Listening Comprehension and Reading Comprehension among Third and Fourth Graders

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REG NO. M.9804

A Dissertation submitted as a part fulfillment of Final Year M.Sc. (Speech & Hearing) to the University of Mysore

All India Institute of Speech & Hearing,
Mysore - 570 006.

May, 2000

" *The Lord is my Shepherd*

I shall not want;.....

..& .. I shall dwell in the house

of the Lord, forever ".

Psalm-23

CERTIFICATE

This is to certify that the Dissertation entitled ***"Listening Comprehension and Reading Comprehension among Third and Fourth Graders***", is a bonafide work in part fulfillment for the Final Year M.Sc. (Speech & Hearing) of the student with Reg. No. M.9804.

Mysore

May, 2000

Director
All India Institute of Speech & Hearing
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CERTIFICATE

This is to certify that the Dissertation entitled ***"Listening Comprehension and Reading Comprehension among Third and Fourth Graders*** ", has been prepared under my supervision and guidance.

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May, 2000

Declaration

I hereby declare that this Dissertation entitled "***Listening Comprehension and Reading Comprehension among Third and Fourth Graders***" is the result of my own study under the guidance of **Dr.Prema K.S.,** Lecturer in Language Pathology, All India Institute of Speech & Hearing, Mysore, and it has not been submitted earlier to any University for any other Diploma or Degree.

Mysore **Reg. No. M.9804**

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INTRODUCTON

"Language is. . . .the most momentous and at the same time the most mysterious . In language we have the free accomplished use of symbolism, the record of articulate conceptual thinking; without language there seems to be nothing like explicit thought whatever" (Langer, 1958).

Inspite of our awareness of its importance to mankind, language remains mysterious and relatively little is known about it. How is it acquired by the child ? What is the relationship between language development, reading acquisition and its disabilities ?

We know the two language modes of receiving information and ideas from others are listening and reading. There are many similarities between these two modes of decoding symbolic language. Both require sensory stimulation, one to the eye and one to the ear. Both require the ability to receive, make sense out of, and organize the sensory stimuli. Both need a memory bank of vocabulary to relate the words that are read or heard. Both need a grasp of the various linguistic systems of the language being used, that is, phonology, morphology, and syntax. Both require an attentive attitude for, inattention results in half-listening and half-reading. Finally, both demand the application of specific thinking skills, for comprehension of the ideas being listened to or read. It is not surprising, therefore, that research studies show a high correlation between reading and listening and that instruction in listening comprehension is likely to result in improvement in reading comprehension.

However there are differences between listening and reading. The reader can reread and study the material while the listener can hear the material only once. However the use of tape-recorder changes the difference some-what, but a type recorder can be used in relatively few of the situations that demand careful listening. The reader can regulate his speed, going slower or faster as per his

purpose and the difficulty of the material, while the listener's speed of listening is set by the speaker. The listener has additional clues of voice, gesture, appearance, and emphasis of the speaker, while the reader cannot derive such supporting information from the printed page. In the listener-speaker combination, there is more opportunity for feed back, questioning and for a two-way discussion than in reading.

Listening and reading are language based (Kamhi & Catts, 1989) hence the assumption, that any defecit in language skills should be reflected in both the reading and listening comprehension performance in slow readers. The language-listening relationship in normal and poor listeners supports this presumption.

LANGUAGE AND LISTENING

Many authorities believe that development of listening or receptive skills is a pre requisite for a child to learn expressive language skills. Although it is difficult to draw a definite line between the experiences in listening and speaking, ability to listen and understand is generally considered a basis for speaking (Mackintosh, 1964). Because communication is a two-way processes where one person sends a message, and the other receives it the way it was intended, good listening becomes a critical part of communication process.

A child with listening problem will have difficulty in coping in a classroom. However, with right help, a child can be taught to cope and improve listening skills.

When one examines the problems that a child with poor listening skills faces it is seen that most of them are in verbal language related tasks. Hence we see that good listening depends a lot on good language skills. Therefore listening appears to be a language based task.

The following is a discussion on the language and reading relationship to support the assumption.

LANGUAGE AND READING

Reading proficiency is rooted in language abilities. For more than 30 years, researchers have been investigating aspects of language knowledge as well as discrete language processing abilities in an attempt to specify those abilities that contribute to reading acquisition.

Reading for meaning has been considered a complex activity that mobilizes a number of processes that are grounded in language. Most researchers seem to agree that the key components of reading comprehension include phonological processing of letters and the sounds that they represent, retrieval of lexical information, use of knowledge about the syntactic structure of language to understand and predict upcoming information in a sentence and discourse processing, i.e., the mobilization of world knowledge to organize and construct an interpretation of information contained in a passage or text. (Just and Carpenter, 1987., Kamhi and Catts, 1989., La Berge and Samuels, 1974., Perfetti,1985., Rumelhart, 1977).

Fluent readers are thought to use their knowledge of phonetic code for printed letters to decode and recognize words that they have never seen before or have seen rarely. By contrast, evidence suggests that they also recognize a large number of familiar words automatically, bypassing phonological processing and going form print to meaning (Backman, Bruck, Hebert, and Seidenberg, 1984., Perfetti, 1984, 1985; Stanovich, Cunningham, and Cramer, 1984). Readers are thought to retrieve the meanings of words, to store the information in phonological memory (Mann, Shankweiler, and Smith, 1984), and to use their syntactic knowledge to understand and predict upcoming information at the sentence level (Just and Carpenter, 1987). In addition, there is considerable

agreement that readers use their world knowledge to organize the incoming discourse or text information and construct an interpretation of it (Kintsch, 1974, 1977, Rumelhart, 1977, Thorndyke, 1977). Thus readers process information at the phonological, lexical, syntactic, and discourse levels.

Although evidence suggest that fluent readers activate these four dimensions of language when they read, children do not do so at the outset. Rather, they seem to pass through different developmental stages to reach this point. Some researchers (Beimiller, 1970., Chall, 1983., Lapp and Flood, 1986) have postulated that at the beginning stages of reading, children focus their efforts and attention on learning the phonetic equivalences for letters (sound-letter correspondences), decoding print into sound and blending the phones into recognizable word shapes. Typically, this stage is thought to occur between 6 and 8 years, with children focusing much of their processing efforts on reading at the word level. Between the ages of 8 and 9 years children are thought to gain sufficient mastery of the decoding process that they can apply it automatically to print as well as try to integrate it with the meaning that they obtain by applying their knowledge of syntax and discourse at the sentence and text levels respectively (Chall, 1983). At this point, children expend less effort on the phonological and lexical processing required for decoding and word recognition and begin to allocate more attention and processing resources to the syntactic and discourse operations required for the higher order processing of text (connected discourse). Thus, it is during this stage that children are thought to move into fluent reading. Those children who cannot attain the requisite automaticity in decoding are thought to have become "stuck" in this stage, unable to progress to more advanced stage of reading for meaning or purposeful reading (Chall, 1983). Not only do the different dimensions of language processing appear to have impact on different levels of reading (i.e., reading at the word level and text level), but they also seem to be mobilized differentially as children develop. In addition, some researchers suggest that these reading related oral language skills develop as children interact with written texts and

formal instruction (Kamhi and Catts, 1989, Wallach and Miller, 1988). Thus, there is some reciprocity in the relationship as well.

Review of the language dimensions of concern to reading comprehension presents compelling evidence that reading disabled children seem to have difficulty with the skills that serve both the word and text levels of reading. Among the language skills that are considered relevant to the word-level aspect of reading, phonological awareness is of particular interest. This skill involves the ability to analyze and make explicit judgements about the phonological and/or phonetic form or structures of words. It includes the abilities to segment words into sounds and syllables, blend sounds into words, rhyme, and play phonetic word games (Elkonin, 1973). More important, it has been identified as a significant problem in reading disabled children of all ages. Investigators have found that poor readers performed significantly worse than normal readers on phonetic segmentation tasks (Fox and Routh, 1975., Kamhi, Catts, Mauer, Apel and Gentry, 1988). In addition, Vellutino and Scanlon (1982) observed these differences in younger as well as older reading disabled children. Further, Blachman (1984), Wagner and Torgensen (1987), and others have documented the fact that phonemic segmentation skills are significantly related to reading achievement in young. Hook's (1976) and Hook and Johnson's (1978) comparison of normal and dyslexic sixth-grade children's performance on a simplified language game that was similar to piglatin, indicated that the dyslexic children performed significantly worse than the normal readers.

Another reading relevant skill is thought to be word retrieval, because the word that is decoded into a phonological or phonetic representation is then associated with the appropriate entry from the reader's internal lexicon (Just and Carpenter, 1987). For sometime, word retrieval problems have been implicated in childhood reading disability. In particular, reading disabled children between 7 and 12 years of age have been observed to have difficulty in rapidly naming pictured stimuli (Denckla,1974., Denckla and Rudel, 1976, Wiig, Semel and

Nystrom, 1982., Wolf, 1979). They were not only less accurate but also much slower than their normally achieving peers on these naming tasks. Further, Blachman's (1984) work indicates that naming is significantly related to the development of reading in good and poor readers in kindergarten and first grade levels.

An additional concern is the nature of the higher order language processes of reading disabled children, especially their ability to use their syntactic and world knowledge to predict and organize information that they will hear and to construct interpretations of that information. The relationship of syntactic knowledge and world knowledge to reading fluency and comprehension is well documented (Gibson and Levin, 1975, Just and Carpenter, 1987, Kintsch, 1983). It is compelling that reading disabled children seem less sensitive to semantic cues and other syntactic cues in reading.

Narrative discourse processing is a higher order skill that involves the ability to listen to or to read a story, abstract its main points and relevant details, organize them, infer information not explicitly stated, and construct an interpretation or understanding of the material. The narrative discourse processing of some reading disabled children have been less efficient than of their normally achieving peers. Evidence indicates that some samples of poor readers may understand and remember less of stories read to them. (Mc Connaughty (1985); Smiley, Oakley, Worthen, Compione and Brown, 1977; Weaver and Dickinson, (1979). On the other hand, Mc Connaughty's work suggests that the nature of the recall of good and poor readers is the same. Additional research (Crais and Chapman, 1987; Oakhill, 1984; Weaver and Dickinson, 1982) suggests that some reading disabled children have difficulty drawing inferences. Because inferences are often necessary for the accurate comprehension of some messages (Keenan and Kintsch, 1974; Knitsch, 1974), it seems that such a deficit should have a significant impact on disabled children's reading for meaning.

The finding that poor readers generally have a reduced ability to comprehend language provides support for conceptualization of reading comprehension as interrelated with language comprehension [Berger, 1978; Sawyer, 1992; Synder and Downey, 1991; Kamhi & Catts, 1986; and Naucler and Magnusson, 1998].

Hence, we see how both listening and reading skills are highly related to language skills, therefore, any deficits in language are likely to result in poor performance in listening or reading. Thus language plays an important role in successful reading and listening, hence reading comprehension and listening comprehension. Therefore, it becomes important to have appropriate tools to assess these skills in order to identify slow readers and poor listeners.

Earlier, in the 1930's and 1940's a number of tools were developed to assess reading. These usually concentrated on skills like reading speed, reading accuracy, reading efficiency , and also were developed for assessing children in the higher grades. Later, in the 1960's a need was feet to include language based items in tests for reading assessment.

The Token Test (De Renzi and Faglioni, 1978) requires full processing of lexical content and syntax for successful performance and, places progressively increasing demands upon short term memory. It is purely a language based test, devoid of contextual clues which are usually present in normal sentences. Hence, it was chosen as the instrument to assess reading comprehension and listening comprehension in this study.

As one of the objectives of this study was to develop a screening tool to identify children with reading disability and, by definition reading disabled are those who perform two years below their actual grade, children from grade-III & IV were selected for the study.

The following hypotheses were proposed -

1) There is no relationship between reading comprehension and listening comprehension.

2) There is no difference between the performance of girls and boys in reading comprehension and listening comprehension in III and IV grade.

3) There is no difference in the performance of III graders and IV graders in reading comprehension and listening comprehension.

REVIEW

LANGUAGE

"Language is a wondrous thing - it has been said that language is what makes man a man" Mc Grady (1968).

Many kinds of learning in a man's life are dependent upon language and the individual's facility with verbal symbols. The ability to grasp the abstract appears to be highly related to one's mastery of language.

The role of language in thinking has been examined by such scholars as Vygotsky (1962), Piaget (1952), and Luria (1961); but the relationship is still not fully understood. Yet, we do know that as language develops, it plays an increasingly important part in thinking processes. Words become the symbols for objects and classes of objects, and for ideas. Language permits us to speak of things unseen, of the past, and of the future. It is a tool that helps us to learn, retain, recall, and transmit information, and to control our environment.

Language can take many forms. We generally speak of expressive and receptive modalities of language. Figure 2.1 depicts these primary expressive and receptive modalities. Expressive modalities are speech and writing; receptive modalities are listening and reading. Speech and listening are regarded as the primary modalities because they are usually acquired first and used most.

A common misconception is that these modalities are unique and rather independent. While there are obvious differences, and modalities are only semi-independent, they are more alike than different, more intimately related than independent. They share mutual underlying cognitive - linguistic - communicative systems and processes, that in their essentials are the same for all modalities but differ in surface features. For example, the pronomial system is the same for

speech, listening, reading and writing, the only difference is whether the surface form of the pronomial system will be in phonemes (speech sound patterns) or graphemes (printed or written language patterns). When we think in these terms, the similarities between modalities are considerable and differences seen rather minor.

Knowledge of this inter-relatedness has considerable implications for the applied fields. Rather than attempt to identify relative modality performance, one should deal with underlying cognitive - linguistic systems - a more substantial psycholinguistic inquiry. This is not to say that intermodality performance is not important. But there are more fundamental psycholiniguistic questions that underly such performance.

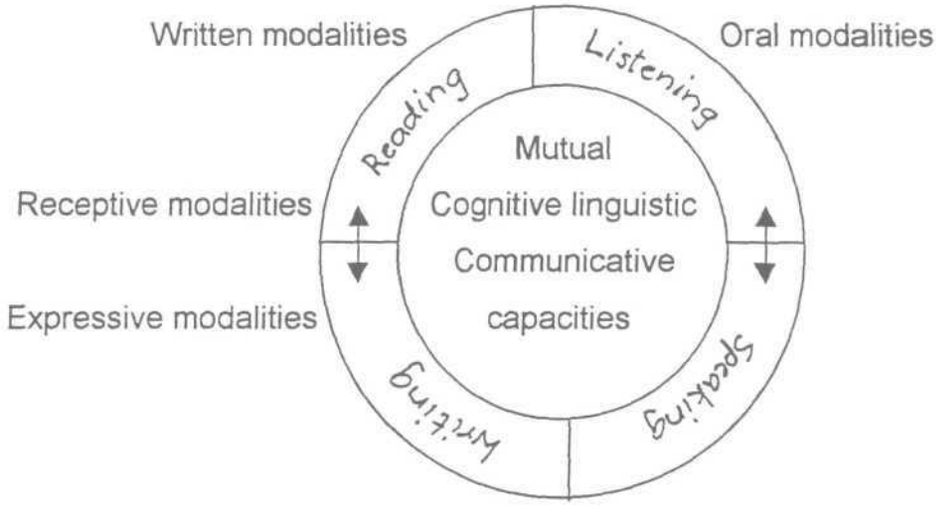


Figure 2.1 Schematic indicating interrelations between language modalities

Such inquires have considered the role that language plays in learning and its deficiency in a child that may manifest in one or many outward behaviours of language problems such as,

1. Misunderstand or confuse what is being said.
2. Need directions explained several times and sometimes need demonstrations.

3. Need an unusual amount of time to think before answering a question.
4. Watch what everyone else is doing to figure out what to do.
5. Make comments that do not fit the discussion.
6. Take a long time to understand what is read or need to read a passage several times before understanding it.
7. Has difficulty following a plot to a T.V. show or a movie; ask questions that reflect a lack of understanding of critical points of the story.
8. Avoid participating in group or family conversations or discussions.
9. Has difficulty enjoying or appreciating humourous stories, anecdotes, or riddles.
10. Has other speech language, listening or learning disabilities.
11. Has a history of frequent middle ear infections.
12. Has unexplained behaviour problems or dislike school.
13. Express the feeling that they are stupid.
14. Tune out or not pay attention during listening tasks.

From the above observations it can be noted that listening has an important role in language processing.

LISTENING

The normal sequence of development of language skills are (1) Listening (2) Speaking (3) Reading and (4) Writing. The skills of listening and reading are described as decoding functions, whereas speaking and writing are described as encoding functions in the communicative process. The following is a discussion of the decoding skills i.e., listening and reading, through the auditory and visual modalities.

Listening differs from hearing, which is a physiological process that does not involve interpretation. One can hear with good auditory acuity a foreign language. Listening demands that one select an appropriate meaning and

organize ideas according to their relationships. In addition, listening calls for evaluation, acceptance or rejection, internalization, and at times appreciation of the ideas expressed. Listening is the foundation of all language growth, and the child with a deficit in listening skills has a handicap in all communication skills.

Listening is an active process of hearing and comprehending what is said. For listening, sound waves must carry the spoken words to our ears.

=> The sound must travel through the outer ear canals without destruction.
=> The sound must pass through the ear drum and middle ear without being distorted by fluids from colds, infections or allergies.
=> It then travels through the inner ear, which must be functioning properly as well.
=> This sound travels via the auditory nerve to the brain.
=> The brain tries to compare what it hears to previously stored sounds and words to make sense of the message.

Listening has been conceptualized in many ways.

1. Auditory perception of non-language sounds.
2. Auditory perception and discrimination of isolated single language sounds.
3. Understanding of words and concepts and building of a listening vocabulary.
4. Understanding sentences and other linguistic elements of language.
5. Auditory memory
6. Auding or listening comprehension
   (a) Following directions
   (b) Understanding a sequence of events through listening [Wilt, 1964].

However, the term "oracy" has been widely accepted to refer to the skills of listening and speaking (Wilkinson, 1968). Oral language or oracy, has two contrasting sides: understanding oral language or input, and producing oral

language or output. The two functions may be referred to by speech - language pathologists as the receptive language and expressive language; by the language arts specialist as listening and speaking; and by the psycholinguists as auditory decoding and verbal encoding.

Despite these differential views on terminologies, many authorities believe that development of listening or receptive skills is a prerequisite for a child to learn expressive language skills. Although it is often impossible to draw a definite line between experiences in listening and speaking, ability to listen and understand is generally considered a basis for speaking [Mackintosh, 1964]. Because communication is a two-way process where one person sends a message, and the other receives it the way it was intended, good listening becomes a critical part of communication process.

The child's ability to listen, has been taken for granted. Listening is a basic skill that can be improved through teaching and practice. However, some children have a learning problem that stems from their inability to listen and comprehend speech. Such a condition is often termed a receptive language disorder, and the child with such a condition may avoid language activities because of poor listening skills [Johnson and Myklebust, 1967].

