Chapter-I

Introduction
Communication is the basic tenant of social interaction and language is a communication system. Everyone knows at least one language, spoken or sign. Language is the creative aspect of humans that differentiates them from other animals. Many animal species also have the ability to communicate, but their ways are different like the dance of bees, the calls and hoots of apes, the sounds of music or little visual icons used by computers in computer language. An important difference between human language and other animal or computer languages is that non human language lacks grammar and generativity and therefore the capacity to express ideas is limited. Not only non human language but human non linguistic modes like non verbal language, facial expressions, gestures, drawings and emotional cries and calls also have limited range to express the ideas, emotions and feelings. To describe thoughts, feelings and abstract ideas one has to rely on language. So, it can be said that language is an important cognitive achievement of human beings. Pinker (1994) has termed language as “the jewel in the crown of cognition”. To maintain the importance of language as a shining jewel in the crown one needs to understand the components of language and how they function together.

Nature of Language

Basically, human language comprises of two subsets, i.e. receptive and productive. Receptive language use occurs during the understanding of words and sentences or comprehension whereas productive language use involves idea generation and the articulation of words in speech. Grammar plays an important role in production as well as comprehension of language i.e., it is an important contributor in the both structural and semantic aspects of language. Structural aspect encompasses formation of morphemes, words, sentences etc. whereas semantic includes comprehension. Grammar is the system of rules by which words and phrases are formed and arranged to make meaningful statements. The more one is aware of how it works, the more one can monitor the meaning and effectiveness of the way one uses language. The grammar of a language can be viewed as a theory of the structure of the language. As scientific theory is based on a certain observations and
established general laws, grammar also has certain laws or rules according to which words are sequenced in a proper order to form language. Components of language include phonology, morphology, syntax, semantics, and pragmatics. Phonology is the system of sound segments used to build up words. Each language has a different set of phonemes, (sounds can be grouped into distinctive units within a language known as phonemes) and children quickly come to recognize and then produce the speech segments that are characteristic of their native language. Phonology includes syllable, rhyme, articulatory gestures, articulatory features at all levels of language where sound is considered to be structured for conveying meaning. Phonology also includes the study of equivalent organizational systems in sign languages. Morphology includes internal structure of words, the parts that make up words are called morphemes. Further, morphemes are combined to form words [rules governing word formation remains more or less consistent, barring exceptions, in a particular language]. Syntax covers combination of words into sentence and all human languages share some universal syntactic properties. Grammar comprises of the rules for phoneme, morpheme, combination to form words, which are then combined to form phrases, sentences, etc. Semantics is the study of meanings. It is not only used to understand human expression through language but it is the study of interpretation of signs or symbols. From this view, sounds, facial expressions, and body language, have semantic (meaningful) content. In written language, paragraph structure and punctuation also have semantic content. Words have conventional meaning to serve as a communication between people, but selection of the correct meaning for each new word is a major learning task for children. Pragmatics means the systematic patterns which determine how to use language in particular social settings. Basically, it deals with the relationship between symbols and signs, especially words and other elements of language, and their users i.e., meaning relies on the manner, place, time etc. Pragmatics involve three major communication skills: using language for different purposes, such as greeting, informing, demanding etc.; changing language according to the needs of a listener or situation, such as speaking differently in a classroom than on a playground; following rules for conversations and storytelling, such as use of verbal and nonverbal signals, use of facial expressions and eye contact etc. These rules may vary across cultures and within cultures. The Semantic Lexicon or Vocabulary also plays an important role in language. Semantic Lexicon is called the mental
dictionary of words or it is considered as a group of morphemes which convey a specific meaning. Researchers have identified various language lexicons, such as the meaning (semantic), phonological, orthogonal, grapheme and speech output lexicon. Language input can be visual or auditory. The input lexicon contains information about words, but does not contain meaning. Input lexicon helps to recognize familiar words via the activation of familiar related word units. After recognizing words, meaning gets activated within the semantic system and output lexicon further processes this for language production (speech or writing). The language processing model as proposed by Ellis and Young (1988) shows the sequential nature of language processing and the probable routes via which auditory or visual input is processed for production of language (speech or writing).

Fig. 1.1 Language processing model proposed by Ellis and Young (1988)
In a nutshell, it can be said that language constitutes of an input system i.e., listening and reading and an output system i.e., speaking and writing.

Apart from the linguistic intricacies which the learner acquires as a consequence of exposure to language, biological factors also play an important role in language acquisition. There is a popular notion that left hemisphere regulates language processes. However, research indicates that both the hemispheres contribute to language as language and comprehension are regulated by left hemisphere while spatial and creative thoughts are regulated by right hemisphere. Researchers like Milner, Branch, and Rasmussen (1964), Warrington and Pratt (1973) have found a different pattern in hemispheric dominance in left and right handed individuals where a majority of right hander’s (over 95%) showed left hemisphere dominance and approximately 70% left hander’s showed left hemispheric dominance for language. The remaining individuals either show right hemispheric dominance or bilateral processing for language. Two areas in the left hemisphere, Broca’s area and Wernicke’s area support specific language functions. Components of language like phonology, morphology, syntax and grammar are controlled by Broca’s area whereas comprehension is controlled by Wernicke’s area. Damage to Broca’s area interferes with the morphological and syntactic aspects of grammar and damage to Wernicke’s area interferes with associating ideas to words. This indicates that these two are important for language processing.

