CHAPTER V
V. GENERAL DISCUSSION AND CONCLUSION

The present investigation intended to observe the developmental changes in reading acquisition in Oriya orthographic context and to examine its relationship with metalinguistic awareness, verbal processing skill and reading awareness. A longitudinal comparison of the development of good and poor readers over the grades on various measures of reading achievement, metalinguistic awareness and verbal processing skill was also made. A developmental pattern was obtained on the various measures except that of Automatic word processing task. Reading achievement was positively associated with both metalinguistic awareness and verbal processing skill. Relative importance of different levels of metalinguistic awareness differed in different grades suggesting possible shift in strategy involved in the process of reading acquisition. The gap between the good and poor readers of the same grade peers appeared to continue over the grades except a few cases in which the differences increased. The implications of the various findings are discussed in the following section.
Longitudinal comparison of the reading comprehension score of the school children revealed a continuous development in the performance over the grades. At the initial stages of reading acquisition, children did not differ in their comprehending ability. At Grade 3 a significant improvement in the reading performance is noticed and at Grade 5 the children are able to perform at nearly 50% accuracy level. On the basis of the observed pattern, it seems that the Oriya children in their reading acquisition process pass through three phases. It will be worthwhile at this stage to discuss briefly of the phases of reading acquisition in the light of the present empirical findings.

During the early phase (Grades 1-2) of reading acquisition, children primarily focus on learning grapheme-phoneme correspondence rules (Ehri, 1987). Throughout this period the size of the orthographic units is small (Olson, 1985) and the child chiefly engages in effortful decoding (Morrison & Manis, 1982). The low comprehension scores obtained in the present study at Grade 1(4.74%) and Grade 2 (10.64% ) suggest perhaps the children during this period are engaged in effortful decoding. Rout (1988) in a study on primary school children observed that children with good oral reading had poor comprehending ability. In a later study Rout (1994) specified two successive stages in the process of reading acquisition among Oriya children, only decoding the print at the initial stages and then decoding as
well as understanding the meaning of the text. Prakash (1987) in his study on reading proficiency of Oriya children also observed the two stages that are phonemic (syllabic) decoding (sounding out) alone and decoding with comprehension. As the oral reading scores showed there was a sharper development of decoding skills (68% in Grade 1 to 95% in Grade 5) compared to the development in reading comprehension (4% in Grade 1 to 36.7% in Grade 5). Hence, decoding is important at early stages of reading acquisition of Oriya learners. Children at Grade 1 and 2 of this study can be said to be at the alphabetic stage as contemplated in the model by Frith (1985). The child at this stage realises the sequential nature of letters and their corresponding sounds.

During the middle phase (Grades 3-4) of reading acquisition the size of orthographic unit increases as a result of experience in reading. At this point, decoding is still effortful and new words begin to include rhyming strategies to a greater extent. At the same time some whole-word codes especially high-frequency words become unitised in long term visual memory (Waters Seidenberg & Bruck, 1984) resulting in a sharp improvement of comprehension skills. Individual differences in reading strategies may appear, some children may continue to rely on lower level grapheme-phoneme correspondence rules whereas others may prefer an exclusively whole-word or analogy strategy (or a mixture of two strategies). It may be a possible explanation for a significant improvement in the comprehension score marked at Grade 3 level. Obviously, as comprehension is a higher order process involving memory processes, reading speed, inferencing and other general intellectual skills, it requires much of
The third phase in the process of reading acquisition emerges at Grades 5-6. Now, attention is focused on increasingly larger orthographic units (stems and whole words). Visual and phonological neighborhoods become firmly established in long-term memory (Glushko, 1979). Skilled word decoding may be the result of direct visual access to the lexicon (Coltheart, 1978; Seidenberg et al., 1984). Children when confronted with unfamiliar words, utilise a flexible repertoire of strategies. Other models of reading process have suggested that attention to specific lexical operations such as decoding facilitates understanding of meaning of sentences (LaBerge & Samuels, 1974; Perfetti & Lesgold, 1978, 1979). In other words, automaticity in word recognition saves time for processing of information and thus helps in comprehending the text. Difficulty in processing of the written symbol in turn hampers reading comprehension. Lack of automaticity may be the reason why the children are not able to comprehend the meaning of the text at early grades. As the children move to higher grades automatic phonological activation may take place resulting in better understanding of the text. Comprehension, as a consequence continues to improve. Children at Grade 5 can be said to be in Orthographic stage as advocated in the model by Frith (1985).

Several factors might have contributed to the observed pattern of results. Some of the factors which seem to be quite significant are teaching methods, script-specific features, children's perception of the reading task, differences in
"utterance" and text language etc.

Teaching methods to a great extent affect the process of reading acquisition. Since the Vedic periods, Indians followed oral methods in teaching. Conceptual teaching of Vedas were done only after perfect memorisation of the Vedic slokas. Cultivation of memory was given the foremost importance in education. Researches on reading chiefly describe two methods of teaching such as the phonic and whole word method. Whole word method emphasises on rote learning. Even today a lot of emphasis is given on rote learning in most of the primary schools. Teachers are not even aware of specific methods used, (Prakash, 1987). They rarely stress on the meaning extraction process of reading. Similar observations have also been made by other researchers (e.g., Pattanayak, 1981; Srivastava, 1979). But comprehension is much more difficult than mere memorisation though good memory is very much essential for better comprehension. Poor comprehension scores obtained in the present study may be due to the rote learning method adopted in schools.

Secondly, the nature of orthography seems to have some specific influence on reading acquisition. Indian orthographic system as has been discussed earlier is a mixture of syllabic and alphabetic principles. Oriya learner is required to remember 46 letters, diacritic marks, consonantal clusters. The complex syllabary system poses greater difficulty for mastery of the symbols, but the close grapheme-phoneme correspondence present in the system makes oral reading easier. This may not necessarily result in good comprehension which requires much more than merely reading or sounding out the alphabets. The script specific
features of Oriya orthography stresses more on the grapheme-phoneme translation process which becomes an obstacle in the process of meaning extraction.