A child with listening problems will have difficulty in coping in a classroom because much of the information teachers give to the students must be listened to carefully before comprehending. With the right help, however, a child can learn to cope and to improve listening skills. The following highlights the characteristics of children with listening problems.

Children with listening problems might do the following:

1. Have difficulty in remembering oral directions, details of story heard or characters names.
2. Watch what other children do before attempting to follow verbal directions.

3. Remember only some parts of the direction, usually the last thing that was said.
4. Have a past history of frequent ear-infections as an infant or a toddler.
5. Have difficulty listening to lectures or discussions for long periods of time; may tune out after a while.
6. Have difficulty repeating back a multistep direction verbatim.
7. Have difficulty taking notes during class lectures or need repetitions and drills for them to "stick".
8. Stumble over multi syllabus words, mix up syllabus or mangle words when saying or writing them.
9. Learn more easily when watching what others are doing or use a hands-on approach.
10. Need to reread written information several times for it to "sink in".
11. Have difficulty paying attention.
12. Forget new names easily.
13. Have difficulty memorizing their phone number, address, words to songs, poems, prayers, math facts.

Language and listening capacities also vary as a function of age. Literature focuses on listening as it relates to language skills (Boyce and Lord - Larson, 1983; Butler, 1984; Simion, 1985; Wiig, 1984). The American Speech Language - Hearing Association (1982 b) *proposed that language deficient children "don't necessarily catch up. The early forms of language disorders are seen as varying problems in the comprehension and/or use of language symbols as well as disturbances in the social use of language. In addition many of these children present deficits in their ability to use and organize incoming auditory information".*

A follow up study of language impaired preschoolers reported by Aram, Ekelman, and Nation (1984), concluded that children with language disorders during their preprimary years do not present disorders confined only to spoken

language. The majority of the subjects presented broadly based language learning, educational and social problems throughout their school years.

READING

While good listening is facilitated by language, good reading is also dependent on language as reading is defined as a language based skill. Hence, learning to read is not a natural act (Gough and Hillinger, 1980). In English the alphabetic code (i.e., the relationship between letters and sounds) is both abstract and complex. Text provides several different levels of cues including letters, context and structural cues. The mature reader attends to and interprets all of these simultaneously. One goal of reading instruction is to make the reader aware of each of these systems and to provide him or her with the knowledge needed to interpret the available cues. These information about the text provided in these cues is, in turn, one source utilized by the reader as he or she derives meaning while reading.

Letters on the page are a first set of cues. Single letters, letter patterns (eg., -tion), and even written whole words may cue the reader to the sounds of words, provided the reader has knowledge of the correspondings needed to interpret these cues. Instruction for beginning readers includes teaching them to attend carefully to letter cues as well as the knowledge of correspondence that is needed to interpret letter cues. While it might appear to be a visual task, decoding places great demands on the phonological system as it requires mapping sounds to letters.

In text, every word is surrounded by a context of other words. If a word is not recognized, the context provides clues as to the parts of speech of the word. If the reader guesses at an unknown word, the context is used to determine whether or not the guess is syntactically acceptable and whether or not the idea

makes sense. Thus, experienced readers take advantage of a system of context cues.

Just as with the letter cues, the student learning to read must become aware of context cues. However, in contrast to the letter cues, most readers bring to school much knowledge needed to interpret context cues, i.e., they have knowledge of acceptable sentence structure or knowledge about the world.

A final cue system consists of structural cues. Print is structured according to conventions: in English, it is written from left to right, top of page to bottom. Picture and words convey inter connected ideas. Most often, each paragraph has a central idea. Stories and content area text each follow a predictable structure. Reading instruction ensures that students attend to these cues and have the knowledge needed for their interpretation.

Since learning to read is not a natural act, its acquisition goes through different stages in a beginning reader and also in the problem readers before it reaches maturity.

STAGES OF READING DEVELOPMENT

In order to make sense out of the developmental changes that occur in children's oral and written language abilities, theorists and practitioners identified distinct developmental stages (Brown, 1973; Chall, 1983).

Stage models of development, though, tend to oversimplify development and observe individual differences and also risk not capturing important qualitative changes in development (Johnson and Kamhi, 1984), they can capture basic developmental changes and thus provide a framework for understanding the individual differences that exist between children. The stage model of reading by Chall (1983) is one of the most frequently cited models in

literature. Chall (1983) cautions that her stage model should be viewed as a theory that needs to be confirmed or disconfirmed. She based her theory on several assumptions and hypotheses. Among the most important were the following.

I. Stages of reading development resemble stages of cognitive and language development. Reading stages have a definite structure and differ from one another in qualitative ways, generally, following a hierarchical progression.

II. Individuals progress through the stages by interacting with their environment - home, school, community and culture.

III. The existence of successive stages means that readers do difficult things with printed matter at each successive stage, although the term reading is commonly used for all of the stages.

IV. Successive stages are characterized by a gradual improvement in the ability to read language that is more complex, more technical and more abstract.

V. The reader's response to the text becomes more inferential, more critical and more constructive.

Chall identified six stages of reading, beginning with stage 0, the pre-reading stage. These stages are discussed briefly below:

I. <u>Stage 0 : Pre-reading (Birth to 5 to 6 years)</u>

It covers from birth to the beginning of formal reading education (age five or six in United States). During this stage children growing up in literate cultures accumulate knowledge about letters, words and books, and two general types of knowledge about language, (1) Primary linguistics knowledge necessary to understand and produce well-formed utterances and, (2) metalinguistic knowledge that involves awareness that language consists of discrete - phonemes, words, phrases and sentences. Of

particular importance for learning to read is the awareness that words consist of discrete phoneme - sized units.

Though this is called stage 0 by theorists such as Chall, (1983), much learning, takes place during this stage.

II. Stage I: Initial Reading or Decoding (5 to 7 years)

This stage is marked by the learning of phoneme - graphone correspondence rules Firth (1985) refers to this stage as the phonetic or alphabetic stage. Chall noted that by the end of this stage, children have gained the insight about nature of the spelling system.

III. Stage II: Ungluing From Print *(7* to 9 years)

Stage II is the consolidation of what was learned in stage I. Children in this stage learn how to use their decoding skills, the redundancies of the language and their knowledge of scripts and the story structure to derive meaning. By the end of this stage, the child has formed a substantial sight vocabulary based on the orthographic structure (e.g., spellings) of words.

IV. Stage III: Reading to learn (9 to 14 years)

Stage III marks the beginning of the long course of reading to learn. It is at this stage that decoding skills have become fully automatized, thus freeing up attentional resources to focus on text comprehension and learning. Prior to this stage, reading skill has been equated with decoding skill. This stage fits the traditional concept of the difference between primary and later schooling. In the primary grades children learn to read, whereas in the higher grades they read to learn.

V. Stages IV and V : Multiple viewpoints (14 to 18 years) / Construction and Reconstruction (18 and above)

It is probably more appropriate to consider the final two stages as stages of cognitive developments rather than reading development. As adolescents become capable of more abstract levels of thought, the information they are able to learn from reading increases. Chall has noted that the essential characteristic of stage IV is that the reader can now deal with more than one point of view, whereas the essential characteristic of stage V is that reading is viewed as constructive; that is, the reader constructs knowledge using basic reasoning processes, such as analysis, synthesis, and judgement.

While reviewing the stages of reading we see that during stage III the child starts reading to learn. It is now that a good knowledge of language plays a vital role in aiding comprehension. The relationship of language to reading and listening has been discussed in the models of reading.

MODELS OF READING

To understand reading and listening and their relationship with language it is important to know the specific processes and knowledge involved in comprehending oral and written language.

Models of oral and written language comprehension have often been divided into three general classes - bottom-up, top-down and interactive. Bottom-up models view oral and written language comprehension as a step-by-step process that begins with the initial detection of an auditory or visual stimulus. The initial input goes through a series of stages in which it is "chunked" in progressively larger and more meaningful units.

Top-down models, in contrast, emphasize the importance of scripts, schemata and inferences that allow one to make hypothesis and predictions about the information being processed. Familiarity with the context, structure and function of the different kinds of oral and written discusses enables the listener and reader to be less dependent on low-level perceptual information to construct meanings.

Reliance on top-down versus bottom-up processes varies with the material being processed and the skill of the reader. Bottom-up processes are presumed to be necessary when reading isolated, decontextualized words, whereas top-down processes facilitate not only word recognition but also discourse-level comprehension. Top-down processes are especially important when reading partially illegible material, such as cursive writing. The model of oral and written language comprehension depicted in Figure 2 includes both bottom-up and top-down components.

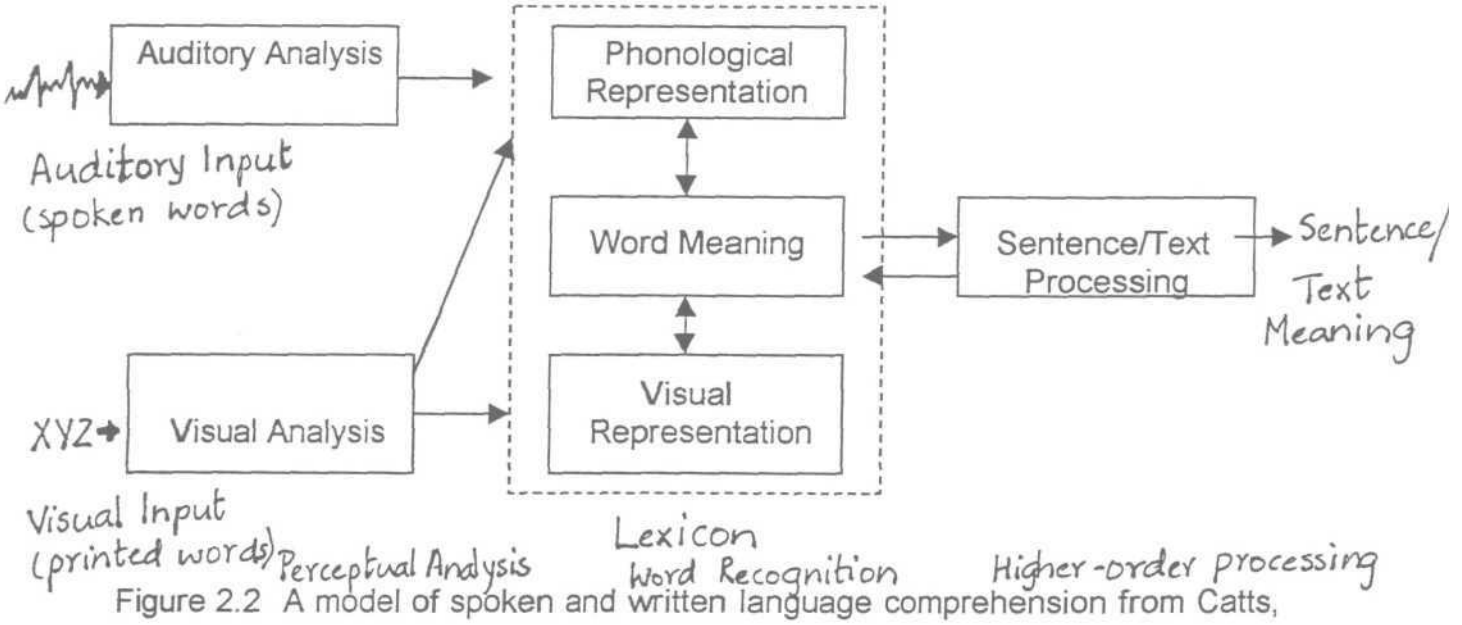


Figure 2.2 A model of spoken and written language comprehension from Catts, H.W., and Kamhi, A.G. (1986). The linguistic basis of reading disorders : Implications for the speech - language pathologist.

It is seen that the model depicted in Figure 2.2 provides a useful framework for comparing the processes and knowledge involved in comprehending spoken and written language. This model though unique shares components with other processing models [Cutting and Pisoni, 1978; Thomson, 1984]. Although the components of the model are discussed in a linear bottom-up fashion, the mode should be viewed as an interactive one that allows for parallel processing within and between levels.

i. Perceptual analysis

The input to the perceptual analysis is speech or print. In order for this input to be recognized, it must be detected and analyzed. The sensory mechanisms involved in the detection of speech and print are distinctive; the ear is used to detect speech and the eye is used to detect print. Sensory defecits involving hearing or vision place a child at risk for spoken or written language problems. Children who are deaf cannot detect the speech signal through the auditory modality and, as a result, have considerable difficulty developing intelligible speech. Individuals who are blind cannot detect print through the visual modality. Braille, which relies on tactile modality, is one way to bypass the visual defecit. An intact auditory system provides the blind another avenue to access text material by way of tape recordings.

Once the input has been detected, the segmental and suprasegmental features of spoken and written words are analyzed. In speech the processes underlying phonetic discrimination and phonetic identification are involved. Phonetic discrimination refers to the ability to hear (detect) the difference between two sounds that differ phonetically and acoustically. For example, the initial 't' in the word *tag* is phonetically different from the final 't' in the word *bat*. Phonetic differences that do not affect meaning are often referred to as allophonic variations. If the 't' sounds in the words above are changed to 'k' sounds, this would change

the meaning of the words. Tap would become *cap* and *bat* would become *back*. The phonetic differences between /t/ and /k/ are thus also phonemic differences because they change the meaning of the word. The task for the young child learning language is to determine which differences between sounds make a difference in meaning for which listening is crucial.

The language a child is learning determines which phonetic differences *are* phonemic. In Japanese, for example, the differences between /r/ and /l/ are allophonic. In English, however, the phonetic differences between /r/ and /l/ make a difference in meaning. In French the front rounded vowel /y/ is phonemically different from the back rounded */ul.* An American who does not make this distinction will not be able to differentiate between the words *tout* (all) and *tu* (you). These examples, illustrate that learning phonemic categories requires knowledge of the language being learned. The acquisition of phonological knowledge about language necessarily involves higher-level conceptual processes. Low-level perceptual processes, such as detection and discrimination, do not lead to knowledge about phonemic categories. In light of these points, it is important to note that in most listening situations, individuals seldom have to make distinctions between minimal phoneme pairs (e.g., p/b in the words *gin* and *bin)* that are common stimuli on tests of discrimination. In many instances, lexical and higher-level language knowledge often eliminate the need for phonemic-level identification.

In reading, just as with speech, discrimination and identification processes might be involved. In reading, discrimination refers to the ability to see (detect) the visual differences between letters. Identification requires knowledge of the correspondence between letters and phonemes. For example, the child who confuses the letters 'b' and 'd' in words such as *bad* and *dad* is often said to have a visual discrimination problem. It is

more likely that the child can perceive the visual differences between the letters 'b' and 'd' but has not learned that the letter 'b' is associated with the phoneme */bl* and the letter 'd' is associated with the phoneme /d/. In other words, the child has not learned the phoneme-letter correspondences for these two sounds. Discriminating between speech sounds or letters is not particularly difficult. With respect to language, the difficulty is learning which phonetic differences make a difference in meaning and with respect to reading, the difficulty is learning which sounds are associated with which letters. In both cases, what often appear to be discrimination problems are in fact higher-level language based conceptual problems.

Word Recognition Processes

Reading and spoken language begin to share similar knowledge domains and processes in the word recognition stage. Until this point, the processing of print and speech involves different sensory and perceptual processes. In the word recognition stage, the features identified in the previous stage are used to access the mental lexicon. The words heard or seen must activate or be associated with previously stored concepts in the individuals mental lexicon. These stored concepts in the mental lexicon represent one's vocabulary. Importantly, the content and structure of the mental lexicon is essentially the same for reading and oral language. The content of the lexicon includes information about the word's phonological or visual form as well as information about the word's meaning and how the word relates to other words. Just and Carpenter (1987, p.62) provided an example of what kind of conceptual information would appear in the mental lexicon for the word pencil.

It refers to an instrument used for writing or drawing; it is a manmade physical object, usually cylindrical in shape; and it functions by leaving a

trail of graphite along a writing surface..... A pencil is one of a class of writing instruments and a close relative of the pen, eraser and sharpener.

The mental lexicon also includes syntactic and semantic information that indicates part of speech (e.g., noun, verb or adjective) and possible syntactic and semantic roles. For example, the syntactic information about pencil might indicate that it is a noun that functions semantically as an instrument ("she wrote the letter with a pencil") or as a patient ("Peggy bought a pencil").

The structure of the mental lexicon has received considerable research attention during the past 20 years. Network models (Figure 2.3), consisting of nodes corresponding to concepts and features have been a popular way to depecit the structure of the lexicon (Collins and Loftuo, 1975; Collins and Quillian. 1969).

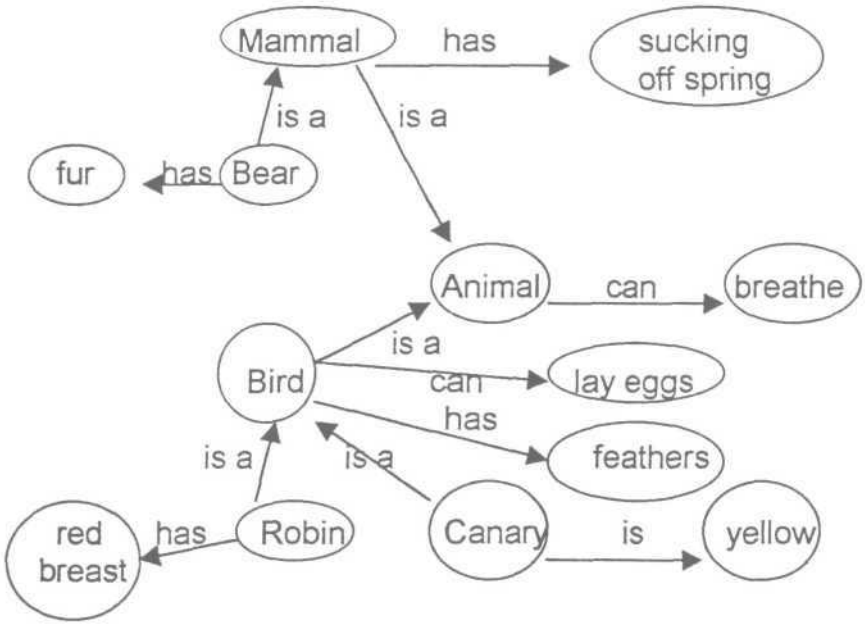


Figure 2.3 A depiction of the hierarchical relations among the concepts of animal, bird, robin and the like in semantic memory. Concepts are linked to their superordinates with 'is a' relations. Properties of the concept are linked by relations such as has, is and can.

