CHAPTER II
Reading, writing and arithmetic which are the three basic aspects of education known as the three R's are given the highest priority in Schools. While the three R's are simultaneously taught and given equal importance, it is well known that reading precedes writing and arithmetic. Before a child learns to write, he learns to recognise and read the alphabets. Thus one could say that an important prerequisite for learning to write and other advanced aspects of education is the development of Reading Ability and perhaps as stated by Sheppard & Sheppard (1983), development of Reading Ability could be considered as a key to success in school. Furthermore, proficiency in reading helps children to acquire interest in reading varied types of materials and contributes to the enhancement of knowledge and allround development of children's personality. Reading also enhances originality and creativity and helps in the development of thinking and many other aspects in the cognitive domain.

According to Strang (1967), 'Reading Proficiency is the royal road to knowledge; it is essential for success in all academic subjects'. In the present day context, the above statement appears more relevant as learning depends largely upon one's ability to interpret the printed pages accurately and fully.

Aside from academic improvement and knowledge acquisition, reading helps filling in the leisure time, kindles the curiosity of the
individual, fires and wets the person's imagination, widens their knowledge and perspective and channelises the mental energy in appropriate directions. As stated by Srivastava (1979), reading also contribute to personal and social adjustment. For instance, it helps an individual to adjust to one's peers and helps in smooth emancipation to independence from an individual's dependency on parents and elders.

It is said that as reading and adjustment go together an adequate growth in reading is necessary if satisfactory personal adjustment is to be maintained. Although maladjustment has been found to lead to failure in reading, quite often maladjustment itself is caused by failure in reading. The frustration due to continued failure in reading may manifest itself in many ways. The child may compensate for his feelings of inferiority by becoming a 'problem child' in the class-room. He may become inattentive and create disturbances. Poor Reading Ability and the continued failure in reading are, to a greater extent responsible for wastage (premature withdrawal of children from schools), dropouts and stagnation (retention of a pupil in a grade for more than one year due to unsatisfactory progress) in education (Srivastava, 1979).

The Nature of Reading

According to Wolf (1977) the verb 'read' is, superficially one of the least ambiguous words in the English language. Indeed if we were to ask someone to define it, it is almost certain that the definition would suggest a process by which meaning is extracted, through a system of symbolic decoding, from something written or printed like a book, a bill board or a letter.
The verb 'read' derives from Teutonic word raedon. This etymology of the word 'read' has been on the minds of psychologists ever since Hyey (1908/1968) conducted his pioneering research into the reading process. He was of the view that a complete theory of reading would involve a description of the most intricate workings of the human mind.

Traditionally reading was considered a complex process of interpretation; and supporting this view, modern psychological investigations have revealed that reading, particularly, skilled reading - is in fact, a complex form of interpretation, gathering, sorting and analysis.

Reading is a symbolic behaviour. Any representation perceptible to the senses may serve as a symbol. In reading visual symbols are employed to represent auditory sounds. Since the sounds themselves are symbols of meaning, the process of reading involves a hierarchy of skills ranging from auditory and visual discrimination to higher order mental activities such as organizing ideas, making generalization and drawing inferences (Deboer and Dallman, 1964).

Reading is also a thinking process (Betts, 1966). As the individual reads, the symbols on the printed pages excite the mind to react in many complex ways, such as, perception, recognition, association, comprehension, organisation, evaluation, retention, recall etc. Thorndike (1917), in his article 'Reading as Reasoning', had emphasized that unless the reader reasons correctly in the light of the data or ideas presented by the words, he will fail to get the right meaning.

According to Goodman (1968), 'Reading is a psycholinguistic guessing game'. He does not agree with the notion that reading is a matter
of getting sequential units of meaning in a series of left-to-right movements and pauses, and putting them together. Rather he suggests that one can scan a piece of text for cues, form a hypothesis as to its meaning, match this against the text while taking more cues into account, and so on, bringing the cue-scanning process to a halt as soon as the 'meaning' in one's head makes a good match with the text. Thus the perceptual and the cerebral aspects of the reading act are brought together.

Thorndike (1963) and Yule and his associates (Yule, 1973; 1984; Rutter & Yule, 1975) had advocated a regression based definition of under-achievement. In this approach, under-achievement is based on the discrepancy between a child's actual reading score and a predicted reading score. The predicted reading score is derived by means of a multiple regression equation from a child's age and IQ. Research into the characteristics of groups of children classified by this method as specific reading retarded has employed a variety of tests and age groups (Rutter & Yule, 1975; Jorm et al., 1985; Silva et al., 1985). Implicit in this method of classifying children, is the assumption that there exists a reasonably stable group of specific reading retarded children whose classification is not merely eye or test-specific.

Definition of Reading

"Reading" has been defined varyingly by many experts. For instance, the definition of reading by Bloomfield and Barnhart (1961) and that of Artley (1961) indicate some of the variations.
According to the former,

"Reading involves nothing more than the correlation of a sound image with its corresponding visual image...." (Bloomfield and Barnhart, 1961).

According to the latter,

"Reading is the art of reconstructing from the printed page, the writer's ideas, feelings, moods and sensory impressions", (Artley, 1961).

These two examples show how definitions of reading vary in two typical ways. Some (like Artley's) are very comprehensive while others (like that of Bloomfield and Barnhart) are very narrow. Some specify the connection between the sounds of language and their visual form in print or writing (as does the definition of Bloomfield & Barnhart), but other authors seem to prefer not to specify this aspect.

Various reading experts have defined reading in different ways. Fries (1963) indicated that while reading is not a simple process, it can be summed up in a simple statement, 'one can read in so far as he can respond to the language skills represented by graphic shapes as fully as he has learned to respond to the same language signals of his code represented by patterns of auditory shapes. These statements reflect his view that teaching of reading is largely of a matter of developing the child's ability to respond to letters spelling patterns. If these could be converted from print into spoken form then this could be regarded as reading. Gibson (1965) also characterises reading behaviour as (a) receiving communication, (b) making
discriminative responses to graphic symbols, (c) decoding graphic symbols to speech, and (d) obtaining meaning from the printed page.

Birkley (1970) defined reading as "the recognition and perception of language structures as wholes, in order to comprehend both the surface and deep meaning which these structures communicate".

Reading is a complex activity. It consists of making out the meaning of written language. The meaningful response is the very heart of the reading process. Reading has been defined as an activity which involves the comprehension and interpretation of ideas symbolized by written or printed page (Srivastava, 1979).

Recently, Perfetti (1985) defined a skilled reader as one who, relative to a given age group, shows comprehension and reading rates that are at least average. The less skilled reader, accordingly, is one who is below average in comprehension and/or reading rate. Although it is sometimes difficult to be sure whether the subjects in any particular study fit this definition, or whether they are fully comparable to the subjects in some other study, the definition is at least the ideal for any theoretical claims.

An evaluation of the above definitions on reading indicates that (1) they all have a common element, that is, reading is an interpretation of graphic symbols.(2) Reading is perceived as a two-fold process; viz (a) identification of the symbols and (b) association of appropriate meaning with them; in other words reading involves identification and comprehension (Dechant & Smith, 1977). (3) Reading is a language and communication process. It is the process of putting the reader to
contact with ideas. It is the culminating act of the communication process, initiated by the thoughts of the writer and expressed through the symbol on the page and read by the reader. It is thus an interaction between the writer and the reader.

Reading, Recognition and Comprehension

An important aspect of reading depends on the habit forming practices which are especially needed to develop high speed recognition responses (1) to the high system, (2) to the alphabetic writing and (3) to the graphic language system. Reading is also a word-identification process in that the beginning reader's problem is to discover the critical differences between two letters or two words.

According to Dechant & Smith (1977), the beginning reader has to rely on the visual information much more than the experienced reader because he is unable to make full use of the syntactic and semantic non-visual sources of information. He must deduce meaning from the surface structure or the visual array of letters on the page. Unfortunately, he often becomes so engrossed with the mechanical aspects of reading, with word identification and pronunciation, that he fails to understand the need for comprehension. The good reader, on the other hand, processes only a part of the available information, attending selectively to the more important words.

Reading is much more than simple recognition of the graphic symbols. It is a highly complex process, requiring very specialized skill on the part of the reader. Einstein, cited by Dechant and Smith
(1977), noted that reading is the most difficult of all tasks. It is a form of human behaviour that needs to be studied and analyzed by psychologists with great precision. It is a form of covert behaviour (Weaver, 1964), which has not been given the desired attention by the learning theories. It is for this reason that Kingston (1968) wrote that there did not exist a systematic, well-formulated psychology of reading and that what was available was too inadequately structured to be of much value to the classroom teacher.

Types of Reading

There are many varieties of reading: oral and silent; informational and recreational; observational/assimilative; reflective and creative. Yoakam (1955) has classified reading according to form, purpose and the psychological processes involved. In form, reading occurs as silent and oral reading. The reader either reads to himself or he reads to others. According to purpose, reading may be of two types; recreatory or leisure reading, and informational or study or work-type reading. The child should learn to balance his reading between the purpose of recreation, or reading for its own sake, and information, or reading to save the purpose of requiring familiarity with accurate information. Analysis of reading from the standpoint of the mental processes involved may be of four types. First is 'observational', where the reader notes what the writer has to say but makes no determined efforts to analyse it or to remember the words or ideas. At another time the reader reads to 'assimilate' what he reads.
he wants to understand and remember. The third type is 'reflective' when the reader has critical attitude. The last is 'creative' reading, when the reader wishes to discover ideas which he can use in oral and written expression (Srivastava, 1979).

In this context, it is worthwhile to get an insight into some of the major theories/models of reading.

Amongst these figures the Taxonomic model, psychometric model, psychological model, information processing model, Laberger and Samuels model, linguistic model, interactional model, Reading-Writing model etc. of reading. The following section presents a discussion of these models.

Theoretical Models of Reading:

According to Williams (1973) the various models of reading conceptualise reading as a process consisting of certain skills and components. The first of these models is the taxonomic model of reading.

Taxonomic Model:

A characteristic taxonomic model is the descriptive model of Gray (1950, 1960) who described reading as consisting of mainly four skills, viz., word recognition, comprehension, reaction and assimilation. Robinson (1966) broadened the model to include rate of reading.

Psychometric Model:

This model was proposed by Holmes & Singer (Holmes, 1953, 1960, 1965; Singer, 1962, 1965, 1968, 1969; Holmes and Singer, 1961, 1964,
As the name indicates this model of reading is based on statistical principles. It has been constructed by the use of substrata analysis - namely organisation of a hierarchy or subsystems leading finally to a working system or reading. The starting point of this hierarchy of subsystems is word recognition, followed by word meaning, morphemic analysis, reasoning in context, auditory-vocabulary, word meaning and phrase perception and discrimination. While 89 per cent of variance in power of reading was contributed by the first three subsystems, viz., word recognition, word meaning and morphemic analysis, 77 per cent of variance in speed of reading was accounted for by the latter three subsystems, viz., reading in context, auditory-vocabulary meaning and phrase perception and discrimination.

