# C U R I O S I T Y  A N D  S E L F - C O N C E P T

# O F  S C H O O L  A D J U S T M E N T

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# A B S T R A C T

This study, as a piece of descriptive research, is an extension of a similar one done by Maw and Maw (1970) concerning the relationship between curiosity and the self-concept. Whereas they hypothesised that children high in curiosity are also those who have successfully interacted with their environments, the general hypothesis for this study was that children who have positive self-concepts of themselves in the school environment will also be ones who exhibit curiosity in that situation. This hypothesis was formulated as a consequence of the writer's adherence to a theory of active intelligence, and view of self-concept as a highly task-specific construct.

Measures of curiosity, global self-concept, and self-concept of school adjustment were taken. In general terms curiosity was defined as a preferred cognitive strategy which is utilized to cope with challenging stimuli and manifested in the way in which the individual is predisposed to achieve and resolve conceptual conflicts. Global self-concept was defined as an individual's perception of his innate capacity to cope effectively with his environment. Similarly self-concept of school adjustment was defined as a student's perception of his innate capacity to cope effectively in the specific environment of the classroom.

Each of these three variables was operationally defined in terms of the instruments used to measure them. Where possible, the same instruments as used by Maw and Maw in their study were used in this research. No new instruments were constructed for this study. Measures of curiosity were taken from Maw and Maw : (1) Teacher's Rating Scale of Curiosity, (2) Self-appraisal of curiosity, (3) The Which to Discuss Test. Measures of global self-concept were obtained from the following instruments: (1) Parts of the California Test of Personality (C.T.P.), (2) Parts of the Children's Personality Questionnaire (C.P.Q.). A measure of self-concept of school adjustment was obtained from subjects recorded responses to factor 2 E : School

Relations, of the California Test of Personality (C.T.P.) and from the tester's recorded observation on the Bristol Social Adjustment Scale : factor U (Unforthcomingess).

P.A.T. results for reading comprehension and maths were taken from school records.

The subjects were 20 children from the senior room of a local two-teacher school. There were ten boys and ten girls. It is felt that they are representative of New Zealand rural children. Administration and scoring of the tests was done by the writer, who at the time of testing was also the children's teacher.

The results of the study did not support the general hypothesis, and only partly supported Maw and Maw's (1970) findings. However, some relationship between the variables curiosity, self-concept and self-concept of school adjustment was shown to exist. Also a highly significant relationship was recorded between curiosity and school achievement. A lack of significant relationship recorded between the teacher's rating of curiosity and the C.T.P. measure of Total Personal Adjustment was taken to suggest that either the tests in fact measure different things than curiosity and personal adjustment or, that there was error in administration or scoring of at least one of the tests. Both of these factors, as measured on the same tests, correlated significantly in the Maw and Maw study. Unfortunately the lack of correlation mentioned above also affected the recorded relationship between the teacher's rating and the school adjustment measure from the C.T.P.

One implication of these results is that curiosity as a task-specific concept is merely one aspect of cognition. The possibility of marker bias was discussed, but if this can be discounted then the significant correlations which existed between curiosity, school adjustment and school performance can all be taken as evidence that curiosity is in fact connected with intelligence. Consequently, it would seem that better school adjustment is more readily found in higher achievers.

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# CHAPTER 1

## INTRODUCTION

In attempting to determine whether high-curiosity boys differed from low-curiosity boys in their self-concepts Maw and Maw (1970) selected 15 high curiosity boys and 14 low curiosity boys on the basis of a definition of curiosity. Several instruments purporting to measure aspects of the self-concept were then administered. All of these indicated that high curiosity boys do have more positive self-concepts than low curiosity boys.

Their general hypothesis, that children high in curiosity are also those who have successfully interacted with their environments, was supported by the results of their study.

Purkey (1970), in an analysis of the growth of the self concept maintains that in his treatment of motivation, White (1959) suggested that from infancy onward the child obtains a biologically given sense of pleasure from becoming competent in mastering his environment (p. 29). From this it can be assumed that the development of the child's self-concept is dependent upon his success in coping with his early experiences. Hamachek (1965) pointed out that subjects produce different self-descriptions in specific contexts (p. 465). Accordingly it is assumed by the writer that the child's view of himself as a learner may be less favourable than that of himself as a person.

The present study is intended to show that while a child may have a very good global self-concept the enhancement of curiosity as an intrinsic motive in the classrrom situation is dependent upon his perception of himself in that specific situation.

Curiosity in this study will later be defined as a cognitive activity, in an information processing sense, which the child uses in coping with challenging stimuli. Accordingly it is acknowledged that curiosity is evoked by an interest in novelty when stimuli cannot be accommodated to the child's existing schemata.

In the classroom the easiest way for a child to gain positive affect from significant others is for him to show interest, work to his capacity and, co-operate. Consequently it is suggested here that the classroom is an environment which reinforces success. In striving to maintain favour and approval many children learn to give answer-orientated responses, yet Shouksmith (1970) maintains that divergent thinkers are ones who are prepared to take risks.

Consequently, although schools very often profess to be encouraging creativity and curiosity it seems that both are too often stifled, (perhaps unwittingly) by the way in which teachers shape their pupil's responses. As Miller (1970) states :

> . . . (expectancies) may constrain the child by prompting his withdrawal from potential informational acquisition and task involvements that are perhaps within his limits. (p. 184)

The degree to which such withdrawal occurs will be dependent upon his previous and current success in similar situations. Generally these will be confined to the classroom. It is not illogical then to conclude that the child with an already negative view of himself as a student will tend to avoid further damaging his self-concept by adopting protective avoidance strategies to cope with the situation.

The present study, as a piece of descriptive research, is thus an extension upon that done by Maw and Maw. Although measures of global self-concept are taken, as they were by Maw and Maw, the emphasis is on a measure of the child's self-concept of school adjustment. A measure more specific to the school environment.

Hunt (1961) pointed out that :

> The developing interest in novelty gives rise to the curiosity that motivates a continuing process of growth and change in the child's central processes and in his relationship to his environment. (p. 145-6)

Further, Hunt argues that curiosity is evoked by an interest in novelty when stimuli cannot be accommodated to the child's existing schemata. If this statement is accepted then the implications are that boredom is a consequence of too easily attained accommodation.

Certainly some of our brighter new entrants face this problem in being subjected to an unwarranted pre-reading programme.

The present study is concerned with that which is above referred to as "existed schemata", which is here seen as the child's processed information in storage. That curiosity can be evoked by an interest in novelty is accepted, and the present study will attempt to investigate how such a process can be encouraged.

Piaget (1936, p. 274) said new objects or phenomena which are almost assimilable arouse an interest and an attempt at accommodation which is greater than if they were assimilated immediately. Therefore it would seem that the presentation of too difficult material in the learning situation will serve to inhibit rather than evoke curiosity.

Curriculum planners have been influenced by Bruner's (1967, p. 114) emphasis in which he sees curiosity as almost a prototype of the intrinsic motive. Consequently teachers are being increasingly appealed to to teach within a framework which pays reference to curiosity. Five year olds enter school in varying stages of readiness and just how receptive they are to learn to read depends in part, upon such cognitive factors as attitudes and interests. Similarly, many of them arrive at school with positive self-concepts. However, Purkey (1970, p. 7) pointed out that the self-concept is made up of many beliefs about oneself, each of which has its own negative or positive value. Accordingly he distinguishes between global self-concept, which is the same notion of self-concept as mentioned above, and a variety of separate task specific self concepts. Consequently it follows that the teacher's influence in shaping the learner's attitude towards school is considerable. The presentation of material of either too little or too great a degree of difficulty resulting in the fostering of a lack of interest. McReynolds (1970) stated :

> . . . individuals tend to find most interesting, and hence to be most highly motivated to participate in activities that match their own reinforcement rate. (p. 37)

The implications here are that it is quite conceivable that many children who possess positive global self-concepts develop negative attitudes towards school, and consequently negative self-concepts in that specific situation as a result of an inappropriate presentation of learning tasks.

It is the purpose of the present study to investigate the relationship between how the child sees himself in the learning situation and his manifested curiosity. It is expected that there will be some discrepancy between his global view of self and his view of himself as a learner. Assuming this is the case it is also expected that those children who will be shown to have positive self-concepts but negative attitudes to school will also score low on measures of curiosity. Similarly, it is expected that those who have negative global self-concepts will also score poorly on measures of curiosity.

CHAPTER 2

# L I T E R A T U R E  R E V I E W

White (1959), stated that motivation is inherent in the continual strive to attain some standard of competence.

> All behaviours have a common biological significance: they all form part of the process whereby a child learns to interact effectively with his environment.
>
> . . . behaviour is directed, selective and persistent, and it is contrived not because it serves primary drives, . . . but because it satisfies an intrinsic need to deal with the environment. (p. 318)

Like McClelland's (1953) theory, this implies that the child needs to work with progressively more complex situations to gain pleasure from achievement situations. Similar conclusions can be drawn from Piaget's (1936) statement that new objects or phenomena which are almost assimilable arouse an interest and an attempt at accommodation which is greater than if they were assimilable immediately, and Hunt's (1961) claim that the child's interest in the novel is increased by the degree to which he has been forced to accommodate to a variety of stimuli. Hunt (1970) stated :

> . . . individuals tend to find most interesting, and hence to be most highly motivated to participate in activities that match their own reinforcement rate. (p. 14)

In other words, a person will become curious about that which he is interested in, and is working towards gaining competence in.

White's hypothesis serves as a useful point from which to view the intrinsic motive curiosity. However, in the cognitive sense it becomes obvious that the process of interaction with the environment is also that which shapes one's self-concept. At the Nebraska Symposium on Motivation Hunt (1965) suggested that manifested differences in curiosity most likely have one basis in genotypic constitutions, and :

> . . . that (they) are also likely to be a function of the range of matters on which the individual has cultivated standards of attitude and opinion and in which he has achieved some skill. (p. 258)

To achieve such standards of attitude, and consequently develop competence it would seem that gradual yet moderate motivation is more suitable. Strong motivation reinforcing learning only in a narrow sphere.

So far this review has been confined to non-research literature, the intention being to establish a frame-of-reference for the theoretical position of this thesis. A synthesis of this section of the review now follows.

From White's and Hunt's comments it seems that the development of a level of competence is dependent upon the way in which the individual copes with his environment. Further, this same level of competence acts as an inner standard against which incoming stimuli are continually compared. Mismatch produces conflict and precipitates an accommodative response. Information about the self in storage then directs behaviour, or more simply, the self-concept a cognition. In this sense the child comes to "know" his own capacity, acquiring a set of opinions, ideas and beliefs about the world in which he lives. Consequently he realises hat he can expect of others and of achievement situations and, accordingly often learns to employ coping or defending strategies to protect his self-image.

Of particular relevance to this study is an examination of Maw and Maw's (1970) research regarding Self-Concepts of High- and Low-Curiosity Boys. On the basis of an earlier obtained definition of curiosity (Maw and Maw 1964, pp. 25 - 31) 224 boys selected from several fifth grades in public schools in Delaware were classified into high and low curiosity groups.

Tests intended to measure aspects of self-conceptualization were administered to all groups. These were composed of items from the California Test of Personality (Thorpe, Clarke and Tiegs 1953), parts of the Children's Personality Questionnaire (Porter and Cattell 1960), and several tests developed by Maw and Maw. Finally each child rated himself on Maw and Maw's own Children's Rating Scale of curiosity.

With the exception of the tests designed by Maw and Maw to measure self-conceptualization the present study includes the above tests in its selected battery.

Maw and Maw concluded that the results of the tests they administered supported their hypothesis that children high in curiosity are also those who have successfully interacted with their environments, and as a result have good self-concepts. (Maw and Maw 1970, p. 124). High curiosity boys as a group showed significantly better overall personal adjustment than low-curiosity boys.

Maw and Maw's results have indicated that it is possible to identify groups of boys who may develop problems in trying to meet the demands of the school. However, as they provide no definition of "self-concept" in their research report it must be concluded that they were not concerned with any task-specific conceptualization of self but rather with what Purkey (1970) describes as, "global-self-concept". Considering this with reference to drawing implications for this present study attention is drawn to the fact that their results indicated clearly, (on 12 of a possible 13 differences, four of which were significant at the 0.01 level and eight at the 0.05 level), that there is in fact a positive correlation between how one sees himself and his measured curiosity.

The present study is concerned with measuring curiosity and how the child sees himself in the specific environment of the classroom.

Mahone (1960) in a study designed to determine whether fear of failure in college students is a determinant of unrealistic vocational aspiration classified subjects as "realistic" or "unrealistic" in vocational aspiration in terms of each of four criteria on his Vocational Information Questionnaire. (Mahone 1960, p. 254). Measures of both achievement motive and achievement-related anxiety were then taken. His results indicated that significantly more subjects who were low in achievement motivation and high in achievement related anxiety were classified as unrealistic, than subjects who were high in achievement motivation and low in achievement-related anxiety. The implication from this for the present study is that it seems that a person who has a low estimate of himself is strongly motivated to avoid failure.