Early network models were hierarchical in nature, with the ordering in the hierarchy defined by set inclusion relations. For example, higher-order concepts such as animal included lower-order concepts such as bird and sparrow. More recent network models have been referred to as heterarchical. reflecting concepts from ill-structured domains, Figure 2.4 (Just and Carpenter, 1997)

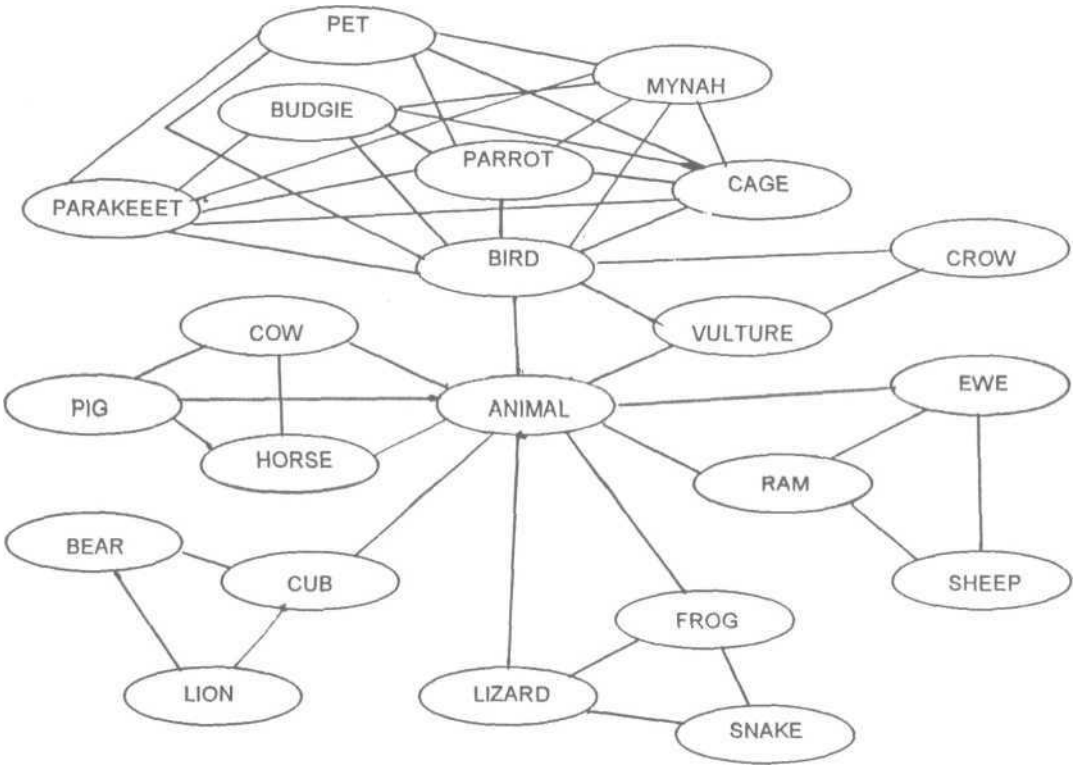


Figure 2.4 A depiction of a hetrachial network. From Just and Carpenter (1987)

In processing speech, word meaning is accessed through a word's phonological representation. The output of the perceptual analysis is a representation of a word's acoustic and phonetic features. These acoustic phonetic representations of speech input are used by the listener to activate or instantiate a word's phonological representation in the lexicon. This may involve the listener attempting to match acoustic phonetic representations with phonological representations. Phonological representations are directly linked to a words meaning because this information is stored together for each word in the mental lexicon.

Phonological representations stored in the mental lexicon can take one of the several forms. Words may be represented in clusters (e.g.,' it's a ' as 'itsa' ; 'did you know' as [did no] or as individual words without discrete syllable or phonemic information. Alternatively phonological representations might contain syllabic and phonemic segments. Although the nature of phonological representations can differ, it is unlikely that preliterate children represent speech as discrete phonemic segments. Most children are not aware until five or six that speech consists of discrete sounds (Fox & Routh, 1974), Liberman, Shankwieler Fischer, and Carter, 1974; Fumner and Bowey, 1984).

In contrast to speech, in which there is only one way to access word's meaning, in reading there are two ways: indirectly, by way of a phonological representation or directly, by way of a visual representation (Fig 2.2). Use of a visual representation to access the lexicon is variously referred to as the direct, visual, look-and-say, or whole word approach. In accessing the lexicon in this way, the reader locates the word in the lexicon whose visual information contains the same segmental and/or holistic features as those identified in the previous perceptual analysis stage. In other words, a match is made between the perceived visual configuration and a visual representation that is part of the mental lexicon for the particular word.

In alphabetic languages, such as English, word meaning can also be accessed through a phonological representation (Baron, 1977). Referred to as the direct or phonetic approach, the reader uses knowledge of phoneme-grapheme correspondence rules to recode the visually perceived letters into their corresponding phonemes. Individual phonemes are then blended together to form a phonological sequence that is matched to a similar sequence in the lexicon. The phonetic approach is particularly important in the development of reading. The ability to decode printed words phonetically allows children to read words they know but have never seen in print. Reading by the phonetic approach also causes the child to attend to the letter sequences within words.

The knowledge gained about letter sequence makes the child's visual representations more precise (Barron, 1981).

Reading by the phonetic route is thus similar to speech recognition in that a word is recognized by way of its phonological representation. There is one important difference, however, in using phonological representations to access meaning in comprehending spoken and written language. In order to successfully use the phonetic route in reading, one must have explicit awareness of the phonological structure of words; specifically, the knowledge that words consist of discrete phonemic segments. (Trieman and Baron, 1981). These segments are not readily apparent to young children because the segments of speech are blended together in the acoustic signal. For example, the word Cat is one acoustic event: its sound segments do not correspond exactly its written symbols. Although preschool children might show some phonological awareness, several years of explicit instruction and practice is usually required for a child to become efficient in using the phonetic approach.

iii. Discourse- level Comprehension Process

Up to this point, we have considered the processes involved in recognizing words. Oral and written language, however, consists of longer discourse units, such as sentences, conversations, paragraphs and texts. In order to understand these kinds of discourse level units, listeners and readers rely on their previously stored knowledge about language and the world. Basic reasoning abilities, such as drawing analogies and making inferences, as well as metacognitive abilities, such as comprehension monitoring, also play an important role in understanding spoken and written language

iv. Syntactic and Morphological Knowledge

A variety of syntactic cues are used by listeners and readers in comprehending speech and text. These cues include word order. Grammatical morphemes, and function words such as relative pronouns, conjunctions, and

modals. Listeners and readers often use syntactic cues to figure out the meaning of unknown words. Grammatical morphemes, for example, provide information about word classes. Adverbs are signaled by the inflections -ly and -y, and, whereas adjectives are marked by the suffixes -able and -al. Verbs are signaled by the inflections -ed, ing and indefinate articles, plurals and possessive markers, and suffixes such as -ment and -ness. The reason why readers are able to make any sense at all out of a sentence like. "T was brillig and the slithy toves did gyre and gimble in the wabe" is that inlfections ('y' and 's') and syntactic markers (the and did) provide cues about grammatical form class.

v. Semantic knowledge

In order to understand larger units of spoken and written discourse, one must not only be able to make sense of each sentence but also determine the relation of a particular sentence to other portions of the discourse. One must also construct an interpretation of the discourse that integrates information about participants, objects and events described in the discourse.

vi. Story schema knowledge

There has been considerable interest in recent years about children's knowledge of story structure [Mandler and Johnson, 1977; Stein and Glenn, 1979). Story grammars specify the structural organization of stories in the same way that syntactic grammars specify the structural organization of sentences [Just and Carpenter, 1987]. The main structural components of a story are a setting and an episode. The setting introduces the characters and the context of the story. Episodes can be further divided into an initiating event, internal response, attempt, consequence and reaction. Knowledge of the structure and function of stories, like knowledge of scripts can facilitate comprehension of spoken and written language (Just and Carpenter 1987; Perfetti, 1985).

vii. Making Inferences

Inferencing is involved at several different levels in the processing of spoken and written discourse. Inferences can pertain to any aspect of meaning, including space, time, causality and logic. Influences based on knowledge of the world, of scripts / schemata, and of the information that has already been processed.

Two main types of inferences have been identified (Just and Carpenter; 1987): backward and forward inferences. Backward inferences are variously referred to as bridging assumptions (Clark and Clark, 1977), integrative inferences or connective inferences. Forward inferencing embellishes or elaborates the representations of the currently spoken or read text.

viii. Metacognitive Abilities

Metacognition refers to one's knowledge and control of one's cognitive system (Brown, 1987). Metacognitive abilities have been associated with several aspects of reading, associated with several aspects of reading, activating, compensating for failures to understand, and assessing one's level of comprehension (Brown, 1987). Brown added it is not dear whether all or just certain components of these activities are metacognitive.

Thus the ability to monitor comprehension plays an important role in both oral and written language comprehension (Dollaghan and Kaston, 1986; Markman, 1977). When faced with a word, sentence, paragraph or other text that is not understood, it is necessary to do something to aid understanding, such as ask for clarification or reread the text in question. Individuals who are adept at monitoring their comprehension are more proficient processors of oral and written language.

Many current theorists of language and reading (Butler, 1984; Dunchan, 1983; Perfetti, 1985; Rumelhart, 1977; Stanovich, 1985) have advocated

interactive models in which both bottom-up and top-down processes contribute to reading and language comprehension. An interactive model of reading comprehension, for example, would acknowledge that individuals must have proficient word recognition skills as well as higher-level linguistic and conceptual knowledge in order to be good readers. Where as bottom-up and top-down models emphasize sequential processing, interactive models allow for parallel or simultaneous processing to occur. Although more complex than serial processing models, parallel processing models better reflect the types of processing that occur in complex tasks such as reading. Computer simulations are usually used to test the adequacy of parallel processing models.

Just and Carpenter (1987), developed a simulation parallel processing model called READER. READER progress through a sentence one word at a time, operating on several levels in parallel. These levels include lixical level, semantic and syntactic level, referential level, and text-schema level. The processing of each word proceeds as far as possible at all levels before moving on to the next word.

Despite the parallel processing of reading and listening and their common relationship to language there are a number of factors which make them distinct from each other. A knowledge of this distinction is important for assessment of reading and listening skills.

Differences between Oral and Written language:

Delineating the similarities and differences in the process and knowledge involved in oral and written language comprehension only begins to capture the complex relationship that exists between language and reading.

Gleitman and Rosin (1977) point out two major differences between learning to talk and learning to read.

First major difference is that learning to read requires explicit knowledge of the phonological aspects of speech. To become an efficient reader, one must learn the various correspondences between phonemes and letters. The knowledge that words consist of discrete phonemes is crucial for constructing phoneme - grapheme correspondence rules. Oral language comprehension also requires analysis of utterances into smaller phonological units. ***But the analysis of the speech stream by the listener is carried out below the level of consciousness by evolutionarily old and highly adapted auditory perceptual processes*** (Liberman, 1973). The human perceptual system is thus biologically adapted to process written text.

Secondly, reading is comparitively new and arbitrary human ability for which specific biological adaptations do not exist as it exists for speech function.

Third, important difference is that almost all humans are reared in environments in which spoken language is the principle means of communication. Thus, not only are we biologically endowed to learn language, but we are socialized to use language to communicate. This is not true for reading. More than 40 percent of the world's adult population cannot read or write at all, and an additional 25 percent of a writing system for it to be of significant practical use (Stubbs, 1980, cited in Perara, 1984). The principle reason for this high rate of illiteracy is that individuals are raised in environments in which reading has little cultural value.

A listener and a reader have one basic thing in common. That is, both are responding to language in order to achieve or arrive at meaning.

The type of language to which each is responding is marked by certain differences that are readily identified and by others that a little less apparent. One of the most obvious differences is that listeners respond to auditory signals whereas readers work with visual cues. Other obvious difference pertains to

features of those signals that help with semantic processing. In the case of the listener, intonation, stress, pitch and juncture offer assistance. Still more help may come from non-linguistic signals that might be a smile or a frown from the speaker, a raised eyebrow, or a jabbing finger. Readers are unequally blessed, comprehension aids are limited to punctuation, capitalization, and paragraph indentation. Not to be forgotten, however, is the reader has versatility on his side. He can slow down or reread, or stop and think.

Still more differences separate spoken and written language. While written material contains better constructed sentences, they also are longer and more complex. Spoken language on the other hand shows a generous use of poorly constructed. Sentences, abandoned sentences and non-sentences. False starts, corrections and repetitions also are characteristic.

In order to emphasize the contrasts between written and spoken language, Perera compared proto typical speech (conversation) to proto typical written language (literature or informative prose). She acknowledged, however, that there is a full range of spoken and written discourse types. Certain discourse types have some characteristics of written language and vice versa. For example, speeches and lectures can be planned much like writing, radio talk lacks a visual dimension and contextual support, and tape recordings are durable.

Perara (1984), discussed the physical, situational, functional and form differences between spoken and written language. An understanding of these differences helps to further explain why reading is not a simple derivative of spoken language. The differences in no way diminish the linguistic bases of reading and reading disorder.

LANGUAGE AND READING PROBLEMS

Reading subsumes two component process: Language-processing skills and phonemic awareness. Language-processing skills comprise speech perception, vocabulary skills as in naming, linguistic short-term memory, syntax, and semantics. Phoneme awareness is the sensitivity to the constituent phonemes in words.

The language skills needed by beginning readers need to be understood then a mention of some of the as many evidences link reading and language problems.

I. Two types of language skills that are essential to begining readers

What skill does a child need to learn to read well? Obviously, would be readers need to possess the visual skills that allow them to differentiate and remember various letter shapes. They also need language processing skills to perceive and recognize the teacher's words and to combine them phrases, sentences, and paragraphs as well as to meet the requirements of skilled reading. Finally, they will need to possess phoneme awareness if they are to make any real sense of the way in which the alphabet works.

i. Language-processing skills: Beginning readers should possess language-processing skills at four different levels. First, they need the speech perception skills that make it possible to distinguish the words of their vocabulary (e.g., the difference between "Cat" and "hat"). They also need vocabulary skills, although they need not necessarily possess mature morphophonological representations in their lexicons given some evidence that the experience of reading in and of itself, serves to stimulate and further phonological development (Moskowitz, 1973; Read, 1986). Beginning readers should also have an adequate linguistic short-term memory, because this is not only critical to skilled readers but also

supports retention of sufficient words to understand sentences and paragraphs. Finally, they should further be able to recover the syntactic, and semantic structure of phrases and sentences. (Although their mastery of these aspects of language, like their mastery of phonology, may be facilitated by the experience of reading (Goldman, 1976)

ii. Phoneme Awareness: Language processing stills, however are only one aspect of the language skills needed by would-be readers of English. English orthography required that successful readers not only be able to process spoken language but also be conscious of certain abstract units of that language- in particular, phonemes. Otherwise, the alphabet will make no sense as a transcription of spoken English. Whereas sophistication about words is sufficient for learning a logography, sophistication about words and syllables sufficient for syllabaries, children must know about these units and also about phonemes if the alphabet is to make sense and if they are to use it to its fullest advantage.

Phoneme awareness can pose a problem because - 1. Phonemes are quite abstract units of language, considerably more abstract than either words or syllables. We unconsciously and reflexively perceive them when we listen to the speech stream, because we have a neurophysiology uniquely and elegantly adapted to that purpose (e.g., Liberman, 1982). However, phonemes cannot be mechanically isolated from each other nor produced in isolation (Liberman et al., 1967) as can syllables and words. There are some very interesting indications that infants may distinguish phonemes and pre school aged children most certainly employ phonetic representation when holding linguistic material in short term memory (Algeria and Pignot, 1979; Eimas, 1975). Yet these are automatic, tacit aspects of language processing ability, and the child who " knows " his or her language well enough to perceive and remember phonemes can still be blissfully unaware of the fact that these units exist much the same way that we are unaware of the rods and cones that allow us to see.

The problems with using written language is that the tacit must also become explicit. Successful beginning readers must not only know the difference between words such as *cat* and *hat,* and how to hold these words in memory. They must further possess the awareness of phonemes, which allows them to appreciate the fact that, among other things, *cat* and *hat* differ in one phoneme, namely the first, and share a final phoneme, which is the initial one in top, otherwise the alphabet will remain a mystery to them, and its virtues are unrealized.

II The problem of specific reading difficulty

By examining the differences between children who become poor readers and those who become skilled readers one can discover the problems that limit in learning to read. These differences can be seen in language- processing and phoneme awareness skills which might lead to reading problems. Psychologists and educators have tried to explain reading disability in the past. There we can consider if a linguistic account of poor reading will be more successful than some of the previously popular.

i. Some less successful Accounts of poor reading: As Rutter (1978) has noted, learning to read is a specific example of a complex learning task, which correlates about 0.6 with IQ . Yet a low IQ cannot be the sole basis of reading problems, because some children are backward in reading ability but average in intelligence (Rutter and Yule, 1973). Children who possess a seemingly adequate IQ (typically 90 or higher) but nonetheless encounter reading problems are said to have a specific reading difficulty, as their actual reading ability lags 1 and 2 yr behind that which is predicated on the basis of their age, IQ, and social standing. For these children something other than general intelligence must be the primary cause of many instances of poor reading.

In attempting to discover the cause of early reading problems, many early theories were based by an assumption that influenced psychologists and educators alike. That assumption stemmed from the view that reading is first and foremost a complex visual skill that demands differentiation and recognition of visual stimuli. Owing to it, models of skilled reading have often been biased toward clarification to how readers see and recognize the various letter and word shapes, and many studies of the cause of poor reading tried to blame early reading difficulty on some problem in the visual domain. Recently, however, visual theories of reading disability have become less and less popular, for it seems that, at best, only a few of the children who are poor readers actually suffer from perceptual malfunctions that somehow prevent recognition, differentiation, or memory of visual forms. In short, visual skills do not reliably distinguish among children who differ in reading ability. So visual problems would not seem to be the primary cause of many instances of reading problems.

Mann and Brady (1988) mention two pieces of supporting evidence that show just how unfair it is to blame the majority of early reading problems on visual problems. First, 5 to 6 year old children who were identified as having deficient visual problem and/or visiomotor co-ordination skills show no more instances of reading difficulty at age 8-9 years than do matched controls who possess no such deficits (Robinson and Schwartz, 1973).

Second, while it is true that all young children tend to confuse spatially reversible letters such as " b " and " d " and " p " and " q " until they are 7 or 8 years old (Gibson et al., 1962), letter and sequence reversals actually account for only a small proportion of the reading errors that are made by children in this age range. Even children who have been formally diagnosed as dyslexic make relatively few letter and sequence reversal errors (Fisher et al., 1977).