The model suggests that silent reading ability is divisible into two major interrelated components, speed and power of reading. As the reader changes from speed to power of reading he recognizes his set of systems (and subsystems) from emphasizing the visuomotor perceptual system to one stressing morphemic and word recognition systems.

**Psychological Models:**

This can be discussed under two major headings, viz. Behavioural Model and Cognitive Model.

A. **Behavioural Models:** Learning theories generally are divided into stimulus - response theories and field theories. Learning to read cannot be explained if only one of the theories of learning is adopted.
The behaviouristic model holds that all learning is habit formation, a connection between a stimulus and a response. The connection is referred to as an S-R bond. The S-R theorist focuses on the response or the observable action, the learner learns an action or a response. The S-R theorist asserts his predilection of a response to a stimulus. Learning is defined as the acquisition of new behaviour patterns or the changing of behaviour either by strengthening or weakening of old patterns as a result of practice or training.

The best contemporary component of behaviourism is B.F. Skinner. In Skinnerian terminology, all behaviour can be understood, predicted and controlled in terms of habits established or shaped by a process of successive approximation by the reinforcement of a response in the presence of a particular stimulus.

Reinforcement determines whether conditioning in fact takes place. A particular S-R bond will be established only if the behaving organism is reinforced in a particular way while responding in the presence of a stimulus.

This type of conditioning in Skinner's experiments is called operant conditioning in contrast to classical conditioning. In this type of conditioning, the reinforcement occurs after the behaviour that is to be conditioned. For Skinner, the behaviour had first to be emitted before reinforcement would occur.

The process of setting up the type of behaviour that it is desired to reinforce is known as shaping. Shaping of behaviour does not
wait until the learner makes the desired response exactly correct. Operent learning may be quite gradual. At first, it may be necessary to reinforce gross approximations to the final response. Behaviour thus is moulded into shape by a process of successive approximation. It is through shaping that the very fine discriminations required in reading is produced. Through a process of chaining, elaborate sequence of behaviour, such as are required in reading, are built up.

The behaviourist view explains why learning takes place (by reinforcement) and once that habit is established, how these habits have their own momentum. The very exercise of the habit (reading) reinforces and consolidates the reading habit. The simple opportunity to engage in this habit is an effective reinforcer and thus the final Reading Ability of an appropriate order is acquired.

B. Cognitive Models:

This model perceives the learner as a gatherer, processor, and consumer of information (Smith, 1971) rather than as a simple reactor to stimuli (Boneau, 1974). The cognitive theorist does not believe that language skills can be explained as habits established by the conditioning of S-R bonds. Rather, he points out that the reader extracts meaning from not only what he reads on the basis of the visual information (the surface structure of the language) but also on the basis of all the deep structure of language and the knowledge and experiences contained within his brain. Language and what is read cannot be comprehended unless the reader (listener) makes this a criti-
cal and active contribution. Thus one of the principal tenets of the cognitive theory is that perception is a constructive process, adding something to the stimulus aspects. Cognition is defined as the integrative activity of the brain, overriding reflex response behaviour and freeing behaviour from sense dominance (Hebb, 1974). It refers to all the processes by which the sensory input is transformed, reduced, elaborated, stored, recovered, and used (Neisser, 1967).

Boneau (1974) has proposed a decision theory/information processing approach which emphasizes that behaviour is determined primarily by events within the organism and which allows behaviour to be based on cognitive processes. The theory assumes that through interaction with the environment the individual internalizes information about the external world and develops an internal model of the environment (IME). The IME is unique to the individual, being based on the individual's history of interaction with the world and with biological potential in a very personal way.

The cognitive theorist speaks of restructuring of perceptions or relationships. Thus, the pupil is taught and in fact learns a system of attacking new words and he uses this system to make an insightful response to a new word. He does not have to be conditioned to come up with the correct response.

Information Processing Model:

One of the best descriptions of reading as information processing is offered by Smith (1971).
A key principle in the psychology of reading is that reading is an act of communication in which information is transferred from a transmitter to a receiver. To explain reading in terms of information processing model, a knowledge of theories of communication, information and signal detection are essential. Further, the terminology of communication theory is especially useful in describing the theory of reading. Terms from communication theory which have special significance in understanding reading are: communication channel, limited channel capacity, noise, information, and redundancy, which are all explained in the following sections:

a) Communication Channel - The writer (transmitter) and the reader (receiver) are two ends of a communication channel along which information flows. As a message passes through the communication channel, it takes on a variety of forms. At each part of the communication process, there is a possibility that the message will be changed in some way.

b) Limited Channel Capacity - Just as in a communication system, there is a limit to the channel capacity, similarly in the reading system, there is a limit to the speed at which the eye can travel over a passage of text making information-gathering fixation and acquisition of information in a single fixation.

c) Noise - A message or communication may be confused or made less clear by extraneous signals called noise. As all communication channels have limited capacities, noise may overload the system and prevent the transmission of informative signals. In reading, there may be
difficulty-to-read type face, poor illumination, distraction of the reader's attention etc. Smith (1971) notes that because of noise, reading is intrinsically more difficult for the beginning reader than for the experienced reader. Everything is noisier for the beginner and thus anything that one fails to understand becomes automatically 'noise'.

d) Information - This is defined as a reduction of uncertainty. In reading, informational exists when the reader can reduce the number of alternative possibilities and can discriminate a given letter from the other 25 possibilities. If he can eliminate all alternatives except one, then the amount of information transmitted is equal to the amount of uncertainty that existed.

e) Redundancy - Redundancy exists whenever information is duplicated by more than one source, that is, redundancy exists whenever the same alternatives can be eliminated in more than one way. The reason for presenting a word both visually and auditarily is that it is a form of redundancy that helps the learner. In reading, it is immediately apparent that larger the context, greater is the redundancy; more the redundancy, less the visual information the skilled reader requires.

LaBerge and Samuel's Model (1974)

This model is one of the first models to use automaticity. Automaticity theory assumes that reading is divided into two general
skills: decoding and comprehension. It further assumes that attention is required to perform either of these skills. In this model the authors suggest that only a fixed amount of attention is available during processing. Until decoding is "automated", comprehension suffers. They maintain that extra attention can be diverted to comprehension when decoding is mastered.

Stages in Reading

There are three stages that are strictly relevant to reading: (1) Visual feature detectors and recognizers, (2) phonological interpreters, and (3) semantic interpreters. Units are processed individually or in groups in each of these stages. This too is a "Bottom up" model. It assumes that all reading must begin with a visual input and end with a semantic interpretation.

Implications in this model for research in comprehension are: implication is the manipulation of decoding ability; comprehension should vary directly with this ability if the model is accurate and episodic cues should facilitate semantic interpretation. Semantic interpretation, however, should not have any effect on visual feature identifications.

This model is useful except for the top-down processing capabilities of competent readers. However, it falls short on precision when it deals with attention allocation and sufficient rules for by passing processing stages.
Linguistic Models:

A. Early formulation - The early linguistic models were developed by Bloomfield, Fries, and Lefevre. In general Bloomfield (1961) emphasized that beginning reading should present only regular correspondences between orthography and speech; Fries (1963) stressed letter-sound relationship; and Lefevre stressed syntactical cues both intraword (such as inflections) and interword (such as sentence structure). Lefevre (1962, 1964) noted that the "Grasp of meaning is integrally linked to grasp of structure - information gives the unifying configuration". Genuine reading proficiency is described as the ability to read language structure. The best reader is one mentally aware of the stresses, elongations of words, changes of pitch, information, and rhythms of the sentences that he reads. If he reads the way the writer would like it to have been said, true communication of meaning may be possible. Fries and Bloomfield concentrated on letters, sounds, and words as the prime units in reading; Lefevre made the sentence the key unit in reading.

Bloomfield and Fries define reading as the act of turning the stimulus of graphic shape on a surface back into speech (Edward, 1966). Bloomfield differentiated between the act of reading (recognition of graphome-phonome correspondences) and the zeal of reading (comprehension).
Walcutt, Lamport, and McGracken (1974) noting the syntax concerns itself with meaning-bearing patterns, point out that the word 'dogs' is easily understood on a surface level as two morphemes expressing a recognized relationships among certain animals. There are however very noticeable differences among "Dogs make good pets", "It's a dog's life", and "He's gone to the dogs", all of which incidentally employ the same two morphemes. The illustration clearly shows that meaning comes through system by interaction patterns, word form changes, and the use of structure and function words.

Bloodfield felt that initial teaching of reading for meaning is incorrect, and that meaning will come quite naturally as the alphabetic code or principle is discovered. Reading is thus basically described by Fries & Bloomfield as decoding printing symbols into sound and then extracting meaning from sound.

B. Transformational - Generative Grammar - The theorists in this group (Chomsky, 1957, 1965, 1968, 1969, 1970; Chomsky & Halle, 1968; Goodman, 1970; Rudell, 1974) reject the notion that reading is simply sequential word recognition. Reading is perceived as a psychologistic process, only superficially different from the comprehension of speech. The beginning reader is thought to use abstract rules about language structure to arrive at comprehension.
As one learns to read, the grammatical transformation translate the deep structure of a sentence into a variety of surface representations. Transformational rules, conversely permit the reader to move from the surface structure to the meaning.

Interactional Model

Marshall and Weinstein (1984) presented a complex interactional model of classroom factors that contribute to the development of students' self evaluations. This model integrates previously investigated factors, suggests the operation of additional factors, and extends the notion of the operation of classroom factors, to account for the possibility that certain factors may compensate for or negate the effect of otherwise crucial factors in influencing students interpretations of and reactions to classroom events described are (a) task structure, (b) grouping practice, (c) feedback and evaluation procedures and information about ability, (d) motivational strategies, (e) locus of responsibility for learning, and (f) the quality of teacher-student relationships. This notion of compensating and negating features within the classroom environment can be applied to understand other student outcomes as they are influenced by teaching process.

Reading-Writing Model

Shanahan & Lomax (1986) presented theoretical models, of which
the first model postulates that reading can influence writing development and writing can influence reading development. According to this model, reading portion consists of three major components or latent variables, viz., Word analysis, vocabulary and text comprehension. While word analysis refers to the ability to decode words through the use of sound-symbol relationships, vocabulary refers to word meanings; and final component, text comprehension, includes the ability to interpret the meanings of sentences and passages.

The writing portion of this model includes four latent variables: spelling, vocabulary, syntax, and story structure. Spelling refers to the ability to produce words that are spelled accurately through the use of sound-symbol relationships and complex orthographic rules. Vocabulary refers to the ability to use a wide range of different words in writing, syntax includes the ability to structure meaning in a complex manner within sentences, and story structure refers to the ability to relate events using a diversity of organizational (i.e. story grammar) components.