In discussing earlier research with which he was associated, on personality correlates of curiosity, Maw (1970) describes how a recent co-worker Magoon, in applying further analysis to the existing data, added to the findings that children with high curiosity have qualities of personality not found, or found to a less degree, in the less curious, that there is a link between curiosity, capacity, and creativity. Maw (1970) quotes from a note received from Magoon :

> . . . more curious is more intelligent . . . more curious also have a higher sense of personal worth, feel more secure . . . tend to be more socially co-operative (p. 96)

The present study sees curiosity as a preferred cognitive strategy, being directly related to intelligence. Langevin (1971) in asking if curiosity is multifactored found that there is a positive correlation between curiosity and intelligence. This is hardly surprising as it would seem that the more intelligent child is better able to use his prior experience and knowledge to successfully impose order on his environment. Consequently by way of utilization of prior experience curiosity acts as something of a mediating response mechanism. Fowler (1971) argues that in this sense curiosity can be seen as a learned anticipatory reaction.

> For the mature organism with its "established" and yet varied existence there exists or develops a set of situations in which the organism can learn to anticipate a change in stimulation generally. (p. 185)

Further, he synthesises that we may expect that enriched environments providing a wide array of experiences will foster a high level of general curiosity and therefore a greater amount of "information seeking". However, this will only occur where the child feels at ease with the task, appreciating that he is bringing sufficient to the learning situation to enable him to cope competently with challenging stimuli. The implication to be drawn for this study is that his appraisal of self in that instance must be favourable.

Beswick (1971) defines curiosity as :

> . . . an individual's readiness or predisposition to seek, maintain and resolve conceptual conflicts (p. 456)

The present study would argue that this "readiness or predisposition" depends upon the child's perception of himself in specific learning situations. Due to his continual interaction with his environment the learner is constantly driven to evaluate his competence in different task-specific situations.

Being based in part on a critical evaluation of White's (1959) theory of competence motivation this study has been influenced by a view which sees the self as one aspect of cognition. The rationale for this thesis is certainly affected by an interpretation of the literature which sees the self as providing an inner standard (competence) against which incoming stimuli are compared. Consequently it is here argued that the self in so acting as a cognition may operate so as to maintain dissonance when an appropriate mismatch is evidenced. This it is advocated, is the role of curiosity, and this inner standard of competence is consciously manifested in certain situations as task-specific aspects of the self-concept. Consequently this present study relates the self to self-concept. Accordingly an examination of the self, particularly as it relates to classroom learning now follows.

In parallelling the self-concept to an inner standard of competence it is here suggested that it is in fact a standard based on information about the self in storage. New stimuli will then be most curiosity arousing at an intermediate stage of familiarity. If they are too unlike anything with which the subject is acquainted the symbolic response tendencies aroused will be too few and too feeble to provide much conflict, while too much familiarity will have removed conflict by making the particular combination an unexpected one.

Coopersmith (1967) maintains that by providing the assurance that one's judgement is worthy and one's abilities sufficient to the task, favourable self-attitudes lay the foundation for stable, anxiety free performance :

> By generating the expectation that one's efforts will be followed by success and one's judgement borne out by subsequent events high self-esteem enhances the likelihood of exploratory and independent activities. These convictions and expectations appear to be closely related, if not inherent, in the level of esteem the individual holds of himself. (p. 63)

Purkey (1970) in a detailed review of literature and examination of self-concept as it affects school achievement gives the following definition of self :

> . . . a complex dynamic system of beliefs which an individual holds true about himself, each belief with a corresponding value. (p. 7)

The important point arising from this definition is that self-concept is dynamic in that it is a system of beliefs rather than merely one general belief. Certainly global measures of self have proved useful to researchers in the past, however as Borislow (1964) points out self-evaluation may be specific in nature. Further he suggests that certain subjects produce different self-descriptions when asked to view themselves in a general way than they do when asked to view themselves within a specific context.

Brookover, Thomas and Patterson (1964) add support to Borislow's view by maintaining that as the student role is composed of several sub-roles, including one involving academic achievement similarly the student self is a complex of several segments, including self-concept of ability.

Self-concept can not then be described as either global nor fixed. Gergen (1971, p. 33) concludes that one's identity is situationally dependent.

That the self-concept is acquired as a consequence of interaction is logical. Consequently, as this learning takes place in specified situations it follows that these situations will continue to serve as stimuli for the cognitive and behavioural responses learned. The implications for the formation of "positive" self are important here when it is realised that the initial stimulus situation may have taken on untypical characteristics on that particular occasion. So the five year old finds that his new teacher is unfriendly and threatening although significant others know that normally this is untrue. Similarly the new stimulus situation will vary in its perceived attrativeness from one child to the other purely as a result of their previous reinforcement histories.

However, it follows that as the child becomes exposed to the stimulus situation one of two things may happen. Where the environment fails to alter significantly his expectancies of it will be further reinforced, or his self-concept further stabilizes. But should he find the situation to vary with each exposure to it then it follows that his learned self-expectancies will be constantly in a state of uncertainty. Thus it is obvious that such situationally dependent self-concepts are capable of being modified.

Consequently, should the child come to gain confidence in the classroom situation he will also develop a positive self-concept in that situation. How he comes to gain this confidence may vary. Davidson and Lang (1960) showed that the student's perceptions of his teachers' feelings towards him correlated positively with his self-concept. Similarly Brookover, Erikson and Joiner's (1968) hypothesis that students perceptions of the evaluations of their academic ability by others, (teachers, parents, friends) are associated with self-concept of academic ability was confirmed.

Of particular relevance to this study however is Rosenthal and Jacobson's (1968) report that randomly selected children regarded by teachers as bright improved in self-concept and were rated by their teachers as more curious. This could suggest that curiosity is no more than an acquired cognitive strategy exhibited for positive approval and that it is positively correlated with self-concept of school adjustment.

The present study is based on an acceptance of both explanations. Presumably finding himself being treated respectfully the child referred to in the Rosenthal and Jacobson study comes to feel secure enough to engage in more divergent activities. Thus it seems that the teacher holds an often tremendous influence over his pupil's development of self-concept.

Staines (1958) demonstrated the importance of self image as a factor in learning noting that teachers were able to modify self-concept and produce greater adjustment in pupils. Similarly, Davidson and Lang (1960) found that children's perceptions of teachers' feelings towards them correlated positively and significantly with

their personal self-images. Further, in a study designed to measure the effects of stress resulting from academic failure Gibby and Gibby (1967) found that under the stress of failure children tended to regard themselves less highly, and believed that they were not regarded as highly by significant others.

Finally, from an extensive review of research Rushton (1966) found that 70% of researchers established that stability or adjustment is positively correlated to academic achievement.

Earlier it was stated that the self acts as a cognition and that curiosity is the manifestation of a preferred cognitive strategy. Both of these presumptions are central to the rationale for this study.

Discussing the results of their research (that children high in curiosity were those who had successfully interacted with their environments) Maw and Maw (1970) suggested that this means, either that a child with a negative self-concept has a reluctance to exhibit exploratory behaviour, being afraid to risk further damaging the self by attempting tasks beyond his range of competence, or, that lacking curiosity he fails to reach out successfully into his environment.

In taking the Maw and Maw study a step further, this research is influenced by the first proposed explanation which ties curiosity to competence. The act of information seeking, it should be remembered, is necessary for the further development of the child's intellectual and emotional self. Being self-directed this is positively rewarding. Curiosity then is enhanced by a positive view of inner competence.

Bexton, Heron and Scott (1954) found that after three days in an unchanging environment subjects exhibited E.E.G. records indicating an abnormally low level of arousal. From an analysis of their data, plus independent study, Hebb (1955) theorized that the direction of behaviour must be a function of the level of arousal, and that there must therefore be an optimum level of arousal which is also the divider of approach from withdrawal and pleasure

from displeasure. The present study accepts this notion of arousal as further explanation that curiosity is nothing more than an aspect of active intelligence. Lacking a positive view of one's capacity in specific situations results in a lowering of the optimum level of arousal. Or, in the frame-of-reference of this present study the fear of failure, and further damage to the self results in a reluctance to exhibit exploratory behaviour.

Hunt too has been influenced by Hebb's (1955) theory. In explaining his notion of the "match" he stresses the need for a continual attempt to prevent too strong or too weak an amount of new stimulation. Hunt (1961) states :

> When environmental stimulation (input) and existing internal central process match perfectly the result is stultifying boredom in which development fails. (p. 268)

The present study would argue that the child needs encouragement to develop strategies to maintain adequate dissonance, and that curiosity can serve this purpose provided a positive self-attitude towards the task exists.

Considering that curiosity and self-concept are task and situation specific (Brookover 1967, Purkey 1970, Gergen 1971) it follows that in experiencing frustration some children will come to view school as a threatening environment even though they may be well adjusted and in possession of a positive global self-concept. So in order to maintain the global view of self avoidance strategies are developed to eliminate the cause of the frustration. Often this may be a consequence of insufficient stimulation, but it can occur equally from excessive cognitive dissonance.

Consequently, in developing a task-specific self-concept related to his view of himself as a learner in the classroom it follows that a child who appears to be lacking in curiosity will differ from more curious children also in many other affective, cognitive, personal and social aspects of his life. Thus children who show different levels of curiosity are also different in their personality structures.

Intelligence has been shown to correlate with curiosity. (Maw and Maw 1970, Langevin 1970). Maw (1970) stated :

> The evidence indicates that there is a link between curiosity capacity and creativity, all three of which reflect the feelings of security and self-worth of the individual. (p. 90)

Similarly, Thomas (1973, p. 13) reports research by Andrews that showed that children of lower than average ability have more difficulty than others in gaining feelings of achievement and developing favourable self-concepts.

So as adaptation levels and expectations are derived from previous experience they must also come to provide the standard for the incongruity or congruity of new inputs. In this way the child comes to know his capacity in specific situations. Consequently his manifestation of curiosity in these situations will vary accordingly, and the act of information seeking necessary for the further development of his intellectual and emotional self is self-directed and positively rewarding. The present study argues that the more competent the child feels in a situation, the more curious he is likely to appear.

This would imply that all motivation is intrinsic. Accordingly it is not suprising that Brookover (1967) found that self-concept of ability is a better predictor of success than is overall self-concept.

So far it has been argued that curiosity and self-concept are task specific and it is realised that curiosity cannot be taught, the student role being composed of several sub-roles, including one involving academic achievement. Thus a measure of the child's attitude with which he views the school may be useful in determining how capable he feels.

Hunt (1965) is referring to this when he states that differences in curiosity

> . . . are likely to be a function of the range of matters on which the individual has cultivated standards of attitude and opinion, and in which he has achieved some skill. (p. 258)

It seems then that the student's attitudes limit the level of his achievement in school. Often of course, because what the school is doing seems irrelevant to himself and his world. Purkey (1970, p. 37) reports research by Shaw and McCuen which indicated that in male underachievers the predisposition to underachieve was present when they entered school.

Prevention of this may be possible. Certainly there is a need for each child to know his capacity. Festinger (1957) basis his theory of cognitive dissonance on the need for individuals to hold correct opinions about their abilities, knowing precisely what they enable them to do. Thus the child who has dealt less competently with his environment is more concerned with protecting a damaged self than with "reaching out". Consequently, he employs cognitive strategies, such as "cognitive dissonance" to reduce challenging stimuli to a manageable level.

At this stage a summary of the main points of the chapter is offered together with general definitions, arrived at from the literature, of the variables measured in the study.

Although this specific research deals solely with examining the relationship between curiosity and self-concept of school adjustment its impetus comes from the writer's interest in intrinsic motivation. Consequently, the basic rationale for this study comes from the theories of Hunt, Hebb, Piaget and White. Accordingly competence, as referred to in this study, is taken from White's (1959) theory of competence motivation, but is seen as a concept very similar to that which Piaget (1936) describes as "active intelligence". Although competence is not an independent variable in this study it is a variable referred to in specific context. For this reason it is here defined in general terms, no operational definition being included.

Hunt (1965 p. 212) stated that the self-concept may be seen to correspond to a 'standard' based upon information about the self in storage. White (1959, p. 318) argues that competence is a motivational concept in that its enhancement satisfies an intrinsic need to deal with the environment. From these author's comments and a general review of literature competence in this study is defined in

general terms as : - an inner standard of knowledge of capacity, acquired as the product of cumulative learning and against which all incoming stimuli are compared.

In that the self provides an inner standard of competence against which incoming stimuli are compared it is here argued that it so acts as a cognition. Consequently, the act of information seeking necessary for the development of the self must be positively rewarding and self-directed. For this to occur an optimal level of cognitive conflict (opportunity for information - processing) needs be maintained. Perhaps the easiest way of achieving this is by the deployment of self-directed cognitive strategies which operate to maximize the process of interaction with the environment.

Curiosity in this study is seen as one of these cognitive strategies, all of which are acquired from previous learning. Gagné (1971) stated :

> . . . reinforcement modulates the information flow in various components of the memory process, essentially by directing the learner's attention to one aspect of the situation. (p. 346)

In adhering to Gagnés reasoning this study would argue that as these cognitive strategies are self-directed so too they can be encouraged.