Theories that placed primary emphasis on cross- modal integration have also been popular at one time or another (Birch and Belmont, 1964). Their

misconception was that reading involved translating visual information into auditory information and that this cross-modal match was the source of the problem. Such theories have met much of the same fate as theories that emphasized visual deficiencies as the cause of reading problems. When the behaviour of skilled readers was carefully examined, it was seen that the translation was not direct form visual to auditory information, visual information was first translated into an abstract linguistic code. When the children's ability to map between information presented to the visual and auditory modalities, it was seen that an abstract linguistic code was often basis for cross-modal integration. Finally, it was realized that when visual-auditory integration problems were present, then so were auditory-auditory problems and even visual-visual ones. Thus, the poor reader's problems with visual-auditory integration have come to be viewed as one of the consequences of a more general linguistic coding problem, which hurts integration within modalities as well as between them.

Other theories have suffered from similar attempts to explain an observation about poor readers in terms that are somehow too general. For example, certain theories were preoccupied by the fact that reading involves an ordered sequence of letters in a word and of words in a sentence, etc. Hence, it was suggested that poor-sequential order memory (Corbin, 1974) or poor short-term memory problems was not a bad direction for theories to take, but some other observations about the specific pattern of poor readers disabilities and abilities indicate that some refinements are in order. Good and poor readers do not differ on all tasks that require temporary memory of items or their order. Good and poor beginning readers are equivalent, for example, in ability to remember faces (Liberman et al., 1982) or visual stimuli that cannot readily be assigned verbal lables (Katz et al., 1981) Liberman et al., 1982; Swanson, 1978). Only when the to-be remembered stimuli can be linguistically coded do children who are poor readers consistently fail to do as well as good readers (Liberman et al., 1982; Katz et al., 1981; Swanson, 1978).

Various other general or visual accounts of reading disability have been offered in the literature (for a review, see, Carr, 1981). These tend to be inadequate because they fail to explain why poor readers often do as well as good readers on nonlinguistic tasks, yet lag behind good readers in performance on many linguistic tasks.

ii. A language- based perspective: *The previous paragraphs have mentioned several studies that demonstrated that good and poor readers are distinguished by their performance on certain linguistic tasks but not by their performance on comparably demanding nonlinguistic ones.* (e.g., as shown by Brady et al., Katz et al, 1981; Liberman et al., 1982; Mann and Liberman, 1984; Swanson, 1978). Rutter (1978) observes, that while children deficient in visual-perception and/or visual motor skills do not encounter reading difficulty any more frequently than matched controls (Money, 1973; Robinson and Schwartz, 1973), speech and language retarded children encounter reading problems at least six times more often than the controls do (Ingram et al., 1970; Mason, 1976). *Language disabilities that tend to be found among beginning readers fall within the two categories of language processing and phoneme awareness.*

III. Language-Processing problems Associated with poor reading

Since mid-1970's research has revealed some link between difficulties in learning to read and difficulties with some aspect of spoken language processing. There has been considerable attempts to more precisely specify the nature of the language problems that typify poor beginning readers. These attempts can be organized in terms of the four levels of language processing - speech perception, vocabulary skills, linguistic short-term memory and syntax and semantics.

i. Speech Perception: The possibility that some aspect of speech perception might be a special problem for poor readers is supported by a study by Brady et al (1983). Their research consisted of a group of beginning readers who did not

differ from each other in age, IQ or audiometry scores, but strongly differed in reading disability. The children were asked to identify spoken words or environmental sounds under a normal listening condition and under a noisy condition, and the performance of good and poor readers was compared. The results indicated that the good and poor readers could equally identify the environmental sounds, whatever the listening condition. As long as the words were not masked by noise, the good and poor readers performed equivalents on these items as well, but the poor readers made almost 33% more errors than the good readers when they were asked to identify the spoken words in the noisy condition. This result implies, as the research has suggested (Goetzinger et al., 1960), that poor readers have difficulties with speech perception when the listening conditions are less than optimal.

Another study comparing the categorical perception of synthetic speech stimuli by good and poor beginning readers supports these findings. In these studies categorical perception was evident in both groups of subjects; yet the poor readers differed from good readers either in failing to meet the level of intercategory discrimination predicated on the basis of their identification responses (Brandt and Rosen, 1980) or in failing to give as consistent identification responses (Godfrey et al., 1981). These findings have been interpreted as the reflection of deficient speech perception processes on the part of poor readers (but they may also relate to a problem with remembering speech sounds, because memory plays an obvious role in discrimination tasks as well as in many identification tasks)

ii. <u>Vocabulary skills:</u> There are quite a few indications that reading ability is related to certain vocabulary skills, depending on how reading ability is measured and on what type of vocabulary skill is at issue. *Reading ability can be measured in terms of the ability to read individual words (decoding) or to understand the meaning of sentences and paragraphs (comprehensions). In the case of beginning readers, decoding and comprehension tests are correlated quite highly*

implying that children who differ on one type of test will usually differ on the other as well. Still, in some cases the two types of tests identify different groups of good and poor readers that may lead researches to different conclusions about the cause of poor reading. Vocabulary skills is a case in point; future research may uncover other cases as well.

Productive vocabulary tests such as the Boston naming test, which requires the child to produce the word that the picture illustrates gives clear indications of a link between reading ability and vocabulary skill and evidence indicates that this link exists whether reading skills are measured in terms of decoding or comprehension. Tests of continuous naming (sometimes called rapid automatized naming), which require children to name a series of repeating objects, letters or colors also show that children who are poor readers require more time to name the series than good readers do (Denckla and Rudel, 1976; Blachman, 1984; Wolf, 1984).

A causal link between naming problems and reading problems is indicated by the discovery that performance on naming tests can predict future reading ability. Wolf (1984) noted that while continuous naming tests using objects and colors are predictive of early problems with word recognition, problems with rapid letter recognition and retrieval play a more prolonged role in the reading of severely impaired readers, even in reading comprehension. Further more present letter naming apparently predicts future reading ability more consistently than present reading ability predicts future letter naming ability (Mann and Ditunno, 1990; Stanovich et al., 1988). Thus, something other than a lack of educational experience probably is preventing children from naming the letter names as fast as other children can, and that something could be a problem with productive vocabulary skills.

A study by Katz (1986) provides an evidence about the vocabulary problems of poor readers. He found that children who perform poorly on decoding test are

particularly prone to difficulties in producing low-frequency and poly-syllabic names and suggested that, for such words, these children may possess has phonologically complete lexical representation than good readers do. On the basis of his research, he further suggests that, because poor readers often have access to aspects of the correct phonological representation of a word, even though they are unable to produce that word correctly, their problem may be attributable to phonological deficiencies in the structure of the lexicon rather then to the process of lexical access, per se.

iii. Phonetic short-term memory: *The observation that poor readers perform less well than good readers on a variety of short term memory tasks has given rise to one of the more fruitful uses of research in the field* (Mann and Brady, 1988). It has been noted that poor readers tend to perform less well on the digit span test and are deficient in the ability to recall strings of letters, nonsense syllables, or words in order, whether the stimuli are presented by ear or by eye. Poor readers even fail to recall the words of spoken sentences as accurately as good readers do (Jorm, 1979; Mann et al., 1980). Evidence that these differences are not merely consequences of differences in reading ability has come from a longitudinal study that showed that problems with recalling a sequence of words can precede the attainment of reading ability and may actually serve to presage future reading problems (Mann and Liberman, 1984).

In searching for an explanation of this pattern of results, research indicated that linguistic materials such as letters, words, etc are held in short-term memory through use of phonetic representation. Liberman, Shankweiler, and their colleagues (Shankweiler et al., 1979) were the first to suggest that the linguistic short-term memory difficulties of poor readers might reflect a problem with using this type of representation. Several experiments have supported this hypothesis. These show that when recalling letter strings (Shankwelier et al., 1979), word strings (Mann et al., 1980., Mann and Liberman, 1984), and sentences (Mann et al., 1980) poor readers are much less sensitive than good

readers to a manipulation of the phonetic structure of the materials (i.e., the density of words that rhyme). Indeed, good readers can be made to appear like poor readers when they are asked to recall a string of words in which all of the words rhyme (such as " bat", " cat", " rat", " hat" and " mat "), whereas poor readers perform at the same level whether the words rhyme or not. This observation has led to the postulation that poor readers-and children who are likely to become poor readers- are for some reason less able to use phonetic structure as a means of holding material in short-term memory (Mann et al., 1980, Mann and Liberman, 1984., Shankweiler et al., 1979).

The question that comes to one's mind is, whether poor readers are avoiding phonetic representation altogether or merely using it less well. There is evidence that poor readers employ a visual form of memory instead of a phonetic one (Mann, 1984), although there have been indications that they may place greater reliance on word meaning (Byrne and Shea, 1979). Evidence that poor readers are attempting to use phonetic representation has been found in the types of errors that they make as they attempt to recall or recognize spoken words in a short-term memory task (Brady et al, 1983, 1989). These errors reveal that poor readers make use of many of the same features of phonetic structure as good readers do. They make the same sort of phonetically principled errors - they merely make more of them.

iv. Syntax and semantics: Do poor readers have a problem with the syntax (grammar) and the semantics (meanings) of language in addition to their problem with speech perception, vocabulary, and using phonetic structure in short - term memory? The observation that poor readers cannot repeat sentences as well as good readers has led to some obvious questions about these higher - level language skills and their involvement in reading problems.

Quite a few studies have examined the syntactic abilities of poor readers. There is evidence that poor readers do not comprehend sentences as well as

good readers do (Mann et al., 1989). It has been shown that good and poor readers differ in the ability both to repeat and to comprehend spoken sentences that certain relative clauses such as " The dog jumped over the cat that chased the monkey ". (Mann et al., 1985). They also perform less well on instructions from the token test such as " Touch the small red square and the large blue triangle (Smith et al., 1987). They also are less able to distinguish the meaning of spoken sentences such as " he showed her the bird seed ", which use the stress pattern of the sentence (its prosody) and the position, of the article " the " to mark the boundary between the indirect object and the direct object.

These comprehension deficits according to Mann could be due to a short - term memory problem as they stress short - term memory processes. When the results of the studies mentioned above were examined the results showed little evidence that the poor readers were having trouble with the grammatical structures being used, in fact, the structures were often ones that young children could master within the first few years of life and ones that the poor readers could understand if the sentence was short enough (Mann et al., 1989). Instead, evidence showed that the comprehension problem was predominantly due to the memory problem discussed in the previous section. It seems as if poor readers are just as sensitive to syntactic structure as good readers., they fail to understand sentences because they cannot hold an adequate representation of the sentence in short - term memory (Mann et al., 1985, 1989).

Thus, it is clear that poor readers do have sentence comprehension problems, but there is little reason to think that their difficulties reflect a problem with the syntax of language. Goldman (1976) correctly noted that such syntactic difficulties as have been reported among good and poor readers could be either the cause of reading difficulty or a consequence of different amounts of reading experience. It is also noted that such deficits as do exist are relatively subtle, with poor readers merely performing as somewhat younger children rather than as good readers.

Regarding semantic impairments among poor readers, there is no reason to presume any real deviance. If anything, poor readers place greater reliance on semantic representation than good readers do, perhaps in compensation for their other language difficulties (Stanovitch, 1982; Byrne and Shea, 1979; Simpson et al., 1983).

IV. Problems with Phoneme Awareness Associated with Poor Reading

Possessing adequate phonetic perception and short term memory skill, an adequate mental lexicon, and the ability to recover the syntactic and semantic structure of utterances is only part of the requirement of reading success. Successful readers of the alphabet must go beyond these tacit language-processing abilities to achieve an explicit awareness of phonemes.

i. Evidence from the Analysis of Reading errors: The errors that a person makes can be informative about the difficulties that produce those errors, and oral reading errors offers an important source of evidence about the cause of reading problems. A consideration of these errors shows a lack of phoneme awareness is responsible for making beginning reading difficult for all young children (Shankweiler and Liberman., 1972), including dyslexic ones (Fischer et al., 1977) . Such errors do not tend to involve visual confusions or letter or sequence reversals to any appreciable degree. What they apparently reflect is a problem with integration of the phonological information that these letter sequences convey. Hence, children often tend to be correct as to the pronunciation of the first letter in a word but have more and more difficulty with subsequent letters, with a particular problem with vowels as opposed to consonants Russel (1982) suggests that deficient phoneme awareness may account for the reading difficulties in adult dyslexics.

ii. Evidence from tasks that measure Awareness Directly: Most of the studies of phoneme awareness have concerned tasks that directly measure awareness.

These tasks require children to play language " games " that manipulate the phonemes within a word in one way or another : counting them, deleting them, choosing words that contain the same phoneme, etc. The use of these tasks has revealed that phoneme awareness develops later than phonetic perception and the use of phonetic representation and remains a chronic problem for those individuals who are poor readers.

Research by Liberman et al., (1974) reveals that none of the nursery school children could tap the number of phonemes in a spoken word, while half of them managed to tap the number of syllables. Only 17% of the kindergarteners could tap phonemes, while, again about half of them could tap syllables. At 6 years old, 90% of the children could tap syllables, and 70% could tap phonemes. From such findings about children's sensitivity to the number of phonemes and syllables in spoken words, the awareness of phonemes and syllables clearly develops considerably between the ages of 4 and 6 years. It is also clear that awareness of phonemes is slower to develop than awareness of syllables. Finally, both types of awareness markedly improve just the age when children are learning to read (Liberman et al, 1974).

Numerous experiments involving widely diverse subjects, school systems and measurement devices have shown a strong positive correlation between a lack of awareness about phonemes and current problems in learning to read (Algeria et al., 1982., Fox and Routh, 1976., Lundberg et al., 1980., Liberman et al., 1980 b; Perfetti, 1985; Yopp, 1988). Also evidence indicate that lack of awareness about syllables is associated with reading disability (Katz, 1986). Finally, studies of kindergarten children provide evidence that problems with phoneme segmentation (Blachman, 1984, Helfgott, 1976) and problems with syllable segmentation (Mann and Liberman, 1984) can presage future reading difficulty. For example, Mann and Liberman (1984) found that 85% of a population of kindergarten children who went on to become good readers in the first grade correctly counted the number of syllables in spoken words, whereas

only 17% of the future poor readers could do so. In another study, a kindergarten battery of tests that assessed phoneme awareness accounted for-66% of the variance in children's first-grade reading ability (Stanovich et al., 1984). A review of the above studies emphasize the importance of tools for identification, assessment and prediction of good reading.

READING ASSESSMENT

Among the number of reading achievement tests that were constructed during the 1960's and 1970's, most of them were for classroom teachers and other personnel directly concerned with selecting reading achievement tests. The following is a review of several of the most commonly used reading achievement tests for use by special educators for high school students. Most of these tests are group tests and provide a rough assessment of how a child compares with the normal sample. These tests are not meant to give an accurate assessment of functional reading levels. They are rough and ready means of grouping children for reading instruction. Thus on the basis of his standardized test score a procedure is provided to determine the level at which a youngster may be given instruction.

These tests can be used to know if one wants,

i) To measure achievement at a particular time, or to measure changes in achievement over a course of time.
ii) Is interested in the performance of a group of students, or an individual student.
iii) Wants to measure reading and achievement in a general sense, or specific aspects.
iv) Wants to compare the performance of a set of students with specific clearly described norm group.
v) Needs information to direct one to areas of instruction to focus on during remediation.

Table 2.1 Tests of Reading Achievement (Bianton, Farr and Tuinman, 1972)

Sl. No	Name of Test	Author(s)	Year of revision	Sub-Tests	Time Mins	Grades Assessed
1.	Stanford Achievement Test: High School (1922)	E.F. Gardner J.C.Merwrin R.Callis R.Madden	1965	None	~	9-12
2.	Iowa silent Reading Tests (1929)	Wiscosin State University at River Falls	1973	Vacabulary, Comprehension, Directed Reading Efficiency		Level I for grades 6 through 9 Level II for grades II through 14
3.	Nelson - Denny Reading Test (1929)	M.J.Nelson E.C.Denny J.I.Brown	1960	Vacabulary Comprehension Rate	40 mins	College
4.	The Traxler silent Reading Test (1934)	A. E.Traxler	1942	Reading Rate, story completion, word meaning	46 or 53	7 to 10
5.	Traxler High School Reading Test - Revised (1938)	A.E. Traxler	1967	Story Comprehension, word meaning, paragraph comprehension	—	9 to 12
6.	Co-operative English Tests: Reading section (1960)	C. Derrick D.P.Karris B.Walker	1960	Vocabulary Comprehension	40 Mins	High School and College students

7.	Diagnostic Reading Tests (1947)	Committee on Diagnostive Reading Tests	Varies with subtests	Survey section Diagnostic Battery	varies with subtests	High School Students
8.	SRA Achievement series (Multilevel Edition) (1954)	L.P.Thorpe D.W. Lefever R.A.Nashlund	1963	Comprehension Vocabulary	77	7 to 9
9.	California Achieve-ment Tests: Reading CAT (1957)	Ernest W.Tiego Willis W. Clark	1970	Vocabulary Comprehension	50 mins	Junior and Senior High School Students
10.	Davis Reading Test (1957)	F.B. Davis C.C.Davis	1961	Level of Comprehension speed of comprehension	50 mins	Grades 8 to 11
11.	The Metropolitan Achievement Tests: Reading Advanced Level	W.W.Durost H.H.Bixler S.W.Wrightstone G.A.Prescott I.H.Balow	1959	Word knowledge, Reading		7 through 9
12.	The Nelson Reading Test	M.J.Nelson	1962	Vocabulary comprehension	40 mins	3 to 9
13.	Gates - Mac Ginitie Reading Tests (1965)	Arthur L. Gates Walter H.Mac Ginitic	1970	Speed and accuracy Test, Vocabulary Test, Comprehension	44 mins	7 through 12
14.	Sequential Tests of Educational Progress, Series II: Reading	Co-operative Tests and Services	1969	None	45 mins	4 to 14

Towards the 1970's and 1980's language based reading tests were developed which heightened the focus on linguistic basis for reading. The Early Reading skills developed by Rae and Potter in 1973 and revised in 1981 has the following sub sections.

A. (1) Auditory Discrimination level I and II
   (2) Visual Discrimination level I and II
   (3) Visual Memory Test level I and II
   (4) Auditory Memory Test level I and II

B. Receptive and Generative language tests
   (1) Listening vocabulary Test level I, II, III
   (2) Listening comprehension test level I, II, III
   (3) Speaking vocabulary test level I, II, III
   (4) Generative language test Part A, B, C
      Part A = Accuracy of oral language
      Part B = Quantity of oral language
      Part C = Variety of oral language

C. Phonics and decoding process
   Alphabet Test = identification level
   Alphabet Test = recall level
   Phoneme - grapheme - correspondence
   Blending test
   Syllabification
   Structural analysis

D. Assessment of Oral Reading
   San Diego Quick Assessment of Reading Ability

E. Assessment of Silent Reading

F. Scanning Passages for Information

Table 2.2 Recent Tests for Reading Assessment

Sl. No	Test	Author	Others
1.	Gray;s Oral Reading Tests (1971)	Bryant B.R. Wilderholt J.L	
2.	Analyzing Acquired Disorder of Reading in Kannada	Coltheart, Karanth	
3.	Reading Readiness Test in Kannada (1978)	Devaki Devi	Unpublished master's Dissertation
4.	Kannada Oral Reading test (1958)	Jayabair	Master's Dissertation Department of Education University of Mysore
5.	Arithmetic Diagnostic Test for Primary School Children (1990)	Ramaa S.	
6.	Test for Writing for Children in Kannada (TOWCK)(1994)	Yashoda K.	Unpublished master's Dissertation
7.	Battery of Reading/ Writing Tests Developed In The Project funded by NCERT		
8.	Reading Acquisition Profile in Kannada (1997)	Prema S.	