Acquisition of language

In spite of the complexities involved in learning a language, it appears to develop spontaneously in children. A major area of debate is whether language is biologically determined or it is a cultural invention. From the functional point of view, language is a means of communication, helps individuals in interactions with others, learn about the world, and meet their individual and collective needs. Thus, language varies, according to person, purpose and situation, for example, language varies from one academic domain to another — the language of mathematics is different from the language of social studies. Language learning is a cultural learning and it reflects differences in values, norms, and beliefs about social roles and relationships within each culture. Learning a new language and culture also provides insights into one’s own language and culture. Language creates
meaning according to the cultural context i.e., meaning of a language varies from culture to culture (National TESOL association, 2001).

Language acquisition is a long-term process, i.e., learners acquire language through their developmental stages, where proficiency gradually grows. Chomsky (1957) also provided an explanation for acquired language acquisition. He proposed that language is non-learnable and rules related to language are ingrained within the individual from the time of birth but other psychologists have suggested that the structural aspects of language can be learnt. Psychologists have proposed that language acquisition occurs through meaningful use and interaction, learned most effectively in significant and meaningful situations when learners interact with others but Chomsky emphasized that learning environment provides no help. Basically, the four learning skills (reading, listening, writing and speaking) develop concurrently and if focus is on individual skills in an isolated manner, they develop less effectively. Unlike behavioral psychologists [language is stimulus response association] neural psychologists explained language as the association of neural networks distributed throughout the brain. According to the connectionist approach neural knowledge is personified in distributed networks [excitatory and inhibitory] and these networks are modified through experience.

The acquisition of the first language is through imitation where reinforcement principles motivate the child to learn language. On the other hand, the developmental period also plays an important role for language acquisition. i.e., there is sensitive period and language learning during this period is different as compared to learning after the sensitive period.

Acquisition of language appears to proceed across several general stages and rate of passage through these stages is not exactly the same for every child. Language acquisition starts with the babbling stage where the acquisition of phonemes, refinements in syntax and grammar acquisition occurs. Following the babbling stage, the child enters the holophrastic stage, which begins around one year of age, where thoughts are expressed as single words. At the age of 18 months, the child enters the telegraphic stage and combines single words into two word combinations. In the fourth year of age the child moves onto short sentences. Thus, it appears that children follow a predictable series of stages as they become proficient in their native language whereas proficiency in a second language varies among children and adults.
Krashen (1982) proposed a model of second language acquisition, the Monitor model, which is widely accepted in the language learning community. The five main components of Krashen's theory are acquisition learning hypothesis, the monitor hypothesis, the input hypothesis, the filter hypothesis and last but not the least the natural order hypothesis. Each of the components of Krashen's theory relates to a different aspect of the language learning process. The first component which includes the acquisition learning hypothesis refers to the fusion of the two fundamental system: the acquired system [related to the unconscious aspect of language acquisition] and the learned system [related to formal instructions to acquired knowledge about the target language]. The monitor hypothesis, explains how the acquired system is affected by the learned system while the natural order hypothesis expounds the natural way second language learners acquire their target language. The input hypothesis seeks to explain how second language is acquired and the affective filter hypothesis, describes external factors [very low motivation, very low self-confidence and a high level of anxiety] that can act as a filter that impedes acquisition. Overall, it can be said that natural order or acquired system plays an important role in language acquisition. According to Krashen the acquired system generally dominates the learned system.

One learns first language through an acquired system therefore it is preserved throughout the life time and acts as medium for acquisition of subsequent languages. Second language acquisition is more subject to influence from factors other than oral development in the first language. If students are not proficient in their first language, they may experience cognitive difficulties in to second language. Actually, there are 5,000 languages in the world, and all the languages are more alike than different from each other. As people learn languages, they develop certain skills. They naturally transfer the skills learned in the first language to subsequently learnt languages. Transfer plays an important role in language learning at all levels. Learners start transferring sounds (phonemic transfer) and meanings (semantic transfer), word order and pragmatics to learn second language. The transfer occurs at the lexis, syntax as well as and discourse level i.e., language transfer typically refers to the application of rules and forms of the first language into second language. External factors like interest in, and value of the second language, positive feelings towards second language speakers, self-confidence, anxiety level, memory, aptitude, knowledge of language rules and influences such as phonological coding and phonological access, knowledge of first language, linguistic analysis capacity to
Introduction

analyse language, individual differences, social influence such as opportunity to interact with second language speakers, access to useful feedback from second language speakers and instructions like quantity, quality and design plays an important role in second language learning. These influences tend to co-vary with age, social economic status like low income families of learner and parent’s education with other factors such as reason for learning second language.