When a learner has difficulty coding new information into his category system conceptual conflict occurs. (Berlyne 1960, Beswick 1971, Hebb 1955). The assumption here is that each individual has a conceptual "system" for encoding and organizing the stimuli he experiences. The curious person, it is argued, can capitalize upon this situation by allowing himself the pleasure of achieving and resolving a certain amount of this conflict by placing his category system in slight confusion by allowing it to experience an array of stimulation slightly above its coding potential.

Beswick (1971) defines the trait of curiosity as :

> An individual's readiness or predisposition to seek, maintain and resolve conceptual conflicts. (p. 456)

Hebb (1955) parallels conflict to a drive, arguing that it is eliminated as the unfamiliar becomes familiar, and that this is positively reinforcing. So he argues we are provided with an explanation for the reward-value of investigating things that are puzzling and the learning of knowledge resulting from this investigation. Berlyne (1954 (a) ) in formulating a theory of human curiosity stated :

> . . . that if patterns are too unlike anything with which the subject is acquainted, the symbolic response tendencies aroused will be too few and too feeble to provide much conflict, while too much familiarity will have removed conflict by making the particular combination an unexpected one. (p. 189)

It seems then that the curious person has learned a strategy which facilitates conflict, while a person with low curiosity has learned an avoidance strategy. Accordingly curiosity for this study is generally defined as, a preferred cognitive strategy which is utilized to cope with challenging stimuli and manifested in the way in which the individual is predisposed to achieve and resolve conceptual conflicts. An operational definition in terms of the instruments used in this study will follow later.

The present study is based on the reasoning that there is a clear distinction to be made between global self-concept, and self-concept of school achievement. But, as it is acknowledged that self-concept is very much situation-dependent and task specific (Gergen 1971, Purkey 1970) it is also accepted that any measure of self-concept of school adjustment will also be in part a measure of global self-concept. Self-concept of school adjustment being recognised as only one aspect or manifestation of global self-concept.

an analysis of White's, Piaget's and Hunt's collective theories it seems that the child's predisposition to seek maintain and resolve conflicts depends upon his perception of himself in specific learning situations. Consequently, in accordance with the definitions so far outlined, curiosity is proportional to the learner's self-perception of his inner standard of capacity. The self being here seen as something of an organiser of cognitions. Competence provides the baseline, but the individual's conscious knowledge of its

threshold and potential is more important. This is his self-concept.

Earlier it was mentioned that Purkey (1970) has pointed out that this knowledge of self is very much the product of a dynamic system of beliefs rather than one general belief.

For the purpose of the present study global self-concept is defined in general terms as : an individual's perception of his innate capacity to cope effectively with his environment. In that self-concept of school adjustment must also, like global self-concept, be task and situation dependent, it is here defined in general terms for the purposes of this study as : a student's perception of his innate capacity to cope effectively in the specific environment of the classroom.

These general definitions have been included in this section to give some indication of the writer's frame-of-reference in which the problem of this study is viewed. All three variables, curiosity, global self-concept and self-concept of school adjustment are operationally defined in terms of the instruments used to measure them in this study, in the section Instruments and their Characteristics, (Chapter 4).

CHAPTER 3

# H Y P O T H E S E S

As mentioned previously, this research is an extension of that done by Maw and Maw (1970). Consequently a restatement and consideration of their general hypothesis seems relevant at this point.

From their findings that it is possible to identify groups of children who differ in their level of what may be defined as curiosity (Maw and Maw 1964) they assumed that they may also differ on variables other than curiosity. Drawing support from Mahone's (1960) research in the field of self-concept and White's (1959) theory of competence motivation Maw and Maw (1970) hypothesized that :

> Children high in curiosity are also those who have successfully interacted with their environments, and, as a result, have good self-concepts. (p. 124)

In their study, the hypothesis was limited to groups of boys differing in degree of curiosity, and the results of their tests indicated that high-curiosity boys as a group show better overall personal adjustment than low-curiosity boys. In discussing these results they suggest that this may be due to one of the following causes.

Firstly, it may be that boys with low self-concepts will tend not to exhibit curiosity because they expect failure, or secondly that lacking curiosity low-curiosity boys fail to reach out successfully into their environments. Finally, as a possible cause they suggest that the conditions in the development of low-curiosity boys which create low self-concepts are also the conditions which promote low curiosity.

The present study is based on rationale which favours the suggestion that boys with low self-concepts expect failure. In accordance with the aims of this research this may be phrased more specifically that there is a reluctance for children with low self-concepts to reach out successfully into their environments. Consequently, they develop cognitive avoidance strategies which are employed to avoid a further risk of causing damage to already negative self-images. Such children will not welcome challenging stimulation at the same level as their other more curious peers. Consequently, their manifested curiosity is continually low.

However, this study is intended to illustrate that there is a positive relationship between a child's measured curiosity and his perception of himself in the specific environment of the school. The general hypothesis of this study is : -

> that children who have positive self-concepts of themselves as learners in the school environment will also be ones who exhibit curiosity in that situation.

Further specific hypotheses which follow from this general one and should be considered are : -

(1) That children possessing positive global self-concepts are likely to possess positive situation dependent self-concepts of themselves as learners in the school environment.

(2) That children who score highly on tests of global self-concept will also score highly on tests of curiosity.

Consequently for the group of subjects selected, this study is designed to measure :

(1) Global self-concept
(2) Specific self-concept as a learner in school. This has been referred to as self-concept of school adjustment.
(3) Curiosity.

It is not expected that the instruments used are sufficiently accurate to give exact indications of individual's scores. Rather it is intended that correlations will be shown for the above three listed variables amongst the group's observed measurements.

CHAPTER 4

# P R O C E D U R E S

## Instruments and their Characteristics

Considering that this study is a piece of descriptive research modelled as an extension of that done by Maw and Maw (1970) every attempt was made to use the same instruments as used by them. This was possible in obtaining a measure of self-concept and partly so for curiosity. Instruments designed to measure the way in which the child sees himself in the school environment were sought independently.

No instruments were specifically designed for the present study.

Global self-concept is here operationally defined in terms of the tests used to measure aspects of self-conceptualization. These are the following parts of the California Test of Personality (Thorpe, Clark and Tiegs 1953), (a) self-reliance; (b) sense of personal worth; (c) sense of personal freedom; (d) feeling of belonging; (e) withdrawing tendencies; and (f) total personal adjustment. The following parts of the Children's Personality Questionnaire (Porter and Cattell 1960) (a) ego strength; (b) high ergic tension; and (c) strong self-sentiment.

These tests formed the basis of Maw and Maw's battery designed to measure self-concept.

Curiosity is here operationally defined in terms of the tests used to measure curiosity. These are :

(a) The self-appraisal of curiosity (Maw and Maw 1968). This is a 41 item self-rating instrument developed to measure the curiosity level of children. (Maw and Maw's estimate of reliability obtained was 0.91). The instrument is reported as being useful in identifying groups of children differing

in curiosity levels, but is probably not sensitive enough for the successful identification of individuals. (A copy of this rating scale appears in Appendix B.)

(b) A Teacher's Rating Scale of Curiosity (Maw and Maw 1970). This instrument was designed by Maw and Maw specifically for their 1970 study. (See Appendix C)

(c) Partially as an attempt to gain a more accurate measure of curiosity, and as it is felt that there may be a certain amount of marker bias (see Design of Study and Data Collection) it was decided to use an aspect of "The Which to Discuss Test", Maw and Maw (1966). The aspect considered consists of five pictures which are shown to the child. (These pictures are included as Appendix A.) The measure of curiosity is assigned according to the number of questions the subject asks.

It is stated above that every attempt has been made in the experimental design of this study to gather data using instruments which were also used in the Maw and Maw study. However, as self-concept of school adjustment is a variable peculiar to this study the tests used to measure it were selected from other sources. Accordingly a rationale for their selection is given below.

Although many children are in possession of positive global self-concepts they come to view the school as a threatening environment. This is certainly due in part, to the fact that too sudden an exposure to an amount of cognitive conflict above a child's customary activation level (Maddi 1970) will result in frustration. Hunt (1961) refers to this phenomena in his theory of the "match", pointing out that the effort to assimilate challenging stimuli leads to the discovery of object properties and relationships which cannot be reduced to the child's own schemata. Consequently he may create a task specific self-concept which can be rated as negative.

Gergen (1971), in summarizing the literature, concluded that self-concept is situationally dependent. This suggests that personality factors relate to any self-concept of school adjustment. Brophy and Good (1974) report Schmuck's comments regarding the results of his research concerning the relationship between personality and school adjustment and achievement. His findings indicated that :

> . . . children who perceived themselves to be unpopular with their classmates (whether or not they actually were) tended to be underachievers, to have negative self-concepts, and to have generally negative attitudes towards school. (p. 19)

Consequently the following tests which purport to measure personality factors related to school adjustment were chosen for the present study. Each test's author's statements of what the specific factors of the tests themselves are supposed to measure are included below. This has been done partly to provide justification for their use here, and secondly to provide an operational definition of self-concept of school adjustment as it applies to this study:

Test 1. California Test of Personality :
Factor 2 E. School Relations.

The authors, (Thorpe, et al 1953) interpret this factor in terms of :

> The student who is satisfactorily adjusted to his school is the one who feels that his teachers like him, who enjoys being with other students, and who finds the school work adapted to his level of interest and maturity. (p. 4)

Test 2. Bristol Social Adjustment Scale :
Factor U. Unforthcomingness.

The authors, (Scott and Sykes 1962) interpret this factor as :

> . . . inhibited lack of confidence before any difficulty or new situation, a defect of natural assertiveness and curiosity. (See Child in School: Diagnostic Form)

In concluding this section it has been hypothesised that as the above two factors are intended to measure how the student feels about school and whether or not he lacks confidence in new situations then it follows that they are also concerned with the variable self-concept of school adjustment which is central to the general hypothesis of this study.

## Description of Subjects

Twenty children of the senior room of a local two teacher school served as subjects for the study. At the time of testing the writer was their teacher.

Because of the limited size of the school from which the subjects were taken it was not possible to carry out sampling procedures. Neither was it possible to assert with any certainty that the class is representative of New Zealand children, although it will be suggested that the class shows signs of being representative of New Zealand rural primary children.

TABLE 1 : Characteristics of the Class

| Age (in years) | boys | girls |
|---|---|---|
| 13 | 1 | 1 |
| 12 | 2 | 1 |
| 11 | 2 | 2 |
| 10 | 2 | 2 |
| 9 | 1 | 2 |
| 8 | 1 | 1 |
| 7 | 1 | 1 |

Of these 20 children two entered the class in June, otherwise the rest were together from the beginning of the year to the time of testing.

P.A.T. tests were administered earlier in the year. The results of these tests for the two recently admitted children were obtained from their previous teacher.

An examination of the two P.A.T. results in reading comprehension and maths indicates a typical range of ability for New Zealand rural school children. (Mean of maths scaled score = 23.35.) Similarly, they indicate that there are both bright and dull children as members of the class. (Standard deviation maths scaled score = 13.19.)

TABLE 2 : Progressive Attainment Test Scores for Maths and Reading Comprehension

| Subject | Maths: Scaled scores | Reading Comprehension Percentile |
|---|---|---|
| 001 | 22 | 68 |
| 002 | 10 | 00 |
| 003 | 22 | 23 |
| 004 | 19 | 14 |
| 005 | 10 | 14 |
| 006 | 33 | 53 |
| 007 | 12 | 29 |
| 008 | 24 | 25 |
| 009 | 28 | 79 |
| 010 | 15 | 20 |
| 011 | 12 | 68 |
| 012 | 42 | 100 |
| 013 | 46 | 94 |
| 014 | 33 | 79 |
| 015 | 00 | 00 |
| 016 | 04 | 21 |
| 017 | 35 | 84 |
| 018 | 44 | 80 |
| 019 | 30 | 43 |
| 020 | 26 | 07 |

There is no reason for the school they are drawn from to be considered atypical of rural schools as far as the socio-economic backgrounds of the children are concerned. Similarly, it seems that as the class contains an equal number of boys and girls of varying ages, who possess an obviously wide range of mental ability, the selection of these children for the purposes of this study was not inappropriate.

Finally, because at the time of testing the writer was in fact the children's teacher it is felt that anxiety free testing procedures were able to be effected with relative ease.

## Design of Study and Data Collection Plan

The study was designed to yield data from a battery of six tests. As, at the time of data collection, the writer was the teacher of the class from which the subjects were drawn it is argued that organizationally the establishment of optimum testing conditions was straightforward.

The three written tests were administered by the writer on successive mornings from 10.30 a.m. until completed. In each case the questions were read aloud to a group of four children who have reading difficulties. The Teacher's Rating Scale of Curiosity, and the Bristol Social Adjustment measure were both done by the writer.

Obviously, the relationship which existed between tester and subjects was one which could precipitate bias in marking. Particularly where the Teacher's Rating Scales were being completed. In an attempt to build in a correction factor to counter this effect, a Teacher's College student, who was on section during the time of testing, was trained in the administration of the Picture Test of Curiosity. This was the last test administered, the tester working alone with each child, reading the specific instructions of each item to all children.