The most important aspect of the interactive model is the nature of the relationships across the reading and writing dimensions. Within a level of discourse, the influence proceeds from reading to writing. For example, word analysis could influence spelling, and knowledge of spelling, for instance, could influence vocabulary knowledge in reading, and through this relation spelling knowledge could be used in the interpretive process of reading comprehension. Although no one has previously proposed the combination of these variables in this
order, the sequence is consistent with those descriptions of the relationship (Freedman & Calfee, 1984; Goodman & Goodman, 1983) in which reading ability precedes writing ability.

The second model, the reading-to-writing model, contains the same reading and writing components, ordered in the same manner as in the interactive model. It, however, differs from the interactive model, in that all relations between reading and writing emanate from reading to writing. This model theorizes that reading knowledge can influence writing but that no writing knowledge would be useful or influential in reading. This model appears to be a reasonable characterization of many instructional programmes. This is evidenced by the paucity of writing instruction available in many schools (National assessment of educational progress, 1981). The traditional senior composition class is usually preceded by several years of reading and literature training. This approach to instruction guarantees that reading can exert a strong influence on writing, but it severely limits any possible effect of writing on reading.

Gough's Model

Gough (1972) proposed a serial model with a set of linear, independent stages of processing. In this reading proceeds letter-by-letter to word formation and phonetic representations. Lexical meanings are grouped into sentential units and interpreted by the individual's processing mechanism of syntactic and semantic information. Sentences are stored in TPWSGSTAU. Most of Gough's discussion focuses on word recog-
dition and lexical interpretation of visual system, pattern organizer and phonetic tape. Higher level comprehension processes are not discussed because they are not sharply defined outside of the reading process. He rejects the notion of "top down" processing which suggests beginning to teach reading with the child's existing knowledge of the world. His model is prototypic of the "bottom up" type which suggests beginning to teach reading from the graphic representation of the orthography. He does not believe that readers use any guessing strategies to facilitate reading.

In Gough's model there are no immediate implications for comprehension research in reading. What must be done is to investigate both the "individual processing mechanism" and the TPWSGWTAU storage.

Goodman's Model (1968)

The model is included for the sake of comparison. It consists of three "proficiency levels" which correspond to skills levels of the readers. At the highest level of proficiency, Goodman claims that the focus is on meaning; decoding is automatic, and reading is structured by oral language.

In this form, Goodman's model is almost a strict "top-down" process. There is virtually no cue usage from the graphic input. Goodman's model is limited because almost any finding can be accounted for in the model, i.e., he views oral language as the basis for meaning in reading and, therefore, he contends that errors in reading can almost always be interpreted as "miscues" rather than mistakes. An example
of this phenomenon which illustrates that his model is a "top-down" model is the acceptance of the lexical item "mommy" for "mother" in an oral reading situation. It is viewed as a miscue based on the assumption that the child may not have "mother" in his lexicon or that "mommy" is his preferred lexical item for this concept.

Smith's Model

In Smith's (1971) model of reading, he rejects the notion that reading is a decoding of printed words to spoken language. He rejects the theory:

\[
\text{Surface structure of writing} \rightarrow \text{Surface structure of spoken language} \rightarrow \text{Deep Structure of spoken language}
\]

For him reading aloud is:

\[
\text{Surface structure of writing} \rightarrow \text{Deep structure} \rightarrow \text{Surface structure of spoken language}
\]

and reading silently is:

\[
\text{Surface structure of writing} \rightarrow \text{deep structure}
\]

He believes that comprehension must precede the identification of individual words. As an example of this phenomenon, he uses the following sentence: "We should read the minute print on the permit". None of the underlined words can be articulated until they have been understood in context. He explains that we have acquired information
from an average span of four to five words ahead of and behind the actual words which we are reading in order to read aloud with comprehension and comprehensively. He points out that experimental findings have reported that there is an eye-voice span of approximately four to five words, such that if the lights are extinguished on an oral reader, the reader will be able to recite the next four to five words of the text that he is reading. This occurs, he believes, because the reader had sampled words behind the word which he was pronouncing when the lights went out.

Smith also believes that only a small part of the information necessary for reading comprehension comes from the printed page. He states: "The more that is known behind the eyeball, the less that is required to identify a letter, word, or meaning from the text". Conversely, when the material is more unfamiliar and the language is more complex, the reader may be unable to comprehend what he has read. In short, he is relying heavily upon the visual stimuli of the passage.

The actual process of reading for the competent adult reader is illustrated in the following diagram:
The main limitation of this view, however, is that it does not account for three well known phenomena:

1. The child who has never seen most of the words that he knows.
2. The fluent reader who encounters words he has never before seen.
3. The second language learner whose aural/oral repertoire exceeds his visual repertoire.

Varieties of Deficiency in the Reading Process:

Synthesizing diverse group of studies, Vernon (1977) argues that reading disability is not an unitary phenomena but can result from deficiencies in different psychological process.

Common wisdom has long maintained that a link exists between intellectual potential and an inability to read. It has become clear however, that many poor readers have average if not better than average intelligence. These children appear to benefit little from their experience in ordinary school classes. Although the reading problems of some of these poor readers can be attributed to environmental deprivation or emotional disorder, sufficient evidence shows that many children's difficulties result from some basic inherent deficiency or deficiencies in the reading process.

Vernon (1977) points out reading is not learned as an unitary skill, it necessitates the acquisition of several different skills which are finally integrated. These skills depend on the normal functioning
of a number of different psychological process, including visual and auditory perception, memory, linguistic ability and reasoning. Thus the actual causes of difficulties in learning to read vary considerably. In the following section different factors has been studied separately.

Types of School and Reading Ability:

School is a common place where students acquire language skills, particularly reading and writing. School factors may include, various managements and types of schools, facilities in the schools, accommodation, strength of the class, number of teachers and their qualifications, library and reading rooms, instructional materials including teaching aids, procedure adopting in examinations and evaluation etc., while considering the school environment. Bokil (1956) studied the number of pupil in school in relation to their achievement. Pillai (1969) studied the organisational and administrative factors of school and achievement of children and Old (1976) studied the type of school and achievement of children. They all found a positive relationship between types of school and achievement factors.

Subrahmanyam (1984) examined the relative influence of school environment and home environment on reading achievement in primary school children. A sample of 300 students studying in 5th class in 15 primary schools was selected by following stratified random sampling procedure. Due representation was given for the type of school, locality and sex of the student. A standardized reading achievement test
in Telugu was used to measure the reading achievement of the children. Detailed questionnaires and observation schedules were used to obtain information regarding home environment and school environment of student. The result of this study showed a positive correlation between reading achievement of children and selected variables, namely, school physical environment and school cultural environment. He also showed a positive correlation between reading achievement and home physical and cultural environment.

The above clearly shows that the academic environment of a school which consists of qualified teachers, good and healthy interaction between teachers and students, adoption of sound principles of teaching, testing and evaluating the achievement of children from time to time, has a high and positive relationship with reading achievement of children.

The cultural environment of home, consisting of the levels of education of parents and other members of the family, social particulars of the members, the interaction between the members of the family, the child's social and intellectual concern etc. play a major role in influencing the reading achievement of children. Thus as pointed out by Moses & Mayuri (1984) the primary school system, being fundamental in schooling, should lay stress on developing the reading ability in child for his/her successful performance.

Researchers have focussed on the relationship between types of school and academic achievement of students [(for e.g. Lulla et al
Very few studies have related types of school to reading achievement or reading ability.

Morris (1966) had emphasized that, in general, backward readers have had poorer school facilities and supplies of reading materials. The schools attended by good readers were better organized by the head teachers. During her recent survey she found that although nearly half the children who entered the junior school were still in the early stages of learning to read, among the teachers of these children 75 per cent had received no training in infant teaching methods and 52 per cent had no experience in infant school nor knew how to teach the initial stages of reading. However, Goodman (1967) has suggested that, in general, infant teachers are better trained. Collins (1961) stated that the most obvious cause of failure to read is bad teaching environments or generally inadequate or inappropriate educational stimulation. He also stated that 'more slow learning is due to bad teaching than is generally admitted'.

Zabolotney (1983) did a comparison of reading achievement and school attitudes of rural seventh-day adventist multi-graded students and Public School single-graded students in the state of Arkansas. The results showed (1) there was no statistical significant difference in the reading achievement of the students between the two types of classroom, (2) there was no statistically significant difference between
the achievement of the male and female students within the classroom, (3) the students attitudes toward schools and reading was significantly more favourable in the one-grade rural public fourth grade classroom, (4) there was a significant correlation between the attitude towards reading and reading achievement within both schools.

Teaching Methods and Reading Ability

Many educationalists have placed considerable emphasis on the different teaching methods and the resulting reading achievements. Morris (1966) found little difference in achievement between children taught by phonic and by other methods. But Chall (1967), after a detailed study of a large number of schools, reached the conclusion that phonic methods were definitely superior to other methods. Hughes (1970) although emphasized the apparent neglect of phonic methods, stressed that 'the most important criterion involved in the teaching of reading was not so much the method being used, but rather the 'individual teacher's faith and enthusiasm in the method she was using'.

Evans and Carr (1983) evaluated two programs in 20 first grade classrooms. Half of these were traditional teacher-directed classrooms. The other half of the classrooms were taught in less traditional student-centered classrooms, in which teacher-led instruction constituted only 35% of the day's activity. Reading was taught by an individualized language-experience method. Students produced their own books of stories and banks of words to be recognized. Evans & Carr (1983) characterized these two groups as decoding-oriented and language-oriented.
They noted that despite differences in how reading was taught, the two groups did not differ in the amount of time students spent on reading tasks. The two groups of classrooms were matched on measures of intelligence and language maturity. However, the clear result was that the decoding group scored higher on year-end reading-achievement tests, including comprehension tests.

Thus comparative studies continue to support the assumption that instruction that includes code teaching is advantageous for reading ability development and many other aspects of learning.

School Condition/Environment in Reading Ability

Hughes (1975) reported that school conditions such as (a) inadequate school buildings, (b) overcrowding, (c) lack of liaison between infant and junior school, (d) teachers not trained or experienced in teaching beginning reading, (e) untimely promotion, may have had a detrimental effect on the reading progress of several of the research sample.

Hughes, further reported that adequate classroom provision should be made first and this should be followed by a central school library. This central library can supplement classroom library. If books are to be a natural part of the environment of the school, these books must be good books. The selection of books is an important task of every teacher. Most teachers realise that recreational books can provide the source of much useful and purposeful activity in the primary school. Creative writing can often be inspired by a story, a poem,
a character or an incident, while a historical novel, particularly if its origins are local, can lead to environmental studies but, primarily the child reads for sheer delight or pleasure (Hughes, 1975).