Another factor affecting the comprehension skill of children may be their lack of knowledge about reading for meaning. Children in Indian schools seem to develop mechanical reading from their early years without much understanding of the task of reading. According to Gordon and Braun (1985) metacomprehension is an awareness of one's level of understanding during reading and the ability to exercise control over cognitive actions during reading to facilitate comprehension of a text. Johns (1984) viewed that student's perception of reading influences their reading performance. Poor reading awareness scores obtained in the present study shows that the children were not performing meaningful reading.

Finally, the discrepancy between the oral language and text language may create confusion in the children during early years of reading experience. David Olson (1975, 1980) defines oral language as language of every day speech and text language as written language which is tied to schooling. These two forms of languages differ in their structure and function. Children at initial grades face problem in traversing from orality to literacy which gradually disappears in higher grades.

To sum up the findings, comprehension performances reveal that there are developmental changes in the reading ability of school children over the grades. A significant development in understanding, that is, comprehension of the meaning of the
written passages can be seen at Grade 3 onwards. On the basis of the observed phenomenon, the reading acquisition process in Oriya can be divided into three phases, e.g. early, middle and late phases. During these processes, the child progresses from knowledge of a few words as a result of rote associations to understanding of some of the orthographic regularities. Finally, as the child gains even more experience with print, decoding skills become even more sophisticated and the child learns to use analogies or rules (Goswami, 1986). Practice and instructions perhaps play a significant role in helping the young readers develop such strategies more rapidly.

Development of Metalinguistic Skill

Development of metalinguistic ability is a crucial attainment in the process of reading acquisition. Metalinguistic awareness is assumed to occur during middle childhood. Some researchers have shown that metalinguistic ability correlate with cognitive development, literacy skills and to some extent with oral language skills (Gleitman & Gleitman, 1979; Hakes, 1980; Menyuk, 1984; Ryan & Ledger, 1984, Smith & Tager-Flusberg, 1982). Developmental studies indicate that the ability to make judgements on various linguistic domains (i.e. phonology, syntax, semantics and pragmatics) develops over time as linguistic knowledge matures. Some types of metalinguistic intuitions develop before others and the contexts in which these intuitions can be formed also change with maturation (Menyuk, 1977). Thus it appears that the order in which different types of metalinguistic skills develop does not provide a complete picture as to what
causes the emergence of metalinguistic awareness and the course and rate of its development.

The cognitive development view proposes that during middle childhood children develop the capacity for becoming metalinguistically aware when confronted with certain kinds of tasks, such as learning to read. Researchers like Hakes (1980), Lundberg (1978); Tunmer, Herriman and Nesdale (1988) have suggested that metalinguistic skills may be linked to the Piagetian process of decentering. Metalinguistic performances such as separating a word from its referent, dissociating the meaning of a sentence from its form and reflecting on the component elements of spoken words require the ability to decenter, i.e. to shift one's attention from message content to the properties of language used to convey content. An essential feature of both metalinguistic ability and decentering is the ability to control the course of one's thought that is, to invoke control processing. As the concrete operational thought emerges during middle childhood, it helps the development of metalinguistic awareness that demands control and the coordination of the two stimulus dimensions. In the present study, a continuous development in all the measures of metalinguistic skill was observed. However, for word creation and Message inconsistency tasks significant development was noticed at Grade 3 level and for all other measures of metalinguistic awareness major developmental spurt was observed at Grade 4 level (around 8-9 years of age). This supports the view that high levels of metalinguistic ability do not emerge spontaneously in development. Rather, children may first need to
reach a certain "threshold" level of decentration ability before they can perform the low level of metalinguistic operations necessary to acquire basic reading skills. In other words, children with little or no metalinguistic ability initially may be able to read normally provided that they possess the level of cognitive ability necessary for acquiring the requisite metalinguistic skill (Tunmer, 1991).

The decentration lag hypothesis provides an explanation of why specific phonemic-analysis training is particularly effective for some children (see, for example Williams, 1980), but unnecessary for most others who acquire basic reading skills without such training. In support of the decentration lag hypothesis are the results of some of the metalinguistic tasks given in the study. In two phonological awareness tasks, one syntactic awareness task and two pragmatic awareness tasks the Grade 1 children were able to perform above 40% accuracy level. The decentration lag hypothesis proposes that by the time children begin formal schooling most will have developed the capacity for performing metalinguistic operations, even though they may have never encountered situations that required them to do so. It is also observed in the present study that at Grade 5 level the children were performing at above 70% accuracy level in all the metalinguistic tasks. Thus, as suggested by Berthoud Papandropoulou (1978), schooling has a role to play in the development of metalinguistic awareness.

Some researchers are of the view that metalinguistic awareness develops concomitantly with language acquisition. Clark
(1978) has observed that young children make spontaneous speech correction by monitoring their own utterance, checking the results of the utterance, making effort to understand the listener. From the findings she concluded that metalinguistic awareness develops along with the development of language use skills. The present findings, however, show that Grade 1 children could perform at 40% accuracy level in most of the metalinguistic tasks (except in lexical awareness). It can be said even though language acquisition is an important factor for the development of metalinguistic awareness, it is not a sufficient condition to account for the developmental changes in metalinguistic awareness.