Various studies have highlighted the role of language in reading. But the earlier tests we see focussed more on other factors, such as speed of reading, accuracy of reading etc. The later tests shifted the focus from these to language. Thus it becomes important to include language items in a reading test constructed in the present times.

Berger (1978) studied the relationship between listening comprehension and reading comprehension. Written and oral comprehension tasks were presented to two groups of readers matched for IQ and chronological age but differing in their reading ability. The skilled reader group consistently performed better than poor readers in both reading and listening tasks. The results suggest that reading comprehension and listening comprehension are dependent on the same general language processing skills and that poor readers are also poor listeners. Implications of these findings for teaching the reading disabled children are that remediation should be language based rather than teaching decoding skills and sight-reading words alone.

La Pointe (1976) studied Token Test performances by 32 learning disabled and 20 achieving adolescents. Results indicated that the development of language processing abilities continues into adolescence, but that the learning disabled subjects do not attain maturity at the same age as achieving subjects. A sub group of learning disabled adolescents was characterized by language processing defecits involving reduced memory for critical elements and difficulty in performing the logical operations necessary to process linguistic concepts suggesting reduced simultaneous analysis and synthesis. The findings indicate that the Token Test may be a useful tool, when used in its complete form, for the diagnosis of subtle receptive language disorders in learning disabled adolescents.

Whitehouse (1983) conducted a study where she administered the shortened form of the Token Test on 42 normal readers and 42 dyslexic adolescent males. The results showed that the greatest divergence between the two groups was seen on Part V where syntactic complexity varies. An error analysis also supported the hypothesis that some, but not all, dyslexics have an impaired ability to process syntactic information. The Token Test, particularly Part V, would be a useful aid in the evaluation of dyslexic individuals.

Snyder and Downey (1971) studied and compared the word retrieval, phonological awareness, sentence completion and narrative discourse processing skills of 93 reading disabled and 93 normally achieving subjects from 8 tc 14 years. The subjects were matched for age, sex and neighbour hood.

Results revealed that the two groups differed significantly on the time and accuracy of word retrieval, their ability to produce syntactically appropriate structures in a sentence completion task and their inferences. Further analysis revealed that the variance in the younger reading - disabled children's reading comprehension scores were best accounted for by their sentence completion, the proportion of the stories that they retold and word retrieval scores. The proportion of stories retold and the phonological awareness scores of the order normally achieving children best accounted for the variance in their reading scores. These findings suggest that the oral language skills of normally acheving and reading disabled children may related differently to their reading comprehension at different age levels.

Sawyer (1992) discusses a tests of a model of the expected relationships between language abilities and reading achievement measures from the begnning of kindergarten through third grade. He said that at kindergarten level more global language abilities influenced early wholistic measures of reading achievement, including letter and number naming. At grade 1, the earlier accomplishments have a direct effect on word recognition, but a second direct effect also apparent for word and phoneme segmentation was measured in kindergarten. Comprehension at grade 1 was influenced primarily by word recognition abilities at the same time.

At grade 2, comprehension influenced word recognition: At grade 3, word recognition and comprehension was essentially independent. These findings are supported by Firth's three phase hypothesis of reading acquisition. A rationale

for testing the potential of training in auditory segmentation to modulate the effects of developmental dyslexia was suggested by the author.

Naucler and Magnusson (1998) conducted a longitudinal study of 115 subjects, 78 language disordered children and 39 children with no known language disorders as a control group. The study reported on a subgroup of the original subjects 90 adolescents who completed a questionaire, and 48 of the 90 were administered a full test battery compiled by the author. The analysis indicated that early language problems are slow to resolve, and they persisted in one linguistic form or another in these adolescents of aged 18.

Badian (1999) conducted a study to determine whether defining reading disability by a discrepancy between group - administered tests of listening and reading comprehension would produce a result similar in terms of stability gender ratio and prevalence to IQ - achievement test discrepancy definitions. The total population of a small school district (N = 1,008) was followed from pre-kindergarten through grade 7 - 8 for 13 years. The results showed that as is often seen in epidemiological studies using IQ and individually administered reading tests to define reading disability, stability in the classification of reading disability was low. Among the participants with a consistent reading disability, the male-to-female ratio was 3:2:1, compared to with 1:3:1 for the 5.1 % of the sample who were non-discrepant poor readers in both lower and upper grades. A mean of 2.7 % of the population was classified as reading disabled over the right -grade open, and only 1.7 % demonstrated a consistent reading disability in both the lower and the upper grades. An increase in the ratio of non-discrepant to discrepant poor reader after grade 5 was mainly due to late - emerging poor readers. It was concluded that defining reading comprehension disability in terms of a discrepancy between listening and reading comprehension provides a fairly accurate estimate of the stability, gender-ratio, and prevalence of the disorder.

While the western studies point towards a host of skills being investigated for reading. There are a few studies in India that have focussed on various parameters. A review of Indian studies shows that very few studies have investigated on the reading comprehension and listening comprehension of normal as well as poor readers.

INDIAN STUDIES

Shenoy (1990) conducted a study to check if there is a correlation between oral reading and reading comprehension as rated by teachers against pupils test performance. The selected primary school children, grades (1-4), with Kannada as the medium of instruction. The results indicated that - Oral reading and reading comprehension were highly correlated. Teacher rating on oral reading and reading comprehension highly correlated with test performance. However, within the overall group there were individuals in whom oral reading and reading comprehension performance did not correlate teacher rating and test performance in oral reading and reading comprehension did not correlate.

Mohanty (1990) investigated the degree of relationship between reading comprehension and various measures of metalinguistic skills and also compared the performance characteristic of good and poor readers on the metalinguistic measures. Forty children selected from class four of the University U.P.School, Bhubaneswar were administered a test of Reading Comprehension and several seven other measures of metalinguistic abilities. Analysis of variance compared the performance characteristics of the top 15 and bottom 15 readers, and revealed that the good readers were better able to use the words flexibly and in a context - free manner, and were able to differentiate between words on the basis of their salient characteristics. Their abilities to interchange words and detect inconsistencies in the text message were better compared to poor readers. The correlational analysis revealed the nature of homogeneity of the battery of metalinguistic tests, at the same time suggested that the battery could be broken

down into several groups, each meant to capture a unique and specific aspect of metalinguistic abilities.

Jagadish (1991) explored logographic reading skills during the initial stages of learning to read. She presented 47 items (which consisted of familiar television advertisements) in four formats and noted the response. 45 preschool children : age-ranges - two to three and half; three and half to four and half, and four and half to five and half years. The results indicated the presence of logographic reading skills and a developmental trend in the acquisition of reading skills.

Gokani (1992) compared the extent of relationship between phonological awareness and orthographic features in learning to read. Sixty children from Gujarathi speaking families were selected as subjects from two schools in Bombay. The test of listening comprehension, (subtest of The Border Test of reading spelling patterns) word reading (English medium) and word recognition (Gujarathi medium) and measures of speech segmentation was administered. The results showed - i) No significant difference in speech segmentation ability of children exposed to either alphabetic or semi syllabic script, ii) Rhyme recognition scores of the two groups are almost similar, iii) Syllable stripping scores of the children exposed to semi-syllabi script are slightly better than those exposed to alphabetic script, however, the difference was not significant, iv) There was a significant difference in phoneme stripping task between English and Gujarathi medium children in favour of the English medium children. This shows that such phoneme level tasks are sensitive to orthographic variations, v) Word reading and speech segmentation ability are highly correlated for English medium children correlations between these tasks was low to moderate or even negative at times for Gujarathi medium children.

Rao (1994) conducted a study to find out differences in reading rates due to the effect of variables complexity. The subjects had 10 years of formal

education in Kannada. The experiment was carried out using a Machintosh Computer Results should a difference in reading rates between words and noun words suggesting the usage of whole-word reading route in word reading. However, since a difference in reading rates of orthographically simple and orthographically complex words were found, it was concluded that the phonologically mediated route also contributes to word reading along with the whole word reading.

Yashoda (1994) developed tool to assess the acquisition of writing in children studying in Kannada medium schools. The test was administered individually on 50 children age 3 to 8 years. The results indicated that children at 3 to 4 years of age have acquired writing skills. Writing skills begin to emerge at this age with copying and gradually with increase in age other skills eg. writing to dictation, sentence completion etc. are acquired. Results show that writing is not fully developed even at 7 to 8 years of age. Practice, training, and education could effect the writing.

Loomba (1995) investigated the sequential progression of English reading skills in Indian children. She administered the informal reading diagnosis proposed by Rae & Potter (1975) on forty normal school going children studying in the class range of first to eight. All the subjects were Hindi speaking with their mother tongue as the same or Punjabi. They had no exposure to English at home and had started learning English only in school. The results indicated that acquisition of reading skills followed the normal developmental pattern. The sequence of progression of reading skills was in consonance with acquisition of reading by native speaker of English. However a lag was observed in all the skills which is attributed to the fact that English reading instruction and exposure to the language begin only in the school for these children.

Srikantaiah (1995) evaluated efficacy of a remedial programme in English in a small group of dyslexic children, based on Aston Teaching Programme with

a few modifications. It was observed that three children should significant improvement, but individual variables existed.

Lazarus (1996) conducted a study to evaluate the sequential progression of English reading skills in Indian Children. She administered the "Informal Reading Diagnosis" proposed by Rae and Potter (1973), on 40 normal school going children studying from class I to VIII. All children learnt English as second language and had different mother tongues. The results indicated the acquisition of reading skills followed the normal developmental pattern sequential progression of reading by native speaker of English. A slight lag seen in the younger age can be attributed to the fact that English reading instruction begins only in school for these children. It was seen that children who came from English speaking backgrounds with early exposure to English at home performed betten than their peers who did not have exposure to English at home and studied it as a language only in the school.

Mullimani (1997) evaluated the listening and reading comprehension difficulties in Primary School children of grade III and IV. He found a moderate correlation (0.5448) between reading and listening comprehension among grade III children and a similar moderate correlation of 0.6042 between reading comprehension and listening comprehension among grade IV children.

Prema (1997) profiled acquisition of reading and writing skills in children learning to read and write Kannada. The results showed that -

i. There was a developmental change along the four major areas of reading acquisition (language and metaphonology) reading and writing, knowledge of orthographic principles and reading comprehension across the 5 grades under the study and the changes were not uniform.
ii. There was a hierarchy of skills which could be considered as predictors of reading ability in learning to read Kannada.

iii. The reading and writing behaviour of children learning to read and write Kannada reflects the influence of the features of Kannada orthographic system.

iv. The profile for reading and writing behaviour of a given child, helps in identifying reading disability if any.

A reviews of the Indian studies point towards the lack of adequate, quick, screening tool to identify children with reading disability.

Need for the study

The finding that poor readers generally have a reduced ability to comprehend language provides support for conceptualization of reading comprehension as interrelated with language comprehension [Berger, 1978, Sawyer, 1992; Synder and Downey, 1991; Kamhi and Catts, 1986; and Naucler and Magnusson, 1988]. Many authors also have found that children with poor language skills have poor listening skills. [Hammaguchi, 1995]. Hence, good listening depends a lot on good language skills. The above findings imply that both reading comprehension and listening comprehension must be related to each other through language. This relationship is brought out in the model proposed by Kamhi and Catts (1986) for spoken and written language comprehension. The model highlights the relation of reading comprehension and listening comprehension to language.

A report from the American Speech, Language and Learning Association (1982 b) suggested that language deficient children "don't necessary catch up. The early forms of language disorders are seen as varying problems in comprehension and / or use of language symbols". Naucler and Magnusson's (1998), study of ongoing analysis of children over a period of 12 years indicated that early language problems were slow to resolve and they persisted in one linguistic form or another even in adolescence.

This shows that children with reading problems do not out-grow their problems with age because of their related language problems, their problems persist into higher grades. Hence there is a necessity for adequate language intervension at all levels to facilitate reading comprehension. This creates the need for an appropriate language based tool to identify and assess children with reading comprehension and listening comprehension problems at an early age. Following which intervention could be provided.

The earlier tools for reading assessment of the 1930's and 1940's concentrated on assessing skills like reading speed, reading accuracy, reading efficiency etc., and also they usually assessed children in the higher grades. Later, in the 1960's a need was felt to include language based items in tests for reading assessment. Hence, tests like Early Reading skills and Gray's oral reading Tests were developed.

The Token Test (De Renzi and Faglioni, (1978) has been used successfully to test the receptive language abilities of aphasics. With dyslexics also it has proved to be a valuable tool (Smith, Mann, and Shankweiler. 1986; Lapointe, 1976; and Whitehosue, 1983). The Token Test requires full processing of lexical content and syntax for successful performance. Being devoid of contextual cues, it places progressively increasing demands on knowledge of lexical and syntactic structures and short-term memory. Hence it is proved to be an ideal tool to assess both listening comprehension and reading comprehension in addition to the short-term memory, to identify children with reading problems.

Hence, there is a need to develop a screening tool to identify children with reading disability at an early age. By definition, reading disabled are those who perform two years below their actual grade. Since majority of the urban children of our country study in English Medium schools. They are required to learn to read English as a second language. This may lead some of the children to be mere poor readers, or a few to become problem readers. Children from grade III

and IV who are exposed to school at least for a period of two years were selected for the study. The following hypotheses were proposed.

I) There is no relationship between reading comprehension and listening comprehension.

II) There is no difference between the performance of girls and boys in reading comprehension and listening comprehension in III and IV grades.

III) There is no difference in the performance of III and IV graders in reading comprehension and listening comprehension.

METHODOLOGY

Aim: To study the reading comprehension and listening comprehension abilities of the third and fourth graders using the Token Test {De Renzi and Feglioni, 1978).

Subjects: 48 children, 24 boys and 24 girls, 12 each from grade III and IV, from an English medium school in a good locality of the Mysore city were selected for the study. The selection was done on a random basis.

Criteria for selection of subjects.

1. Grade: Third and fourth graders - boys and girls in equal proportion
2. Medium of instruction: English, with at least two years exposure to English in formal education.
3. No history of speech and language problems.
4. No history of failing grades.
5. No history of hearing loss or hearing related problems.
6. No history of mental retardation or academic dullness or emotional problems.

All the subjects who passed the above criteria were selected on a random principle from the class register. Table 3.1 below shows the two groups

Group	Grade	Sex	Number	Total
I	III	Males Females	12 12	24
II	IV	Males Females	12 12	24

Table 3.1 The number of subjects in groups I and II

Supplementary groups

Two more groups were included, groups III and IV.

Group III: Consisted of learning disabled children identified by a school clinical psychologist.

Group IV: Consisted of teacher identified slow readers selected from grades VI and VII. The Table 3.2 shows the groups III and IV.

Group	Grade	Sex	Number	Total
III	VI & VII	Males Females	3 3	6
IV	VI & VII	Males Females	3 3	6

Table 3.2 Groups III & IV

Test material

Shortened version of the Token Test (De Renzi and Faglioni, 1978) was split into two equal halves. One part was used to assess reading comprehension and one part was used to assess listening comprehension.

Token Test: Developed by De Renzi and Vignolo (1962) is a test of receptive language function that has been shown to be sensitive to subtle syntactic impairment in aphasic (Poek, Orgass, Kerschensteimer and Kartje, (1974) and other language impaired populations (Zallal, 1975). Briefly the Token Test consists of a series of commands requiring the subject to manipulate tokens of various colors, shapes and sizes. The commands are non-redundant (i.e., not predictable by contextual cues), and contain no infrequent vocabulary or unusual

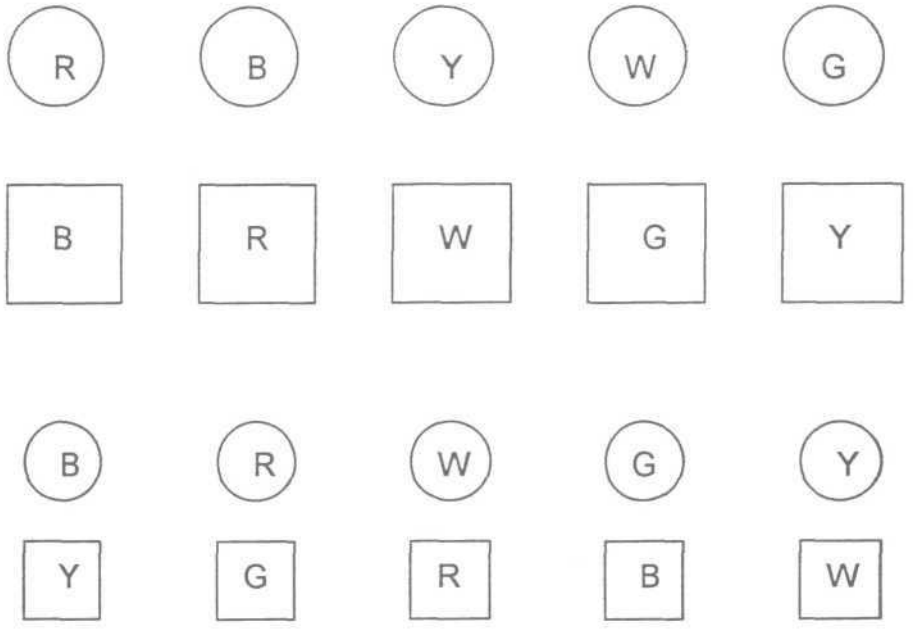
syntactic forms. Parts I through V contain 2 to 4 commands each, increasing in length but have no variation in syntactic structure. Examples are -

Part I : Touch a token/ square/ circle.
Part II : Touch the red circle.
Part III: Touch the little yellow circle.
Part IV: Touch the yellow circle and the red square.
Part V: Touch the little yellow circle and the big green square.

The commands of part VI vary in syntactic complexity and have been found to be the most difficult for both aphasic and normal population. It is sensitive to developmental changes in linguistic skills until about age The reliability and validity of the test are established.

Procedure for Test Administration

Figure 3.1 The placement of the tokens



R = Red B = Black Y = Yellow W = White G = Green

Placement of Tokens: The tokens are arranged on a standard desk sized ink blotter in front of the patient, and the order of arrangement always remains the same. (The order is pictured in Figure 3.1)

All the odd numbered subtests require only the big tokens, and all even-numbered subtests require both the big and little tokens. The rows of tokens and the tokens themselves, should be spaced enough apart (Approximately 1 V_2 inches for big so that the placing response can be differentiated between adjoining tokens. The small tokens are kept sequentially attached (out of direct view of the patient) so that the tester can quickly lay them down in the appropriate rows and sequences. They cam also be quickly picked up in their correct sequential order after the completion of each even numbered subtest and ready for the next appropriate subtest.