Sex Factor and Reading Ability:

Research on sex differences have received relatively greater attention amongst the factors affecting academic performance. In a study (Traxler and Spaulding, 1950) girls in grade three, five and seven were found to perform consistently higher than boys in spelling and language, but the two groups (i.e. male and female) were about equal in word meaning and paragraph meaning. St. John (1932) found that girls very distinctly excelled boys in reading at grade levels one through four. Hughes (1953) found that in grades five through eight, girls made higher reading scores than did boys, but the differences were not statistically significant. Gates (1961) stated that in each of the twenty-one comparisons that he made, the mean raw scores of the girls were found to be higher than those of boys, and most of the differences were statistically significant. Gates' conclusion was later supported by the objective evidence from the studies of Downing & Thomson (1975), Dwyer (1973) and Johnson (1973). Earlier, studying a more specific aspect of reading, Shanmugasundaram and Feroze (1971) found that boys had higher level of comprehension in silent reading as compared to girls.

These findings contradicted those of Alagiriswamy & Soundararajan (1970) who showed that in silent reading, sex differences were not
significant. Gohl (1974) also did not find any sex differences on his silent reading test for pupils studying in Standard VII in the schools of Saurashtra.

Ahuja (1976) made an attempt to find out the sex differences in silent reading and oral reading with particular reference to reading speed, reading comprehension and reading index. Two reading tests of comparable difficulty value -- one of silent reading and the other for oral reading, were administered individually on a sample of 100 pupils drawn from seventh standard. Both these tests contained very easy and interesting material of 568 words each in English in the form of paragraph reading followed by multiple choice comprehension questions. The results show that the mean differences between boys and girls in silent reading speed, silent reading comprehension and silent reading index are negligible. The same in oral reading speed-oral reading index reveal that girls perform better than boys, but these differences are not statistically significant. Shah (1981) also reported a nonsignificant difference on the scores of reading comprehension amongst boys and girls.

In a study on differential interest level reading materials Lamay (1983) found that on measures of reading comprehension, his subjects scored higher with reading materials of high interest level than material with low interest level.

According to Downing & Thackray (1978), girls and boys were different physiologically and this different biological constitution caused differences in their attainments in reading and writing. It
has also been theorised that as girls tended to mature earlier than boys physically, intellectually and emotionally, they tend to be ready to read earlier than boys and to stay ahead in reading during the ensuing years (Downing & Thackray, 1978). Earlier studies by McCarthy (1935), Anderson & Dearborn (1951) and Harris (1961) - all lend support to the above theorising.

A few other studies (e.g. Samuels (1983); Carroll (1948); and Prerscott (1955) have examined the differences in readiness to read between boys and girls entering school, and also the differences between their respective achievement during the first year in school. They have all consistently shown significant differences between boys and girls on reading readiness measures in favour of the girls, though one or two other investigations, (for e.g. Potter (1949), Kansi (1955) found no significant differences between the sexes.

While discussing reading readiness and sex differences, it is important to take note of Thackeray's (1965 & 1971) experiments. In his first experiment he took 182 British children for his study and found that girls were significantly superior to boys on two of the five reading readiness measured, namely, auditory discrimination and in the use of the context and auditory clues. In his 1971 experiment Thackeray took American children and found that the boys and girls did not differ significantly in reading readiness. It appears that the evidence from America and Britain gives contradictory conclusion regarding the differences in reading readiness between boys and girls.
Even though researchers showed differences between boys and girls in reading readiness, Downing & Thackray (1978) concluded that it is not right to say that boys are worse readers than girls. According to them, the inference one could draw from these studies is that boys are more likely to be recognized as poor readers than girls, by their teachers. Possibly, boys who are frustrated by reading failure react more violently than girls. Therefore, the boys' nuisance value would be higher and so they would get picked out and sent off to the special remedial reading treatment class more frequently than the girls, whose problem would be less noticeable.

Agarwal & Krishna (1981) found a significant difference in reading ability tasks amongst boys and girls.

Mayuri & Reddy (1983) did not find any significant difference for either learning abilities or academic achievement between boys and girls for both 9+ and 6+ years age groups children of progressive and less-progressive schools.

In a recent study, Agarwal (1984), studied the role of a number of (i) personal variables (sex, faculty - arts vs. science, caste, economic status, father's/guardian's occupation), (ii) cognitive factors (verbal as well as non-verbal intelligence), (iii) achievement-oriented variables (study habits & scholastic achievement), and (iv) personality factors (anxiety, neuroticism, extraversion, parental attitude, actual self and ideal-self). She took a sample of 400 children selected randomly from class XI of 14 high schools in Patna, among which, 200 were males and 200 were females.
She found male and female students differed significantly in terms of reading ability, study habits, academic achievement neuroticism, extraversion, parental attitude and ideal-self. Males showed greater disposition to better study habits, neuroticism, extraversion, favourable parental attitude and better ideal-self than their female counterparts. Contrarily females scored higher on reading ability and academic achievement than males.

Males and females did not differ statistically in terms of verbal intelligence, non-verbal intelligence, anxiety and actual-self dimensions.

Cognitive Factors and Reading Ability

Agarwal (1983) studied RA in relation to cognitive and non-cognitive factors. 200 males and 200 females of 11th class students were tested on a battery of reading ability test and on Eysenk's Personality Inventory. The results showed males had a greater predisposition to better study habits, neuroticism, extroversion, favourable parental attitude and a better ideal-self than females. However, the latter scored higher on RA and academic achievement as compared to males. It was also noted that there was a significant positive correlation between Reading Ability and Study Habits as well as between RA and IQ.

A more recent study by Agarwal (1984) showed that amongst males those who had secured high scores on study habits, academic achievement, verbal intelligence and non-verbal intelligence also scored significantly higher on RA test as compared to those who scored average scores
on study habits. Those who had scored high scores on neuroticism, negative parental attitude and ideal self also showed significantly lower performance on RA tests as compared to those who had low or average scores. Furthermore, the high scores on anxiety and extraversion dimensions, also scored significantly less points on RA than those who had obtained low scores on anxiety and extraversion.

Though studies have shown separately the influence of type of school, school environment, teaching methods, sex factor and cognitive factors as contributing to reading ability, quite a few studies have demonstrated that the acquisition of reading ability contributes to higher academic achievement among students. While the above may be true, the home background of children, such as the availability of the opportunity to read at home, the parent's attitude towards children's reading etc. have also been found to contribute to acquisition of Reading Ability in children. The following section deals with home background factors and their relationship to reading ability development in children.

Home Background and Reading Ability

According to Schonell (1961) 'home background' includes the following:

1. Economic conditions, such as the income of the family, size of household, sufficiency and regularity of meals and sleep etc.

2. Opportunity for play and social experiences of different kinds
which may contribute to the development of various concepts and vocabulary.

3. Nature and amount of speed and language pattern of children, particularly as they are influenced by the talk of their parents.

4. Attitudes towards reading and writing, the amount of reading done in the home, and the availability of books of varying levels of difficulty.

5. Quality of family life in terms of inter-parental relationships, as they influence the child's feelings of security and personality growth and development.

The above aspects of the home background appear to influence the quality of the experience the child brings to the reading situation. This is important because reading includes the gaining of meaning from the printed symbols (Downing, 1973), and meaning comes from the mind of the reader who gives to these symbols meaningful ideas based on his own past experience.

Socio-economic and cultural factors also appear to have a bearing upon the reading progress of children. A better home background provides stimulating atmosphere and gives the child an opportunity to explore and converse with parents who also on their part encourage his experiments and curiosity. It provides varied social experience which help in the growth of concepts and vocabulary (Downing & Thomson, 1975).

In this context, studies focussing merely on socio-economic class as affecting reading progress have not been able to demonstrate
any progress in reading. For example, Anderson and Kelly (1931), in their comparative study of 100 poor readers and 100 normal readers matched for age, sex and intelligence were unable to find any significant differences between the groups, with regard to the father's occupation, the general economic status of the home, the occurrence of broken homes, or the general emotional atmosphere prevalent in the home. Similar non significant relationships were found in the studies of Bennett (1938), Ladd (1933), and Fleming (1943) who investigated reading performance with socio-economic class.

On the other hand studies (for e.g. Hilliard and Troxell (1937) relating reading ability of children with richness of experience available to him at home have shown that children with rich and varied experience at home were significantly superior in their performance in reading as compared to children from poor experience at home.

Many other studies, such as those of Hildreth (1933), Witty & Kopel (1939), Sheldon & Carrillo (1952), Burt (1937), McClelland (1942), Schonell (1942), Fleming (1943), McClaren (1950), and Morris (1966) etc. lend support to the findings of Hilliard and Troxell, by demonstrating a positive relationship between children's experimental backgrounds at home and reading progress. Relatively more recently Schonell (1965) demonstrated that home background which is rich in both material and psychological aspects can profoundly augment the preparation of the child for reading and his subsequent efforts in reading lessons. According to him, parental attitudes and reading
approaches, sustain interest, preserve confidence and foster the people's power of application and persistence, which all in turn lead to progress in reading.

Discussing the influence of home background Srivastava (1979) demonstrated that children coming from homes where conversation is limited or books are unknown are slower in their linguistic growth and learning to read than those who come from more favoured background. In this context Rigley (1975) had earlier demonstrated as to how children defined as socially disadvantaged by family composition (large families, one parent families), low income (supplementary benefit level) or poor housing (overcrowded or without hot water supply) needed special reading instruction at the age of 10 due to their poor background as compared to those from a better home background. According to him, on an average 'disadvantaged children were three-and-a half years behind the others in their reading scores.

Studies of similar nature conducted earlier had shown a lower average reading achievement and a higher incidence of backwardness among children with lower socio-economic status than with those of higher socio-economic status (Morris, 1969; Kellmer-Pringle, 1966; Goodacre, 1967; Hughes, 1975).

the family were some of the major factors which affect the cognitive and linguistic functions of the subjects. Under Indian school set up 'caste' adds an unique and important dimension to it (Rath and Samant, 1975). Though the above analysis is to a large extent true, in many cases one also finds that a few children coming from poor social background are good readers and a few coming from a better home background are poor readers. This supports the arguments advanced elsewhere in this section that not only the socio-economic status of parents but their sympathetic and helpful attitude is needed to give an impetus to the child's efforts in learning to read. Donorid Moyle (1972) has, in this context remarked that "For the maintenance of good reading progress it would seem necessary to have atleast a reasonable background of material provision, but it is probably more important that a child should have a happy relationship with the parents, who in their turn should provide interest stimulation and sympathy when difficulty arise". This is stressed upon all the more by Srivastava (1979) who pointed out that richness of experience at home specially in language is a pre-requisite for reading and this encouraches upon considerable amount of parental time and energy. That parental support and the nature of home environment are important determinants of child's success in reading is amply brought out by Rao (1965), Chopra (1964), Srivastava (1967), Anand (1973) and Menon (1973) all of whom found a high positive relationship between reading achievement of children and socio-economic status of their family. Clarke (1965), Jain (1965), Dukhin (1966), Chickermane (1967), Sharma (1967), Dave and Dave (1971) included some of the home factors as
variables in their studies and found high correlation between achievement of children and these variables. Subramanyam (1979, 1984) demonstrates a high positive correlation between reading achievement and home background of primary school children.