According to the Behaviorist viewpoint, native language is instrumental in the acquisition of the second language (L2). Transfer from L1 to L2 can be positive or negative depending upon similarities and differences between the two. On the other hand, as per the Cognitive view, first language learners use their creativity and cognitive skills to construct their own rules to figure out the L2. The developmental period for learning to speak a second language like a native speaker is over by the time a child reaches puberty e.g. muscular plasticity terminates around the age of five after which it is difficult to pronounce the phonemes like a native speaker. Therefore, learners are unable to attain the same proficiency, as their native language, in the second language.

Table 1.1: Differences between L1 and L2 acquisition proposed by Ellis (1994)

<table>
<thead>
<tr>
<th>Feature</th>
<th>L1(native language)</th>
<th>L2 (foreign language)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overall success</strong></td>
<td>Children normally achieve perfect L1 mastery</td>
<td>Ault L2 learners are unlikely to achieve perfect L2 mastery</td>
</tr>
<tr>
<td><strong>General failure</strong></td>
<td>Success guaranteed</td>
<td>Complete success rare</td>
</tr>
<tr>
<td><strong>Variation</strong></td>
<td>Little variation in degree of success or route</td>
<td>L2 learners vary in overall success and route</td>
</tr>
<tr>
<td><strong>Goals</strong></td>
<td>target language competence</td>
<td>L2 learners may be content with less than target language competence or more concerned with fluency than accuracy</td>
</tr>
<tr>
<td><strong>Fossilisation</strong></td>
<td>Unknown</td>
<td>Common, plus backsliding (i.e. return to earlier stages of development</td>
</tr>
<tr>
<td><strong>Intuitions</strong></td>
<td>Children develop clear intuitions about correctness</td>
<td>L2 learners are often unable to form clear grammaticality judgments</td>
</tr>
<tr>
<td><strong>Instruction</strong></td>
<td>Not needed</td>
<td>Helpful or necessary</td>
</tr>
<tr>
<td><strong>Negative evidence</strong></td>
<td>Correction not found and not necessary</td>
<td>Correction generally helpful or necessary</td>
</tr>
<tr>
<td><strong>Affective factors</strong></td>
<td>Not involved</td>
<td>Play a major role in determining proficiency</td>
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</table>
Cook (2009) has given his views regarding features of L2 acquisition on overall success, general failure, variation and goals. According to him, all implicitly see 'success' in the sense of what a mono-lingual native speaker does, not an L2 user and on Fossilisation he said that L2 users too have L1 attrition. According to him bilingual children have better intuitions than monolingual and whether instructions are helpful or not, depend on other factors also.

Considering together, it can be said that there are particularly stages of development in L1 and L2, through which all children progress, whereas success rate varies and different factors play an important role in language (L1 and L2) acquisition. Second language learners adapt their ways systematically according to the situation.

Chomsky (1980) proposed the concept of Universal grammar (a set of general principles for language common to all languages), which implicates the existence of a mental structure in the human brain, that contains an innate concept of human language. During first language learning, a child learns the settings for his or her first language and during second language learning, a child tries to apply the same settings for his second language also. Second language acquisition is an equally complex phenomena and one uses some of same innate process that are used to acquire the first language (Ellis, 1985). The importance of memory in language learning has been expounded by researchers (Ellis, 2001), where the role of short term memory specifically, Working Memory, an on-line capacity for temporary storage, processing and analysis of input, has been found to be a major contributor to differences in language acquisition.