## Treatment of Results

To assess the degree of relationship between each of the nine variables the Pearson product moment correlation technique was used. As percentile scores for P.A.T. reading comprehension were used no histogram nor mean nor standard deviation is shown for that measure.

# CHAPTER 5

## R E S U L T S

Table 3 indicates Standard Deviations and Means for variables measured.

TABLE 3 : Standard Deviations and Means

| | Variable measured | Cases | Mean | S.D. |
|---|---|---|---|---|
| 1. | Curiosity : Picture Test | 20 | 14.75 | 9.11 |
| 2. | Curiosity : Teacher's Rating | 20 | 31.25 | 9.51 |
| 3. | Curiosity : Self Questionnaire | 20 | 58.15 | 9.61 |
| 4. | Factor U : Bristol Social Adjustment Scale | 20 | 17.10 | 24.07 |
| 5. | Total Personal Adjustment C.T.P. | 20 | 48.85 | 13.63 |
| 6. | School Adjustment. C.T.P. | 20 | 7.55 | 2.94 |
| 7. | Children's Personality Questionnaire | 20 | 9.25 | 1.88 |
| 8. | Scaled Score : P.A.T. Maths | 20 | 23.35 | 13.19 |

Note: Variables 1 - 3 relate to the construct curiosity.
Variables 4 and 6 relate to the construct self-concept of school adjustment.
Variables 5 and 7 relate to the construct global self-concept.

Table 4 indicates that there were significant correlations between two of the curiosity measures and the Bristol Social Adjustment factor: the Child in School. Picture Test of Curiosity and Bristol factor ($r = 0.44$; $p < 0.05$), Teacher's Rating of Curiosity and Bristol factor ($r = -0.65$; $p < 0.001$).

However, there was no significant correlation between either the Picture Test of Curiosity, the Teacher's Rating of Curiosity nor the Curiosity Questionnaire and variable 6, the C.T.P. measure of school adjustment.

TABLE 4 : Correlation Matrix

Variable 1: Curiosity : Picture Test
Variable 2: Curiosity : Teachers Rating
Variable 3: Curiosity : Self Questionnaire
Variable 4: Factor U : Bristol Social Adjustment Scale. The Child in School
Variable 5: Total Personal Adjustment: C.T.P.
Variable 6: School Adjustment: C.T.P.
Variable 7: Childrens Personality Questionnaire
Variable 8: Scaled Score: P.A.T. maths
Variable 9: Percentile: P.A.T. reading comprehension

| | Var.2 | Var.3 | Var.4 | Var.5 | Var.6 | Var.7 | Var.8 | Var.9 |
|---|---|---|---|---|---|---|---|---|
| Var.1 | 0.67*** | 0.30 | -0.44* | -0.13 | -0.21 | 0.29 | 0.63* | 0.56* |
| Var.2 | | 0.29 | -0.65*** | 0.06 | - .13 | .18 | .67*** | .70*** |
| Var.3 | | | .07 | .46* | .14 | .43* | -.03 | .11 |
| Var.4 | | | | .00 | .16 | .12 | -.25 | -.34 |
| Var.5 | | | | | .73*** | .31 | .00 | .20 |
| Var.6 | | | | | | .23 | .02 | .05 |
| Var.7 | | | | | | | .12 | -.04 |
| Var.8 | | | | | | | | .77*** |

(N = 20)
*p < 0.05
**p < 0.01
***p < 0.001

Thus it cannot be said that the findings of this study support the general hypothesis:

> That children who have positive self-concepts of themselves as learners in the school environment will also be ones who exhibit curiosity in that situation.

Similarly there was no positive correlation between either the Picture Test of Curiosity or the Teacher's Rating of Curiosity and either of the global self-concept measures, variable 5, the California Test of Personality measure of Total Personal Adjustment and variable 7, the Children's Personality Questionnaire measure. However, there was a significant correlation between the Curiosity Questionnaire and both of the global self-concept measures. Table 4 Curiosity Questionnaire

and Total Personal Adjustment, C.T.P. ($r = 0.46$; $p<0.05$). Curiosity Questionnaire and C.P.Q. measure ($r = 0.43$; $p<0.05$).

Consequently, in that positive correlations were recorded between only one of the curiosity measures and the included measures of global self-concept the findings of this study only partially support Maw and Maw's (1970) hypothesis that :

> Children high in curiosity are also those who have successfully interacted with their environments and, as a result, have good self-concepts. (p. 124)

However, from the above, some relationship between the variables curiosity, self-concept and self-concept of school adjustment has been shown to exist.

Further examination of results indicates a highly significant relationship between curiosity and school achievement. Table 4, Curiosity Picture Test with scaled score: P.A.T. maths ($r = 0.63$; $p < 0.05$), Curiosity Picture Test with P.A.T. reading comprehension, ($r = 0.56$; $p < 0.05$). Curiosity Teacher's Rating with P.A.T. maths ($r = 0.67$; $p < 0.001$), Curiosity Teacher's Rating with P.A.T. reading comprehension ($r = 0.70$; $p < 0.001$). These results are important and will be considered later, both in this chapter, and when discussing the implications of the results.

The above results will now be considered in two parts.

As expected there was a highly significant degree of correlation ($r = 0.67$; $p < 0.001$) between the Picture Test of Curiosity and the Teacher's Rating Scale of Curiosity. However corelation of either of these tests with the third measure of curiosity (Maw and Maw's Curiosity Questionnaire) was not significant. There is no clear explanation for these results although it may be that the group of academically slower children within the sample to whom the tester read the questions of the Curiosity Questionnaire answered in an "expected" direction. Consequently in acting to avoid appearing to lack ability they may have answered the test incorrectly, thus gaining high scores although they scored less highly on the Picture Test of Curiosity and were rated as low in curiosity on the Teacher's Rating Scale.

In considering the correlation of curiosity with global self-concept and specific self-concept of school adjustment the following results are worth consideration.

It has been mentioned above that the Bristol School Adjustment factor showed significant correlation with the Picture Test of Curiosity ($-0.44$; $p<0.05$), and the Teacher's Rating Scale of Curiosity ($-0.65$; $p<0.001$). In both cases the correlation is negative. This is in the hypothesised direction; high numerical scores on the tests of curiosity represent high curiosity, whereas low scores on the Bristol Scale indicate positive adjustment.

Although significant correlations between the Picture Test of Curiosity and the Bristol factor, and between the Teacher's Rating of Curiosity and the Bristol factor support the hypothesis that the more curious child is one who is better adjusted, there was no significant correlation between either of these two tests of curiosity and variable 6, the C.T.P. measure of school adjustment. As variable 6 was simply one factor (School Adjustment) from the Californian Test of Personality a positive correlation with variable 5 which was composed of several other factors from the same test was expected. Significantly from Table 1 $r = 0.73$; $p< 0.001$ . However, this provides no help in interpreting the lack of relationship recorded between School Adjustment: C.T.P. and the two curiosity tests. From Maw and Maw's results it should have followed that the Teacher's Rating of Curiosity would have correlated positively with the C.T.P. measure of Total Personal Adjustment. Has this occured then it should also have followed that there would have been a positive correlation between the Teacher's Rating and the School Adjustment measure from the C.T.P.

This lack of relationship between Teacher's Rating and Total Personal Adjustment ($r = 0.06$; $p<0.5$) suggests that either the tests are in fact measuring different things than curiosity and personal adjustment or, that there was error in the administration or scoring of at least one of the tests. The writer sees no evidence to support the first proposed explanation for insignificant correlation. The question of possible error in administration and scoring however, will be discussed later, with particular reference to the Teacher's Rating Scale.

There was no significant correlation between the Curiosity Questionnaire and either measure of school adjustment. However, positive correlations with this measure of curiosity were recorded with both Total Personal Adjustment ($r = 0.46$; $p<0.05$), and the Children's Personality Questionnaire ($r = 0.43$; $p<0.05$). On the basis that all of these tests were used by Maw and Maw these results are in the hypothesised direction. Significantly too they support their results.

Thus of the three tests of curiosity two correlate with one item of school-adjustment and the other with both items of global self-concept.

Significantly correlations of both the Curiosity Picture Test and the Teacher's Rating Scale of Curiosity with the two school achievement variables were observed. However, the self-concept measures did not correlate significantly with either of these variables.

These results are consistent with the contention by Langevin (1970) and Maw (1970), that curiosity, being multifactored correlates highly with intelligence. However, Rushton's (1966) review of research revealed that adjustment is positively connected with academic achievement. Similarly self-concept and achievement have been observed to be positively correlated (Coopersmith 1959, Piers and Harris 1964). The results of this study do not support their findings.

Thus as no significant correlations have occured between either the C.T.P. Total Personal Adjustment measure against the Bristol Adjustment factor, or the P.A.T. maths or reading scores, or between the C.P.Q. measure against the C.T.P. School Adjustment factor, the Bristol or P.A.T. measures it would seem that either, these tests were inappropriate for this study or that they were administered or scored incorrectly. The writer sees no reasons to justify any of these possibilities.

Further analysis of data from Table 4 indicates that there was no significant correlation observed between the variables proposed to measure self-concept of school adjustment. Table 4, Bristol factor with School Adjustment C.T.P. ($r = 0.16$; $p < 0.25$). However it was expected that a highly positive relationship would have been shown.

Interpretation of the results leads to the question could it be that these two factors in fact measure quite different things? The other possible explanation is that the nature of the scoring affected the results. This will be discussed later. A highly skewed distribution of the Bristol data was not unexpected. (Refer to Figures 1 - 7.)

As expected there was a highly positive correlation between the two C.T.P. variables ($r = 0.78$; $p<0.001$). Thus it would be expected that variable 6, School Adjustment C.T.P. be considered valid for the purpose of measuring school adjustment. However, no other significant correlations with this variable were recorded.

To return to a consideration of the fact that the Picture Test of Curiosity and the Teacher's Rating of Curiosity correlated significantly with the P.A.T. maths and reading scores it could be that as the pictures presented in the picture test of curiosity are somewhat "school orientated" as are the instructions presented to the student:

Example :

THE SCIENTIST

"This is a picture of a scientist. What else would you like to know about this picture?"

(Picture test of Curiosity: Appendix A)

Then the children responded in an "appropriate" manner. As they did to the two achievement tests. Transferring this to a frame-of-reference which sees cognition as a tuner of motivation the interpretation is they employed similar cognitive coping strategies to protect their self-images. This thesis argues that curiosity is such a strategy, employed in all school situations.

Finally, perhaps one reason for the unexpected results is the fact that the writer was the class teacher. This is of particular relevance in considering any correlation with the Teacher's Rating Scale and the Bristol Social Adjustment scale. It could be argued that within such a frame-of-reference it is very difficult for the tester to refrain from being influenced by his prior experience with

the subjects. Consequently, confusion may have been experienced in differentiating between curiosity, school adjustment and academic ability.

In accordance with this reasoning observed correlations between the Teacher's Rating of curiosity and the following factors are interesting. From Table 2, with the Bristol factor ($r = -0.65$; $p<0.001$), with the P.A.T. maths score ($r = 0.67$; $p<0.001$) and with the P.A.T. reading comprehension score ($r = 0.70$; $p<0.001$).

The fact that such highly significant correlations have occured in these areas could have resulted as a consequence of the marker's awareness of the subjects academic potential. Although their exact P.A.T. scores were not committed to memory they could have been fairly accurately estimated. Thus it may well be that this knowledge was instrumental in influencing the tester's ratings of curiosity and unforthcomingness, (the Bristol factor).

However, should this possible teacher bias be discounted then such significant correlations indicate that there is in fact a relationship between curiosity, school adjustment and school performance. This relationship is supported by the observed correlations between the Picture Test of Curiosity and the same adjustment and achievement factors.

Table 4, Picture Test of Curiosity with, the Bristol factor ($r = -0.44$; $p<0.05$), with scaled P.A.T. maths score ($r = 0.63$; $p < 0.05$) and, with P.A.T. reading comprehension ($r = 0.56$; $p < 0.05$).