Benton (1975, 1982) has noted that environmental factors played an important role in reading achievement of children.

Peter (1985) studied verbal subtest scores of children coming from four socio-economic levels. The children were divided into four levels of reading skills. Results showed that children from the upper socio-economic level scored significantly higher points on reading ability and also had significantly higher scores on all the wise verbal subtests, as compared to children from lower socio-economic level and the unsuccessful readers.

Gohil (1974) and Shah (1981) found children of higher income, higher education and higher occupation being superior in reading comprehension as compared to those belonging to lower categories.

**Personal Attributes and Reading Ability:**

The constitutional factors which have been identified or considered significant in the process of reading include: intelligence, health which includes vision and hearing, fine motor coordination, language development and higher cortical functions such as perception, memory, attention, symbolic thinking etc. These factors are discussed in the following sections in details.
Intelligence & Reading Ability

Intelligence plays an active role in the development of reading ability among students. The findings in general reveal that verbal group intelligence tests usually correlate fairly well with reading comprehension while non-language group intelligence tests yield poor correlation. Surprisingly enough, Strang (1964) appears to denounce the contribution of intelligence in the prediction of reading potential of subjects.

On the contrary, research investigations employing Stanford-Binet and Wechsler Intelligence Scale as a measure of intelligence (Monroe, 1932; Bond and Fay, 1950; Durrel, 1956) reported the significance of intelligence test scores in predicting reading ability of the subjects.

Krishna and Agarwal (1983) studied 200 males and 200 females of XI standard. They administrated a battery of reading ability tests, verbal and non-verbal tests of intelligence in order to examine the role of intelligence in reading ability. The findings revealed that the main effects of sex, verbal and non-verbal measures of intelligence as well as their interaction effects were significant beyond chance. The results also showed significant and positive correlations between reading ability and verbal as well as non-verbal measures of intelligence. These findings gain support from Bliesmer's (1954) study who nearly 3 decades ago compared bright and dull children of comparable mental ages found that the former were significantly superior to latter
with respect to total reading comprehension and in specific abilities like, locating or recognizing factual details, recognising main idea or drawing inferences and conclusions.

On the basis of an investigation, Safer and Allen (1973) opined that the best predictor of reading improvement was the IQ, with verbal IQ, being the most significant. Ramanauskas and Berrow (1973) examining WISC profiles of 62 intellectually above average and 35 mentally retarded children in terms of their performances on a reading achievement test concluded that reading disability should not be considered a phenomenon confined to those of average or above average IQ, since there are good and poor readers at all intellectual levels.

The relation between intelligence and reading achievement of children was studied by almost all the investigators in the field of reading. Hilliard (1924), Traxler (1939), Hary Bell (1942), Strang (1943), Carlson (1949) Wheeler & Wheeler (1949), Gray (1960), Shroud (1960) & Potts (1960) Srivastava (1969) and Bruininks & Lucker (1970) established high positive correlation between these two variables in their respective investigations.

Age and Reading Ability:

The age of the children tested has been found in certain investigations to affect the measure of agreement. Lennon (1950) particularly emphasised the great difference in the correlation between reading ability and intelligence which occurred at various grade levels. He found continuously increasing correlations from .34 for the second grade to .85 for the eighth grade. This finding was confirmed by
Manolakes & Sheldon (1955), and Bond & Tinker (1957).

Most investigators studying the relationship between intelligence and reading at various age levels have proposed what may seem the obvious casual relationship i.e., that the level of intelligence determines the level of reading ability.

Bleisnaer's (1954) study compared bright and dull children of comparable mental ages and showed that the former was significantly superior to latter with respect to total reading comprehension; specific abilities like locating or recognizing factual details, recognizing main ideas, drawing inferences and conclusions were superior in bright than dull children. On the basis of an investigation, Safer & Allen (1973) opined that the best predictor of reading improvement is the IQ, with verbal IQ, being the most significant. Patel (1976) reported a significant positive correlation between Intelligence and Reading Ability.

Ramananauskas and Burrow (1973) examined WISC profiles of 62 intellectually above average and 36 mentally retarded children in terms of their performance on a reading achievement test. They concluded that reading disability should not be considered as a phenomenon confined to those of average or below average IQ, as there are good and poor readers at all intellectual levels. This contention was supported in some of the studies (Black, 1971; Mackworth & Mackworth, 1974) wherein reading ability was shown to be independent of intelligence. Similar views were expressed by Vernon (1957) and Barte (1955) decades ago to which seem to hold good in some cases even today.
Vision and Reading Ability

It is well known that good vision is a pre-requisite for reading. Studies relating vision and reading have mainly focussed on defective vision and the resultant for reading. For instance, Witty and Kopel (1936a,b,c), Swanson and Tiffen (1936), Datton (1943), Monroe (1932), and Edson, Bond and Cook (1953) found little or no relationship between visual defects and reading ability. On the other hand investigators, such as Eames (1938), Park and Burri (1943), and Robinson (1946), found evidence of a relationship between certain types of visual defects and reading failures; they placed more emphasis on such visual defects as poor near-point ability, and poor eye muscle balance with accompanying deficiency in fusion and depth perception.

Apart from the identifiable defects, it is equally important that eye readiness should be attained for reading ability. In children thus it is important that they should reach eye readiness before made to learn to read. There appears to be some varying opinion regarding the typical age at which a child's eyes reach the stage of readiness. Jacques, an optometrist, (Witty & Kopel, 1936a&b) appears to have declared that the eyes are not mature enough before the age of eight. However Shaw (1964) an ophthalmologist, believes that the eyes are sufficiently well developed to handle the task of reading already by the age of 12 months.

Shea (1968) found that the ability to discriminate visually between words was a significant indicator of reading readiness when the right method of instruction was used.
Typical of the earlier experiments designed to investigate the relationship between visual perception and reading success were those of Fendrick (1935), and Gates, Bond and Russell (1939). The correlation coefficients in these investigations were between .50 and .60 when verbal material was used, but where non-verbal visual perception tests were used, lower correlation coefficients were found.

Sister Mary Nila (1940) and Durrell, Murphy & Junkins (1941) have shown quite clearly visual and auditory discrimination are more important than mental age in reading readiness and reading success.

The fear that too early a start in reading may injure the eyes has been expressed by other writers. Leverett (1957) conducted research on the incidence of myopia in children at age levels between 5 and 17 years of age and found that older the age group the greater was the incidence of myopia. Kosinski (1957) believed that myopia is a symptom of a general weakness of connective tissues which may be caused by the eye movements made in reading.

According to Harris (1961) some abilities, such as remembering and attending, are hard to distinguish from general intelligence in young children but other abilities, such as the perceptual abilities of visual and auditory discrimination do seem to be relatively specific.

Barrett (1965) found that being able to discriminate, recognize, and name letters and numbers was the best single predictor, but pattern copying and word matching were strongly related to first grade reading achievement.
Whipple & Kodman (1969) found that retarded readers on three tasks of perceptual learning, each involving the discrimination of visual symbols presented in sequence, were significantly poorer than normal readers in number of errors on first trial as well as in the number of total errors made in discriminating visual symbols presented in sequence.

Whisler (1974) found in his study of 295 first graders, that practice in visual memory increased their word discrimination skills and Word Reading scores significantly.

Prasad (1982) studied learning difficulties to constitutional factors, namely, visual perceptual development, expressive language development, visual and verbal sequential memory, auditory discrimination, fine meter development and fine visual discrimination. The children from two schools were compared for their development in different functions, as the two schools served children from different socio-economic educational background and urban and rural conditions. The results showed that poorer the expressive language development and poor visual perceptual development (perceptual organisation) greater the learning difficulties. Furthermore, poorer language development appeared to be an important factor leading to learning difficulties. On the other hand, for the children coming from upper/class and cities, learning failure was found to be associated with poor language development. On the other hand, for the children from low and middle socio-economic groups and villages, in addition to poor language development, poor visual perceptual development was also found to be causing learning difficulties.
While vision plays an important role in the acquisition of reading ability, audition or the hearing capacity is equally important in enhancing reading ability.

Hearing (Auditory factor) and Reading Ability:

In this context, Nila (1953) concluded that the four chief factors related to reading readiness were auditory discrimination, visual discrimination, range of information and mental age, in that order. Linder & Fillmer (1970) found that minority second-grade poor readers do have a preference for one modality over another. Their data also indicated that auditory factors may be a better predictor of reading achievement than visual perception.

Same studies suggest that increasing consideration should be given to auditory and visual factors in reading. Nicholson (1958), for e.g. concluded that a knowledge of the names of letters is the best guarantee that a child will learn to read. Olson's work (1958) suggested that while a knowledge of letter names does not always assure high reading achievement, the lack of that knowledge assures low reading achievement. DeHirsch, Jansky & Langford (1966) found a lack of letter-naming ability was predictive of reading failure. And Robeck (1972) noted that the value to the learner of knowing letter names appears to be a way of labelling and separating the symbols so that they can be discriminated more easily. Barrett's studies (1965) confirmed these findings.
Samuel (1971), however, found that letter-name knowledge did not facilitate word recognition. He concluded that previous correlations between letter-name knowledge and reading were the product of perhaps intelligence or socio-economic status. For e.g. the kind of home background which enables a first grader to know many of the letters of the alphabet is also the kind of home in which academic achievement is stressed. And the ability to learn to name letters is probably an index of intelligence. Letter-sound training seemed to have a facilitative effect in decoding familiar words. The above findings were supported by Inselberg (1972) and Johnson (1969).

Strag & Richmond (1973) reported a positive correlation between auditory discrimination and reading achievement as well as between socio-economic status and achievement. Slobodzian (1970) found auditory-vocal association to be related significantly to reading achievement. DeHirsch and Jansky (1970) reported that the ability to hear sounds was highly related to reading achievement; further, writing a name and ability to name letters were also predictive of reading success. However, the study by Hammill & Larson (1974) suggested that auditory skills were not sufficiently related to reading to be particularly useful for school practice. They did not find that auditory-perceptual deficits explained reading.

Phonic & Reading Ability

Another critical step in learning to read involves learning the sounds of letters in words. As a prerequisite to grapheme-phoneme
association, children must be able to make auditory discriminations between sounds and analyze words into their constituent phonemes. Until children are aware of the individual letter sounds, they cannot know what is to be associated with the printed letters. Auditory discrimination between similar sounding words is also important in the initial stages of the association process. DeHirsch et al (1966) showed that children who had discrimination difficulties subsequently failed in learning to read. Children's auditory analysis of words into their constituent phonemes is very important and has been studied by several researchers. Indeed, Elkonin (1973) devised a special method of teaching this analysis to Russian children, although his test of its effectiveness was not satisfactory. Roberts (1975) found word-sound analysis to be particularly difficult for five and six-year-old children. Liberman et al (1974) found that many children of this age were unable to segment short words into phonemes or even tap out the number of phonemes; however, half of these children were able to segment longer words into syllables. In a similar study Savin (1972) found that children who failed to learn to read in the first grade were particularly poor at analyzing word sounds into phonemes.