**Working Memory and Language**

Working memory is required for the simultaneous storage and processing of information (Baddley, 1992). It comprises of a central executive which functions as a control mechanism, and three temporary storage systems: verbal, visuo-spatial and episodic.
The verbal sub-system plays a particularly important role in temporary storage of phonologically coded information. The phonological loop which stores and rehearses the speech-based information, plays an important role for the acquisition of both native and second language vocabulary. In bilinguals, during second language processing, complex brain activation patterns have been observed in working memory task. The contribution of working memory for acquiring high proficiency in reading of native language or second language has received support (Johansson, 2006). How much information one can hold is influenced by phonological short term memory capacity and this influences the ability to learn new words. However, individual memory differences are not fixed, but task-dependent (Miyake and Friedman, 1998). It has suggested that capacity differences are due to varying amounts of exposure to text (MacDonald & Christiansen, 2002). Ellis (1996, 2001) advocated the role of the phonological loop in acquisition across the life span while Marinis, Roberts, Felser and Clahsen (2005) implicated an important
role of working memory in explaining performance in L1 reading tasks. Basically, Phonological working memory is found to be a good predictor of proficiency (Berquist, 1997). Efficient reading requires an error-free recall of information generated from print (Baddeley, 1990; de Jong, 1998; Just & Carpenter, 1992). Duyck, Szmalec, Kemps, and Vandierendonck (2003) and Papagno, Valentine, and Baddeley (1991) used a dual-task methodology to demonstrate that loading verbal working memory resulted in poorer learning of word-non word pairs (frog-nahl) but not in learning word-word pairs (e.g., frog-nail), indicating a detrimental influence of phonemic/grapheme overload in comparison to semantic overload. Working memory as measured by a non-word repetition test has been demonstrated to be a better predictor of success in L2 learning, as the learners' ability to repeat nonsensical words is a remarkably good predictor of their ability to acquire sophisticated language skills in both the L1 and the L2 (Ellis, 1996). Bilinguals were observed to be slower in the switch trials than in the non-switch trials (Meuter & Allport, 1999). Vejnovic, Milin, and Zdravkovic (2010) found that reading span was shorter for L2 than L1 in L2 proficient speakers. It was observed that L2 processing was more demanding than L1 processing, a fact which receives support from greater number of tip of tongue errors reported in L2 than L1, thereby implicating that working memory load increases in L2. L2 processing is more effortful as L1 mediators, which are not accessed by automatic processes, are utilized. This fact has been depicted in Figure 1.3.
Figure 1.3 indicates that L2 is dependent on L1 specially in comprehension i.e., to comprehend in L2 one has to first analyze the meaning in L1 then L2 will be comprehended via L1. In the conversion of L2 via L1, load gets increased (input and output of L1 and L2) on working memory. Research also indicates that one has to
process L1 and L2 both simultaneously to comprehend in L2 thereby leading to working memory over load. This results in increased load on the buffer system (information in both L1 and L2 has to be readily available) as well as the central executive (transfer has to be made from L2 to L1 for comprehension and subsequently from L1 to L2 if production in L2 is required) thereby leading to slower speed of processing in L2. Hummel and French (2010) also agree with the fact that shorter working memory span in L2 puts the L2 speakers at some disadvantage in comparison to L1 speakers. Thus, to overcome this handicap, they emphasize extensive training for L2 speakers, so that L2 learners can decrease the working memory load. In a nutshell, it is said that working memory plays an important role in the language acquisition.

Experimental evidence for transfer from L1 to L2 during second language learning has been documented across the structural aspects of language processing, including phonology, morphology and syntax (Hancin & Nagy, 1994; Kilborn, 1989; Mac Whinney, 1997). Literacy in the native language has been found to correlate positively with the acquisition of literacy in a second language. Word recognition skill for the second language can be predicted by native language word recognition and phonological awareness in young second language learners (Durgunoglu, Nagy, & Hancin-Bhatt, 1993; Fitzgerald, 1995). Holm and Dodd (1996) reported that the skills developed and strategies used in L1 are transferred to L2 and students who used good and effective strategies in their native language also used good strategies in their second language. Cummins (1979) studied the relationship between bilingual children's academic skills in the primary and secondary language and demonstrated that children who read well in the first language were likely to read well in the second language. Thus, the first language appears to contribute to cognitive and academic development in second language may be because the higher mental processes of bilinguals are more accessible to L1.

Considered together, it can be said that language plays an important role in education, for accessing knowledge, understanding concepts and to expressing oneself where language is not merely a means of communicating thoughts but also a way of getting civilized.
Importance of Second language (English) in India

In India, there are innumerable languages but English has the status of second language. In the hierarchy of languages in the Indian Constitution, English attained the status of second official language because of its wide official use and was supposed to be terminated officially after 15 years of India’s independence, but it still remains the important language and is the most commonly spoken read and written language after Hindi. Since Hindi is not accepted as an official medium of inter-provincial communication by non-Hindi speaking states, English serves as the communicator among Indians who speak different language. Some Indian nationalists claim that English is a legacy of the British rule in India and therefore it carries a disgraceful memory of India's subjugation. They want Hindi to replace English for all purposes. But from the academic point of view it can be argued that English is widely spoken throughout the world and through this language, contacts with the developments at the international level can be established.

In India, English is a language of trade and industry and it occupies an important place in school curriculum also. In 1984, the West Bengal government completely removed teaching and learning of English from primary school curriculum but from 1999 onwards, it had to reintroduce it as second language from class II. Acknowledging the importance of English, the medium of teaching-learning has been changed to English in majority of the public and CBSE affiliated schools. In India, different occupations like software development and call centres have made learning of English compulsory for those who want to find a good livelihood in this competitive environment. Also, in case of higher studies and research, English has uttermost importance as books and research literature is available in English. So, if one is not good in English he/she would not be able to get the knowledge from those books. Sen (in 19th Century), Professor of English at the University of Calcutta, a writer-editor of many scholarly articles and books wrote, “The new social phenomenon of an Indian middle class owed its provenance not to the traditional categories of birth and wealth, but to academic merit, professional competence, and capitalist enterprise, all of which were facilitated by knowledge of English.”. Considering together, it can be said that English is the language which is understood in almost all regions of India, in addition to our national language, Hindi, and large number of schools and colleges teach English and have it as a medium of instruction.
Considering together, it can be said that, English is the heart of education. In India, English has the status of second language in a number of states and It is the medium of instruction in a large number of schools where the native language of the children is an Indian language. This makes the ability to read and learn from English texts an essential academic skill.