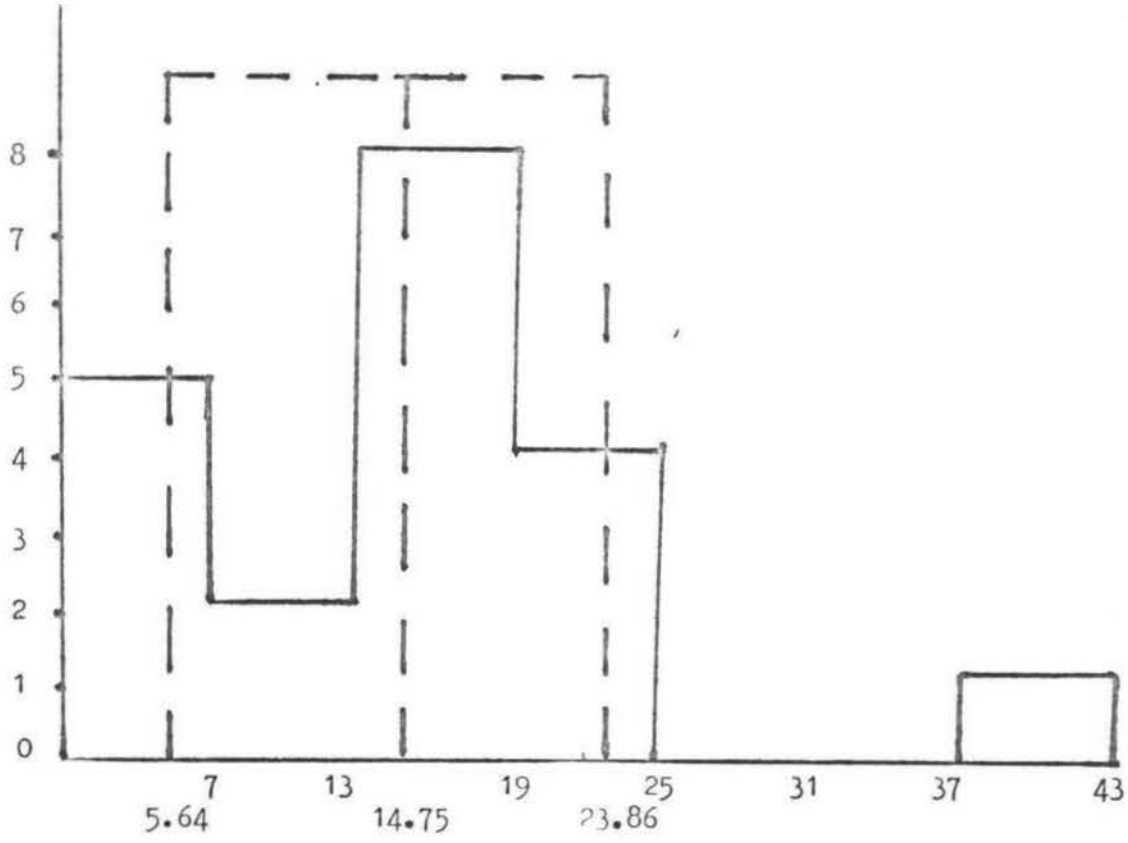



Figure 1
Variable 1 : Curiosity Picture Test

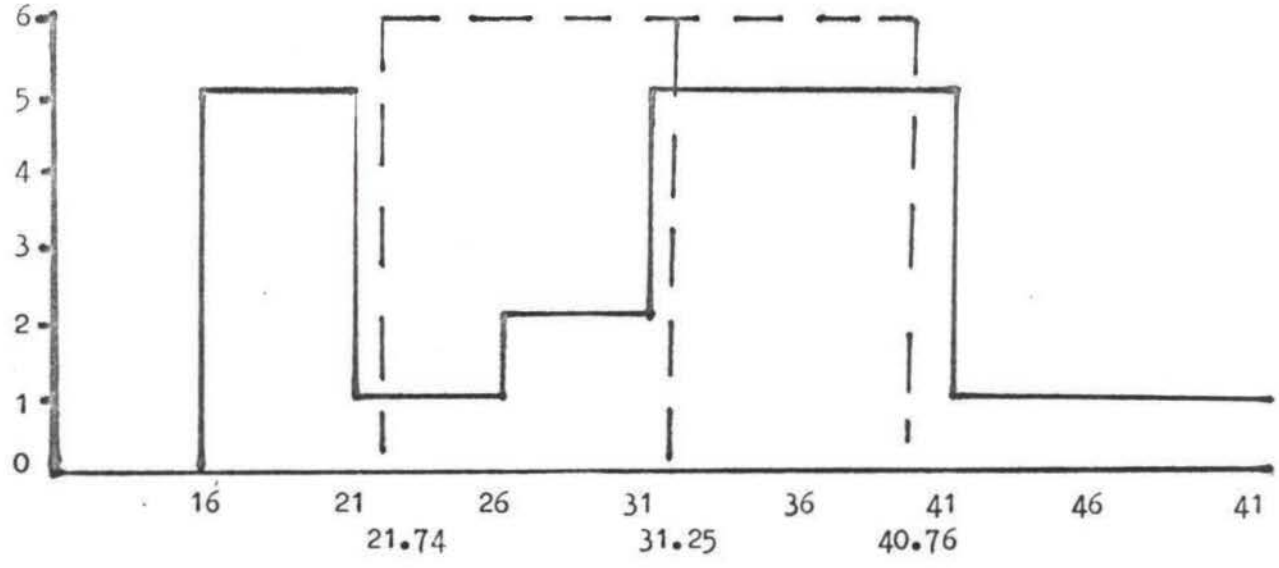



Figure 2
Variable 2 : Curiosity Teachers Rating

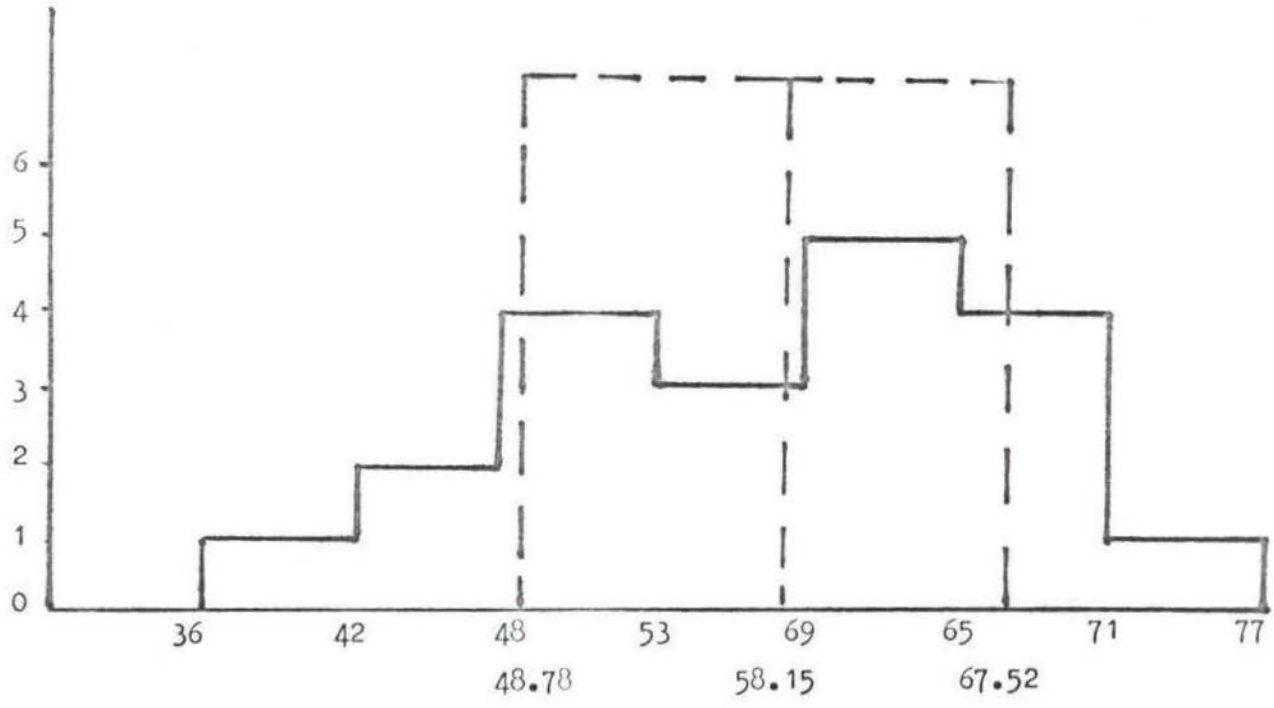



Figure 3
Variable 3 : Curiosity : Self Questionnaire

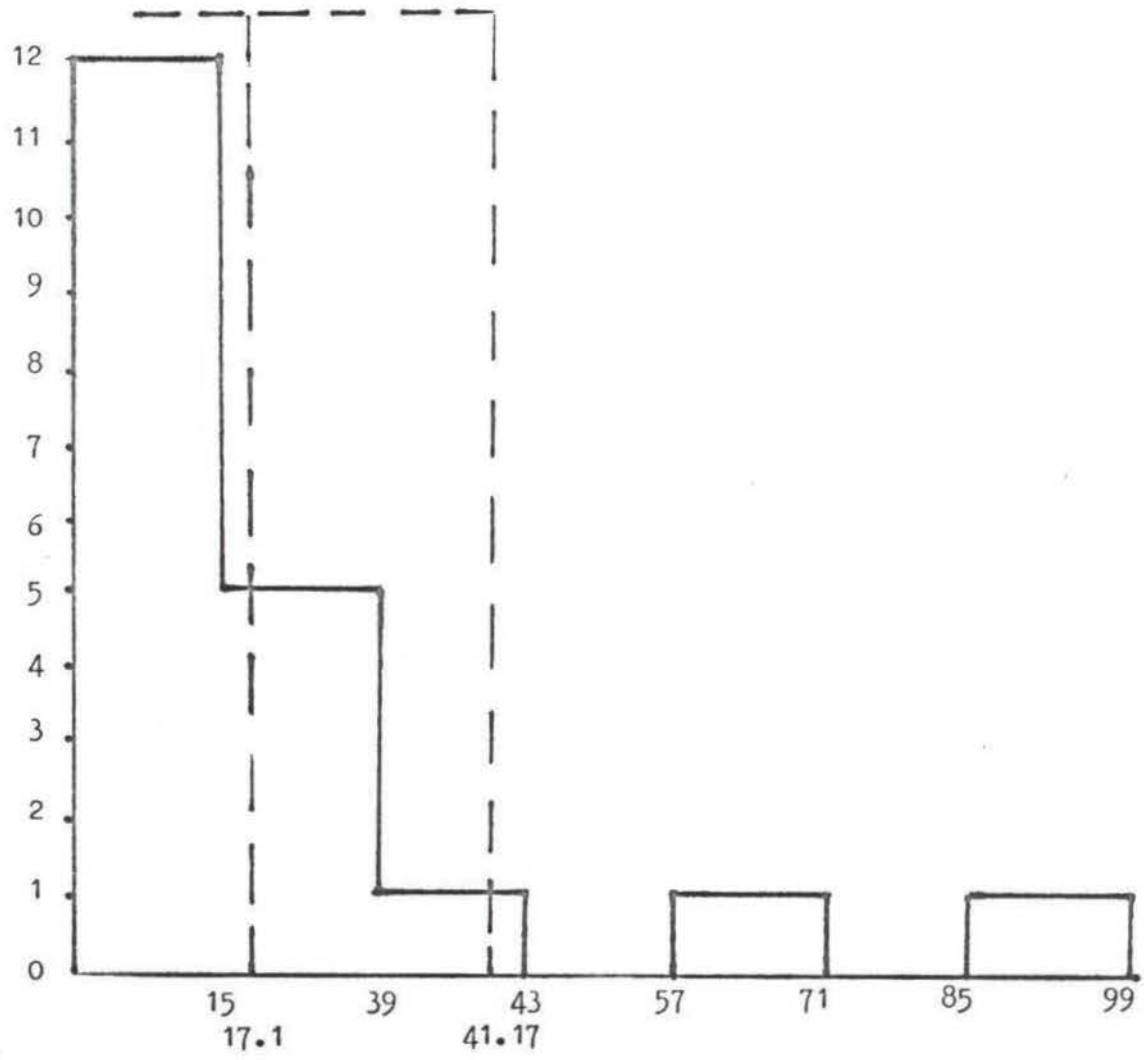



Figure 4
Variable 4 : Factor U : Bristol Social Adjustment Scale

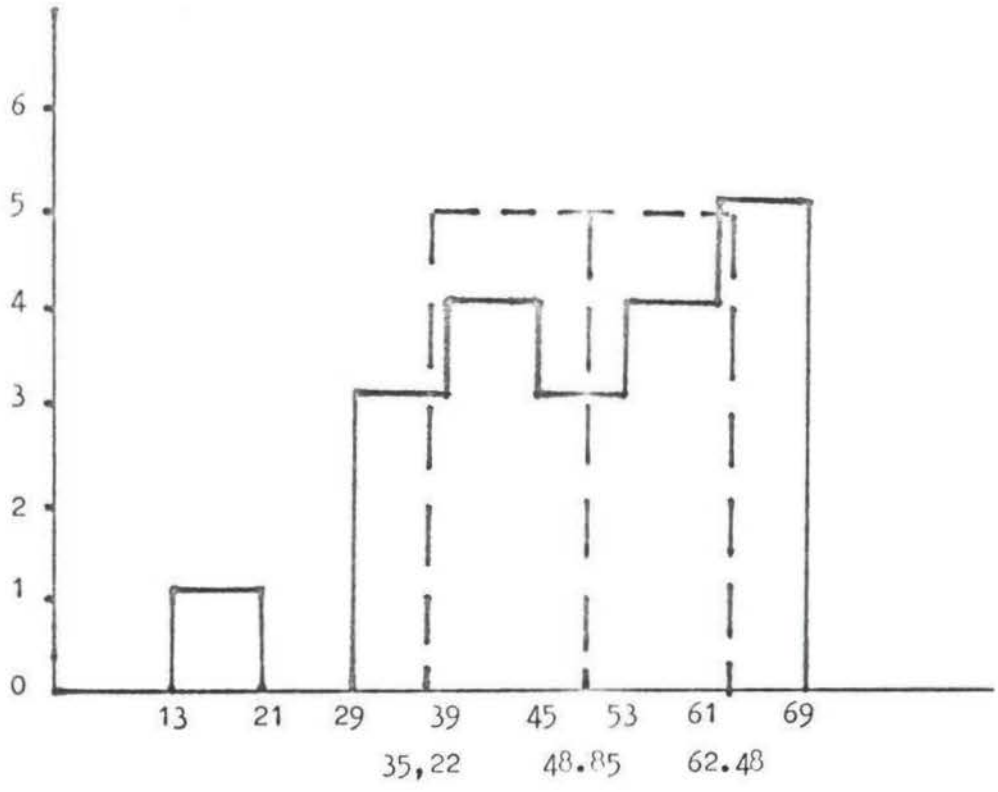



Figure 5
Variable 5 : Total Personal Adjustment C.T.P.