There are, however, more specific levels of problems in grapheme-phoneme association, such as the learning of invariant association. Most children find it relatively easy to learn the regular and invariant grapheme-phoneme associations in words (Venezky, 1978).

Poor readers are often able to read only a few simple, note
words and seem incapable of grasping the individual grapheme-phoneme association. Still greater difficulties arise for these poor readers when they are forced to learn irregular and variable associations, where the particular phonemes related for association depend on the word context. Shankweiler and Liberman (1972), for example, found that the most frequent errors made by third-grade poor readers were in reading the vowels within words, because all vowels possess both variable graphemes and phonemes.

Speech and Reading Ability

Several studies have shown an association between delayed acquisition of speech and reading problems. Ingram (1960) found evidence of articulatory apraxia, dysnomia and receptive aphasia in children having reading problem. Rutter (1970) found a significant correlation between reading retardation with poor complexity of language and inadequacy of description.

Downing & Thackray (1978) found children had speech difficulty, also had learning problems, and they were of the view that speech impediment affect reading in several ways, the most common of them being stuttering, lisping, slurring and generally indistinct speech. Again children who cannot speak clearly usually find phonetic analysis also difficult. Research into the relationship between speech defects and reading achievement have been rather limited and the ones that had been done are nearly 4 decades that of Bond (1935), Bennett (1938), Gaines (1941), Monroe (1932), Gates (1949) and Robinson & Hall (1942).
Backman (1983) examined in phonetic area, the role of speech-sound segmentation, blending and discrimination in reading acquisition, in children who learned to read prior to formal instruction in school. These children were compared with (1) non-readers, and (2) elder children reading at the same level. Results showed no significant difference in reading performance between the groups in terms of phonetic aspects.

On the other hand phonetic characteristics such as rhyming etc. appear to affect poor readers more than good readers. In a study Brady et al (1983) found that the poor readers perform less well on recall of random word strings and were less affected by the phonetic characteristics (rhyming or not rhyming) of the items. Furthermore, poor readers produced more errors of transposition (in the non-rhyming strings) than did the good readers. The poor readers made significantly more errors than the good readers when listening to speech in noise but did not differ in perception of nonspeech environmental sounds, whether noise-masked or not.

Thus phonic ability seems to be affecting the acquisition of reading in children. This leads to the question whether children would learn to read better if the spoken language at home and the reading material are the same. This aspect is being discussed in the following section.

Spoken Language and Reading Ability

Most educators would expect on commonsense grounds that it
is harder to comprehend instruction on any subject when it is delivered in a second language that one does not know at all or does not know well than it is when the instruction is received in the mother tongue.

Garcia de Larenzo (1975) studied a minority group that lives in Northern Uruguay on the border of Brazil. Their language is a dialect of Fronterizo which has a Spanish Phenological system but the language is strongly influenced by Portugese. Thus for children in this area Fronterizo is language 1 and Spanish, the official language of school instruction, is language 2. It had been noted that the children in this area were repeating grades more frequently than in other parts of the country because of reading problems.

In India, Dave and Anand (1971) had found no difference in the verbal intelligence, non-verbal intelligence and academic achievement of pupils studying through the medium of mother tongue or the second language for 7, 8, 9 or 11 years.

Valdez (1985)'s study attempted to provide an initial insight into the interaction between socio-cultural and individual variables and RA and academic achievement for elementary school students in predominantly Spanish-speaking community. The results of this study indicate that minimal oral English proficiency does not provide an adequate basis for the acquisition of literacy in either English or Spanish and that individual and family background factors do have an effect on RA for bilingual students. It was found that high and low readers exhibit different reading growth patterns, with low readers
experiencing extreme reading deficit by the sixth grade. Implication for the implication of bilingual programme include the need to ensure that students are acquiring literacy in their dominant language before being placed into English only programmes.

Butler et al (1982) found a positive correlation between parents' home language and reading achievement i.e. of .49, .56 & .61 for grade 1, 2 & 3.

Reading Interest and Reading Ability:

Even though spoken language and reading language being the same to an extent contribute to the acquisition of reading ability, yet the results have not shown any uniform effect in all situations. Quite frequently, even when the spoken and reading language are different, children learn to read quickly if they have an interest in reading. For instance, Badami and Badami (1970) studied reading interest of college students and found it to be positively correlated with academic performance. Asher and Markell (1974) found significant relationship between the academic achievement of students and their reading interest.

Bhal (1981) studied reading interest of children of secondary and higher secondary schools of Bhavnagar city. He took 100 boys and 100 girls of VIII and XII standard. He found, (1) a positive correlation between the scholastic achievement and reading interest scores (2) a correlation between reading interest scores and vocabulary
test scores .66, (3) reading interest scores were found sequentially increasing in the case of children whose parents were associated with labour, crafts, private service, government service, and business (4) children with literate parents, scored higher than children with illiterate parents.

Study Habit and Reading Ability

While interest in reading is an important factor influencing reading ability in children, the type of disciplined study or organised habit of studying may also contributes to the acquisition of Reading Ability. It was Wrenn (1933) who prepared the first study habits inventory.

In this context, two decades ago, Srivastava (1966) compared under and over achievers on their study habits. He found that the former were significantly inferior in their study habits as compared to the over achievers. These findings supported those of St. Mary Esther (1945) and Diener (1960) who also had observed over achieving males having better study habits. Jain (1967) also proved that the scores obtained on study habits inventory correlated significantly and positively with academic attainment. Jamuer (1974) found that study habit was related to scholastic achievement and also pointed out that apart from intelligence, study habit should be considered as an additional factory underlying scholastic achievement in children. This was supported by Land (1976) and Abraham (1973).
Pande and Patil (1984) investigated the relationship between study habit and scholastic achievement amongst 250 secondary school students with equal number of boys and girls. The results demonstrated that those who had superior study habit were also academically superior.

Time Spent in Reading and Reading Ability

Cross (1983) examined the influence of time spent on television viewing, leisure reading and home work, on a measure of reading achievement of high school seniors. In the conduct of the study differences in subject's sex, family background and cognitive ability were controlled. Researcher concludes that time spent viewing television appeared to have a meaningful negative influence on reading achievement, even after controlling for sex, family background and cognitive ability ($p = -.040$). The results indicated that less intelligent subjects spent more time viewing television than did the brighter subjects. In addition, subjects from deprived backgrounds viewed more television than those from less deprived backgrounds. Furthermore, those who spent more time on leisure reading also scored higher on reading achievement.

It was also noted that the time spent by students on leisure reading had also meaningful influence on reading achievement, even after controlling for sex, family background and cognitive ability.

Apart from leisure time reading, another aspect which contributed to achievement in academics was the amount of time spent on
homework. The study showed a meaningful influence on reading achievement even after controlling for sex, family background and cognitive ability. The result suggested that brighter students and female students spent more time on homework than did other subjects. While the influence of family background on reading achievement was meaningful, the indirect causal effect was even more substantial.

**Language Disability and Reading Ability**

All these aspects, viz, interest in reading and study habits, time spent or leisure reading homework etc. which have significant influence on the reading ability, will be of no value, if children suffer from any language disability. For instance in their study, Liberman, Shankweiler, Orlanda, Harris and Bati (1971) noted that the most frequent difficulty in the underachieving students was their impaired linguistic awareness.

Vellutina (1979) argue strongly that the robust correlation with reading under achievement is language underachievement. Mukherjee (1985) studied the relationship of expressive language development to achievement in learning. He found (1) poor language development is highly correlated to low socio-economic background. The children whose mothers were literate and fathers had college education obtained above-average ratings. In the lower middle class and middle class families, parental education had good relationship with the socio-economic status of the family. Cognitive development was found to be independent was found to be independent to the s.e.s. of the families of the child and their parental educational background.
(2) Good learners showed better performance in the expressive language test and poor learners showed the reverse. Language development in the early years plays an important role in learning to read.

**Types of Reading and Reading Ability**

There are two basic types of reading, viz. oral or loud reading and the other, silent reading. Researches in the efficacy of the types of reading have shown contradictory results. For instance the interest in this area of research started somewhere in 1900 and since then many studies have concerned themselves with the different processes involved in loud and silent reading. Huey (1908) measured the oral and silent reading rates of English by university students and found that their average rate 'when reading silently' was 5.63 words per second at their ordinary speed and 8.21 at their maximal; and when reading aloud, was 3.55 words per second at their ordinary speed and 4.58 at their maximal. According to Huey, efficient readers proceed from one and a half to two times as fast silent as they did orally. When a large number of individuals were examined, it was found that many adults read three, four, or even seven times as fast silently as orally. These results very clearly suggest that silent reading was more time saving than oral reading, as in oral reading one can pronounce the words, in silent reading one can merely read words as rapidly as one can grasp their meaning.

In a very early study by Piutner and Gillilard (1916) tests of both silent and oral readings were given to pupils in grades II
to XII inclusive and to college students. Each of the paragraphs included in both types of test contained 'about fifty words and seven distinct ideas'. Results showed little variation in the number of ideas reproduced after reading orally and silently.

Earlier studies of O'Brien (1921) and Cole (1938) had indicated that the average number of fixations in oral reading was greater than in silent reading. In other words, the regressive movements in oral reading were more frequent than in silent reading, and thus the former was slower than the latter.

Swanson's study (1946) compared oral and silent reading for poor, average and good readers. The average length of fixation for the readers of all types when reading orally was longer than when reading silently. The span was wider for silent than for oral reading, the regression were more numerous when the pupils read aloud, and the rate was more rapid when they read to themselves. The difference in efficiency between the two types of reading increased with the degree of skillfulness. The reasons advanced for the different efficacy was that the oral reader was slow because he had to retard his eyes in order to keep them from getting ahead of his voice. Normally the eyes can read words faster than the vocal apparatus can pronounce them. If the oral reader's eyes stayed exactly with his voice, he would have as many fixations as there were syllables on a line, because the unit of pronunciation is a syllable. Since the eyes almost inevitably move too fast, the reader must occasionally bring them back
to the word he is pronouncing — thus causing a regression. Hence the oral reader was slower than a silent reader.

Ahuja (1977) found a significant difference in reading speed scores amongst silent and oral reading students. Silent reader showed better speed than oral reader, though in the case of comprehension there did not appear any significant difference between the oral and silent readers.

