The idea that language use is one of man's inherent abilities like vision or hearing is a myth. Language use, like other types of behaviour, is one of man's developmental acquisitions. At the same time, it is to a large extent determined by the biological potentialities ingrained in the human species. At an intrapersonal level the roots of language behaviour may be as deeply ingrained in our natural constitution as, for instance, our predisposition for the use of our hands. Man seems to be equipped with highly specialized biological propensities that make the human form of communication uniquely possible to his species. Special evolutionary adaptations seem to have 'shaped' man for the use of language, for example, the intricate and highly complex physical structuring of his speech organs. Language development in children unfolds in very regular ways: the onset of speech is an extremely regular phenomenon, appearing at a certain time in the child's physical development and following a fixed sequence of events. Although other animals communicate, spoken language is uniquely human: there is no evidence that a non-human creature can acquire the principles of speech perception in terms of phonemic analysis, of understanding the syntactic structure of a sentence, or of cognizing the total semantic domain of any word. All human societies have languages different from one another. Yet
language, without exception, is based on the same universal principles of semantics, syntax and phonology.

No human possesses an innate propensity for any particular language. What is innate is not the language but a deeply ingrained predisposition for a type of behaviour that develops automatically into language.

The existence of an innate impulse for symbolic communication can hardly be questioned. (Lenneberg, "The Capacity for Language Acquisition")

Children are born with the physiological ability to learn a language -- not the particular language of their parents but any language to which they are exposed. A Chinese child raised in a Spanish-speaking family would grow up speaking Spanish.

Apart from biological endowments, there are certain other developmental and environmental factors involved in the process of language development. A discussion of how some of these other factors, operating on the intrapersonal and interpersonal planes, facilitate the onset of language use follows. The terms language development and language acquisition have been used interchangeably in this discussion.

Maturation

The development of language, also a species-specific phenomenon is related physiologically, structurally, and developmentally to the other typically human characteristics, cerebral dominance and maturational history. (Lenneberg, Biological Foundations)
Language cannot begin to develop until a certain level of physical maturation and growth has been attained. (Lenneberg, Biological Foundations)

There are indications, according to Lenneberg, Miller and others, that there exists for humans a peculiar language-specific maturational schedule. This would mean that the child's capacity to learn language is a consequence of maturation. In other words, a child cannot learn language -- any language -- be it the first or subsequent ones, until he has reached a certain stage of physical and neural development.

The lack of development of language in children with physiological and cerebral abnormalities is proof of the fact that the onset of language is dependent on the maturational development of the child.

Cognitive development

Language is intimately related to human forms of cognition and perception. Maturation brings cognitive processes to a state of language readiness. The extent of development of the cognitive faculty required for language acquisition is not known to vary from language to language, regardless of whether they are acquired simultaneously or one after another.

Cognitive development takes place within a sociocultural milieu as a result of the individual's interaction with both his own self and his environment.
The existence of cognitive processes entails a potential, a capacity for communication. This capacity develops ontogenetically in the course of physical maturation, provided that certain environmental conditions are present to make it possible for language to unfold.

The cognitive processes are independent of the peculiarities of any natural language. Cognition can develop to a certain extent even in the absence of knowledge of any language. The reverse, however, does not hold true. Therefore it may be assumed that the growth and development of language requires a certain minimum state of maturity and specificity of cognition.

There is evidence (chapters Seven and Eight) that cognitive function is a more basic and primary process than language, and that the dependence-relationship of language upon cognition is incomparably stronger than vice-versa. (Lenneberg, Biological Foundations)

Conceptual development

Concepts are superimpositions upon the physically given; they are modes of ordering or dealing with sensory data. They are not so much the product of man's cognition; conceptualization is the cognitive process itself. (Lenneberg, "Language and Cognition")

Most animals organize the sensory world by a process of categorization, and from this mode of organization two further processes derive: differentiation or discrimination, and interrelating of categories or the perception of and tolerance for transformations (Chapter 7). In man these organizational activities are usually called concept-formation. (Lenneberg, Biological Foundations)
According to Lenneberg, the capacity for conceptualization is genetically wired, biologically programmed into the human being. Language originated in response to the need that man felt for finding a tangible representation of his conceptualization. Therefore it may be said that language is the reflector, the expression of man's conceptualization. Man's mind evolved down the centuries and with it man's capacity for conceptualization. This was reflected in the development of languages.