Seating: The subject is seated in front of a table or desk, with easy access to the tokens for reaching and picking up. The tester should be seated to the patient's right (unless a visual defect or a peripheral hearing defect dictates a left sided seating), close enough to a effectively gesture at the tokens, but clearly out of the patients working area and field of vision. At no time should the tester be across from the patient (facing him) when administering the test, because of the possible visual cues and or distractions the patient may receive.

Instructions: The instruction to the subjects were "I am going to play a small game with you with squares and circles. All you have to do is listen very carefully and do exactly as I tell you. You must pay attention very carefully because I will not repeat anything that I say twice. So if you pay attention and do well, you will be given a sweet as a reward. Are you ready".

"Now, here are some tokens. Can you name these shapes." (Various shapes and randomly pointed out). Then pointing to a big circle and a small say " If this is a big circle, this must be a_____circle."

The child is expected to fill it with 'small'. If the child does not then he/she is taught the shape or color or size. Similarly, the procedure is repeated with a big square and a small square. Only when one is assured that the child is aware of all the concepts involved colour, shape, and size, the test is commenced.

SCORING

Each unit in the command statement receives a separate number that represents a description of how the task was performed chosen from the 15-point scoring system. The possibility exists that each unit in a command could have a different number, assigned to it although this would be the exception rather than the rule. Most often there are only a few nonverbal units receiving a different score than the verb unit preceeding them. The scoring categories and their description are given below.

15-Complete. A score of 15 means that the response to an individual unit within a command was made promptly, with no mediation tactics, without extra information, was made completely, and in general, in a more "normal" manner.

14-Vocal-Subvocal Rehearsal. A score of 14 indicates that the patient, for one of several possible reasons, was having trouble mediating the auditory command or some part of it, and was either attempting to repeat the command, or some part of it, and was either attemting to repeat the command or unit (S) aloud or by whispering or by simply moving his lips. This was done without unusual processing time (which would be scored as delay). If any unit in the command is eligible for her score of 14, no unit within that command can receive a score higher than a 14. All the visual sequencing of the stimuli simultaneously with the command statement is not a separate category in the scoring system, its presence indicates a deficit in auditory mediation, and should be noted. Visual sequencing is often difficult to observe and when it is present, it is usually *seen in* combination with vocal sub-vocal rehearsal, but in any case is scored 14. When

it is obvious, circling the 14 to differentiate it from the 14 representing the similar distinct mediation tactic of vocally or sub-vocally rehearsing the command can note it.

13-Delay. A score of 13 means that the response was produced as a complete response (15) but required additional procesing time to complete. The determination of additional processing time should be differentiated from slow or uncoordinated motor response, such as those produced by hemiparaletics or ataxics. The determination of a delay is thus operationally defined as, and determined by either of two methods. A 13 is scored if the patient delayed initiating a respose, after the command had been completed, for the amount of time that it takes to silently repeat the entire command statement at the same rate of speech at which it was presented. A 13 is also scored if there was an obvious haltling or changing direction of a movement once a pointing or touching gesture had been initiated. (Normals have been found to respond quite consistently within this time lilmit without interruptions in gesture. If the first part of a two-part command is not delayed it is possible that the second part could be delayed, thus scoring all units following the first verb a 15, and all units following the second verb a 13.

12-Immediately. A score of 12 indicates that the patient was unable to mediate the command in any form and was unable to use additional processing time in order to respond. Because of this inability, he responded simultaneously with the verbal statement. In other words, the patient touched the first token before the tester finished giving the command. The patient who demonstrates this type of auditory deficit usually sits close to the tokens, and usually has a hand or finger poised for the next response, in order to expedite his following of the command. When this response is made it is usually fairly obvious, and is considered clearly an aberrant response. If any unit of the command statement is eligible to receive a 12, no unit in that statement can receive a score higher than 12.

11 -Self-correction. A score of 11 indicates that the command statement or a unit within it was performed incorrectly but was correctly changed without external feed back. This requires that the patient actually touched a token. If he did not actually make physical contact with the token, it is scored as a delay (13). If any unit in the statement is eligible to receive an11, no other unit in the statement can receive a score higher than a 13. This self-correction must be done before the subsequent command has begun.

10-Reversal. A score of 10 applies only to sub-tests iii, iv, v, vi, vii, and viii (in other words, for sub-tests consisting of two-part commands). A 10 indicates that any one set of units in this two-part command was reversed from the order in which they were verbally presented. For example, if the command " Put the green square under the black square" were responded to by picking up the black square and putting it on the green square, both colors would be scored a 10, the shapes a 15 (o r 13 if appropriaate) and the preposition would recive a 7. Other examples may help clarify this. If the command'Touch the red circle and the blue square" were responded to by touching the blue circle and the Red Square, the colour units would both redceive a score of 10, and the other units would be scored as 15. If only one unit in the two part command is reversed and the other unit is incorrect, (e.g. if the command " Touch the red circle and the blue squre" were responded to by touching the blue circle and the black square) both colour units would receive a score of 7. If repeat oor a cue is given and units or reversed, the reversal is not scored, but rather the repeat or cue is scored. (It may, however, be diagnostically and therapeutically significant if reversals do occur, and even though they are not formally scored when a repeat or cue is given, they can easily be noted by marking a small 10 in the upper right corner under the individual unit(s) concerned.

9-Repeat. A score of 9 means that the patient needed the same command statement given again. There are only three conditions under which a

repeat of the command may be given. The three conditions are the same for all commands and all subsets. These conditions are (1) if the patient asks for a repeat (this request does not have to be verbal; it can be indicated through a gesture): (2) if the patient does nothing for 30 seconds; and (3) if the patient does the task incorrectly, such as picking up a token when the command was to touch. The for a repeat (as for a cue) is always judged by the verb, and not by any other of the units in the command. If the first part of a two-part command is performed correctly as judged by the verb, and the second part is not,then a repeat or a cue is appropriate. In other words, if either verb in a two-part command is performed incorrectly, a repeat or a cue must be given. If a command is given and an extraneous distraction or noise accompanies it, such as a sneeze by the patient or a noise outside the test-room, or an unclear or non-fluent instruction by the tester, the command should be restated without scoring a repeat or a cue. When a repeat is given, no unit in the command can receive a score higher than a 9. Only one repeat per command can be given, and a repeat can never be administered after a cue. Any time a verb would receive a score of 7 or less, a repeat and possibly a cue is called for.

8-Cue. A score of 8 indicates that after a repeat, the patient required more information because he either did the wrong task, rejected the command, did nothing for 30 seconds, or requested a repeat. A cue is similar to a repeat but it gives a more explicit and concrete command with a more specific gesture accompanying it. A cue is only administered after a repeat. Standard cues are found at the bottom of each subtest in the format booklet. These should be followed exactly, with standard gestures.

7-Error. A score of 7 indicates that when a response to an entire command or a unit within a command othet than the verb receives a 7, no repeat or cue is justified, and that particular unit should be scored as an error. For example, if the command is to " touch the blue square", and the patient touches the green square, the task was performed correctly (touch), and the shape was

identified correctly (square), but the color was in error (scored 7). For prepositions, a score of 7 indicates that the token was placed in an acceptable position for the subtest (any one of six positions), but not for the specific command being tested.

6- Preservation. A score of 6 is given when a command or any unit within a command other than the verb is incorrectly performed, but was a preservation of a response to a unit in the preceding command (whether or not that initial response was correct). A perservation is defined as an incorrect response to a command (or to a unit of a command) that is also indentical to the one or ones preceding it (inter-command). No incorrect response to a unit can be scored as a perseveration unless it is identical to the previous response, or sequence of responses. For example, if a command requires the patient to touch the red token and he touches the blue token, a score of 7 (error) is appropriate. If, however, on the following command the patient is required to touch the green token and he again touches the blue token, and does so on succeeding commands, they should be scored as preservations. If a break in the pattern of touching blue tokens occurs and then another in appropriate blue token is touched, that response should not be scored as a preservation, but rather as an error (7).

A score of 6 indicates that the task called for was responded to appropriately (the patient performed the action), hence a verb cannot receive a score of 6. If a perservation in verbs is demonstrated, and the responses are intelligible but are not an attempt to do the specific task called for, the units following them should receive a score of 5.

A perservation signals that the task (the verb) was performed correctly; however, responses to units in one command are continued in subsequent commands when no longer appropriate. In other words, if a patient nondifferentially responds to a command by using the same token three times

successively, the last two responses should be scored as a perveration, but the first one should not.

5-Intelligible/rejection. A score of 5 can signify either an intelligible response or a rejection. It indicates that the patient responded to the command, but the response was not a clearly definable attempt at doing the task, although it was an intelligible response. This score would occur under circumstances like moving a token toward another token or demonstrating the function of coin with a token. Before a score of 5 can be give, a repeat and a cue must be administered, because the patient did the wrong task.

If the patient rejected the command, the score of 5 is circled. The rejection does not have to be verbal (spoken), although it could be. If the patient gesturally indicates an inability, this is acceptable. Whenever a patient rejects a command, the tester has the option to repeat and cue, or to go to another item, or to discontinue the subtest. A minimum of three items must be successively rejected before the subtest may be discontinued.

4-Unintelligible (Differentiated). A score of 4 indicates that the response could not necessarily be judged to be an attempt at the task (for example, if the patient picked up and shook the token, or stuck it in his ear but is clearly different from other unintelligible responses. A repeat or cue would always be appropriate, because the patient had responded but had not done the task,

3-Unintelligible (Perseveration). A score of 3 indicates the same type of reponse was performed as with a score of 4, but it was undifferntiated from previous unintelligible tasks. The same rules for scoring a preservation (6) apply. A repeat and cue must always precede this score.

2-Omission. A score of 3 means that one part (either part) of a two-part or a preposition, was omitted. (If the patient had no awareness of an entire

command, regardless of whether it had one or two parts, it is to be scored as a 1-no response) An omission also requires a repeat and a cue before a score of 2 can legitimately be given. (I.e., if a patient responds only to one part, usually the second, a cue should be given.)

1 - No Response. A score of 1 indicates that the patient did not respond. In other words, " No Response" means that the patient may or may not be attending to the tester or objects, but in either case, does not give a recognizable response in any output modality or by nonverbal means after an appropriate repeat and cue has been given.

Scoring Notes

Rule 1: No unit in an individual command can receive a score higher than the verb preceding it. When a task has been performed, the first decision that has to be made is whether or not the patient has done the exact task (the verb- "touch" or "put") under consideration. If he has, the first score to be entered on the score sheet would be in the column headed Direct Command. It can be assumed in most cases that all units following the direct or indirect command would be scored the same as or lower than the direct or indirect command preceding them. The units receiving a lower number than the direct or indirect command are the only ones that need to be recorded at that time, thereby conserving time in writing down each unit's score. For example, in the command 'Touch the red circle," if the patient touches the blue circle, the direct command would be scored a 15, the color would be scored a 7, and the shape would not have to be scored at that time, but rather would be assumed to be a 15 because the direct command received that score. (

Exception: If the direct or indirect command were self-corrected, and the shapes, sizes, or colors were used correctly of the initial response, the verb would be scored lower than the following units. In this case, the direct or indirect

command would be scored an II, and the other units would be scored as delays (13), because the self-correction can be considered to be additional processing time.

Rule 2: The second verb in a two-part command can receive a score no higher than the first. This rule applies most often where an initial delay is seen. Because the tester does not know which unit part of the command is requiring the additional processing time, both verbs must be scored as delays. As stated before in the scoring descriptions, the second verb can receive a score lower (most) often a delay) than the first verb.

Exception: If the direct command were self- corrected before a response was made to the second part of the two-part command, the direct command would receive a score of 11, and the second verb would be scored a 13.

Rule 3: Verbs cannot receive a score of 6. The reason for this rule is explained in the scoring dimensions, under number 6 (perseveration).

Rule 4: Repeats and cues are judged to be appropriate only by the verbs. Regardless of how other units in the command are performed, the carrying out of the requested verb is the criterion for administering repeats and cues. Any verb that is eligible to receive a score of 7; or a score of 5 (a score of 6 is not possible for the verb) or below, requires a repeat or a cue. When scoring the verbs, the only responses that can be scored as an error(7) are when: (1) the patient touches instead of picks up (puts); (2) the patient picks up instead of touches; or (3) the patient points toward a token when asked to touch. All other incorrect responses to verbs are to be scored as 5 or below.

Rule 5: Only one repeat and one cue can be given per command.

Rule 6: A repeat always precedes a cue.

Rule 7: The scoring of the " adverbial clause" in subtests IX and X are determined by the touching of only one token. The adverbial clause can receive a score no higher than the verb preceding it. The determination of right or wrong, and degrees thereof, is decided when the patient touches only one token, which would be correct, and it follows the score that the verb received. If the patient touches more than one token, the adverbial clause is scored as a 7 or below. The last token touched is the one scored (as with a self-correction). In an "either..or" command the tester must make a decision as to which of the two tokens the patient was attempting to touch in determining what is incorrect and correct in the response.

Rule 8: If the placement of the token is neither to the left nor the right in subtests VII and VIII< the preposition is scored as 5. If, however, the command is to place a token to the right of another and the patient places the token to the left (or the reverse), this preposition is scored an error(7).

Rule 9: If, after a repeat and cue, the patient does not arrange the tokens in a new prepositional relationship, all units are scored an error (7) with the exception of the preposition, which is scored an omission (2) (e.g., if the patient picks up each token successively and then puts them back in their respective places). After a cue, each unit would receive a score of 7, except the preposition, which would be scored a 2. A score of 5 would not be appropriate because the patient did pick up a token and place it somewhere. It merely happened to be non-differential for the preposition, and in this case more of an omission.

Rule 10: If the patient simultaneously touches two tokens (either with one or two hands) the command(s) should be repeated and cued appropriately until the patient touches the two tokens sequentially. During the pretest, this rule should explained if the patient touches two tokens simultaneously when screening for colors. If the patient does touch two tokens at the same time

(either with one or two hands), the examiner should say, "I want you to first touch one and then touch the other." He should then recheck the patient when the screening procedure is finished to confirm the patient's knowledge of what is expected of him with regards to sequential touching responses.

Rule 11: Occasionally, a patient will "pick up" a token instead of "touch" it. If the patient merely picks it up without doing anything with it, such as placing it in relation to another token or doing something unintelligible with it, it should be scored and administratively treated as the correct response to the verb "touch".

Test Environment

The test was administered in a quiet room in a single session. During the first half of the academic year the children were tested.

Total time for administration was 15 minutes on an average per subject.

Statistical Analysis

The data was subjected to statistical analysis. Mean, standard deviation, correlation. ANOVA and maximum performance were calculated for the data.

RESULTS AND DISCUSSION

The Token Test (De Renzi and Faglioni, 1978) was administered 48 children, 24 boys and 24 girls from grades III and IV, of an English medium school in Mysore. Reading comprehension and listening comprehension was assessed. The data was subjected to suitable statistical analysis. The results are presented below.

I QUANTITATIVE ANALYSIS

I <u>Performance of III and IV graders</u>

The mean and standard deviation scores for children from both grade-III and IV are presented in Table - 4.1

Table 4.1 - Mean scores on reading comprehension and listening comprehension of III & IV graders

Sl. No.	Sex	Read-ing	Liste-ning	Sex	Read-ing	Liste-ning	Sex	Read-ing	Liste-ning	Sex	Read-ing	Liste-ning
1.	M	10.38	11.77	F	13.722	13.777	M	12.777	15.00	F	13.444	12.944
2.	M	11.66	12.388	F	12.388	13.666	M	13.388	14.111	F	10.722	11.222
3.	M	11.722	12.833	F	12.944	13.222	M	13.666	14.00	F	11.50	9.055
4.	M	10.777	12.888	F	11.166	12.277	M	9.00	12.944	F	10.833	12.777
5.	M	12.5	13.5	F	11.555	12.555	M	11.111	11.388	F	13.111	13.888
6.	M	12.00	10.833	F	13.388	12.944	M	13.388	12.5	F	12.944	12.166
7.	M	12.944	12.00	F	12.666	13.5	M	12.944	12.944	F	13.722	13.888

8.	M	12.222	13.611	F	12.222	12.666	M	14.111	12.444	F	13.666	13.166
9.	M	9.777	11.166	F	12.5	14.111	M	11.888	14.111	F	13.166	13.722
10.	M	12.05	12.833	F	11.777	13.055	M	13.833	13.611	F	12.666	13.833
11.	M	12.111	12.000	F	12.833	12.666	M	12.055	12.055	F	14.111	13.611
12.	M	12.5	12.277	F	11.166	11.166	M	11.944	13.5	F	13.888	13.611
Mean (SD)		11.72 (0.942)	12.84 (0.850)		12.36 (0.822)	12.96 (0.790)		12.50 (1.43)	13.13 (1.089)		12.77 (1.13)	12.82 (1.43)

(i) Skills v/s grade

The grand mean scores (grade III = 12.47, grade iv =12.80) in Table 6 suggest that for both reading comprehension and listening comprehension the children almost approximate the maximum score of 15. However, the listening comprehension scores of girls from grade III and those of boys from grade IV are the closest to the maximum (12.96 and 13.13 respectively)

The standard deviation scores in Table-6 are suggestive of higher variation in grade IV children (s.d.range=1.08 to 1.43), as compared to that of grade III children (s.d. range = 0.79 to 0.94)

Figure 4.1 is a visual depiction of the mean scores of the children from grade III and IV. From the figure it can be inferred that the performance of all the children is better in listening comprehension than in reading comprehension. Yet, the difference between the scores on listening comprehension and reading comprehension is not statistically significant as evident from t-test for significance of the means (Table 4.2).