**Personality Traits and Reading Ability**

Leray (1985) studied the relationship between reading and personality and intelligence scores of a group of open door community college students. Results were as follows: (1) Statistically significant relationship existed between reading and personality factor for the total group. (2) Statistically significant relationship between male total reading achievement and personality characteristics indicated that better-reading males were more intelligent, more imaginative, more liberal and experimental in their thinking, decisive and resourceful. (3) Statistically significant relationship between female total reading achievement and personality characteristics indicated that better reading females were more intelligent assertive and headstrong, quick and alert, secure and self-confident, liberal and experimental in their thinking, decisive and resourceful, restless and excitement seeking, had complacent attitudes proud anti-social behaviour, were not hurt by criticism and lacked self-insight.
Schiffman (1967) believes that many retarded readers, especially on the secondary level, have such as negative level of aspiration and such a low self-estimation that they cannot succeed. This lack of achievement motivation is often encouraged by parents and teachers. In a study of 84 functional junior high slow learners, Schiffman found that 78% had average intelligence scores on either the verbal or Performance scales of the WISC and 39% had average scores on both, but teachers felt that only 7% of the pupils themselves and their parents felt that only 14% had average ability.

Dechant & Smith (1977) found that the incidence of maladjustment among poor readers was greater than among good readers. He further said that the child who cannot read is deprived of a means for widening his interests, for satisfying his needs, for new experiences, for filling his leisure time, and for promoting their emotional and social adjustment, because they lack in security, success and social acceptance. Thus reading failure blocks the child from adequate communication with an important portion of his world.

William and Cole (1968) found significant, positive relationship between the self-concept of sixth-grade students and their reading and mathematical achievement.

Brookaver and others (1964) studied the significance of the self-concept on achievement. They defined self-concept in a baring situation as one's own conception of one's ability to learn. They found seventh grade pupils, a significant relationship between self-
concept and performance in the academic role, even when IQ was held constant.

Stott (1958) carried out surveys covering approximately 1,000 children. The children's adjustment was assessed on his Bristol Social Adjustment Guides and he counted that maladjustment was greater with the more backward child. Morris (1966) found that poor readers exhibited more signs of maladjustment when assessed by Scott's Bristol Social Adjustment Guides than did good readers.

Hughes (1975) suggested that failure to read may produce non-attendance almost as much as non-attendance produces reading failure. The investigation frequently noticed that several poor attendance improved in attendance, sometimes remarkably, when they had overcome certain aspects of difficulty in reading. It was found that, in many cases, improvement in attendance ran parallel with improvement in reading. Similar results found by Kahn (1958), Chazan (1962), Cooper (1966) and Herson (1960).

Nearly all investigators of these factors agree that emotional disturbance and personality difficulties do appear frequently where there is difficulty in learning to read. As early as 1936, Gates drew up a list of different symptoms of emotional and personality maladjustment in 100 cases of children having difficulty in reading. The most useful symptoms were the following:

1. Extreme self-consciousness; easily flushed, blushes readily, has curious and egocentric manners, inferior feelings.
(2) Inclination to submissiveness, indifferent, inattentive, seemingly lazy.

(3) Withdrawn, day-dreaming, evasive reactions, joins gangs, plays truant, withdraws from society.

(4) Nervous tension and habitual nervous actions such as nailbiting, restlessness, stammering, sleeplessness.

There is a well known 'chicken and egg' question in the study of reading disability, i.e. whether emotional and personality disorder cause the reading disability or did the experience of failure and frustration in being unable to read cause the personality problems and emotional disturbances?

The investigations of Bird (1927), Blanchard (1928), Robinson (1946), Young and Gaier (1951), among others, provide evidence which indicates that difficulties in learning to read can be the result of emotional and personal difficulties.

On the other hand, Monroe (1932), maintained that personality difficulties and emotional problems were more frequently the results, rather than the causes, of reading disabilities, and Schonell (1961) arrived at the same conclusion. He wrote that, "It is, however, from the mental effects of failure that most emotional difficulties arise. The sense of failure before companions, teachers and parents, weighs heavily upon pupils and in time, not only undermines self-confidence and self-esteem but breeds on apathy and dissatisfaction that causes the child to run away from reading to seek success elsewhere."
It becomes apparent that while the majority of the investigators who have studied the relationship between emotional and personality difficulties and reading disability agreed that the two were frequently correlated, they disagreed as to which was the cause and which was the effect. Gates (1941) reviewed the evidence available on this issue and came to the conclusion that approximately 75 per cent of the more severe cases of reading disability which were referred to clinics showed some degree of maladjustment, and in one quarter of such cases the maladjustment had caused the reading failure, while in three-quarters of cases the maladjustment was the accompaniment of the result of failure in learning to read.

The studies of Brumbaugh (1940), Stroud (1956) and Burton (1956) emphasized the importance of motivation in reading success, i.e. the child's interest in school activities related to reading and his desire to learn these skills.

Brookover and others (1964), taking 7th grade pupils, studied the significance of the self concept on achievement. They defined self-concept in a learning situation as one's own conception of one's ability to learn. Their results showed that there was a significant relationship between self-concept and academic performance, even when IQ was held constant. In yet another study by Williams and Cole (1978) a significant positive relationship was found between the self-concept of sixth grade students and their reading and mathematical achievement.
Thus personality traits appear to affect adversely the acquisition of Reading Ability in Children.

Reading Ability and Academic Performance

Importance of reading for successful academic performance has been stressed by many. For instance, Smith (1971) pointed out that reading is so interrelated with the total educational process that academic success requires successful reading. According to them, those who fail in school have usually failed first in reading.

The need for an efficient and accurate means of predicting academic failure in reading at an early age has been emphasised by many researchers. (Book, 1975; Butler, 1979; Butler, Marsh, Sheppard and Sheppard, 1982; Coles, 1978; De Hirsch, Jansky & Langford, 1966; Feshback, Adelman & Fulla, 1977; Pope, Lehrer & Stevens, 1980; Satz & Friel, 1974; Shepperd and Sheppard, 1983).

Several longitudinal studies of at least 4 years' duration have examined relations between predictive variables collected in kindergarten and subsequent reading achievement in primary school years for large samples (e.g. Feshbech et al., 1977; Pope et al., 1980; Satz, Friel and Fletcher, 1978).

Feshbach et al (1977) examined the relations among IQ scores from de Hirsch Jansky Predictive Index, and teacher rating of achievement in Grades 1, 2 and 3. In two large samples, correlations between the three predictors and reading achievement in each grade were generally
between .40 and .50, and the multiple R's based on all the predictors were around .60 in Grade 2 and 3. Correlations between the predictor variables and reading achievement in Grade 1 were generally somewhat lower, which is consistent with the fan-spread effect. Using scores from the Students Rating Scales, the researchers correctly identified as being well below grade level in reading in Grade 3, and 387 of the 407 other children (i.e. those not well below grade level in reading) for an overall hit rate of 90%. The cross-validation of the results across two large samples demonstrated the generalizability of the findings.

Pope et al (1980) reported a correlation of .50 between the reading subtest of the wide range achievement test administered in kindergarten and reading achievement in Grade 5. Based on scores from 545 kindergarten students, 46 children were identified as having a high risk for subsequent reading difficulties and another 105 as having a low risk. Although 125 (83%) of these students were correctly classified according to reading achievement in Grade 5, this percentage does not constitute an overall hit rate because it does not include scores for the middle group of students (i.e. those falling between the high-risk and low-risk categories).

Satz and his associates (Satz, Friel and Rudegeair, 1976; Staz and Morris, 1980; Satz, Taylor, Friel and Fletcher, 1978) have all examined the relations between an extensive battery of tests administered in kindergarten and reading achievement in Grade 1-5. They do
not provide correlations between predictor and criterion variables, relying instead on hit and miss rates. For example, kindergarten students were classified as being high risk or low risk for subsequent reading difficulty, and 72% of the classifications (318 of 420) were correct on the basis of Grades 5 reaching achievement (Satz et al., 1978). Satz found that the kindergarten measures increased over the time span considered in their research, a finding that is consistent with the fan-spread effect.

Butler et al (1982) examined how well the Sheppard School Entry Screening Test (SSEST, Sheppard 1975) predicts reading performance in Grades 1, 2 and 3 as part of a larger study. Multiple correlations based on the SSEST, the child's sex, and parents' home language were .49, .56 and .61 for reading achievement in Grades 1, 2 and 3.

Butler and Harsh, Sheppard and Sheppard (1985) studied a longitudinal study to determine how well a broad, comprehensive battery of tests administered in kindergarten predicted reading achievement in Grades 1-6. The test variables were reduced to six predictive factors, by factor analysis together with reading achievement of .58 (Grade 1), .65 (Grade 2), .70 (Grade 3), .66 (Grade 6) and .71 (across all reading achievement tests). Path analysis showed that characteristics measured in kindergarten directly influenced reading in early primary grades and that early reading achievement was the primary determinant of latter reading performances.
Agarwal and Krishna (1981) studied two hundred randomly selected male adolescents of XI grade studying in eight high schools of Patna. A battery of reading ability test consisting of three sub-tests viz., vocabulary, spelling and academic inventory was administered. Examination marks in two consequentive final examinations were noted from the school record. The result showed that high academic achievers scored significantly greater on reading ability tests, as compared to the middle and the low groups. Reading ability tends to bear significant and positive association to academic achievement.

Moses and Mayuri (1984) found a significant relationship between learning abilities and academic achievement of children in both progressive and less progressive schools. The correlation values were .281 and .317 for progressive and less progressive schools respectively, which was significant at .05 level.

Agarwal (1984) investigated the relationship between some cognitive, non-cognitive factors, academic achievement and reading ability amongst boys and girls. He found a significant and positive correlation in males as well as in females between reading ability on the one hand and the students' study habits, verbal intelligence and non-verbal intelligence, on the other. But reading ability scores bore significant and positive association with academic achievement only in the case of boys students.

Thus it appears that for successful academic performance, Reading Ability has to be of a higher order. Failure in school can
be traced to Reading Ability. In other words, improvement in Reading Ability may contribute to better improvement in academic performance.

In this context it is worthwhile to explore typical researches conducted on Reading Ability. Following section presents a few of the important studies of Reading Ability.

**Experiments on Reading Ability**

Jane (1983) investigated the relation between skill at reading comprehension and the ability to instantiate (i.e. the use of context and word knowledge to restrict the meaning and reference of words). The study was conducted on 24 children of 7-8 years of age. Results showed that though both skilled and less skilled comprehenders recalled the original sentences, equally well, the performance of the skilled group as compared to the low skilled group was superior when they were given the particular word cues, indicating that the skilled comprehenders were instantiating more readily. An independent test showed that the superior performance was not attributed to their better general knowledge.

Hoffman (1984) investigated the nature and effects of teacher-pupil interaction patterns in reading mis-cues occurring during guided oral reading lessons. The sample consisted of 22 female 2nd grade teachers and all the students of 2nd class. The students were assigned to either highest (N=152), or lowest (n=157) reading group. Audio-tapes of reading-group lessons were collected bi-weekly over a 10 week...
period. Verbal interactions were coded using the taxonomy proposed by J.V. Hoffman and C.A. Baker (1981). In addition to the interaction patterns, data were also collected on the reading achievement levels, reading rate, and reading accuracy of the subjects. Findings suggest important relationships between miscue related behaviours and teacher verbal feedback patterns. It was demonstrated that by giving proper instructions in reading, the less skilled reader can be helped to become better readers and thereby improve their performance.