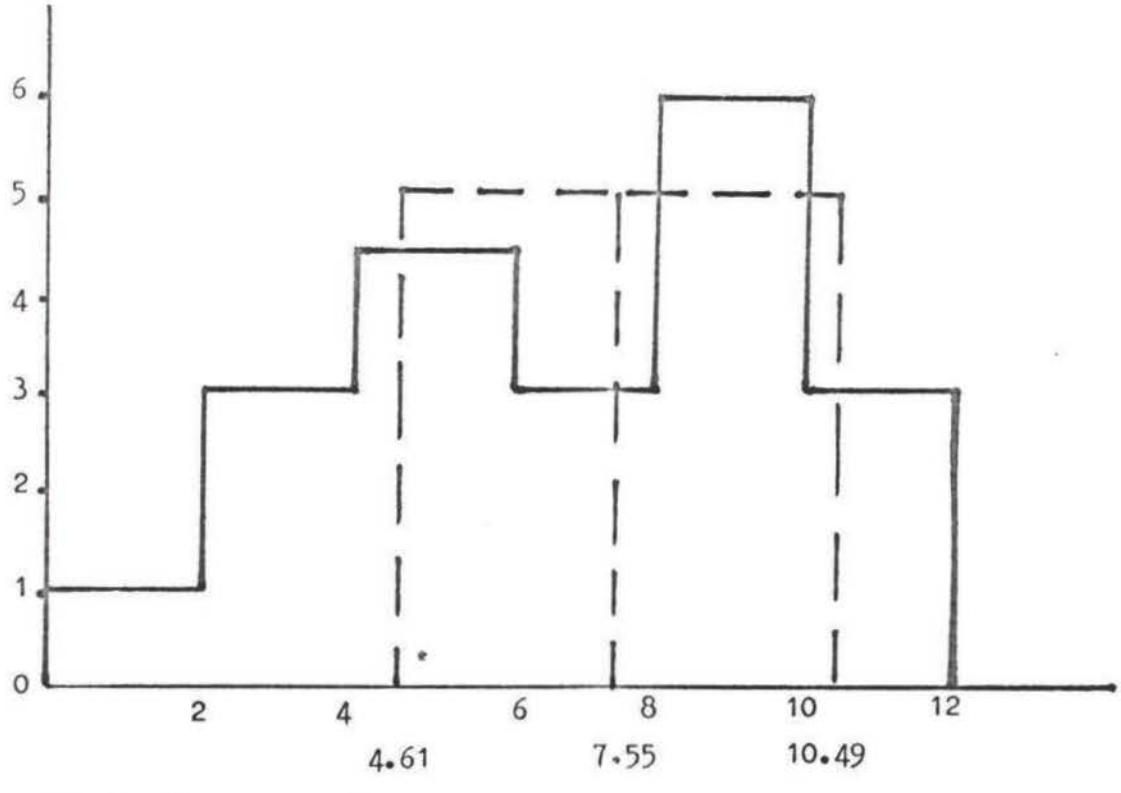



Figure 6
Variable 6 : School Adjustment C.T.P.

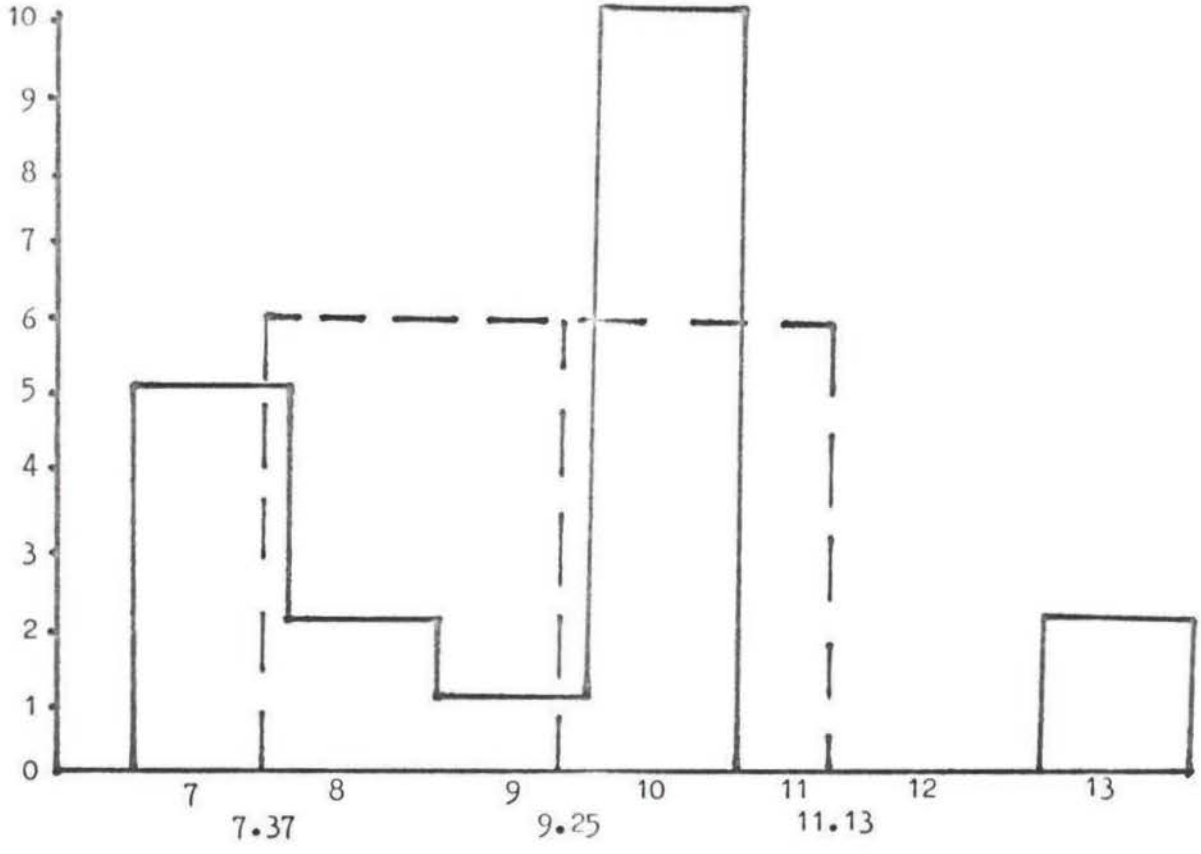



Figure 7
Variable 7 : Childrens personality Questionnaire

# CHAPTER 6

## C O N C L U S I O N S

The original problem which served to provide the initial motivation for this study was a belief that curiosity, as a separate motive or aspect of personality, does not exist.

Rather, as Hunt (1961) has suggested that intrinsic motivation is motivation inherent in information processing it has been implied here that curiosity is a cognitive coping strategy. Thus, it was suggested that children would not appear curious unless they felt competent in specific situations.

Certainly intrinsic motivation can be enhanced, but it would seem that the desire to express oneself and search for the novel comes more freely to children who have favourable self-concepts. The results of this study indicate that intelligence and past experiences are very important variables.

The answer to this particular research question was not clear. However, in attempting to defend the rationale for the study it is argued that the results indicated that there were certain significant correlations, and consequently some relationships exist, between how the learner sees himself in the school environment and both his manifested curiosity, and his achievement in that situation. The confusion of results may also serve to indicate just how complex and dynamic both self-concept, and curiosity as an intrinsic motive, are.

Hence, it may be that just as it is argued that there is very little real value in attempting to isolate and identify curiosity, be it as a personality variable, or as an aspect of active intelligence, so too it is debatable that the measure "self-concept" is of value to teachers. Rather it could be that a measure of "competence" would be of more relevance. This suggestion will be discussed briefly in the following section of this chapter.

However, as a final statement of position on the research question the positive correlation between curiosity and achievement serves to suggest that curiosity and intelligence are closely linked. Accordingly, returning to a view of active intelligence, which is the overall frame of reference behind this study, it can be argued that the more intelligent child is one who has gained more confidence in dealing with his environment, and is thus more predisposed to seek out the novel.

Curiosity and self-concept are then task specific purely as a consequence of the fact that they are manifestations of an equally task specific concept; intelligence.

## IMPLICATIONS

If, as has been suggested, it can be accepted that curiosity is in fact no more than a cognitive strategy employed to enable the subject to cope more competently with his environment then the question may well be asked: what can be done to ensure that such cognitions are formed adequately? Obviously they are shaped as a consequence of past experiences, but it is essential that the developing child has sufficient cognitive apparatus to deal with them. This is innately determined.

Similarly as it is generally the rule that the current environment predominant in New Zealand schools is one which reinforces success it could follow that many children learn to give appropriate responses in achievement situations. Perhaps then what would normally be defined in such an environment as genuine curiosity, is unintentionally stifled. In terms of the self-concept the child is understandably reluctant to encourage criticism. Consequently many children come to know their ability in achievement situations, yet through reinforcement principles have learnt inappropriate expectancies. This will apply for both the "defenders" (children in possession of negative self-concepts) and for highly achievement motivated children.

Thus full cognitive development is restrained.

Certainly as a result of experience and learning children develop expectancies toward or away from all sorts of objectives or consequences. But, presumably the child's cognitive potential must have direct bearing on the degree of expectations formed.

From an early age all children appear to exhibit some amount of curiosity, yet in the school environment this applies to a minimal number. Certainly in many cases this loss of curiosity may be attributed to the fact that children suddenly are confronted with a perplexing environment which makes unreconcilable demands upon them. But often it seems that many five year olds have already begun to develop negative images of self, and consequently are overcome by the sudden new challenge of the school environment.

Thus, although it would seem logical to suggest that most children very certainly manifest intrinsic motivation from early infancy it can also be theorized that they will later learn to conceptualize rules that guide the development of appropriate expectancies. Unfortunately as Miller (1970) has suggested :

> Some children, however, will learn very different kinds of expectancies, those which can thwart cognitive progress because they may constrain the child by prompting his withdrawal from potential information acquisition and task involvement that are perhaps within his limits. (p. 184)

It is the writer's view that such children would not score highly on tests of self-concept or curiosity.

To say that the curious person is one with a preferred cognitive strategy is to suggest that he prefers to remain in a state of conceptual conflict. "Cognizing" on a situation he can go directly to that portion of the organized setting of past responses which is most relevant to the needs of the moment. The grouping into schemata of responses learned at different times such that they can be recalled together is due to the cognitive factors we call interests and attitudes. Hunt (1965) stated at the 1965 Nebraska Symposium on Motivation that :

> . . . individual differences in curiosity or interest in the novel may also be a function of the level of commitment to attitudes and beliefs. The stronger these commitments the less the curiosity. (p. 258)

However, it is important to appreciate that these same learned responses can be isolated to be reused in their original context. The implication here is then that if it is accepted that motivational factors can assemble schemata in novel combinations then it seems that there is a greater possibility of breaking functional fixedness. Perhaps then children can be taught to be curious. This possibility will be discussed later under Suggestions for Further Research.

As the subjects in this study were country children it could be that their acquired "attitude" did in fact affect the results. Attitude in this sense being an example of mental "set". Consequently, it could be argued that they tended to modify their responses to seem appropriate to the set.

Although the results of this study do not support the general hypothesis it does seem that children may learn expectancies that will not serve to facilitate the enhancement of their self-concepts. It is logical to allow that by using extrinsic rewards in the classroom teachers can create motives by the manipulation of the learners concept of himself. Similarly cognitive strategies (curiosity) will only tend to be perpetuated by direct reinforcement. Thus there is a definite need to ensure a wide and varied range of experiences. So too it has been argued (Hebb 1955, Bruner 1967) that over stimulation may result in frustration.

The task then is to ensure that each child experiences continual success yet still feels challenged.

That curiosity is a potent force in the classroom is not denied, and consequently any valid suggestions for its enhancement are welcomed.

Maddi (1965) speaks of the need to build up a customary level of activation. This is in part similar to Hebb's theory of optimal arousal, and Hunt's notion of the match. Basically he suggests that the higher the customary level of activation the greater the proportion of time the person will spend trying to increase his actual level of motivation. Thus in order to ensure that actual activation

does not fall below the customary level, the person, as he gains in experience, must seek greater and greater degrees of novelty.

As applied to the classroom situation this can be taken that prolonged stimulation loses its effect. Thus children fail to remain motivated. This means that to enhance curiosity novelty must be continually increased rather than remain static.