Brown, Bransford, Ferrara and Campione (1983) explained metacognition as involving both one's knowledge of cognition and one's control over cognitive abilities. Bialystock and Ryan (1985) identified two such processing components called analysis of knowledge and control of linguistic processes. Different language tasks depending on their levels of skills require different degrees of both analysed knowledge and cognitive control. Metalinguistic problems require more analytic or explicit knowledge (Bereiter & Scardamalia, 1982; Carpenter & Just, 1981). Researchers like Ehri (1979); Perfetti, Beck and Hughes (1981) viewed that literacy promotes analysis of linguistic knowledge. However, in the present study the children who were in their first year of school could perform at above 40% accuracy level. As reading depends on the degree of knowledge of any particular structure, this in turn would reflect the extent of analysis (Menyuk, 1984). Development can be viewed as the
emergence of more analysed forms through the increasing ability to structure and classify knowledge. For tasks that make high demands on control but only moderate demands on knowledge, the effect of schooling was significant (Scribner & Cole, 1981). In the present study significant development in different aspects of metalinguistic abilities were noticed beyond grade 3 level. The Grade 1 children, because of their unconscious awareness of automatic use of language as viewed by Valtin (1984) could perform quite successfully. It is in the second stage that the children develop conscious awareness or the spontaneous creative manipulation of language. It is indicated in the ability to provide description and definition of language rules and structures. The second stage reflects a general cognitive development which is perhaps attained beyond grade 3 level as observed in the present study. In the process of development children gain ability to abstract language from the action and to think about the properties of language. Although it is evident to some extent that linguistic awareness must be involved in reading in some way, the exact nature of relationship is not clear. This will be dealt with in a separate section. The purpose of the present discussion is to show whether different aspects of metalinguistic awareness develop as a result of reading acquisition.

In the present study, it was observed that Grade 4 and 5 children performed significantly better than Grade 1 children in phonological awareness tasks. Though the children were performing at 56.70% accuracy level at Grade 1, at Grades 4 and 5, they
could perform beyond 80% and 90% accuracy level in verbal similarity task. On the contrary, in case of strip-a-letter task which involves segmentation skills, the grade 1 children performed at 40% accuracy level which increased to 70% and 80% at Grades 4 and 5 respectively. This indicates young children can easily discriminate between speech sounds to signal meaning differences, but they encounter difficulty in segmenting words into phonemes. As Tunmer (1991) suggests that the use of phonemic contrast to signal a meaning difference is done intuitively at a subconscious level but the metalinguistic act of realising that the relevant difference is a phonemic difference requires the ability to consciously reflect on phonemic segments. This ability to consciously reflect on phonemic segments may be the result of reading experience.

Reading essentially involves word recognition and comprehension. The reader must recognise the word represented by each letter string and must understand what all the words collectively mean. The obtained results in word awareness task show that at initial grades children are unable to substitute a word for another new word or nonword in a sentence without violating the sentence forms. The children seemed to rely on the semantic aspect of the word and fail to realise the formal aspect and the arbitrariness of the linguistic forms. Word awareness skill was found to emerge at about Grade 3 and by Grade 5 children were found performing at 70% accuracy level. It may be due to the ambiguity and meaninglessness, the task require high level of mental flexibility (Watson, 1984, P.94). Thus, lexical awareness emerges slowly and with reading experience.
The results show that developmental changes in syntactic awareness do occur in case of primary school children. Though some of the Grade 1 children could make grammatical judgements, most of them failed to give explanations for their responses. Children beyond grade 3 could give correct grammatical explanations regarding unacceptable sentences. At grade 5, children could perform beyond 70% accuracy level. From the observed pattern of results it can be said that form awareness continues to develop beyond Grade 5 level and is influenced by reading and scholastic experience.

The results further indicate that children showed average levels of pragmatic awareness at Grade 1 which significantly improved at Grade 5. In both the tasks of pragmatic awareness taken in the present study, children could perform at beyond 90% accuracy level. The referential communication task taken in this study required children to correlate the pictures with adequate, inadequate and partially adequate messages which was relatively easier for the child as it involves a more routine aspect of language use. The optimum level of performance attained in case of message inconsistency task may be as children in this task are not asked to explain their judgements for consistency/inconsistency. However, the obtained findings emphasise the role of learning to read experience in the development of pragmatic awareness in children.

In sum, the present findings reveal that children showed average level of phonological awareness at initial grades which significantly improved after reading experience. Initially word
awareness was minimally present and is significantly influenced by learning. Both syntactic and word awareness were present before learning experience which became more matured over the grade/age. From the observed phenomenon it can be suggested that low levels of metalinguistic awareness may be present in the reader before reading experience and learning to read further facilitates the development of metalinguistic awareness.

**Development of Verbal Processing skills**

Studies on reading disability and dyslexia show that verbal processing skills are associated with reading difficulty (Vellutino, 1978). The verbal processes refer to one's ability to associate the visual aspects of letters and words with their linguistic counterparts. This helps in coding and synthesising verbal information for effective storage and retrieval. In reading, a rich fund of verbal information provides the variety of contexts necessary for sentence comprehension and also assists in developing cue systems for effective decoding of words. Difficulty at the level of rule learning prevents the child from making any substantial progress beyond the rudimentary word level (Morrison & Manis, 1985). There is evidence for the importance of verbal information, the importance of which increases as reading skills develop (Curtis, 1980; Daneman & Carpenter 1980; Jackson & Mc Clelland, 1979). In the present study, it was observed that children could perform at a minimum level (13.38%) in Grade 1 and performance steadily increased over the grades. Significant improvement in providing antonyms was noticed at Grade 3 level and at Grade 5, children were able to perform above 50%. It can be said that children continue to
improve in their performance on providing antonyms beyond grade 5 level. Thus, reading experience affects the processing of verbal materials.

In case of associative learning task, children took less number of trials as they progressed through the grades. The performance of grade 1 children significantly differed from Grades 3, 4 and 5. The task requires readers to utilise various knowledge sources stored in memory to process words. Semantic and syntactic information drawn from the world knowledge and linguistic knowledge help the reader to form an association between the pairs of word-pseudo word presented to them (Ehri, 1991). Thus, the ability to rapidly code verbal information on short-term memory task necessary for rehearsal is associated with reading achievement.

One of the most important capabilities to be acquired in learning to read is learning to recognise words accurately, automatically and rapidly (Ehri, 1980a; Laberge & Samuels, 1974; Perfetti, 1985; Stanovich, 1980). Mature readers while reading do not pass over each word and look only at those that they cannot predict from context (Carpenter & Just, 1981; McConkie & Zola, 1981).