**Language disability**

According to the 2001 Census of India, 21.9 million people were reported to have a disability but there is little attention, to learning disability (Sakhuja, 2004). It is estimated that India has five students with LD [Learning disability] in every average-sized class (Thomas, Bhanutej, & John, 2003). According to a study conducted in South India, the incidence of dyscalculia was reported to encompass 6% of all school-aged children (Ramaa & Gowramma, 2002). A survey (2004) of the National Center for Promotion of Employment for Disabled People (NCPEDP) revealed that only 1.2 per cent of the disabled in India has had any form of education. Literature indicates that 10-14% of the 416 million children in India have LD (Krishnan, 2007; Krishna kumar, 1999; Mehta, 2003) making it the most widespread disability (Suresh & Sebastian, 2003; Tandon, 2007). Dyslexia is the most common and most carefully studied of the SpLDs [specific learning disabilities], affecting 80% of all those identified as learning disabled (Karande, Sawant, Kulkarni, Galvankar, & Sholapurwala, 2005, p. 96).

A series of epidemiological surveys (May, 30, 2011) within India indicated the prevalence of dyslexia to be 10.23% among 5-8-year old children and an alarming ratio of 32% among 8-16 years age group. The Television show ‘Satyamev Jayate’ (June 10, 2012, 6th episode) has also created an awareness regarding this issue and the response shown indicated that people are getting aware and try to discover the ways to overcome the problems of these students. National Policy for Persons with Disability, announced in February 2006, contained provisions for facilities for persons suffering from dyslexia has also created awareness. The Central Board of Secondary Education (CBSE) (29 October, 2008, Circular no. 45) has already recognized dyslexia as an impairment and under the CCE (Continuous and Comprehensive Evaluation) pattern, students are evaluated on varied dimensions of each subject, so that the problem areas can be addressed. Amir
Khan's movie 'Tare Zameen Par' has also created awareness among people regarding dyslexia or reading disability.

Empirical observation in Hindi medium schools shows that students generally are proficient in native language (Hindi) but they face problem in second language i.e., English. Basically proficiency in second language means student’s ability to understand and generate the complex syntax of L2 in formal oral and written expression (Chamot & O'Malley, 1994; Wright & Kuehn, 1998). Students proficient in the native language face problems in second language at the structural level i.e. recognition of phonemes and words, lack of vocabulary, syntax etc. These are basic units of language and if one is unable to recognize phonemes, join them to make word or has lack of vocabulary (does not know the meaning in L2) then they face problems at structure level. Dyslexia (or specific reading disability) is the most common and most carefully study of the learning disabilities, affecting 80% of all those identified as learning-disabled. Students with undiagnosed SpLD fail to achieve school grades that are at a level that is commensurate with their intelligence.

Difficulties faced by L2 learners vary depend upon the proficiency of first language literacy. Learners learning a new language within the family are initiated to the second language reading process at an early developed stage. They acquire proficiency in second language easily because the automatic processing strategies of L1 are easily transferred to L2, but learners learning L2 in a formal situation face lots of problem due limited exposure, both in terms of duration as well as lack of individual interaction with the teacher. In India, generally Hindi is the first language and for reading, children adopt an alphabetic strategy, whereas in English reading, they adopt a combination of logographic and alphabetic strategy. Both the languages belong to different branches (Both belong to indo European family but under different branches like Hindi from Indic branch and English from Germanic branch) that's why students face problem in reading English. They must learn the possible and impossible spelling patterns so that they can develop automaticity--a necessary prerequisite for comprehension. The linguistic task of all readers is to make the word recognition, lexical, and syntactic systems work automatically and simultaneously. Second language learners and users rarely have native-like control over these systems. Actually children learn native language sound/speech to phoneme level and second language phoneme level to speech and because of this phenomenon
second language learner face some limitations. It can be said that second language learners learn the language structure first and then they go to the semantic level.

Reading

Reading is an interactive process, which is initiated foremost at a lower-level (bottom-up) and simultaneously draws upon higher levels (top-down) processes (Alderson, 2000). Reading acquisition is a process of matching visual symbols (orthography) to units of sound (phonology) and requires much practice to achieve perfection and is learnt in several stages. According to Chall (1996) reading is characterized by a series of sequential stages beginning with reading readiness to beginning reading and finally to the development of reading skills. The first stage, in reading is called Reading readiness where the learner begins to learn the names and sounds of the letters while in the beginning reading stage or word recognition stage, the learner is taught to recognize basic words and phonics. In the next stage, development of reading skills, the emphasis shifts from reading stories with known content to reading more difficult material that teaches the child new ideas and opinions i.e., emphasis shifts from learning to read to learning to learn. Fry (1963) claimed that good readers achieve a speed of 300 words per minute, fair readers 250 words, and slow readers read 150 words per minute whereas De Leeuw (1965) cited 230-250 words per minute as an average initial speed for the general public.