While the capacity for conceptualization is biologically inherent in man, the conceptual framework in the mind develops later through experience, through the action-reaction process between the capacity of conceptualization and the innumerable aspects of the environment that surrounds the growing human child. The concepts in the mind get structured in a particular manner as a result of this process. At any given point of time, there is an existing conceptual framework in the mind of any normal human being. Since language is a representation or a reflection of concepts, it may be argued that language also has a particular kind of structuring framework which reflects the conceptual framework in the human mind.

The native learner comes into the conceptual framework of his language automatically. The classroom second language learner, however, will have to acquire this underlying framework
deliberately and systematically. Without it the overt language structuring he encounters will be difficult for him to understand, thereby preventing him from achieving competence in the use of the target language. As has already been pointed out in Chapter-III, in the ultimate analysis, competence in the use of a second language requires stepping out of the conceptual framework of the first language and stepping into the conceptual framework of the target language.

Environment

In addition to biological propensities, maturation, and cognitive and conceptual developments, language acquisition seems to depend on a specific exterior model being available to the child. This is evident from the fact that no child learns to talk unless he hears other people talk. Take for example incidents of hearing children brought up by deaf parents not acquiring language until they are given special training.

No child talks without having been exposed to the utterances of fluent speakers, and the language and dialect he eventually speaks are precisely the language and dialect to which he is exposed. (Fodor, "How to Learn to Talk: ......")

Lenneberg too subscribed to the theory that the influence of environment upon speech development is undeniable.

Language is best represented as a family of processes or, in other words, as cerebral activity states -- states that are labile and easily affected or modulated by environmental conditions. Their ontogenetic development depends on an interaction of factors: an initial
history of differentiation of primitive psychological activity states (as a consequence of maturational events) brings the growing organism to a stage at which it becomes susceptible to specific influences from the environment; and the existence and availability of environmental conditions now help shape the direction of further transformations of the total repertoire of activity states. (Lenneberg, *Foundations of Language Development*)

Environment does not merely mean nutritive and physical conditions. Specific social conditions are also essential for proper development. The emergence of social behaviour in a growing human child requires exposure to specific stimuli such as action patterns and social behaviour of other individuals like parents, siblings, companions, and teachers.

In all types of developing social behaviour, the growing individual begins to engage in behaviour as if by resonance; he is maturationally ready but will not begin to perform unless properly stimulated. If exposed to the stimuli, he becomes socially "excited" as a resonator may become excited when exposed to a given range of sound frequencies. .... An impoverished social input may entail permanently impoverished behaviour patterns. (Lenneberg, *Biological Foundations*)

The hypothesis that language acquisition happens spontaneously only in the case of a human child who is in the right environment is supported to a great extent by stories of children reared by animals in jungles and other cases of extreme neglect.

One child reported by Davis (1947) was discovered at age six without speech, but was said to have made very rapid progress, going through all the usual baby
language stages, and within a period of nine months had attained complete mastery of speech and language. (Lenneberg, Biological Foundations)

However, the role of environment in language development diminishes as the child advances in age. This has very serious implications for second and foreign language learning. The assumption is that the first language is acquired pretty early in life whereas second and subsequent languages are acquired much later.

The incidence of "language-learning-blocks" rapidly increases after puberty. Also automatic acquisition from mere exposure to a given language seems to disappear after this age, and foreign languages have to be taught and learned through a conscious and labored effort. (Lenneberg, Biological Foundations)

Classroom second language learners when compared with native learners are at a disadvantage in the matter of environmental influence because firstly, good exterior models are not available and therefore exposure to the target language is meagre and defective, and secondly, social behaviour of the target language community is considered neither important nor necessary and therefore language is taught out of its social and cultural context; thirdly, in most of the cases the learners are advanced in age and therefore the "language-learning-blocks" are already in place.
Symbols

For the purpose of the discussion in this chapter the terms symbol and sign have been taken to mean the same and are used interchangeably.