The findings of the present study did not show gradual improvement in processing words automatically and the grade effect was not found to be significant. Sahoo (1986) in his study on grade 4 Oriya speaking achieving and nonachieving readers could not notice significant difference between the two groups in automatic word processing task. Hence, on the basis of the
observed results it can be said that as children move to higher grades no significant change occurs in automaticity of word recognition, at least in early grades. Stanovich (1980) was of the view that beyond the third grade level no further changes in the automatic recognition of familiar words occur. Therefore, automatic recognition may not be an important determinant of reading acquisition in children learning Oriya script.

Thus, the results reveal that verbal processing ability except automatic word recognition skill does show gradual improvement along with scholastic experience. As Gibson (1971) points out child while reading is required to "cross-reference" both the semantic components of a given word and other word features necessary for accurate decoding. The pattern of relationship between verbal processing skill and reading will be highlighted in subsequent sections.
Relationship Between Reading, Metalinguistic Awareness and Reading Awareness

Metalinguistic ability has been found to correlate with cognitive development, literacy skills and also with oral language skills (Gleitman & Gleitman, 1979; Hakes, 1980; Menyuk, 1984; Ryan & Ledger, 1984, Smith & Tager-Flusberg, 1982). Researchers differ on the nature of relationship between reading and metalinguistic awareness. Four possibilities in respect of the relationship have been noted in the literature (Ehri, 1979). One possibility is that metalinguistic awareness may be a prerequisite in learning to read. The second possibility is that metalinguistic awareness serves as a facilitator in the process of reading, so that better knowledge in metalinguistic skill makes the process of learning to read faster. The third possibility may be that metalinguistic awareness is a consequence of learning to read. According to this view learning to read is essential for and helps in the development of metalinguistic skill. The fourth and last possibility is that metalinguistic awareness may be taken as emerging independently without the help of reading experience, but the two are related to each other because they are linked to a "common source". Thus, according to this view observed relationship between reading and metalinguistic skill is incidental and not causal; the common factor underlying both the skills is general intellectual development. Paris and Jacob (1984) suggested that the children's knowledge about reading is a metacognition skill known as reading awareness. Successful reading requires conscious knowledge about the purpose of reading and requires monitoring as well as
regulating the strategies like semantic organisation, rehearsal, imagery and elaboration etc. Since reading involves metacognitive activities and metalinguistic awareness is a metacognitive process, it can be said that metalinguistic activities and reading are related. Both the processes represent the cognitive or intellectual function of the human mind. According to Babbs and Moe (1983) such cognitive functions are characterised by remembering, understanding, focusing and processing of information. Gordon and Braun (1985) viewed metacomprehension as the awareness of one's level of understanding and the ability to control over cognitive actions during reading to facilitate comprehension of a text. The researchers, however, differ in their opinion regarding the exact nature of relationship between metalinguistic awareness and reading.

One of the main objectives of the present study was to get a comprehensive picture of reading and its relationship with metalinguistic awareness in Oriya speaking primary school children. Results indicate that low levels of metalinguistic awareness was present prior to reading experience at school. Thus the basic metalinguistic awareness is not a product of learning to read. However, a significant development in metalinguistic awareness was noticed at Grade 3 level. This suggests that higher levels of metalinguistic ability do not emerge spontaneously. Rather during middle childhood children develop the capacity for becoming metalinguistically aware of certain kinds of tasks, such as learning to read (Tunmer, 1991). On the basis of this it can be expected that children with good metalinguistic skill will
succeed in reading proficiency. In the present study, the good metalinguistic scorers taken on the basis of their performance on eight metalinguistic tasks were compared with the poor metalinguistic scorers. As expected the good metalinguistic scorers excelled in reading comprehension performance compared to their peers who were the poor metalinguistic scorers (see fig 2). In other words, the observed pattern of relationship clearly shows that good metalinguistic awareness is necessary for good reading proficiency. That is, children having rich metalinguistic skill can be expected to succeed in learning to read. The findings of the present longitudinal study further show that children with a good metalinguistic skill at Grade 1 developed good reading proficiency in subsequent grades. It can be said that metalinguistic skill mostly remains latent in the early years of development and becomes more clearly manifested with the help of experience in reading. The metalinguistic skill and reading experience seem to interact with each other in a positive and mutually facilitative manner, each skill helping the development of the other one. In a recent study, Rout (1994) observed that good Oriya readers who remained above 75th percentile in reading comprehension test performed significantly better in metalinguistic tasks compared to poor readers who remained below 25th percentile in reading comprehension test. Similar findings were obtained by Hirsh - Paseket et al., (1978) showing that superior readers (from Grades 1 through 9) are better able to explain the verbal jokes than less adequate readers.
The metalinguistic model of reading acquisition by Tunmer and Bowey (1984) explains reading as having many subcomponent skills at phonemic, lexical, syntactic and pragmatic levels. The order of their relative importance of the various skills is hypothesised to be word awareness, phoneme awareness, syntactic awareness and pragmatic awareness. Multiple regression analysis in the present study show that phonological and word awareness are important at early grades whereas syntactic and pragmatic awareness are important at latter stages of reading acquisition. These findings were also confirmed by factor analysis. At higher grades reading comprehension was associated with all the metalinguistic factors.

Most of the recent studies indicate that poor readers as compared to normal readers lag behind in different metalinguistic skills (see Downing & Valtin, 1984; Prakash, 1987; Rout, 1994; Tunmer, Pratt & Herriman, 1984). Vellutino (1977) attributed the failure of poor readers in coding and chunking information to problem in one or more aspects of language. Karanth (in press) in her study on school going and non-school going children viewed that schooled literacy by and large brings about metalinguistic skills and develops heightened sensitivity to language through related cognitive activities. Ehri (1982) suggested that written language supplies a visual spatial model for speech which at the time of learning to read gets internalised as a representational system in memory. This visual spatial model for speech may facilitate performance in various metalinguistic tasks, particularly of phonological segmentation and lexical composition of sentences. The findings of the present study along with the
theoretical interpretations have reached an apparently circular conclusion, reading acquisition requires the discovery of the syllabic principles, understanding of the rules of language which however, do not develop except through the experience of learning to read. As such, metalinguistic awareness seems to be both the cause and the consequence of reading acquisition, suggesting an interaction view of the relationship between the two.