Nunan (1999) argues that “reading is an interactive process, in which the reader constantly shuttles between bottom-up and top-down processes”.

![Fig. 1.4. Processes in Reading](image-url)
In case of an unfamiliar word, the process may slow down, or even stop while the reader attempts to use "other knowledge sources, regardless of their level in the processing hierarchy" to figure out meaning (Stanovich, 1980).

Ehri (1998) proposed four phase of reading, where the first three phases, namely, pre-alphabetic, partial alphabetic, and full alphabetic phase are similar to those suggested by Frith’s (1986) called logographic, alphabetic and orthographic respectively. In the logographic stage, learner’s processes words just like visual objects or symbol; in the alphabetic stage, letters are represented in an ordered sequence, while in the orthographic stage, whole word grapheme sequences are stored as a result of repeated exposure to the same words. In addition, Ehri also suggested the fourth or consolidated alphabetic phase, where the beginning reader starts to notice multi letter sequences that are common to words stored in memory. All these models assume that there are different reading strategies employed by the learners.

Dual-route models of reading specify two separate lexical and sublexical mechanisms for processing words. The lexical processing route, which operates at the whole-word level, provides a link between orthography and phonology, while the sub lexical route relies, upon a set of grapheme-to-phoneme correspondence rules (GPC rules). English make the implicit assumption that stages of reading development are more or less uniform across different alphabetic orthographies.

Broadly defined, three types of variables interact in any literacy activity in L2: linguistic variables, literacy variables, and knowledge variables. Linguistic variables include word structure, word meaning, syntax, and morphology while Literacy variables include intrapersonal variables such as purpose for reading, intention, and preferred level of understanding, as well as goal-setting and comprehension monitoring. Knowledge entails the background information that a reader already possesses and may or may not choose to use in order to fill in gaps in the explicit linguistic elements in a text. Knowledge is a critical variable in second language reading and reading can be improved if readers are given or already possess appropriate knowledge of L2.

From the academic perspective, reading is an important and viable means to second language acquisition. Learners of a foreign language, especially at elementary and intermediate levels, are rarely efficient readers in the foreign language. Simple transfer of skills from native to target language rarely occurs. In
classroom practice, reading appears to be a 'bottom-up' process in which the reader deals with letters, words, and sentences in a sequential order (Gough, 1972). However, research evidence indicates that both bottom-up processes (like word recognition and lexical access) and top-down processes (like integrating background knowledge) are vital for skilled reading and proceed in parallel (Rumelhart, 1977; Stanovich, 1980). Reading, requires automaticity of word recognition and lexical access (grapheme, phonological and semantic). The faster a reader's speed of retrieval from the mental lexicon, the more proficient their reading comprehension will be (Gathercole & Baddeley 1995). Carver, (1982, 1983, 1990) has reported that approximately 300 words are processed per minute by fluent adult readers regardless of the difficulty of the text. However, reading speed of advanced bilinguals is nearly 30% slower than this in L2, as lower level processes require cognitive resources that would otherwise be used for higher-level processes. (Segalowitz, Poulsen & Komoda 1991). In order to read comfortably, skilled readers need to rapidly recognize 95% or more of the words in a text, (Grabe & Stoller, 2002) even though they may not be able to use all of these words productively in their speaking and writing. Pigada and Schmitt (2006) reported that around sixty percent of information of all three aspects of word knowledge is assimilated only when words are encountered 19 times.

Research has questioned whether poor L2 reading performance is due to inadequate L2 knowledge or to poor L1 reading ability. Intra individual performance on L2 reading tasks, performance on similar L1 reading tasks, and performance on L2 vocabulary and grammar knowledge tasks was compared and empirically examined and found that performance on a L2 reading comprehension task is substantially related to performance on a similar L1 reading comprehension task and relationship is mediated not only by knowledge of L2 grammar and vocabulary, but also by factors pertaining to the L2 setting involved (Carrell, 1991 & Hacquebord, 1989). Hacquebord reported that L2 reading was significantly related to L1 reading at the beginning of the investigation, but two years later, L2 reading was no longer related to L1 reading. Thus, minimal use of L1 in academics (where L2 is the medium of education) is the reason of this reduction in L2-L1 relationship. Considering together, it can be proposed that one learns the second language through transfer i.e., L2 is processed via L1 especially at initial level of L2 learning. Further, novice learners may use L1 mediators for comprehension of L2. Although, reading disability may be caused by structural or semantic deficits, the role of structural factors assumes greater importance in second language reading, as comprehension
occurs via L1, and the onus of accessing the input from L2, such that it can be transferred to L1 for the purpose of comprehension, falls on the structural factors.