Subramanyam (1982) studied the effectiveness of different methods of teaching reading in primary schools. The two methods studied were (1) practice with flash cards and other visual aids and (2) practice with collateral reading in improving reading achievement of IIIrd class students. Eightyone pupils (both boys and girls) within the age group of 7-8 years, studying in the IIIrd standard, in one of the elementary school located in Tirupati town constituted the sample for this study.

In this investigation the "Equivalent Group Experimentation Method" was employed. All the subjects were divided into three parallel groups on the basis of the marks obtained by students in an achievement test. The experimental group was given flash cards, the second group was given collateral reading and the third group was kept under control. The reading achievement of the three groups was measured before and after the experimentation by a silent reading test prepared and standardized by the investigator in Telugu (Mother Tongue of the pupils). The mean scores of the groups were compared and tested for significance.
Results showed the following:

The reading achievement of the group which was exposed to practice with flash cards is better than the group which was subjected to collateral reading and much more superior to the group which was not given any treatment. The treatment between two experimental groups were also found to be significant with experimental group I showing better effect than experimental group II. The research concluded that flash card method led to better reading performance than the other two methods.

Carbo (1984) contended that research on learning style and reading showed significant differences across grade and achievement levels. Many poor readers exhibited a profile identifying them as poor oriented, highly tactic/kinesthetic law visual/auditory, right-brain dominated individuals who had a tendency to need a great deal of movement and intake while reading. It was suggested that students enthusiasm for reading required matching of reading methods, materials, and teaching strategies to individual learning styles.

Possien (1982) investigated the effect of specific skill instruction on fifth-grade students' reading comprehension. He tried to study whether significant differences existed in reading comprehension achievement between four randomly selected groups of fifth-grade students when three treatment groups received specific skill instruction and a control group received no specific skill instruction, respectively, in: (a) identifying main ideas, (b) identifying cause and effect rela-
tionships, and (c) comparing and contrasting details. The population of the study was 225 fifth grade students from large middle-class elementary schools.

During a two week treatment period, each experimental group received instruction in a specific reading comprehension skill. The control group received no specific skill instruction. A reading comprehension subtest of the California Achievement Test, Level 3, Form A, 1970 Edition, was administrated as a pretest to each group on the first day. On the last day, a post-test, the same sub-test, was administered to each group.

Eight instructional plans were developed for each specific reading comprehension skill. In each instructional plan, teachers were directed to read instructions orally. Instructions consisted of explanation or directions about a specific reading comprehension skill. Following explanations and/or directions, students were instructed to read and complete practice exercises selected from commercial materials.

Findings of the study suggest the following conclusions: For selected fifth-grade students, instruction in identifying main ideas seemed to result in better reading comprehension than either instruction in cause and effect relationships or instructions in comparing and contrasting details. Instruction in identifying main ideas, however, did not seem to result in better reading comprehension than no specific skill instruction.
Snee (1982) studied a group of 188 first graders, to determine if present involvement in home-based summer reading programmes would have a positive effect on their reading achievement and attitude toward reading by the time they began the second grade. Only 48 children whose parents consented to participate were taken in this study and the students were assigned to one of two treatment groups in a random manner, stratified in terms of age and sex. Twenty-two non-participating children were randomly assigned to the control group.

The parents of the students in the oral reading group read to their children approximately twenty minutes each day, while those of the students in the language activities group helped their children with specified activities. Control group children received no treatment.

Results showed that comprehension was significantly increased when parents read to their children. The oral reading group gained an average five months in comprehension compared to an average two months gain by the language group and an average of less than one month gain by the control group. These were vocabulary gains in all groups, and the treatment groups gained on an average three months to the control's one month gain, although this distinction was not statistically significant.

Parents' interest and involvement seemed to make a distinct contribution to children's reading achievement.

Buss (1982) investigated in two experiments, the development
of children's ability to apprehend and distribute attention to important elements in prose. Two hundred forty 3rd, 5th and 7th graders, and college students participated in the two experiments. Subjects were randomly assigned to one of two perspective - burglar or control. In Experiment 1, they read a test passage consisting of 58 idea units which were of two types (i.e. burglar-relevant and burglar-irrelevant). An Apple Computer presented each of the idea units for the test passage one at a time and measured the reading time for each unit. In Experiment 2, the computer also presented a set of inserted probes to measure "intensity of attention" during reading. After subjects read the test passage, they were tested on recall, probed recall and idea unit importance rating measures.

Results showed that

(1) Grade effects were observed for recall and probed recall.

(2) Perspective effects were observed for recall and importance rating measures.

(3) Significant interactions of idea unit type with the grade and perspective variables were observed.

(4) Differential performance on burglar-relevant idea units for recall, probed recall, and importance rating measures indicated that older subjects as well as experimental subjects made better use of the perspective instructions to facilitate their performance.
The above results were interpreted in terms of increases in older subjects metacognitive abilities. Specifically, older and experimental subjects were found to be better able to use perspective instructions to construct a scheme which served as an organizing factor for the text.

Bracker (1982) tested whether children who read personalized stories evidenced greater reading comprehension and immediate recall than children who read non-personalized stories. Forty students of 4th grade were divided into 20 poor and 20 average readers, were assigned randomly to read 5 standard or 5 personalized based stories and answer 30 comprehension questions. Results indicated that poor readers comprehended more information when they read personalized, as opposed to standard stories. No difference was found among students of average reading ability on this variable.

The results suggested that by providing personalized readers one could stimulate the necessary high-interest, skill building instructional approach to foster a positive attitude toward reading and improving reading skills in poor readers.

Samuels (1983) suggested that because there has been a tendency to ignore the interactive nature of experimental variables, some of the information about reading is based on over generalizations. He presented a cognitive framework in which factors that influence learning to read and reading comprehension may be thought of as "inside the head" and "outside the head" factors. The former consists of intelli-
gence, language of instruction and the conventions of print, decoding ability, background knowledge and scheme, text structure, and phonic terms, metacognitive strategies, language facility, graphic literacy, and motivation; the latter consists of quality of instruction, text topic, conventions of print, clarity of writing style, text readability, formal design and structural text elements, and time. The author concludes that possible sources of reading difficulty can be found through an approach that assumes an interaction between external and internal factors.

Howe (1982) developed a program to increase the receptive and expressive language skills of secondary school learning disabled students by placing emphasis on reading, writing and listening. 31 learning disabled and educable mentally retarded students participated; their baseline mean reading level was 32 as measured by the Woodcock reading mastery tests. After one year, the group mean was 5.1. The mean rose to 6.3 for the 19 students participating after 2 years.

Vernon (1977) pointed out that a prevalent method of determining the distribution of reading disability in the population has been to find children whose reading achievement is below what might be expected from their performance on intelligence test. Using a regression equation which analysed the correlation between IQ and reading achievement, Yule (1967) predicted that reading test scores, should correspond to different IQ scores. Yule, Rutter, Berger and Thompson (1974) tested in different points of England over five thousand nine to eleven-year
old children using this question. They found that 3 to 6 per cent of the children read worse than was predicted from their intelligence. Yule and his colleagues termed this disparity between actual and expected reading achievement, 'specific reading retardation'. This syndrome was contrasted with another syndrome, "reading backwardness", in which children with low reading achievement had correspondingly low intelligence scores. Moreover, when some of the children were followed up at age fourteen, it was found that the 'backward readers' had made some gains; those with 'specific reading retardation', however, had not made similar progress (Ruther and Yule, 1975).

In the light of these findings, Ruther and Yule (1975) argued that "specific reading retardation" represents the lower end of a continuous distribution and even hereditary factors may be involved in this.

Yule (1984) investigated Reading Ability in terms of home environment which was divided into two categories, namely, physical and cultural environments. The physical environment included type of house and material possession of the home; the cultural environment includes, education of the member of the family and their interaction with the child in his social and intellectual concerns. The analysis revealed a significant positive correlation between reading achievement of children and the selected variables, namely, home physical environment and home cultural environment. The home cultural environment which consisted of the education of parents and other members of the family, social participation of the members and the interaction between the members
of the family and the child in his social and intellectual concern, appeared to play a major role in influencing the reading achievement in children.

On the basis of these findings, Yule further argued that creating good reading atmosphere in the home, by providing adequate interesting books for children, developing good study habits and inculcating positive attitude towards reading in them and establishing healthy relations among the siblings and other members of the family, would certainly help in improving the reading skills of primary school children.

Stevenson (1984) interviewed approximately 160 mothers of poor and average readers in Japan, Taiwan and the US about their child rearing practices, attitudes, and beliefs as well as their children's current and earlier experiences. 80 poor readers represented the lowest 5th percentile in reading scores; they were matched by classroom, sex and age with 80 average readers. The groups seldom differed significantly according to environmental variables and parent-child interactions. Maternal ratings of cognitive and achievement variables differentiated both the children in the two groups and the mothers themselves. Maternal beliefs and description of how children use time also differed between 2 groups. Notable was the absence of significant interactions between country and reading level.

Thus, the specific studies concerning Reading Ability have shown a large number of factors as contributing to this ability.
No study however has attempted to show what are the correlates of Reading Ability and how, enhancing the same would contribute to better or improved academic performance in students.

**Concluding Remarks And Statement of the Problem**

Although many studies have been carried out on Reading Ability, very few studies have attempted to ascertain the correlates of Reading Ability which can provide the needed indices which could be improved and thereby result in better or improved Reading Ability.

While studies have attempted to relate academic performance of students to Reading Ability in them, these have been mostly confined to Reading speed and comprehension. Furthermore, even when Reading Ability has been shown to contribute to improved academic performance, this factor has not been dealt with at differential levels. Also most of these studies have been of an ex-post facto type research, wherein attempts have been made to find out whether failed students were poor readers as compared to 'passed' students etc. The only study which has attempted to improve the Reading Ability and then note its influence on achievement was that/Subramanyam (1982) who used 2 different teaching methods and found flash method superior to collateral method. However, this improved Reading Ability was not related to the academic performance of students, by the researcher.

In schools, one of the most important problems educationa...
inability to read and comprehend as well as write one's own on any subject matter. As a result of these defects, students do not learn even fifty per cent of what they are expected to learn. If they could be trained to read better, and improve their Reading Ability one may expect an improvement in their learning and consequently in their academic performance.

In order to do this, it is important to identify the major factors constituting Reading Ability as well as academic performance.

The present treatise is an attempt in this direction aiming to ascertain the correlates of Reading Ability and to bring about an improvement in the Reading Ability of students by focusing on those factors and thereafter to find out if such an improvement in Reading Ability leads to improvement in the academic performance of students.

Before taking up the investigations in detail, a description of the methodology employed in this study will be in order, and is presented in the following chapter.