Besides metalinguistic skills, the three important aspects of reading awareness (evaluation, planning and regulation) play crucial role in reading acquisition (Paris & Jacobs, 1984). Gordon and Braun (1985) suggested that the active learner during reading takes help of various conscious acts like checking, planning, monitoring, testing, revising and evaluating. Proficiency in reading has been shown to be associated with good task awareness (Prakash 1987). Rout (1994) suggested a causal relationship between reading awareness and reading achievement. According to her, reading awareness guides the child to make appropriate decisions and thereby provides a framework for greater precision in performance. Therefore, good and poor readers can be differentiated on the basis of their awareness of reading. The results of the present study show a gradual increment in reading awareness scores across the grades. Significant development in the understanding of purpose of reading was noticed at Grade 2. In all the five grades, reading awareness measure was associated with reading comprehension. From the results of stepwise multiple regression it is evident that reading awareness emerged as a powerful predictor of reading comprehension at initial grades. It
can be said children at earlier grades need to know about the purpose of reading, understanding means goal relationship, awareness of one's capabilities and possible strategies available to reach the goal. All these help a child in the process of developing good reading skills. Mohanty and Rout (1989), in a study on Oriya speaking children reported significant effect of reading awareness on reading comprehension. Thus, reading awareness is an important factor in the process of reading acquisition.
Chall's (1979, 1983) portrayal of the initial stages of learning to read provides a global view of the relationship between verbal processing skill, reading acquisition and metalinguistic awareness. According to Chall (1979) Stage 1 covers the prereading period from birth until children become able to read. During this stage, children acquire oral language skills through listening story books from relatives. They acquire concepts about reading and begin to learn the shapes and names of alphabet letters and how letters differ from numbers. They practice writing by scribbling or by copying print (Mason & Allen, 1986). The next stage i.e, stage 2 is the initial reading and decoding stage. During this stage children learn to segment meaningful language into words and phonemes. According to Share, Jorm, Maclean, and Mathews (1984), letter knowledge and phonemic segmentation skills are the two best predictors of beginning reading achievement. Beginners acquire sight vocabulary and use this to read simple text. They are now able to phonologically recode words, that is, to transform printed words into pronunciations. During stage 2, readers acquire fluency in their reading and become able to process a growing number of words automatically with increasing speed. Stage 3 emerges with the mastery of the mechanics of reading process. The child now uses reading as a primary means of acquiring new information. According to Chall (1979, 1983), during the earlier stages the readers learn to read whereas at stage 3, they read to learn. These early stages of reading provide the background for the possible relationship between verbal processing skill and reading.
acquisition. One explanation of how reading words begin by processing graphic cues is that this ability evolves naturally and spontaneously out of children's prereading experiences (Goodman & Goodman, 1979; Goodman & Altwerger, 1981, Harste, Burke & Woodward, 1982). Acquiring print-meaning associations and signs provides the foundation for learning about the graphic system. In other words, the skill of processing the verbal materials are present to some extent in the reader before the experience of learning to read. An alternative explanation is that, to begin processing graphic cues to read words, children must acquire certain prerequisites such as letter knowledge and phonemic awareness (Bradley & Bryant, 1983, Ehri, 1979, 1983, Fox & Routh, 1975, 1976; Gough & Hillinger, 1980; Liberman & Shankweiler, 1979; Morais, Cary, Algeria & Bertelson, 1979). According to this view, for prereaders to shift attention from environmental cues to the print itself, children need instruction and practice in these prerequisites. This means in order to develop processing skill, children need certain amount of training.

Results of the present study indicate that significant development in verbal opposite and associative learning tasks occur at grade 3 level. The one measure on which the children of different grades did not differ was the picture-word interference task, a measure of automatic word processing. Thus, it can be said from the results that retrieving a word on the basis of semantic dimensions may be associated with a richer fund of semantic information about single words. It is also apparent
that minimal short term memory capacity is necessary for the act of reading. In other words, some portion of visual information must be held in short term memory during reading process while the next visual portion is processed. Findings with the disabled readers reveal that their problems lie in tasks requiring rapid scanning, encoding and rehearsal of multi-item arrays (Cummings & Faw, 1976; Mason et al, 1975; McIntyre et al, 1978; Morrison et al, 1977, Noelder & Schumsky, 1973, Schwantes, 1980; Springs & Capps, 1974; Stanley & Hall, 1973). According to Deutsch (1978), the processing deficits observed in disabled readers may stem from their failure to develop sophisticated reading skills. Morrison, Holmes and Haith (1974) and Sheingold (1973) further suggested that significant increases in serial scanning strategies occur between 5 and 8 years of age during the period in which basic reading habits are acquired. In a recent study, Schwantes (1980) demonstrated that increase in reading ability was associated with greater left to right scanning in processing briefly presented letters. Sahoo (1986) observed that the achieving and nonachieving readers differed in successive information processing tasks in which verbal component was involved.