**Structural factors in Reading**

Structural deficits include Phoneme awareness, Word recognition skills, Syntax and Vocabulary. Phonological coding is defined as the ability to use speech codes to represent information in the form of words. Many studies provide support to the fact that weak phonological coding is an important cause of reading disorder. Difficulties to acquire phonological awareness and alphabetic coding are due to poor phonological representations (Griffiths and Snowling, 2002) and weak phonological coding can lead to difficulties in storing and retrieving words, as well as in processing information in working memory (Brady, Shankweiler, and Mann, 1983; Elbro, 1997; Gathercole and Baddeley 1990; Katz 1986; Share and Stanovich 1995; Stanovich and Siegel, 1994; Snowling, 2000). It has been suggested that difficulties in storage and retrieval could impair the reader's ability to store quality representations of word spellings as it blocks the ability to acquire fluency in word identification. Working memory deficits are associated with weak phonological coding (Baddeley, 1986; Daneman & Carpenter, 1980; Ericsson & Kintsch, 1995). Thus, it can be said that weak phonological coding plays an important role in reading ability and dyslexic readers perceive phonetic boundaries less sharply than do normal readers.

Phonological memory (PM) has been reported as an important predictor of proficiency in early L2 learning stages in comparison to other factors (Ashby, 2010; Engel & Gathercole, 2007; Hummel, 2009; Khatib & Fat"hi, 2012; Nag & Snowling 2010; Chiappe & Siegel, 1999; Wagner & Torgesen, 1987) but weak links have been reported between expressive phonological disorders and later ability to read either meaningful text or non-words (Bishop & Adams, 1990; Coltheart, Besner, Jonasson & Davelaar, 1979).

Word Recognition is the ability of a reader to recognize written words correctly and effortlessly. Rapid and effortless Word Recognition is an important component of fluent reading i.e., in the beginning readers need to read lots of connected text or do lots of practice to recognize words. Learners who have difficulty with Word Recognition often misread words by substituting a similar-looking known word for the target word. Children facing difficulties in recognition of words, spend more time in decoding words and they read fewer words in comparison to more proficient readers. As a result, they make smaller gains in reading proficiency. Readers facing problem in reading can get the benefit from
meaningful, targeted instruction in word recognition. In fact word recognition is assumed to be one of the basic skills to be developed by beginning readers (Adams, 1990; Barron, 1986; Byrne, 1998; Kurvers & Van der Zouw, 1990; Ziegler & Goswami, 2006) and is proposed that automatic word recognition skills are important for successful reading. One of the most powerful models of word recognition in English is the dual route theory (Coltheart, Rastle, Perry, Langdon, & Ziegler, 2001). It is generally accepted that two separate and distinctive routes exist, by which words are recognised in English; a whole word (lexical) route and a sounding out, grapheme-to-phoneme route. The two routes in operation in the process of reading aloud a word can be seen in Figure 1.5.

Fig. 1.5. The Dual Route being used to read a word aloud (after Coltheart et al 2001).

Evidence for the existence of such routes is derived from studies of dyslexia, particularly acquired dyslexia, where patients have suffered some sort of brain lesion which has left them with a reading impairment. Broadly, there are two types of
dyslexics, phonological and surface dyslexics. Phonological dyslexia is a condition where patient can lose the ability to read pseudo-words (e.g. KRAIN or DRIGHT) while retain the ability to recognize all real words including ‘irregular’ words (e.g. TRAIN or PLIGHT). Surface dyslexics, on the other hand, lose the ability, to some extent, to read ‘irregular’ words, but retain the ability to read regular words and pseudo-words.

All languages have rules regarding how words can be combined to form sentences because understanding isolated words is not adequate for the task of understanding language. Word guess ability was shown to be a function of using the context than of applying ‘preconceived notions’ (Bensoussan & Laufer, 1984). Unskilled readers do not use syntax to assist and help in decoding written material (Cromer and Wiener, 1966). Poor readers exhibit syntactic deficiencies in the written language (Anderson, 1982). Bentin, Deutsch and Liberman (1990) identified syntactic differences between good and poor readers and indicated that good as well as poor readers performed better than the reading disabled children. They argue that inadequate phonological processing does not justify and explain all aspects of poor reading since in their study poor readers were nevertheless good decoders. The linguistic deficiency in these children is thus ascribed to syntax rather than phonology.