In terms of the original research problem of this thesis the above theory seems relevant. Already it has been conceeded from a discussion of the results that separate measures of self-concept and curiosity may be of little value to teachers. Instead, it was suggested, a measure of competence could be more useful.

If novel occurences do not seem threatening to children then presumably higher "customary activation levels" would be more easily fostered. Presumably such children would then be identified as having more positive self-concepts. Particularly should they be encouraged to engage in creative enterprises for purely intrinsic satisfaction. Maddi later summarises this position by saying: Maddi (1970):

> Build a high customary level of activation in the young (presumably by an enriched environment), and encourage a strong self-confidence concerning one's own creative capabilities. (p. 90)

His appeal for "enriched environments" is hardly new or surprising. However, of particular relevance to this discussion is the notion of encouraging a strong self-confidence concerning one's creative capabilities. This it is here argued is similar to a notion of competence.

As a consequence of reinforcement learning the child builds up an inner base line of competence against which incoming stimuli are compared. Novelty is essential for its development and it would seem that moderate is more appropriate than strong motivation. The later reinforcing learning only in a narrow sphere. Thus a programme which over-emphasises curiosity may not be relevant to the needs of most children in our primary schools. Rather, if the role of self as a motivating force is accepted then it must be

allowed that individuals will differ in the range and persistance of their behaviours.

Yet the results of this study did not indicate that children's self-perceptions (which must be related to their differing levels of competence) were a valid indication of their manifestations of curiosity. This could be due to the fact that unless frustrated by over stimulation the child will generally always be performing to the full extent of his competence. However, once he comes under the control of an external source of extrinsic motivation (the school) it may be that he no longer searches out novelty for his psychological development but purely for extrinsic reward. Thus competence gives way to achievement, which is not a reliable index of underlying potential.

As the discussion has moved away from curiosity and self-concept it may be asked is there then any place in current motivational theory for White's theory of competence motivation?

The writer believes there may well be, but only in the sense that it may serve as a guideline and base on which to build.

In concluding this section on implications from the research it is argued that firstly measures of curiosity and self-concept are of limited use to teachers. Rather it is believed that the development of a test which could give teachers a more accurate indication of what the child is really bringing to the learning situation would be more relevant. This would be an indication of his competence at the time of testing.

Secondly, in accepting that intrinsic motivation should be capitalized upon in the classroom, it seems that as the child's search for novelty (manifested curiosity) is situationally dependent then our task as educators must be to create programmes which take adequate account of individual differences, in that they allow for a manageable match between curriculum and previously assimilated schemata.

However, although our current reading and to a lesser degree maths schemes are structured on the premise that curiosity is in fact a motive well worth harnessing it seems that many children are not in fact allowed to meet these subjects in the manner suggested above. Basically this is because we still over emphasise group work.

Thus a de-emphasis upon group work and the adoption of a more task accepted mode of thinking is advocated. This will encourage and allow children to develop at their own rates. Or, to return to the original research question, although it is believed that the enhancement of the self-concept will improve the child's academic performance it is realised that it is difficult for self-esteem to grow in an environment where there is little or no freedom of choice.

The teacher's influence here is enormous.

## SUGGESTIONS FOR FURTHER RESEARCH

It has been suggested that the significant relationship which was shown to exist between curiosity and academic achievement points to the influence of intelligence. However, if it can be accepted that curiosity exists as a cognitive strategy which is utilized as an aspect of active intelligence then it would seem logical that children may in fact be encouraged to be curious. If this can be done so as to de-emphasise academic achievement as the end result, and rather to encourage a search for the novel then it seems that children will be less prone to experience functional fixedness.

In other words training in curious behaviour must precipitate out the development of different cognitive styles. Hopefully, divergent thinking would be the outcome.

Thus the suggestion is that there is scope for researchers to conduct longitudinal studies in this area by deliberately setting up optimum conditions for the enhancement of curiosity and by making intrinsic motivation the long term goal.

Secondly it was earlier suggested that there is perhaps a need to devise a test to measure competence. The suggestion now is that although there is further scope for research in this area immediate investigations could well be directed towards analysing the extent of relationship which may or may not exist between competence and curiosity.

# B I B L I O G R A P H Y


Berlyne, D.E. A Theory of Human Curiosity. British Journal of Psychology, 45, pp. 180 - 191 1954 (a).

Berlyne, D.E. An Experimental Study of Human Curiosity. British Journal of Psychology, 45 1954 (b).

Berlyne, D.E. Conflicts, Arousal and Curiosity. McGraw-Hill 1960.

Beswick, D.G. Cognitive Process Theory of Individual Differences in Curiosity, in Intrinsic Motivation : A New Direction in Education, A Symposium, Ed. by Day, H.I. Berlyne, D.E. Hunt, D.E.; Holt, Rinehart and Winston pp. 156 - 170 1970.

Beswick, D.G.; Tallmadge, G. and Kasten, Re-Examination of the Two Learning Style Studies in the Light of the Cognitive Process Theory of Motivation. Journal of Educational Psychology 62; pp. 456 - 462 1971.

Bexton, W.H.; Heron, W. and Scott, T.H. Effects of decreased variation in the sensory environment. Canadian Journal of Psychology, 8, pp. 70 - 76 1954.

Borislow, B. (1964) Self-evaluation and academic achievement. in (ed) Hamachek, D.E. The Self in Growth Teaching and Learning, selected readings. Prentice Hall 1965. pp. 464 - 474

Brookover, W.B.; Thomas, S. and Patterson, A. Self-concept of ability and school achievement, Sociology of Education, 37 : pp. 271 - 279, 1964.

Brookover, W.B.; Erickson, E.L. and Joiner, L.M. (1967) Self-concept of ability and school achievement through students' self-conceptual enhancement. in Purkey, W.W. Self-Concept and School Achievement, Prentice Hall, p. 22 1970.

Brophy, J.E. and Good, T.L. Teacher-student Relationships : Causes and Consequences, Holt, Rinehart and Winston 1974.

Bruner, J.S. Toward a Theory of Instruction, Cambridge Mass: Harvard University Press, 1967.

Coopersmith, S. The Antecedants of Self-esteem. San Francisco: W.H. Freeman, 1967.

Davidson, H.H. and Lang, G. Children's perceptions of their teachers' feelings towards them related to self-perception, school achievement and behaviour. Journal of Experimental Education, 29: pp. 107 - 118, 1960

Day, H. Role of Specific Curiosity in School Achievement. Journal of Educational Psychology, 59 : pp. 37 - 43 1968.

Festinger, L. The Motivating Effect of Cognitive Dissonance, in (ed) Harper, R.H.C. The Cognitive Processes. Prentice-Hall Inc. New Jersey, pp. 509 - 523, 1964.

Fink, M.B. Self-concept as it relates to academic achievement. in (ed) Hamachek, D.E. The Self in Growth Teaching and Learning, selected readings. Prentice Hall, 1964 pp. 486 - 500.

Fitzgerald, E.T. Measure of Openness to Experience: Journal of Personality and Social Psychology, 4 : pp. 655 - 663, 1966.

Fowler, H. Implications of Sensory Reinforcement, in (ed) Glasser, R. The Nature of Reinforcement, New York Academic Press, pp. 151 - 186 1971.

Gagne, R.M. Some Relationships of Reinforcement Theory to Education, in (ed) Glasser, R. The Nature of Reinforcement. New York Academic Press, pp. 343 - 349 1971.

Gergen, K.J. The Concept of Self, Holt, Rinehart and Winston, 1971.

Gibby, R.G. Snr. and Gibby, R.G. Jr. The effects of stress resulting from academic failure. Journal of Clinical Psychology. 23 : pp. 35 - 37 1967.

Hamachek, D.E. The Self in Growth Teaching and Learning, selected readings. Prentice Hall, 1965.

Hebb, D.O. Drives and the C.N.S. (conceptual nervous system). Psychological Review 62 : pp. 243 - 254, 1955.

Hunt, J. McV. Intelligence and Experience. New York Ronald Press, 1961.

Hunt, J. McV. Intrinsic Motivation and its Role in Psychological Development, in (ed) Levine, D. Nebraska Symposium on Motivation 1965, 13 : University Nebraska Press, pp. 189 - 282.

Hunt, J. McV. Towards a History of Intrinsic Motivation, in Intrinsic Motivation : A New Direction in Education, A Symposium, Ed. by Day, H.I.; Berlyne, D.E.; Hunt, D.E. Holt Rinehart and Winston, pp. 1 - 32 1970.

Langevin, R. Is Curiosity a Unitory Construct? Canadian Journal of Psychological Review 1971.

Mackinnon, D.W. Creativity and Images of the Self, in (ed) White, R.W. The Study of Lives, Prentice Hall 1963.

McReynolds, P. The Three Faces of Cognitive Motivation in Intrinsic Motivation : A New Direction in Education, A Symposium, Ed. by Day, H.I.; Berlyne, D.E.; Hunt, D.E. Holt, Rinehart and Winston pp. 33 - 45 1970.

Maddi, S.R. Motivational aspects of creativity. Journal of Personality 33 : pp. 330 - 347 1965.

Maddi, S.R. Comments on Nunnally's and Suchman's Papers, in Intrinsic Motivation : A New Direction in Education, A Symposium, Ed. by Day, H.I.; Berlyne, D.E.; Hunt, D.E. Holt, Rinehart and Winston pp. 83 - 90 1970.

Mahone, C.H. Fear of failure and unrealistic vocational aspirations. Journal of Abnormal and Social Psychology, 60 : pp. 253 - 261 1960.

Maw, W.H. Differences in the personalities of children differing in curiosity, in (ed) Day, H.I.; Berlyne, D.E.; Hunt, D.E. Intrinsic Motivation : A New Direction in Education, A Symposium, Holt, Rinehart and Winston pp. 91 - 98 1970.

Maw, W.H. and Magoon, J.A. The curiosity dimension of fifth-grade children : a factorial discriminant analysis. Child Development, 42 : pp. 2023 - 2031 1971.

Maw, W.H. and Maw, E.W. Differences Between Children with High and and Low Curiosity. A Summary; Moravia, New York Chronicle Guidance Publications, 1965 - 66.

Maw, W.H. and Maw, E.W. An attempt to measure curiosity in elementary school children. American Educational Research Journal, 3 : pp. 147 - 465 1966.

Maw, W.H. and Maw E.W. Self-appraisal of curiosity. Journal of Educational Research, 61: pp. 462 - 465 1968.

Maw, W.H. and Maw, E.W. Self-Concepts of High and Low Curiosity Boys. Child Development. 41 (1) pp. 123 - 129, 1970.

Mehler, J. and Bever, T.G. The study of competence in cognitive psychology. International Journal of Psychology: 3, pp. 273 - 280 1968.

Miller, M.B. Intrinsic motivation : unlearned, learned and modifiable, in (ed) Day, H.I.; Berlyne, D.E.; Hunt, D.E. Intrinsic Motivation : A New Direction in Education, A Symposium, Holt, Rinehart and Winston pp. 171 - 185 1970

Nissen, H.W. The Nature of the Drive as Innate Determinant of Behavioural Organization, in (ed) Jones, M.R. Nebraska Symposium on Motivation Lincoln University of Nebraska Press pp. 281 - 321 1954.

Piaget, J. 1936. The Origins of Intelligence in Children. Trans. by Margaret Cook. New York: International University Press 1952.

Piers, E.V. and Harris, D.B. Age and other correlates of self-concept in children, Journal of Educational Psychology, 55, 1964 pp. 91 - 95.

Porter, R.B. and Cattell, R.B. Children's personality questionnaire Champaign, Illinois. : Institute for Personality and Ability Testing, 1960.

Prentice, W.C.H. Some cognitive aspects of Motivation, in (ed) Harper, R.H.C. The Cognitive Processes. Prentice - Hall pp. 400 - 411 1964.

Purkey, W.W. Self-Concept and School Achievement, Prentice - Hall pp. 400 - 411 1964.

Rosenthal, R. and Jacobson, L. Teacher expectations for the disadvantaged. Scientific American 218, pp. 19 - 23. 1968.

Rushton, J. The relationship between personality characteristics and scholastic success in eleven-year-old children. British Journal of Educational Psychology, 36, pp. 178 - 184. 1966.

Schmuck, R. Some Relationships of Peer liking patterns in the classroom to pupil attitudes and achievements. School Review, 71 : pp. 337 - 359 1963.

Shaw, M.C. and McCuen, J.T. The onset of academic under-achievement in bright children. Journal of Educational Psychology, 51 : pp. 103 - 108 1960.

Shouksmith, G. Intelligence, Creativity and Cognitive Style. London Batsford : 1970.

Staines, J.W. The self-picture as a factor in the classroom. British Journal of Educational Psychology, 28, pp. 97 - 111. 1958.

Stott, D.H. and Sykes, E.C. Bristol Social-Adjustment Guides, The Child in School. University of London Press 1962.

Thomas, J.B. Self-Concept in Psychology and Education: a review of research. N.F.E.R. Publishing Company 1973.