Thus, on the basis of various theoretical interpretations, it can be said that minimum levels of processing skill is present before reading experience. However, reading helps in developing various sophisticated and complex skills which further help in the growth and utilisation of sophisticated rehearsal strategies.
Verbal Processing Skill, Metalinguistic Awareness and Reading

Examination of current empirical findings reveals that reading acquisition represents a relatively special case in which mastering of three important skills must be accomplished. First, the child must master the rules governing symbol-sound correspondences in a script. Second, the child must be able to use those rules in learning words and must progressively refine and automate basic word decoding operation. Third, while building automated decoding skills, the child must focus attention on acquiring and perfecting a complex set of processing and comprehension skills. This shows the three skills, verbal processing, metalinguistic awareness and reading are closely interrelated. Like reading, language is composed of a system of complex, often irregular rules and requires the rapid automatic processing of linguistic input and the development of sophisticated memory and comprehension skills (Morrison & Manis, 1982). Thus, it appears that the performance of operations or manipulations on verbal material, mastery of symbol-sound correspondence rules or phonological awareness, understanding of the rules in learning are developmentally linked or dependent on one another. In other words, developing sophisticated reading and comprehension skills depend on having automated decoding operations, which, in turn come about through mastery of symbol-sound correspondence rules. There is evidence that segmentation training which should promote awareness of phonemes, improves reading skill of less able readers (Vellutino & Scanlon, 1987). Sahoo (1986) in his study on achieving and nonachieving Oriya
learners observed a very close association exist between the skill in processing linguistic/verbal information and reading achievement. According to him, poor reading performance may be attributable to general deficiency in linguistic and verbal functioning in terms of speed accuracy of verbal processing and in verbal association skills. As viewed by Vellutino (1987), in reading, verbal information is not only necessary for sentence comprehension but also helps develop different information contained in the printed word, viz. graphical (visual features), orthographic (internal structure), phonologic (sound components), semantic (meaning) and syntactic (parts of speech). Lack of information in one of the linguistic constituents restricts the cues available for making accurate decoding. This process of transformation involves an efficient processing of graphic, phonological, semantic and syntactic information in written language (Soto & Soto, 1983). The above findings clearly show the role of underlying metalinguistic awareness characterised by an ability to make use of the abstract relationship between graphic symbols and phonemes.

The results of this study further indicate that the metacognitive factor identified in factor analysis includes both the measures of metalinguistic and verbal processing skill. The measures of metalinguistic awareness usually involve abstract manipulation of verbal stimuli taken as the object of cognitive focus. The verbal processing tasks like verbal opposite and associative learning measures involve ability to think and operate beyond processing at word level. Thus, these measures seem to overlap with each other. On the basis of the above
observations the course of normal development in reading acquisition can be summarised as follows. There seems to be some preliterate experience with speech sounds, as in noticing and producing rhymes. This experience directs the child's attention to relevant speech effects. The child's knowledge during the preliterate period remains largely implicit. However, this knowledge enables the child to make some critical connections to be made during his/her early encounters with the print. As children advance in reading, they achieve a more controlled and reflective knowledge of the structure of language. Thus, the normal progress of learning to read is a reciprocal growth of ability to process verbal information, ability to make intentional use of semantic information and the print knowledge.
Orthographic Factor in Reading Development

Reading as an aspect of general language behaviour can be said to bear significant implications to the nature of an orthography. In the process of reading acquisition, the reader takes help of the orthographic information and as has been indicated earlier, the different types of orthography require different cognitive strategies to achieve reading. Indian orthographic system is a mixture of syllabic and alphabetic principles in which the alphabetic segments are combined to form syllabic units and each syllable form can be analysed into its consonant and vowel components. Besides, there is nearly perfect graphophoneme correspondence between the letters and the sounds they represent. In Oriya orthography, the reader has to remember 46 letters, diacritic marks, consonantal clusters, which may create problem for the beginning reading. Because of the close graphophonemic correspondence, once all the symbols are learnt oral reading becomes easier. Different writing systems vary with regard to the role of phonemic segmentation in reading. Three views of the relation of phonological awareness to reading acquisition have appeared in the literature. The first is that the ability to segment spoken words into phonemes is necessary for children to be able to discover the systematic correspondences between the elements of spoken and written language (Gough & Hillinger, 1980; Jorm & Share, 1983; Stanovich, 1986). Evidence in support of these suggest that training in phonemic segmentation skill produces significant advantages in reading achievement (Bradley & Bryant, 1983, Olofsson & Lundberg, 1985). Phonological awareness, in turn, influences reading
comprehension indirectly through phonological recoding ability (Stanovich, Cunningham & Feeman, 1984; Tunmer & Nesdale, 1985). The results of the present study indicated that the verbal similarity one of the measure of phonological awareness emerged as the best predictor of reading comprehension at Grade 1. At Grade 1, children performed at mean percentage of 56-70%. At grades 4 and 5, strip-a-letter task, a measure of phonemic segmentation skill came out as a powerful predictor of reading comprehension. The mean percentage of performance increased to 90% at Grade 5. From the results it can be said that average levels of phonological awareness are present before reading experience and learning to read further facilitates its development.

The proponents of the second view claim that phonological awareness is a consequence of reading acquisition (Byrne & Ledez, 1983; Morais, Carry, Algeria & Bertelson, 1979). Ehri (1984, 1987) further argues that as orthographic knowledge influences children's performance on phonemic segmentation tasks, children should be taught phonemic segmentation skills while they are learning to read. Byrne and Ledez (1983) found that adult illiterates performed very poorly on the phoneme reversal task in comparison to normal adult readers suggesting that phonological awareness is largely a consequence of reading acquisition. The results of the present study show that ability to perform well on phoneme deletion task develops with increasing reading ability. It can be said that as the phoneme deletion tasks require high levels of ability in using a phonetic code in working memory and
in generating orthographic images, this skill develops with reading experience (Tunmer, 1991). Both the views discussed so far may be correct to some extent, but there can be a third possibility that phonological awareness is both a cause and a consequence of learning to read. In other words, children must achieve at least some minimal level of explicit phonological awareness to acquire basic reading skills which in turn, help them to acquire the skills of reading that provide the basic for more advanced metalinguistic performances (Stanovich, 1986). In support of this claim, Tunmer and Nesdale (1985) examined the relationship between phonemic segmentation ability and pseudoword recognition. They suggested that explicit phonological awareness is a necessary, but not sufficient condition for acquiring the grapheme-phoneme correspondence rules. With progress in acquiring basic reading skills, the relationship between the development of phonological awareness and learning to read appears to become mutually supportive (Tunmer, 1991 cited in Rieben & Perfetti, 1991).