Deficiencies in vocabulary knowledge accompany the poorly specified phonological representations, which impairs reading development (Goswami, 2001; Metsala, 1999; Metsala & Walley, 1998). A child will face less difficulty in reading the words if the words are already there in the vocabulary. This highlights the importance of a large sight vocabulary for fluent reading, an area where one finds the main difference between first and second language reading. Differences in reading as a consequence of degree of associations were studied and it was reported that learning to read higher meaningful words were easier (on the simulated reading task) than the low meaning words (Vellutino, Scanlon, & Spearing, 1995). Tabors and Snow (2001) found that vocabulary knowledge is a significant cause of reading difficulties in second language learners but Grabe (1988) argues that the lack of a massive receptive vocabulary that is rapidly, accurately and automatically processed may be the greatest single impediment to the fluent reading by English as Second language [ESL] learners.
In nutshell, it can be proposed that a child who has limited vocabulary faces difficulties in acquiring fluency in word identification. Thus, it is suggested that limited vocabulary knowledge and/or syntactic deficits might be significant sources of difficulties in learning to read in at least some beginning readers, but they may have little to do with the word recognition and phonological decoding problems that are the primary markers of such difficulties in most impaired readers. These basics process must be mastered but at the same time reading comprehension also plays an important role. If child don’t have the necessary comprehension skills they will not be able to make predictions about what will happen next, monitor the understanding of content, sequence or characters, clarify confusing parts of the text and to connect with their own experience or prior knowledge. High correlations were confirmed between working memory capacity and language comprehension (Daneman & Merikle, 1996). Basically it can be said that Comprehension is the reason and purpose for reading. A general framework that exposes the processes of comprehension represents in Figure 1.5 schematically.
Introduction

Comprehension Process

Situation Model

Text Representation

Parser

Meaning and Form selection

General Knowledge

Linguistic System
Phonology, Syntax and Morphology

Lexicon
Meaning
Morphology
Syntax

Orthographic mapping to Phonology

Word Representation

Word Identification

Orthographical Units

Phonological Units

Visual Input

Fig. 1.6. The components of reading comprehension from identifying words to comprehending texts (Adapted from Perfetti, 1999)

Figure 1.6. shows two major classes of processing events: (1) the identification of words, and (2) the engagement of language processing mechanisms that assemble these words into messages. In this model, acquiring skill in reading comprehension may include developments in all the components.
Introduction

Letter sound mapping, training and intervention techniques have a positive effect on word identification, spelling and reading ability. Poor readers performed below the level of normally achieving readers not only in word identification, phonological awareness, and letter-sound decoding, but on rapid naming, verbal learning, and verbal memory also (Blachman, 1997; Bowers & Wolf, 1993; Katz, 1986; Snowling, 2000; Wolf, Bowers & Biddle, 2000).

Bowers and Wolf (1993), and Wolf and Bowers (1999) proposed three subtypes of reading disability i.e. first caused by deficiencies in phonological skills (phonological awareness, letter-sound decoding), second caused by orthographic processing (slow naming speed) and reading fluency deficits and third caused by a combination of both types of deficit, which combines the effect of phonological and orthographic skills deficiencies. In the double deficit, naming speed deficit influences temporal integration of the phonological and visual counterparts of printed words i.e., if a word is not identified with sufficient ease and rapidity, the word will not be processed to detect orthographic regularities and it will impair the reader’s ability to store word specific spellings. Readers falling in the double deficit group are more severely impaired in reading than the single deficit group.

In reading, greater lexical skills lead to greater automaticity, which allows good readers to perform more efficiently along with other attention demanding tasks (Luan & Wang, 2009; Ruthruff, Allen, Lien & Grabbe, 2008). Research in L2 reading focuses on the cross-lingual structure-rather than the process of L2 reading. McLeod and McLaughlin (1986) and Block (1986) explained the parallels between first and second language reading. Whereas Irujo (1986) and de Suarez (1985) indicated that the first language interferes with the processing of the second, while MacLean and d'Anglejan (1986), and Douglas (1981) found that the first language dominates throughout the second language reading process. First language literacy is a significant component in second language reading as learners do not need to begin at the initial stage of acquiring general reading skills. In other words, in those contexts in which learners do not switch orthographies or spelling patterns, there should be no need to provide overt instruction in word recognition.

In view of the widespread use of English, and the difficulties faced by a majority of Indian students in acquiring proficiency in reading the language, investigation of the correlates of second language reading proficiency assumes
Introduction

significance. Structural level skills, i.e. recognition of phonemes, joining the phonemes into words and a good vocabulary are prerequisites for deciphering the structure of sentence and comprehension of the text. Since L2 learning is mediated by L1, comprehension in L2 is dependent on conversion of L2 input into L1 at the initial stage of semantic processing. Thus it can be proposed that problems faced by students in acquisition of L2 are basically at structure level and to overcome the reading difficulties they will have to work upon on structural correlates of second language. It was felt that identification of the structural factors which influence reading ability could go a long way in developing intervention programs for improving second language reading ability. A large number of failures at the secondary stage have been due to the pupil’s poor achievement in English. Thus, early identification of the specific structural deficit contributing to L2 reading deficits can help in provision of specific remedial teaching. The Functional Communicative Approach associated with “Learning English” series of text books has not helped either, as the focus is not on the basic structural factors. In India, a creative method is yet to be developed to teaching English as a second language keeping in view the cultural variations, socio-economic set-up, available resources and existing infrastructure.

In order to further understand the importance of structural factors in second language learning, a review of researches in this area was conducted. This has been presented in the next chapter.