There was a time when the term language referred to speech, and speech only. But now it has come to mean any conventional system of symbols used in communication. A language "is currently considered to be a denotative system of symbolic communication, composed of words that denote entities regardless of the domain in which these entities may exist." (Maturana, "Biology of Language: .......") Miller concurs with this view when he says "a language is a set of symbolic conventions adopted by a social group for the purpose of communicating ideas, expressing emotions, enlisting co-operation, providing entertainment." (Miller, Language and Speech)

Many non-human primates are able to communicate by means of vocalizations and various other means. This signalling behaviour, vocal and non-vocal, of non-human primates serves the function of social communication. How then do we distinguish human speech from the communication of the non-human primates? Altmann ("Primate Communication") offers an answer: "A classic way of distinguishing human speech from the communication of other animals is to say that man uses symbols."
According to Altmann the use of symbols enables man to talk about things that are not immediately present, about events that occurred in a different place, or at some remote period in time. This extremely important property of symbol use in communication gives humans the flexibility of discussing past events and using his experience with such events to plan for the future.

Having stated that human language is a set of symbolic conventions it is essential that the role of symbols be discussed in greater detail.

All the higher psychic functions are mediated processes, and signs are the basic means used to master and direct them. The mediating sign is incorporated in their structure as an indispensable, indeed the central, part of the total process. (Vygotsky, *Thought and Language*)

As has already been stated in Chapter-IV, human language falls under the category of higher psychic functions. (Vygotsky, *Thought and Language; Mind in Society*) When the child learns to speak he is acquiring a system of signs, with which he can make indirect connections between incoming stimulations and his various responses (discussed later in this section). Thus language becomes a tool for man, a tool which causes and mediates progress in his mental functioning.

According to Vygotsky (*Thought and Language*), mastery of these signs, or "psychological tools" qualitatively changes human intellectual processes. He argues that the move from elementary
The use of signs leads humans to a specific structure of behaviour that breaks away from biological development and creates new forms of a culturally-based psychological process. (Vygotsky, *Mind in Society*)

An important characteristic of this sign-using or symbolic behaviour is the creation and use of artificial stimuli for the completion of the task. Here we will recapitulate a part of the discussion we have already had in Chapter-IV. While elementary forms of behaviour presuppose a direct link between the stimulus and the response (S----R), the structure of symbolic behaviour requires an intermediate link between the stimulus and the response. Consequently the simple S----R process is replaced by a complex, mediated S----R process. In this new process the direct impulse to react, as in elementary functions, is inhibited, and instead an extrinsic, auxiliary stimulus 'X' that facilitates the completion of the operation by indirect means is incorporated. This intermediate link possesses the characteristic of reverse action whereby it acts on and influences the individual, instead of the environment, and thereby permits individuals "to control their behaviour from the outside." (Vygotsky, *Mind in Society*) Studies demonstrate that this type of organization is basic to all higher psychological processes and is the product of specific conditions of social
development. "Sign systems (language, writing, number systems) are created by societies over the course of human history and change with the form of society and the level of its cultural development. Vygotsky believed that the internalization of culturally produced sign systems brings about behavioural transformations and forms the bridge between early and later forms of individual development. Thus for Vygotsky, "the mechanism of individual developmental change is rooted in society and culture." (Cole, M., and S. Scribner, Introduction. Mind in Society)

This kind of behaviour unfolds in a phased manner in the historical development of humans. However, "comparative analysis shows that such activity is absent in even the highest species of animals." (Vygotsky, Mind in Society)