Perfetti, Beck and Hughes (1987), in a longitudinal study, assessed the phonemic knowledge and reading ability of first grade readers four times throughout the year. Analysis of the results revealed that progress in the ability to perform a phoneme deletion task appeared to improve reading proficiency. Consistent with these findings are the results of this study. The relationship between the development of phonological awareness and Oriya literacy acquisition appears to be mutually supportive.

Besides phonological awareness, the other predictor variables were word creation at grade 2, sentence acceptability at Grade 3 & 4 and referential communication at Grade 5.
Correlational analysis showed that sentence synonymy is related to graded reading comprehension in grade 2, that is after one school year. This indicates that syntactic awareness develops later in reading acquisition. Prakash (1987) also reported similar observation in his study on Oriya speaking children. Another pattern evident in the present findings is the nature of relationship between metalinguistic measures and reading with respect to earlier and latter grades. There is possibility of shifting in strategy that the Oriya learners take help of in the process of reading acquisition. This may be due to the nature of orthography and type of teaching methods that the Oriya learners are exposed to in the process of reading acquisition.
The main objective of the study was to examine the acquisition of early reading in relation to metalinguistic and verbal processing skills. In order to have a better understanding of the pattern of relationship, the poor and good readers among the same grade peers were compared longitudinally over the grades. There is a large body of studies whose results do consistently show a difference between good and poor readers in a number of reading related measures. The reading groups chiefly differ in the following aspects:

1. The fundamental problem experienced by the poor readers lies in acquiring knowledge about words in particular and knowledge of spelling sound correspondences. The rule learning difficulty in reading may represent a problem in learning complex or irregular rule system in general.

2. Failure to learn the rules of a particular orthography and phonology prevents the child from developing rapid automated word decoding operation.

3. As the poor reader has to put more effort at simply decoding words for meaning, he has thus little capacity to devote to higher order reading skills and comprehension (LaBerge & Samuels, 1974)

4. Poor readers fail in developing processing skills like rapid encoding, serial scanning as well as rehearsal skills. This as a result hamper the acquisition of higher order reading and comprehension skills.

Analysis of the findings of the present study reveals that both good and poor readers show gradual progress in performance across the grades. The reading groups clearly differed on various reading, metalinguistic and verbal processing measures except in picture word interference task. The gap between the poor and good younger readers increased over the grades on measures of verbal opposite, strip-a-letter, symbol substitution, message inconsist-
ency. On the other hand the gap between the performance of poor and good readers of the older group increased for measures of RCPM, verbal opposite, symbol substitution, synonymy judgement, message inconsistency, referential communication tasks. For other measures except that of picture word interference task, the gap between the older reading groups increased at Grades 3 and 4, but it again decreased at Grade 5. Analysis of the pattern of results revealed that a cumulative deficit trend is evident for the older group of children. As the children in the younger group were in the first year of school starting learning to read, it is difficult to predict their later reading skill. It is possible as the children were taken at their initial stages of reading acquisition, a clear cumulative deficit trend could not be observed for some measures. However, the poor readers revealed weakness in reading skill and syntactic control when compared to good readers of the same age and grade. This adds further weight to the verbal deficit hypothesis of Vellutino (1977). The poor readers can be seen as operating at a less mature linguistic level. Many poor readers have been observed to demonstrate all the requisite language concepts, that is, word, phoneme, sentence, but fail to coordinate such knowledge properly in the process of reading (Bialystock & Ryan, 1985). Consistent with these observations the problem of the poor readers in the present study is particularly serious with relatively abstract knowledge. Chomsky (1980) distinguished linguistic competence from pragmatic competence by claiming that the rules for using the system in real situation (pragmatics) are independent of the rules that define the structure of the system (linguistic).
Longitudinal comparison between poor readers of the older and the good readers of the younger group revealed superior performance of the latter on all measures except that of associative learning and symbol substitution task. However, although the performance of the younger good readers was poor initially in these two tasks, it was found to improve later. Several studies have shown that poor readers do not differ from good readers in the ability to learn words logographically. Rozin, Poritsky and Sotsky (1971) could successfully teach a group of second grade American poor readers to read English equivalents of Chinese characters. Other researchers have carried out more controlled experiments in which poor readers are taught to associate meanings with word-like symbols in a paired-associate learning task (Frith, 1972; Jorm, 1977, 1981). Guthrie (1973) compared the older poor readers to younger normal readers. The older poor readers were worse on a reading comprehension task despite having the same word identification ability as the younger children. Waller (1976) has shown that poor readers have difficulty in retaining information about wording, but not in retaining information about gist. From the results of the present study it seems children who are poor initially in reading skill continue to do poorly and fall behind the good readers of the same class. Ingram, Mason and Blackburn (1970) provide evidence for developmental language problems in severely impaired children. Jorm, Share, Maclean and Mathews (1984) observed the children with poor phonological recoding skill at kindergarten lagged behind the group having good phonological skill still to a
greater extent over the subsequent two years. In other words, the gap between the groups increased in subsequent years.

In sum, disparity between the reading groups in the present study was observed for most of the metalinguistic, verbal processing and reading measures except for the picture word interference task. However, barring the reading measures, few metalinguistic and two verbal processing measures, the reading groups diverged progressively on other measures showing a cumulative deficit trend. Matching children on the basis of only reading comprehension performance shows that disparity between their performance disappears on some cognitive processing tasks. Since reading involves basic cognitive processes, while matching groups on reading one may inadvertently match their performance on a number of cognitive processes (Das, Bisanz & Mancini, 1984). Relying purely on reading comprehension scores increases the probability of including in the sample of poor readers children with a wide variety of cognitive or even social/emotional problems. Moreover, in contrast to good readers, poor readers tend to be rigid in their approach towards the task in two different ways (Sprenger-Charolles, 1988). First, they do not progressively adapt their strategies to the task as good readers do and secondly, they seem unable to find various lexical alternatives. This might be explained by impoverished vocabulary of the poor readers which itself is one of the consequences of not learning to read. Metalinguistic difficulties especially might play a critical role in the problems poor readers have in learning to read (Sprenger-Charolles, 1988). Similar observations were noticed in the comparison of good and poor readers of the present study.
Teaching Reading skills in Indian context

