Sometimes
- Only once in a while
- Never

A

20. She gets angry very quickly

- Never
- Only once in a while
- Sometimes
- Usually
- Almost always

A

21. If I do well he rewards me with money

Never
Only once in a while
Sometimes
Often
Very often

R ☐

22. I feel as if my father is pushing me to do well

Never
Only once in a while
Sometimes
Often
Very often

D ☐

23. He tells me to work hard at school

Very often
Often
Sometimes
Only once in a while
Never

D ☐

24. He makes me feel he is there if ever I need him

Never
Only once in a while
Sometimes
Usually
Almost always

S ☐

25. If I don't do well at school I know he is disappointed

Almost always
Usually
Sometimes
Only once in a while
Never

D ☐

26. He worries that I can't take care of myself

Very often
Often
Sometimes
Once in a while
Never

X ☐

27. He can find the best way out when I've got a problem

Almost always
Usually
Sometimes
Only once in a while
Never

S ☐

28. He gets upset very easily

Never
Only once in a while
Sometimes
Usually
Almost always

X ☐

29. He yells at me when he tells me off

Never
Only once or twice a year
About once a month
About once a week
Almost every day

A ☐

30. I can talk to him about almost anything

Almost always
Usually
Sometimes
Only once in a while
Never

S ☐

31. He finds it hard to punish me

Almost always
Usually
Sometimes
Only once in a while
Never

R ☐

32. He understands if I feel bad about something

Never
Only once in a while
Sometimes
Usually
Almost always

S ☐

33. He says I should make a special effort in everything I do

- Never
- Only once in a while
- Sometimes
- Usually
- Almost always

D ☐

34. His feelings are easily hurt

- Never
- Only once in a while
- About once a month
- About once a week
- Almost every day

X ☐

35. He lets me decide what time to go to bed

- Never
- Only once or twice a year
- About once a month
- About once a week
- Almost every day

R ☐

36. He gets tired easily

- Never
- Only once or twice a year
- About once a month
- About once a week
- Almost every day

X ☐

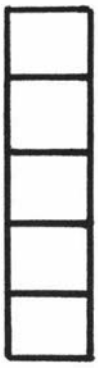
37. He punishes me by making me do extra work

- Almost every day
- About once a week
- About once a month
- Only once or twice a year
- Never

A ☐

38. He lets me stay up late

- Never
- Only once or twice a year
- About once a month
- About once a week
- Almost every day



R ☐

39. I feel he will be relieved when I grow up

- Very often
- Often
- Sometimes
- Only once in a while
- Never

A ☐

40. He gets angry very quickly

- Never
- Only once in a while
- Sometimes
- Usually
- Almost always

A ☐