Experiments conducted by Vygotsky and his collaborators indicate three basic stages in the development of sign mediated behaviour. In the first stage (pre-school) the child is incapable of mastering his behaviour by organizing extrinsic, auxiliary stimuli. Even if such stimuli are available they do not acquire an instrumental function. In the second stage of development (school), the introduction of auxiliary, external stimuli raises the effectiveness of the child's activity considerably. At this stage the auxiliary stimulus is a psychological instrument, crucial to the child's effort in doing
a task, acting from the outside. In the third stage (adulthood), sign operations undergo radical changes and begin to take place as a purely internal process. That is, the external sign is freed from the primary external forms and is transformed into an internal sign. This internal reconstruction of a hitherto external operation is called internalization. These transformations are linked to one another, each providing the conditions for the next and itself conditioned by the preceding one. In this respect, sign behaviour is subject to the fundamental law of development and "appear in the general course of the child's psychological development." (Vygotsky, Mind in Society)

By far the most important sign-using behaviour in children's development is human speech. Through speech children overcome impulsive action and also many of the immediate constraints of their environment. Through speech they prepare themselves for future activity: they plan, order, and control their own behaviour as well as that of others.

A discussion on sign use would be incomplete without a reference to tool use. Tool and sign are separate entities. Both tool and sign possess a mediating function. However, the fundamental difference between tool and sign is that they affect, orient human behaviour in different ways. While the tool serves as the conductor of human influence on the object of activity, is
externally oriented, leads to changes in objects, and is the means of human external activity aimed at mastering and triumphing over nature, the sign is internally oriented, and is the means of internal activity aimed at mastering oneself.

The term higher psychological functions, or higher behaviour may be taken to refer to the combination of tool and sign in psychological activity.

Although children's use of tools during their preverbal period is comparable to that of apes, as soon as speech and the use of signs are incorporated into any action, the action becomes transformed and organized along entirely new lines. The specifically human use of tools is thus realized, going beyond the more limited use of tools possible among the higher animals. (Vygotsky, Mind in Society)

Language is both sign and tool. As sign it is used to organize one's own thinking and to master oneself, and as tool to cause changes in one's environment -- by, say, informing, influencing and directing others' thinking in one's favour. It is a sign system developed and used by humans. As has already been stated in Chapter-IV, it is a higher psychological function, not biologically given, but historically developed and culturally transmitted. Individuals have to acquire it from the community.

Culture

Both culture and language are the collective heritage of a community, and each individual shares both these with the rest of
the members of the community. The nature of the relationship between language and culture is that of part-to-whole, and any language bears on it the stamp of the culture to which it belongs. Therefore, it may be stated that it is the cultural way each language is patterned. To understand a language fully and to understand the culture in which that language is spoken are, in fact, two sides of the same coin. Familiarity with the cultural reality is the precondition for grasping the linguistic meaning related to it.

According to Halliday (Learning How to Mean), how the child learns his language is not just a matter of linguistic environment, but a matter of culture as well, because the linguistic environment is embedded in the totality of the culture in question.

Malinowski (qtd. in Firth, R., Man and Culture) is of the opinion that

> to study language outside the framework of its cultural realities ... the beliefs of the people, their social organization, their legal ideas and economic activities...must remain entirely futile.

As has already been pointed out at the end of Chapter-III, a language and the culture in which it is embedded are inseparable, the one from the other. This chapter draws to its close by stating that the social milieu in which a community lives its
life from day to day shapes the community's world-view or culture and also the system by which the community represents its world-view or culture symbolically. In other words, the environment conditions the development of a community's culture and its system of symbolic communication or language behaviour, whereas the community (along with the models of speech behaviour that it makes available) influences language development in the individual human child, in addition to factors such as maturation, cognitive development and conceptual development. The crucial fact to be borne in mind, however, is that, in spite of an individual's having reached the required level of maturation, cognitive development and conceptual development, language behaviour will not unfold in him until and unless he has copied language behaviour from models of it made available to him by the community. In the community, with models around, there is spontaneous acquisition of the language concerned. The 'community' and the 'models' are almost totally absent from the average classroom that teaches a second language. How does a learner acquire the use of a second language by being taught in such a classroom? The next chapter will start a discussion of this question.