It seems quite logical to speculate from discussions in previous sections that, all other things being equal, the nature of orthography one is exposed to should have some specific influence on reading acquisition. High graphophoneme correspondence in Indian Orthography makes oral reading easier. Reading acquisition in Indian children seems to be straightforward and hierarchical (Prakash, 1987). Observations of reading in primary schools show that many teachers are provided with an instructional procedure that directs them not to trouble the child with details of how the orthography works. The procedure adopted in schools encourages beginners to memorise the visual appearance of words as visual patterns and then use the known words as a basis for guessing the rest of the information from picture cues and context. This, as a result, affects comprehension. Thus, the teachers and the educationists of our country must be aware of the specific structural features of our writing systems and stages of reading acquisition that children undergo.

Direct teaching of all relevant grapheme phoneme correspondences will make sounding out a successful word identification strategy. One should be conscious of the fact that instruction and age interact with orthography. Wimmer et.al, (1990) suggested that in a transparent orthography use of phonics will be more effective with 7 years old than with 4 to 5 year olds. However, for learning to read Oriya as well as other Indian languages, phonological training or development of phonological coding skills may not have such a direct effect on reading skills. This
is because, sound blending and contextual decoding of graphemes are not required as much for Oriya readers as for others, for example learning to read alphabetic scripts. Training in lexical awareness helps the reader recognize the syntactic-semantic features of written script. Thus, training in lexical awareness helps in decoding and subsequently improves comprehension. As suggested by Lesgold et al., (1975) such training program will be helpful to children in the process of transition from decoding to comprehension. Reading comprehension performance can be improved by instructions with an imagery strategy (Levin, 1973) and with self-instructional training (Malamuth, 1979). Brief instructions to use some specific rules e.g. overlook redundant information, substitute a general term for items in a list and identify the topic sentence etc. can be effective for the non-expert summarisers (Day, 1980). Students should be encouraged to underline and take notes which in turn will help them to differentiate the important points from the unimportant details (Brown & Smiley, 1978). Phonemic segmentation training and verbal response training on second and sixth grade poor and normal children of average or above average I.Q. improved their reading proficiency. Schwantes (1980) demonstrated that increases in reading ability were associated with greater left to right scanning in processing briefly presented letters. Thus from the review it appears specific metalinguistic and verbal processing training in interaction with the nature of orthography do help in the development of good reading skills which further facilitate the development of linguistic and verbal skills.
Implication and Limitation of the Study

On the basis of the findings of the present study it seems that reading is essentially a metalinguistic task. A number of investigators have suggested that phonemic analysis skill correlates with and predicts reading success (e.g., Lundberg, Olofsson & Wall, 1980; Stanovich et al, 1984; Trieman & Baron, 1981). Instruction in phonemic analysis seems to help children learn correspondences between printed and spoken words (e.g., Bradley & Bryannt, 1983; Fox & Routh, 1984; Trieman & Baron, 1981). Since Indian Orthography is a mixture of syllabic and alphabetic principles, letter identification is important at early stages of reading acquisition. It may be useful to teach children about the relationship between print and speech before they are able to divide spoken words into phonemes (Rozin & Gleitman, 1977). Once children are able to divide familiar multi-syllabic words into syllables, they are introduced to the notion that spoken syllables can be represented visually. This teaches children that written symbols stand for sounds and that these symbols can be used to represent words and sentences. This approach may not be a choice for languages that have many different syllables. But this might not be a problem in Indian orthographic context. Once all the symbols are learnt, the nearly perfect graphophoneme correspondence of Indian orthography will make oral reading easier. Besides these, children early in school should be provided with rich opportunities to play with language, to explain puns and riddles, produce rhymes, to analyse utterances and to make judgements about the appropriateness of language form and expression in various contexts of
communication. Lundberg et al., (1980) showed that metalinguistic measures on nonreaders in kindergarten were highly predictive of latter success or failure in reading. It can further be said from the findings that poor reading is largely due to a deficiency in processing of verbal materials. Verbal response training on second and sixth grade poor and normal children resulted in better performance (Vellutino & Scanlon, 1984). One important link between verbal problem and difficulties in learning to read seems to be related to linguistic awareness. Thus, training program should be designed in language and verbal skills to facilitate good reading performance.

Many teachers in our country seem to engage in teaching reading without themselves ever knowing how an Indian orthography represents the language, why it is important for beginners to understand how the internal structure of words relates to the orthography or why it is hard for children to understand this. Hence, teachers should be made aware of these facts before starting any instructions. Reading instruction may be usefully initiated with a meaning based approach that will facilitate comprehension.

Another implication of this study is that in order to look into the consistency of the relationships among different measures across grades, one has to take help of longitudinal study. Longitudinal studies can describe successive stages of competence in the process of reading acquisition. It also shows clearly the patterns of transition from one stage to another (Glasser, 1976; Resnick, 1979).
However, in spite of such practical implications the present study may be seen to have some limitations which has to be taken into consideration for future follow up investigations. In the present investigation every child was tested four times once in each academic year. More frequent tests would have given a better picture of the various stages of reading acquisition process. The second limitation of the study is with respect to the sample size. The large sample taken in the present study made it difficult to go deep into each child's developmental pattern. Perhaps a more in depth analysis of reading development would have been possible with a small sample of children. Thirdly, children in this study are followed up to Grade 5 and as such, the findings may not be generalisable to more mature readers. Further, with the younger readers most of the metalinguistic and verbal skills except few basic ones continue to grow. A large number and a more comprehensive set of tasks measuring verbal processing skill and each aspects of metalinguistic awareness will be helpful in understanding the course of development of reading acquisition in Oriya.