Figure 4.1: Means of Performance for Reading Comprehension and Listening Comprehension of III and IV Grades

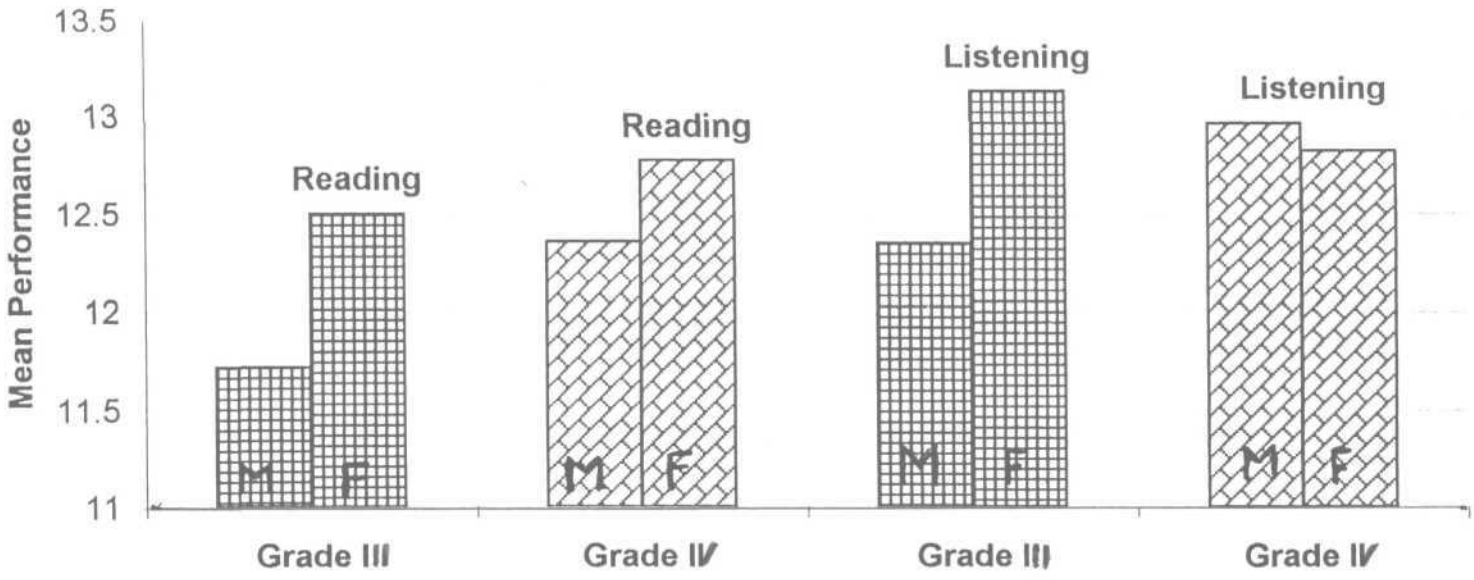


Table 4.2 - Performance of III and IV graders - Skills v/s grade

SI.No.	Parameters	Significance of means (2-tailed test) p 0.0 5
1.	III grade V/s IV grade - RC	0.577
2.	III grade V/s IV grade - LC	0.237
	RC = reading comprehension LC = listening comprehension	

The findings of t-test on mean and standard deviation support Hypothesis (III) which was stated as, 'There is no difference in the performance of III and IV graders reading comprehension and listening comprehension".

This finding is consistent with that found by Mullimani (1997), where the III and IV graders performed equally well in both the skills.

(ii) Skills Vs sex

It is observed that in grade III girls performed better in both reading comprehension and listening comprehension than boys. But in grade IV boys performed better than girls in listening comprehension, but not in reading comprehension. This poor performance of girls in listening comprehension in grade -IV could be due to the poor performance of one girl in this skill. However, the difference were not statistically significant as shown in Table 4.3.

Table 4.3 - Performance of III and IV graders - Skills v/s sex

SI.No.	Parameters	Significance of means (2-tailed test) p 0.0 5
1.	M V/s F -RC	0.306
2.	M V/s F -LC	-0.6204
	RC = reading comprehension LC = listening comprehension	M = male F = female

This result differs from that obtained in Badian's (1999) study. In Badian's (1999) study girls performed significantly better than boys in reading comprehension in grades III and IV. In the present study t-test on the means of scores for listening comprehension for boys and girls was not statistically significant (Table 4.3). This finding is similar to that of Badian (1999).

The findings of t-tests support Hypothesis-ll, which stated that, 'There is no difference between the performance of boys and girls in reading comprehension and listening comprehension, in III and IV grade."

(iii) In order to validate the results of the mean scored and to find the significance of difference between the means of two groups one-way analysis of variance (ANOVA) was done.

Reading

		Sum of Squares	Degrees of Freedom	Mean Squre	F	Sig.
Main effects	Grade	4.325	1	4.325	3.519	0.067
	Sex	2.454	1	2.454	1.996	0.165
2-way interaction	Grade Sex	0.425	1	0.425	0.346	0.560

Table 4.4 - One-way ANOVA with reading comprehension as a factor by grade and sex

Table 4.4 shows, the results of ANOVA. With sex as a factory an ANONA for the mean score on reading comprehension for grades III and IV is not statistically significant (0.165 p 0.05)

Listening

		Sum of Squares	Degrees of Freedom	Mean Squre	F	**Sig.**
Main effects	Grade	1.263	1	1.263	1.100	0.300
	Sex	0.298	1	0.298	0.259	0.613
2-way interaction	Grade Sex	2.628	1	2.628	2.287	0.138

Table 4.5 - One-way ANOVA with reading comprehension as a factor by grade and sex

Table 4.5 with sex as a factor an ANOVA for the means score on listening comprehension, for grades III and IV is not statistically significant (0.3) similarly findings have been reported by Badian (1999).

(iv) t-test on the means of listening comprehension and reading comprehension, for the children in grade III and IV, is not statistically significant (Table 4.2).

The mean scores on t-test revealed no significant difference between listening comprehension and reading comprehension. In order to check whether the absence of significant difference between the two means is due to the relationship between the two variables Pearsons correlation was applied to the data.

		R_3	R_4	L_3	L_4
Pearson Correlation	R_3 R_4	1.000 0.561 ** 0.292 0.490	0.561 ** 1.000 -0.034 -0.257	0.292 -0.034 1.000 0.400	-0.490* -0.257 0.400 1.000
Sig (2-tailed)	L_3 R_4 R_4 L_3 L_4	 0.004 0.166 0.015	0.004 - 0.876 0.226	0.166 0.876 - 0.052	0.15 0.226 0.052 -

** Correlation is significant at the 0.01 level (2-tailed)
* Correlation is significant at the 0.05 level (2-tailed)

		R	L
Pearson Correlation	R	1.000	0.475 **
Sig (2-tailed)	L	0.473 **	1.000

** Correlation is significant at the 0.01 level (2-tailed)
* Correlation is significant at the 0.05 level (2-tailed)

Table 4.6 - Correlation between reading comprehension and listening comprehension

The results of table 4.6 show that reading comprehension and listening comprehension are correlated. The correlation is of a moderate degree (0.473, p,0.01). This result supports Mullimani's (1997) and Badian's (1999) studies.

If the relationship between any two variables is high, then it is presumed that the underlying processes for the two variables could be similar. The model of spoken and written language comprehension by Catts and Kamhi (1986) suggest that for both reading comprehension and listening comprehension knowledge of language is mandatory . However, the results of this study

indicates a moderate correlation between the two variables, rather than a high relationship as would be presumed by Catts & Kamhi's model. This reveals that in addition to the language as a common underlying process other processes could be contributing to a good performance in listening comprehension and reading comprehension. Thus the results are only partially supportive of the Hypothesis I which stated, "There is no relationship between reading comprehension and listening comprehension".

Discussion

In the present study, in general the girls performed better than boys in both reading and listening comprehension tasks. However, this difference was not statistically significant. This supports hypothesis II which stated that "There is no difference between the performance of girls and boys in reading comprehension and listening comprehension in III and IV grade". But in Badian's (1999) study girls performed significantly better than boys in reading comprehension from grades I to VIII. Also, however, in Badian's (1999) study the difference in performance in listening comprehension between girls and boys was not statistically significant.

Another finding in the present study is that there was no significant difference between the performance of III and IV , graders. This supports hypothesis III which stated that, "There is no difference in the performance of III and IV graders in reading comprehension and listening comprehension." This is as expected from Chall's (1983) study which suggests that children between 8 and 11 years fall into third stage of reading development. Where they have just moved from the decoding stage to the automatic reading stage and have now began to read to learn. Hence, the child of 8 or 9 years gains sufficient mastery of the decoding process and can apply it automatically to print, as well as try to integrate it with meaning that they obtain by applying their knowledge of syntax and discourse at the sentence and text levels respectively. They use their

syntactic knowledge to predict elements yet to come in a sentence and organize sentential constituents for entry into memory stores. Finally, they mobilize their narrative discourse processing skills to organize, predict and interpret text elements, that is, units that extend beyond the sentence level. Thus in Chall's (1983) third stage it is assumed that the child has acquired adequate language skills and memory capacity to begin reading to learn.

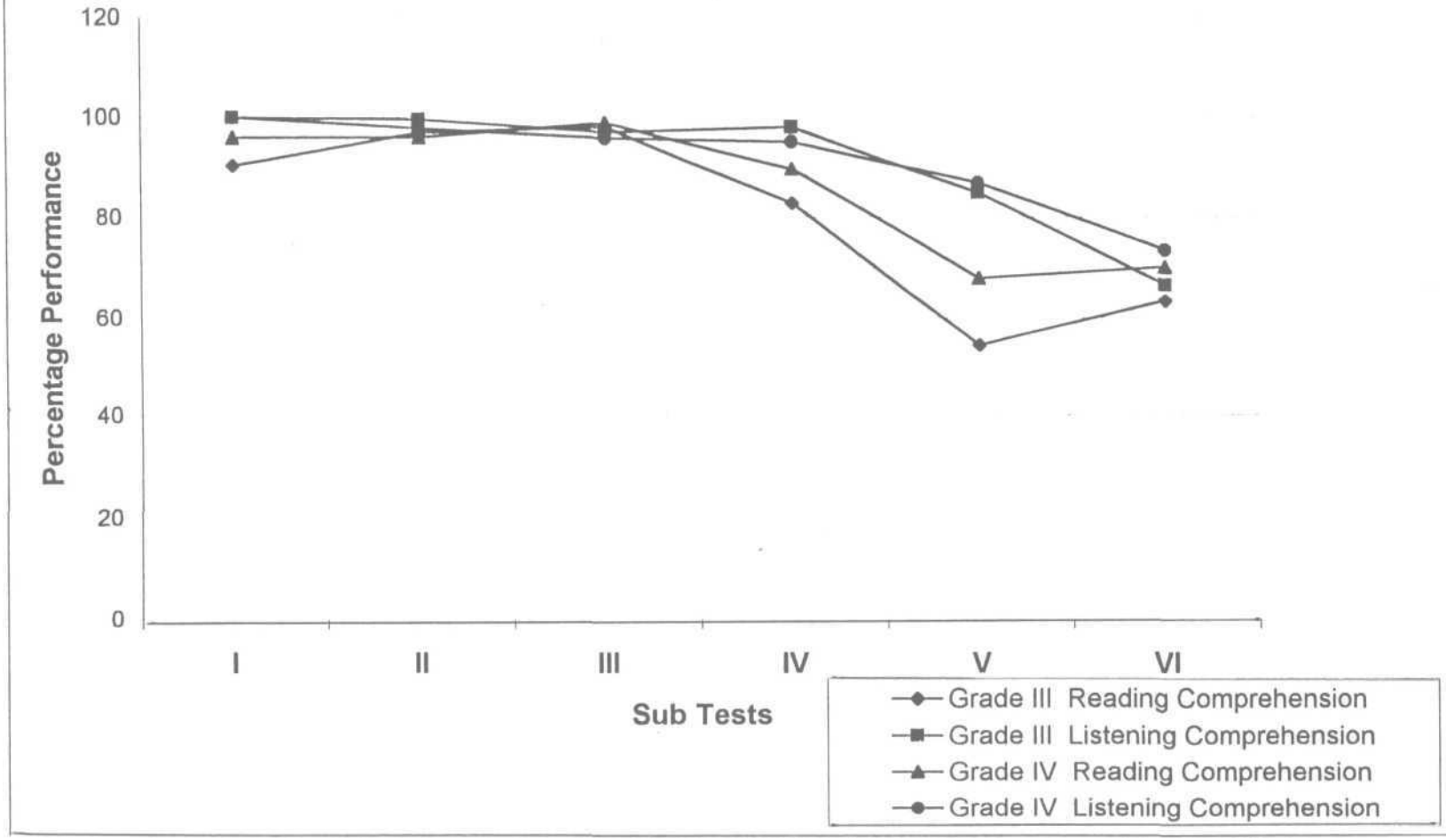
The performance of both the grades in reading comprehension and listening comprehension were moderately correlated. This result partly supports the hypothesis I which stated 'That there is no relationship between reading comprehension and listening comprehension." This correlation could be explained from the model of Kamhi and Catts (1986) for reading comprehension and listening comprehension. The model highlights the relationship of reading and listening comprehension to language. It implies one can expect a high correlation between the two skills. From this it can to be implied that any deficit in language skills would result in poor reading or listening comprehension or both. The lack of significant difference between the two skills could imply that language is the basis for the two skills. However in the present, study Pearson's correlation analysis suggests a moderate degree of relationship between reading comprehension and listening comprehension for the III and IV graders. This suggests the possibility that in the lower grades, other factors, besides language, are responsible for reading comprehension e.g., short-term memory. In Badian's (1999) study there was a moderate correlation between reading comprehension and listening comprehension in the lower grades (I to V) and a higher correlation between the two skills in the higher grades VI to VIM. This was reflected in the higher discrepancy between reading comprehension scores and listening comprehension scores in the lower grades as compared to the higher grades. Therefore in Badian's (1999) study we see a high correlation between the two skills in the higher grades as the gap between the performances for the two skills closes up. This increased correlation probably may be because (1) the language skills improve with age and exposure, (2) the decoding process becoming

automatic and fast with practice, (3) other factors like short-term memory playing a lesser role with age and exposure.

A report from American Speech Language and Hearing Association (1982b) suggests that language defecient children " don't necessarily catch up. The early forms of language disorders are seen as varying problems in comprehension and/or use of language symbols. "Naucler and Magnesson's (1998) study also supports the above report. They found that ongoing analysis of children over a period of 12 years indicated that early language problem are slow to resolve and they persisted in one linguistic form or another even till adolescence. Hence, the fact that reading problems do not out-grow with age, but persist into higher grades, highlights the importance of providing language intervention for successful reading. Such intervention procedures are always based on tests and assessment. As a first step towards identification of children with reading problems, there is a need for a language based screening tool, particularly in our country.

The results of the present study are in the support of the use of Token Test as a tool for screening reading comprehension and listening comprehension skills of III and IV graders. The means and standard deviation of this study would serve as normative data for this population. Thus using the revised Token Test, potential slow readers, poor listeners and the reading disabled population can be screened.

Figure 4.2: Performance on the Subsections by the III and IV Grades



II. Performance on the subsections of the Token Test

Figure 4.2 of performance in subsections of the Token Test. The figure shows that upto subsection (iii) both the groups (grade III and IV) perform equally well in both reading and listening comprehension. Hence the figure runs almost parallely for the two skills for both the groups implying that a common process i.e., language could underiy the two skills [Catts and Kamhi,1986].

The model of written and spoken language comprehension by Catts and Kamhi (1986), emphasize the importance of language for reading and listening comprehension. But the pattern observed in subsection (V) of Token Test provides another interesting perspective.

In sub section (iv) while the scores for listening comprehension increase, the scores for reading comprehension decrease. This pattern reveals an inverse relationship between reading and listening comprehension indicating the presence of different processes for reading comprehension and listening comprehension. In subsection (v) the difference between reading the listening comprehension is maximum for both III and IV graders. But only for III graders a dip is seen in subsection (iv) for reading comprehension, implying that they performed poorest in subsection (v) or that it was more difficult than subsection (vi). While for listening the III graders performed poorest in subsection (vi).

The IV graders performed equally poorly in reading comprehension in both subsection (v) and subsection (vi). But they performed better for listening comprehension in subsection (v) than subsection (vi). Implying that for listening they found subsection (vi) most difficult, while for reading they found both subsection (v) and (vi) difficult.

In subsection (vi) both grades III and IV performed almost equally poorly for both reading and listening comprehension. This implies that subsection (vi)

was equally difficult for reading and listening tasks for both grades (III and IV). In this subsection (vi) grade IV performed better than grade III. Hence subsection (vi) also required additional strategies for good performance.

An explanation for the inverse relationship observed in subsection (v), contrary to expectation according to the model for spoken and written language comprehension by Catts and Kamhi (1986), is given below.

In subsection (v) listening comprehension scores did not decrease compared to reading comprehension scores. The scores for reading comprehension, for grade III, decreased at a much faster rate than that for listening comprehension. This divergence from the trend observed for all the other subsections, can be explained on the basis of the reading process itself. Reading an alphabetic script is a two-step process - decoding the print and attaching meaning to the decoded units, thus leading to comprehension. Listening is a single step process where comprehension takes place through direct processing of the verbal input. Subsection (v) of the Token Test places increased demand on the short-term-memory [Smith, Mann and Shankiveiler, 1986]. This is due to the increased complexity of the task in subsection (v) which has 2 tokens each denoted by two adjectives. Here as the syntactic complexity increases other factors, besides language, such as short-term memory may be responsible for the comprehension. Thus, the subjects who performed poorly in reading comprehension tasks but not in listening comprehension tasks, did poorly in subsection (v) due to the two step process involved in reading the alphabetic script while decoding they failed to comprehend the print because they failed to temporarily retain successive words in their short-term-memory. Hence, impaired comprehension can be attributed partially to the verbal short-term-memory deficit, when materials were syntactically complex or lacking in contextual support. [Mann, Liberman, and Shankeweiler, 1980].

The Pearson's correlation analysis also revealed a moderate correlation between reading comprehension and listening comprehension suggesting that there could be, apart from language being the common factor for reading comprehension and listening comprehension (Catts & Kamhi, 1986), other factors underlying this process. The analysis of performance in the subsections of revised Token Test suggests that short-term-memory is involved particularly when the complexity of the syntactic structure is increased. Thus short-term-memory could play a vital role in reading comprehension.

Smith, Mann and Shankeweiler (1986), examined good and poor readers in third grade, using the Token Test and, on a test of immediate memory for word strings. They found that items that impose greatest burden on short-term-memory were the most sensitive in identifying poor readers. Thus they also found as syntactic complexity increased in subsection (v), other factors like short-term-memory played crucial roles in comprehension. Whitehouse (1983) found subsection (v) of Token Test to be a useful aid in the evaluation of dyslexic individuals. Lapointe (1976) reported the Token Test to be a useful of tool for diagnosis of subtle receptive language disorders in dyslexics. The results of the present study support the above findings. The results are also supportive for the adoption of the subsection (v) of Token Test as a sensitive tool to identify poor readers.

The proposal for adapting subsection (v) successfully as a screening tool for identifying poor readers and dyslexics is further strengthened by the findings of the present study in which about 7 out of 48 or 14.5% of slow readers were identified. These findings support the findings of Rao (1984) of 18% and Rao (1999) of 15%.

Table 4.7 Group V

Group	Grade	Sex	Number	Total
V	III & IV	Males Females	4 3	7

Thus the Token Test can be used as an effective screening tool to identify poor readers, poor listeners and reading disabled children.