Thorpe, L.B.; Clark, W.W. and Tiegs, E.W. California test of personality, elementary form A - A, revised, Los Angeles: California Test Bureau, 1953.

White, R.W. Motivation reconsidered: the concept of competence. Psychological Review, 66: pp. 297 - 333 1959.

White, R.W. Competence and the Psychosexual Stages of Development, in (ed) Jones, M.R. Nebraska Symposium on Motivation 1960 Lincoln : Univ. Nebraska Press, pp. 97 - 138 1960.

# A P P E N D I C E S

# A P P E N D I X  A

Items selected from the Which to Discuss Test.
(Maw and Maw 1966)

Name _____ School _____ Date _____

Room _____

Picture Satisfaction (Part I)

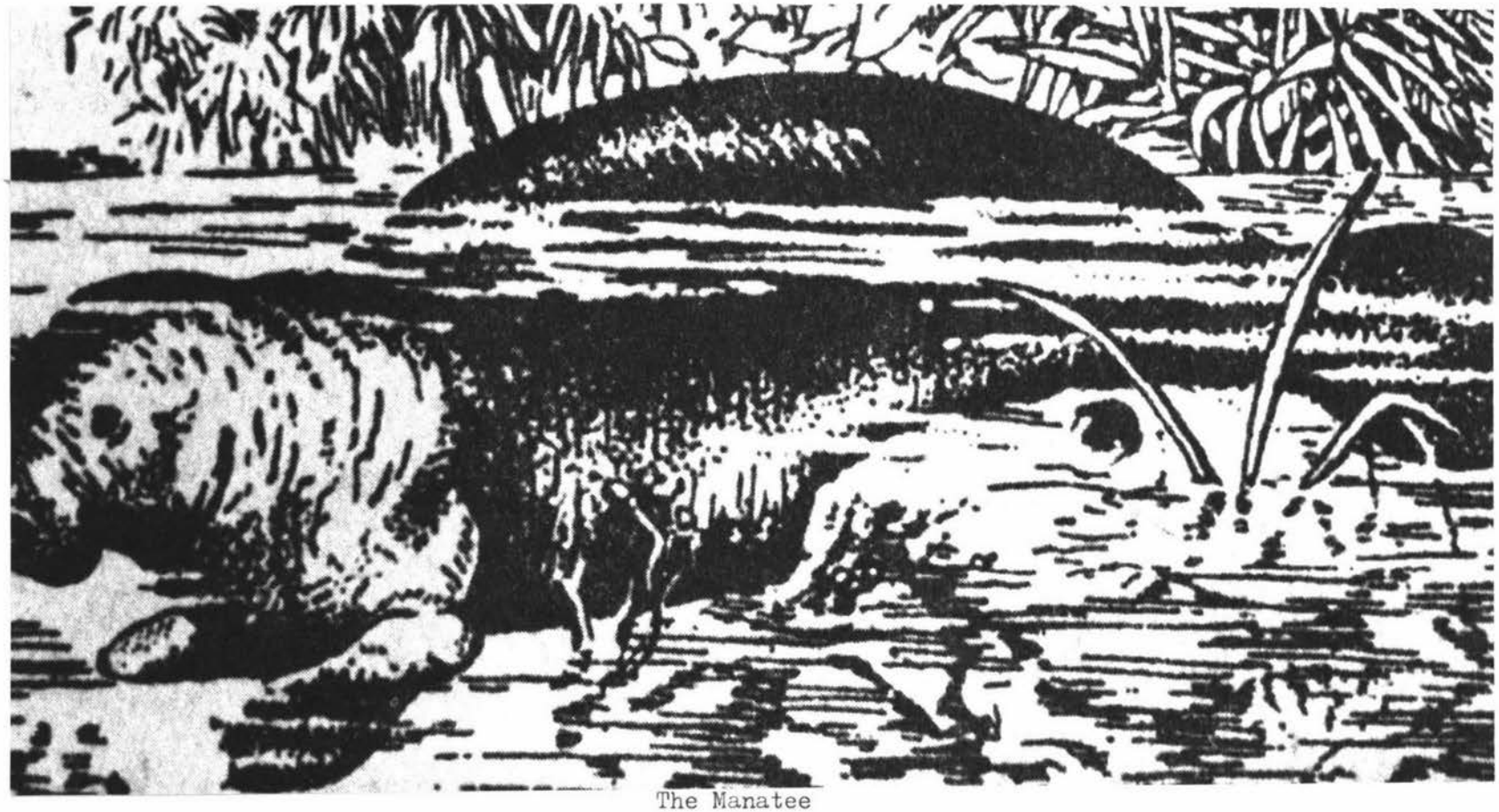
Directions: On the following pages are some pictures of animals, people and things. Something is said about each picture. Perhaps you would like to know something else about each picture. Please write the questions you would like answered below each picture.

The Oreodont

These animals no longer live on the earth. What else would you like to know about this picture?

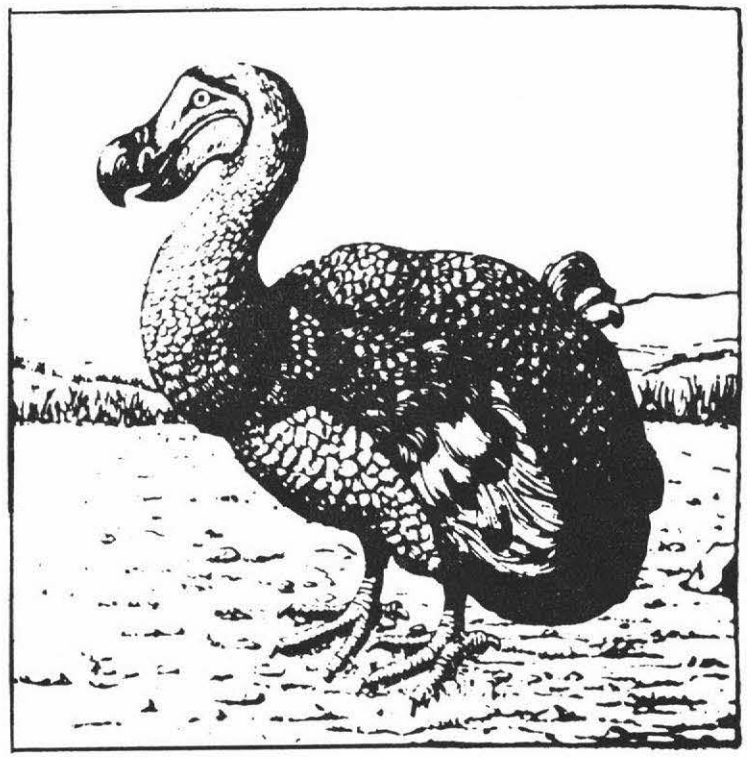
The Scientist

This is a picture of a scientist. What else would you like to know about this picture?



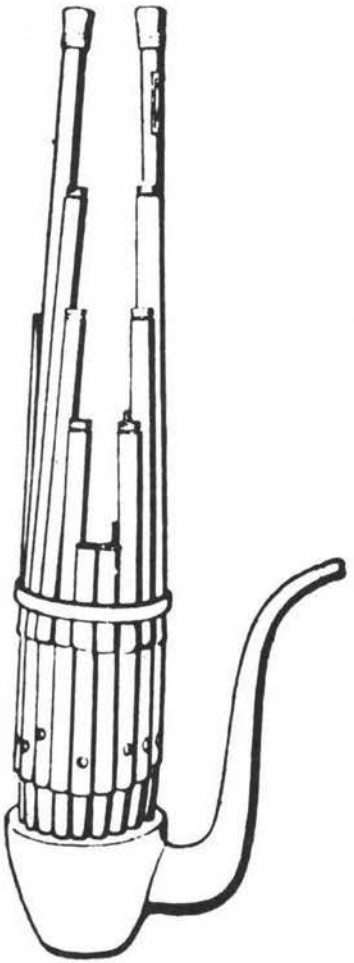
The Manatee

The manatee is a clumsy-looking animal. What else would you like to know about this picture?



The Dodo

This bird no longer exists. What else would you like to know about this picture?



Chinese Musical Instrument

This is a picture of a musical instrument that looks like a funny teapot. What else would you like to know about this picture?

# A P P E N D I X  B

Name _____ School _____ ate_____ Room _____

## ABOUT MYSELF

This is a study of some of your habits and attitudes. There is no right or wrong answer for any statement. The best answer is what you feel is true of yourself. For each statement mark X above the word which tells how true it is of yourself.

1. I like to explore strange places.

| never | sometimes | often | always |
|---|---|---|---|

2. If a grown-up says something, I believe it.

| never | sometimes | often | always |
|---|---|---|---|

3. When I see a neighbour digging in his yard, I wonder what he is doing.

| never | sometimes | often | always |
|---|---|---|---|

4. When someone talks about strange things, I want to know more about them.

| never | sometimes | often | always |
|---|---|---|---|

5. I question things that I read or see.

| never | sometimes | often | always |
|---|---|---|---|

6. When there is something new in the room, I notice it right away.

| never | sometimes | often | always |
|---|---|---|---|

7. I like to find out how things work.

| never | sometimes | often | always |
|---|---|---|---|

8. I make up my mind very quickly.

| never | sometimes | often | always |
|---|---|---|---|

9. I keep my hands clean.

| never | sometimes | often | always |
|---|---|---|---|

10. I keep away from strange and unusual things.

| never | sometimes | often | always |
|---|---|---|---|

11. I ask questions in school.

| never | sometimes | often | always |
|---|---|---|---|

Appendix B contd.

12. When someone tells something strange, I doubt the truth of it.

never sometimes often always

13. When I see a bag or box that I haven't seen before, I peek into it to see what is there.

never sometimes often always

14. I take things apart to see how they work.

never sometimes often always

15. I believe the things I read in books.

never sometimes often always

16. Whenever I see a film, I see things that other people miss.

never sometimes often always

17. When I see my neighbours getting into their car, I wonder where they are going.

never sometimes often always

18. I find that some things puzzle me.

never sometimes often always

19. I grow out of my shoes before I wear them out.

never sometimes often always

20. I like to find out as much as I can before I make up my mind.

never sometimes often always

21. I keep my clothes neat and clean.

never sometimes often always

22. When I see something new, I want to know what it is.

never sometimes often always

23. After I visit a new place, I like to learn more about it.

never sometimes often always

24. When I see people I know going along the street, I wonder where they are going.

never sometimes often always

Appendix B contd

25. I like people who are adventurous.

never sometimes often always

26. I have a lot of curiosity.

never sometimes often always

27. I like to discover new things.

never sometimes often always

28. When I see something new, I want to know how much it costs.

never sometimes often always

29. I notice things that other people do not see.

never sometimes often always

30. I like to look around inside old building.

never sometimes often always

31. I believe things I hear or see.

never sometimes often always

32. I like to play with children who are adventurous.

never sometimes often always

33. I ask about things I want to know.

never sometimes often always

34. When a new house is being built, I watch the men working and look around for new things.

never sometimes often always

35. I take good care of my toys and school supplies.

never sometimes often always

36. I think I can be called an adventurous person.

never sometimes often always

Appendix B contd

37. I like to find out how things are made.

never sometimes often always

38. When I see a strange machine, I go up to it and look at it.

never sometimes often always

39. My parents encourage me to ask questions.

never sometimes often always

40. I like to look around the room.

never sometimes often always

41. I like to work on puzzles until I solve them.

never sometimes often always

# APPENDIX C

## TEACHER RATING SCALE FOR PUPIL CURIOSITY

Lita Linzer Schwartz
Bryn Mawr College

NAME _____ SCHOOL _____ GRADE _____

1. Would you say that this pupil generally moves toward, away from, or ignores a problem situation?

away from ____ ignores ____ toward

2. How often does this pupil ask questions that indicate he/she is seeking further information on a topic?

never ____ seldom ____ sometimes ____ often ____ constantly

3. Does this pupil seek information on his own?

never ____ seldom ____ sometimes ____ often ____ frequently

4. When you say something this pupil does not understand, how often does he/she ask for an explanation?

never ____ seldom ____ sometimes ____ often ____ always

5. When there is something new in the room, how often does this pupil notice it?

never ____ seldom ____ sometimes ____ often ____ always

6. Whenever a film or experience is presented to the class, how often does this pupil see things the others miss?

never ____ seldom ____ sometimes ____ often ____ always

7. How often does this pupil try to find out as much as possible about something before making up his/her mind?

never ____ seldom ____ usually ____ often ____ always

8. How often does this pupil participate actively in class experiments?

never ____ seldom ____ usually ____ often ____ always

9. How often does this pupil contribute new information or a new approach to something the class is studying?

never ____ seldom ____ usually ____ often ____ always

10. In line with the definition given below, how curious would you say this pupil is?

Not at all ____ Slightly ____ Average ____ Above Av. ____ Very

Appendix C contd

An elementary school child is considered to demonstrate curiosity when he:

1. reacts positively to new, strange, incogruous, or mysterious elements in the environment by moving toward them, by exploring them or by manipulating them,
2. exhibits a need or a desire to know about himself and/or his environment,
3. scans his surroundings seeking new experiences, and
4. persists in examining and exploring stimuli in order to know more about them.