III Test Identified Slow Readers

Sl. No.	Grade	Sex	Listening Comprehension	Reading Comprehension
1.	III	M	11.77	10.38
2.	III	M	12.888	10.777
3.	III	M	11.16	9.777
4.	III	F	11.166	11.166
5.	IV	M	12.944	9.00
6.	IV	F	11.222	10.722
7.	IV		9.055	11.50
		Total	11.45	10.47

Table 4.8 - Mean scores of test identified slow readers

Comparing the means scores for reading and listening comprehension from Table 4.8 and means scores in Table 4.1 for the same scales skills, we see there is a difference in performance. The test identified slow readers performed poorer than peers. The normals obtained about 12.81 for listening comprehension while the test identified slow readers obtained 11.45. In reading comprehension the normals obtained 12.33 while the test identified slow readers obtained 10.47.

The above findings were subjected to ANOVA to see if there is a significance difference in the mean scores.

Table 4.9 of ANOVA for normals and test identified slow readers.

		Sum of Squares	Degrees of Freedom	Mean Squre	F	Sig.
R_3	Between groups within groups Total	7.879 20.675 28.554	1 26 27	7.879 0.795	9.908	0.004
R_4	Between groups within groups Total	2.808 19.128 21.936	1 26 27	2.808 0.736	3.817	0.062
L_3	Between groups within groups Total	15.311 40.570 53.880	1 25 26	13.311 1.623	8.202	0.008
L_4	Between groups within groups Total	82.895 121.207 204.102	1 25 26	82.895 4.848	17.098	0.000

Table 4.9 shows that the difference in performance between the test identified slow readers and normals is significant.

In the present study by employing the revised Token Test for reading comprehension/listening comprehension about 7 out of 48 children i.e., 14.5 % of the children were identified as poor in reading comprehension and listening comprehension. This implies that the Token Test was able to identify 14.5% slow readers using a strict criteria. These findings are closer to those of Rao's (1984) and Rao (1999) findings of a prevalence of about 15-18% of reading disability.

Thus the Token Test can be a potential screening tool for the identification of poor listeners, poor readers and reading disability.

II QUALITATIVE ANALYSIS

(i) Performance of III and IV grades on the subsection (vi) in hierarchy of most to least difficulty

Table 4.10 Performance on Subsection (vi) by III and IV graders

Listening Comprehension			Reading Comprehension	
Sl. No.	Syntactic Marker	Percentage Error	Syntactic Marker	Percentage Error
1.	Away from	77.08	With	97.91
2.	Next to	56.25	If	89.58
3.	Between	37.50	Or	50.00
4.	No!	31.25	Slowly/quickJy	37.50
5.	On	18.75	Instead	31.25
6.	In addition	16.66	Except	18.75
7.	And	08.33		

From the Table 4.10 of the performance seen in subsection (vi) one feels that some syntactic structures were found to be difficult for the children e.g., with, if, away from. The tasks allotted for the two skills, listening and reading are not the same, i.e., different syntactic markers were assessed in each skill.

The number of errors made while reading is greater than that made while listening. So though subsection (vi) can be used to assess dyslexics, it needs to be further refined.

(ii) Performance on the scoring system of the Token Test II and IV graders.

Only two children scored below seven in the scoring system of the Token Test. In general, most children did not show characteristics of intelligible rejection, perseveration, differentiated or undifferentiated perseveration. The score of 2 which is denoted for the characteristic feature of omission was common among many children.

Self correction was one of the reasons for decreased scores. Though the percentage of self correction was low.

In the third grade especially the boys asked for more repetitions than any other group. The girls of third grade also requested repetitions on certain items but it was less than the number of repetition requested by the boys of III grade, but more than that requested by the boys and girls of grade IV.

Subvocal repetition was seen more among boys in both third and fourth grade. Only two girls from grade III demonstrated subvocal repetition - one performed quite well, but the other poorly over all.

Reversal was found more in grade IV.

Other characteristics like delay, inattention, immediacy, requiring cues, poor-memory (more than expected) and carelessness were minimally found among all groups may be with the highest being among III grade boys and lesser among III grade girls and least among IV grades.

(iii) Performance of the supplementary groups.

(i) Learning disabled children identified by the school clinical psychologist identified by the children

Table 4.11 - Performance of learning disabled children

Sl.No.	Sex	Reading	Listening
1.	M	8.66	11.722
2.	M	11.11	9.88
3.	M	9.944	11.44
4.	F	0.0	10.77
5.	F	10.22	12.11
6.	F	0.0	10.44
Total		6.65	11.06

Some of the characteristics that markedly differentiate the performance of the learning disabled children and from their peers of grade III and IV are extreme slowness in reading and responding, lack of attention and concentration, lack of focus, subvocal repetition and immediacy. Other characteristics found were tendency to read wrong, confuse between shapes, short term memory problem, needing cues, needing more repetition than the normal subjects and self corrections. One child could not comprehend section (VI) at all.

Some characteristics that were common between the learning disabled group and test-identified slow-readers are; poor memory, inattention, poor concentration, poor language skills, slow responses, fidgetiness and reading wrong. The difference was that these were not present in all of the test identified slow readers at the same time and not to the same degree of severity except for short-term memory problems. Other factors observed in the test identified slow-readers were carelessness, writing problems, poor spellings and subvocal repetitions.

The L.D. group performed significantly poorer than the normal aged matched group. The score of normals for reading was 12.33 and for listening

was 12.93. While those of L.D. was 6.65 for reading and 11.06 for listening. Yet they did not perform as badly as expected for the amount of problems they had.

(ii) Teacher identified slow readers

Table 4.12 - Performance of teacher identified slow-readers

SI.No.	Sex	Reading	Listening
1.	M	10.27	11.055
2.	M	12.50	13.333
3.	M	12.77	12.50
4.	F	13.166	11.33
5.	F	12.66	13.55
6.	F	13.22	14.05
Total		12.431	12.635

Their performance was typically like that of children two years below their actual grade. The means of the normal group was 12.33 for reading and 12.93 for listening. While that of this group was 12.43 for reading and 12.63 for listening.

They performed like the III and IV graders making similar mistakes. What differentiated them from normals is absence of subvocal repetition, request for repetition and necessity for cues. But factors like poor memory, poor narration skills, delay, self-correction and reversal were present.

What differentiated them from children with L.D. is the lesser number of errors. They did not show as much lack of concentration, confusion, slowness in reading and focussedness, as lack of motivation and expectation of success.

A subjective analysis of the performance of the various groups does lead one to speculate the possibility of negative reactions for the label of L.D. (both from the child and the environmental inclusive of parents, teachers, peer group) that could contribute to the severity of the disability. However, this needs to be investigated in future.

The above findings revealed that although language is an important faces for reading comprehension and listening comprehension, other factors, like short-term-memory, also play important roles in the above skills. A few characteristics after learning disabled children teacher-identified siow readers and test-identified slow readers are discussed. The differentiating factor among them seems to be more in the severity than type of characteristics.

SUMMARY AND CONCLUSION

"Language is.... the most momentous and at the same time the most mysterious. In language we have the free accomplished use of symbolism, the record of articulate conceptual thinking; without language there seems to be nothing like implicit thought whatever" (Langer, 1958).

Inspite of our awareness of its importance to mankind, language remains mysterious and relatively little is known about it. How is it acquired by the child ? What is the relationship between language development reading acquisition and its disabilities ?

In order to understand better the role of language in reading, this study was conducted. The performance of III and IV graders on reading comprehension and listening comprehension was investigated. Both these tasks are language based as highlighted in Kamhi and Catts (1986) model of spoken and written language comprehension. The subjects were 48 children, 24 males and 24 females from the III and IV grade of an English medium school in Mysore. The Token Test was administered on the children in two parts - one for reading comprehension and one for listening comprehension.

A summary of the results analysed by employing suitable statistical procedures in presented below.

The children in grade III and IV performed equally well, the difference between the means being not significant. This supports hypothesis III which stated that, 'There is no difference in the performance of III and IV graders in reading comprehension and listening comprehension". This results the fact that they are in Chall's (1963) third stage of reading acquisition.

Girls performed better than boys. This difference was not statistically significant. This supports the hypothesis II which stated that, "There is no difference between the performance of girls and boys in reading comprehension and listening comprehension".

A moderate correlation was found to exist between reading comprehension and listening comprehension among III and IV graders. This result partly supports the hypotheses I which stated that "There is no relationship between reading comprehension and listening comprehension". These results are consistent with those of Badian (1999) and Mullimani (1997). The lack of a high correlation as expected on the basis of Catts and Kamhi's (1986) model reveals that besides language other factors may be responsible for successful comprehension in the III and IV grades.

In subsection (v) of the Token Test an inverse relationship was observed between reading comprehension and listening comprehension. The above finding was explained on the basis of post short-term-memory and the difficulty encountered during the 2-step process for reading in alphabetic script by III graders, when the syntactic complexity increased. Increased syntactic complexity also placed increased demands on the short-term-memory, a defecit in which, resulted in poor comprehension inspite of accurate decoding. This we see that although language is an important factor for successful comprehension, other factors like short-term-memory also play a vital role for reading comprehension. Therefore it is reasonable to expect that different measures of reading ability either independently or in various combinations, at different times, may be required for an adequate assessment of reading.

The Token Test adapted by split-half method for reading comprehension and listening comprehension identified about 14.5% (7 out of 48 children) slow readers. Thus it proves to be a valuable tool to identify children with reading problems.

The qualitative analysis of the performance by the III and IV graders, Test-identified slow readers, Teacher-identified slow readers and learning disabled children shows the following. The main difference between the identified learning disabled children and the other groups was only in the severity of the problematic characteristics seen in them, rather than type of problems seen in them as a group. The labelling of children as reading disabled could have also further increased their problems.

Implications:

(i) The Token Test can be used as a screening tool ti identify children with reading problems. The normative data would be helpful to identify a child with reading disability.

(ii) The finding that both reading comprehension and listening comprehension are language based can be the basis for providing language intervention to improve reading and listening comprehension at all levels.

(iii) The finding that short-term memory has a vital role in reading comprehension of alphabetic system implies that this aspect also needs to be facilitated during intervention for children with reading disability.

(iv) Other factors playing roles in reading comprehension and listening comprehension, besides language and short-term-memory, needs to be investigated in future research.

(v) Validation study for proper sequencing of the items in the subsection (vi) may be taken up, so that the Revised Token Test may be suitably adapted for screening children with reading disability.

(vi) The above findings also add to the body of literature enriching it with concepts like the role of short-term-memory in reading comprehension.

(vii) The study contributes to the literature from the perspective of learning to read English as a second language.

Limitations

(i) Language with a non-alphabetic script could have been taken and results for each compared. Thus it would have been possible to know, if the findings of the role of short-term-memory and decoding of skills found in alphabetic scripts, are present even in other scripts.

Further recommendations

(i) A better design could have been used to find out the effects of using two different sets of syntactic markers for reading comprehension and listening comprehension in subsection (vi).

(ii) Knowledge of acquisition of syntactic markers by second language learners would have enlightened better on the percentage of difficulty of syntactic markers for reading as well as listening.

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APPENDIX

Token Test: Instructions for Administration

The token that was developed by De Renzi and Vignoo (1962) as a test of receptive language function. It has been shown to be sensitive to subtle syntactic impairments in aphasic (Poeck, Orgass, Kerschenstanir and Hartji, 1974) and other language-impaired populations (Tallal, 1975).

This test consists of twenty plastic tokens 3 mm in thickness. There are ten circles and ten squares. Five circles and five squares are large, that is, 30 mm on each side or in diameter, respectively, and five circles and squares are small, that is, twenty millimeters on each side or in diameter, respectively. In each series of circles or squares, the following colours are represented: black, white, red, yellow and green. When all twenty tokens are used, their arrangement on the table is that indicated in Figure 1.

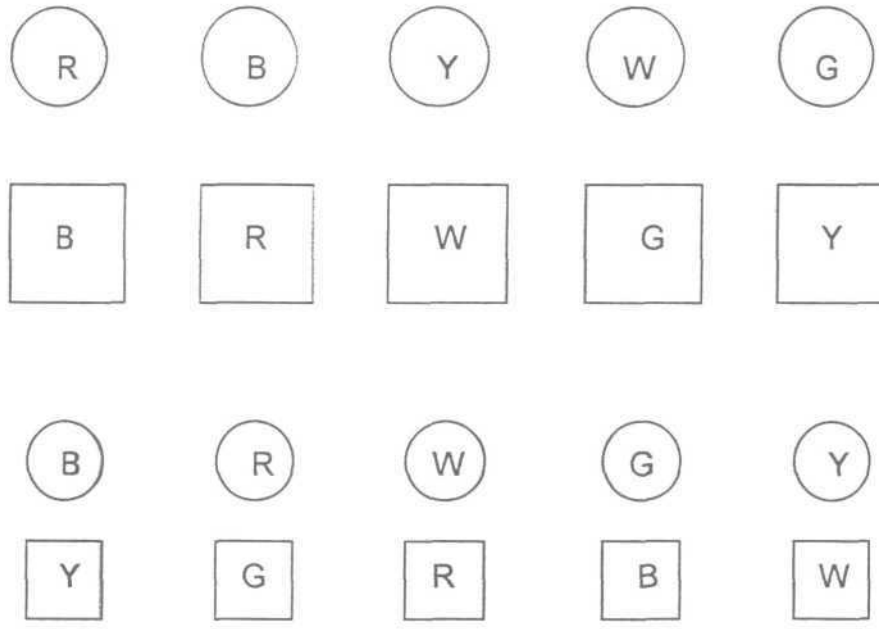

Figure 1 Arrangement of the tokens

Briefly the Token Test consists of a series of commands requiring the subject to manipulate tokens according to it. The commands are non-redundant (i.e., not predictable by contextual clues), and contain no infrequent vocabulary, or unusual syntactic forms. It contains six parts each containing several commands. The commands increase in length and syntactic complexity in each subsequent part.

Administration

Placement

The tokens are arranged on a standard desk-sized ink blotter in front of the patient, and the order of arrangement always remains the same. (That order is pictured in Figure 1). All odd-numbered subtests require only the big tokens, and all even-numbered subtests require both the big and little tokens. The rows of tokens, and the tokens themselves, should be spaced far enough apart (approximately 1 1/2 inches for the big tokens) so that a placing response can be differential between adjoining tokens. If the small tokens are kept sequentially stacked (out of direct view of the patient) the tester can quickly lay them down in the appropriate rows and sequences. They can also be quickly picked up in their correct sequential order after the completion of each even numbered subtest and kept ready for the next appropriate subtest.

Seating

The patient should be seated in front of a table or desk, with easy access to the tokens for reaching and picking up. The tester should be seated to the patient's right (unless a visual field or peripheral hearing defect dictates a left-sided seating), close enough to effectively gesture at the tokens, but clearly out of the patient's working area and field of vision. At no time should be tester be across from the patient (facing him) when administering the test, because of the possible visual cues and/or distractions the patient may receive.

Instructions

Pretest: The pretest instructions are designed to screen for patients who do not have the concepts of differentiated colors, shapes, and sizes.

Because the knowledge of these elements is what is under consideration on the pretest, and not how these elements are processed (as on the subtests), liberal repeats and short explanations, as well as positive reinforcement and feedback, are encouraged. It is recommended that the tester closely follow the given format for assessing these concepts. Accurate assessment of the patient's knowledge is the goal, however, and that should be thoroughly explored. If a concept is initially missed, it should be rechecked when all others have been completed.

Introduction of Subtest: Each subtest should be introduced before any command is given. The tester should say "This is part___." This informs the patient that he will be doing something different, and possibly alerts him to the task. It is also recommended that the tester not use the word 'test' or 'subtest[1] in reference to any part of the RTT when speaking to the patient, as this is psychologically stressful to some people and may therefore affect the patient's responses.

Tempo: The patient should dictate the tempo at which the individual commands are given. The tester, however, should keep a steady pace and not delay unnecessarily between command statements. Liberal positive reinforcement should be given between subtests, but never within a subtest. If during a subtest, the patient asks how he is doing, simply reply: "Just do the best you can, we will talk about it when we are finished".

Rate: Rather than determining the rate of presentation on the speaking rates of normal speakers, it seems appropriate to consider normal or preferred listening

rates. Because the RTT is designed to measure the integrity of the auditory system, and compare it to normal listeners, normal preferred listening rate is the target. The most preferred listening rate for normal adults has been found to be about 175 words per minute. This means a rate of 2.92 words per second (or approximately 3 words per second) is the desired presentation rate. All repeats and cues should be administered at this same rate. If a patient asks for a slower rate, tell him to do his best, but do not change the rate of presentation. A short time spent practicing with a stop watch will yield quick control. Recording the presentation given to several normal listeners and checking the rate with a stop watch should stabilize it.

Intensity: Unless a peripheral hearing loss is known to exist, all commands should be presented at about a normal, comfortable listening level. This is in the range of 60 to 70 dB sound pressure level (SPL), or about 50 dB hearing level (HL). If a peripheral (conductive or cochlear) loss is known to exist, amplification (either with a hearing aid, or by increasing the intensity of the tester's voice) should be tried if audiologically indicated. In either case, if amplification is used it should be clearly noted on the score sheet. Although an increase in intensity of RTT-type commands has not been found to be potent variable for improving performances for aphasic patients as a group, it may be a very potent variable for a given individual. Intensity of the presentation must therefore be closely monitored.

Prosody: The presentation of each unit in each command statement should be given with no special inflection on any one of them. There should be no breaks between units or sections of units (as in two part commands). In other words, the prosodic features such as rate, fluency, stress, intonation, and juncture should be held constant between commands and consistent within commands. A monotone is not desirable than special prosodic emphasis.

Part (v) - The small tokens are replaced

1. Touch the large white circle and the small green square
2. Touch the large green square and the large red square

Part (vi) - The small tokens are removed

1. Touch the black circle with the red square
2. Touch the black circle or the red square
3. If there is a blue circle, touch a red square
4. Touch the squares slowly and the circles quickly
5. Touch all the circles, except the green one
6. Instead of the white square, touch the yellow circle

Items from Token Test [De Renzi and Faglioni, 1978] for Listening Comprehension

Part (i) - All 20 tokens displayed as in Figure 1

1. Touch a square
2. Touch a red one
3. Touch a green one

Part (ii) - The small tokens *are* removed

1. Touch the black circle
2. Touch the white square

Part (iii) - The small tokens are replaced

1. Touch the large yellow square
2. Touch the small black circle

Part (iv) - The small tokens are removed

1. Touch the red circle and the green square
2. Touch the white square and the green circle

Part (v) - The small tokens are replaced

1. Touch the small black circle and the large yellow square
2. Touch the large white square and the small green circle

Part (vi) - The small tokens are removed

1. Put the red circle on the green square
2. Touch the black circle and the red square
3. Put the green square away from the yellow square
4. Put the green square next to the red circle
5. Put the red circle between the yellow square and the green square
6. Touch the red circle - no - the white square
7. In addition to touching the yellow circle, touch the black circle.