

## LANGUAGE PROCESSING

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### I. KEY TERMS

1. **Native language** – the first language a child learns (mother tongue, native tongue, L1)

Learning includes:

- Formal, planned and systematic learning (e.g. classroom-based learning)
- Informal and unstructured learning (e.g. learned in the community)

2. **Second Language Acquisition (SLA)** is the process of learning another language (second language; L2) after the native language has been learned

3. **Target language** – the language being learned

4. **Competence** is what the speaker knows; what is knowledge of the language is hidden inside their heads

5. **Performance** is what the speaker does; how they use or don't use the knowledge they have in making utterances.

6. **Language transfer** – when a learner's performance in their L2 is influenced by their previous languages (e.g. pronunciation, verb inflection)

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### DEFINITION OF LANGUAGE

It varied with the interest of researchers and scholars according to their specialization.

- The sociologists focus on the social aspect of language as an interactive function
  - while the psychologist focus on the acquisition of language and its development,
  - but the linguist is concerned with the rules of language and defines it as a "system of symbols that enables a person to issue messages and understand others". John Dewey defines it as a "tool" of communication and expression that contains a number of words which have synthetic relationships that help to transfer culture and civilization through the generations. "
  - As a conclusion, language is a set of linguistic units that operate according to certain rules and at multiple levels. It is also a set of sound symbols and expressing human beings thinking.
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### ASPECTS OF LANGUAGE

1. **Verbal communication:** it includes the written and spoken language through expressing experiences, knowledge, needs and feelings. It is a way of thinking, imagination and memory. Despite of the importance of written language, it has two advantages: the possibility of transmission from place to another across long distances, and stability
  2. **Non-verbal communication:** It includes the means we use to communicate with others without the use of spoken or written codes, including gestures, physical, expressive and aesthetic movements, and such cultural means vary from society to society else.
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## LANGUAGE FUNCTIONS

The majority of modern linguists agree that the function of language is "expression, communication or understanding", although some refuse to restrict the function of language by expression or communication; communication is not the main function, **Halliday** has tried to provide the most important Language functions, resulting in his attempts at the following functions:

<b>1. Instrumental:</b>	it is used to express people's needs or to get things done.
<b>2. Regulatory:</b>	this language is used to tell others what to do.
<b>3. Interactional :</b>	Language is used to make contact with others and form relationship
<b>4. Personal :</b>	The use of language is used to express feelings, opinion, and individual identity.
<b>5. Heuristic :</b>	This is when language is used to gain knowledge about the environment
<b>6. Imaginative :</b>	Language is used to tell stories and jokes, and to create an imaginary environment
<b>7. Representational :</b>	the use of language is to convey facts and information

## PROPERTIES OF LANGUAGE

Properties of language are features which are unlikely to be found in the communication systems of other living creatures.

<b>1. DISPLACEMENT</b>	Most animals can communicate about things in the immediate environment only. A bird utters its danger cry only when danger is present. It cannot give information about danger in the past or future. Human language, by contrast can communicate about things that are absent as easily as about things that are present. It allows the users of language to talk about events and things not present in the immediate environment.
<b>2. PRODUCTIVITY (CREATIVITY)</b>	Most animals have a very limited number of messages they can send or receive. This type of limitation is not found in human language. Language users manipulate their linguistic resources to produce new expressions and new sentences. This property of human language is known as productivity or creativity.
<b>3. ARBITRARINESS</b>	It is generally the case that there is no natural connection between a linguistic form and its meaning. The form of word CAT has no natural relationship with that animal. The property of linguistic signs is their arbitrary relationship with the objects they are used to indicate. The forms of human language demonstrate this property because they do not, in any way, fit the objects they denote.
<b>4. CULTURAL TRANSMISSION</b>	We usually inherit the colour of eyes or height from our parents but we do not inherit their language. We acquire a language in a culture with other speakers and not from parental genes. If a child born in Sweden to Swedish parent might inherit blond hair, pale complexion but if s/he is brought up from birth by English speakers in the USA e.g. will inevitably speak English. This process whereby language is passed on from one generation to the next is called cultural transmission. Human infants, growing up in isolation, produce no instinctive language.
<b>5. DISCRETENESS</b>	The sounds we use in language are meaningfully distinct. For example the difference between "i" "I" is not very great, but when we use these sounds in a language we cannot use "i" instead of "I" because then there is distinction in meaning. It is the same with pairs

	like p, b, t, d and so on. The property of language when each sound is treated as discrete is described as discreteness. For example the English word tin would consist of three units t/i/n. Speech units can be ordered and reordered, combined and split apart.
<b>6. DUALITY</b>	Language is organized in two levels. This property is called „duality“ or double articulation. One level is when we produce individual sounds like “n, t, d, i” . In another level we produce these sounds in a particular combination “bin, tip” and we are producing a meaning that is different from other combination of these sounds. At one level we have distinct sound and at another level we have distinct meaning. With a limited set of distinct sounds we are capable of producing a very large number of sound combinations which are distinct in meaning. Phonemes are meaningless in isolation but they become meaningful only when they are combined with other phonemes.

### COMPONENTS OF LANGUAGE

Linguists have identified five basic components (phonology, morphology, syntax, semantics, and pragmatics) found across languages.

**1. Phonology:** The study of speech structure within a language, including both the patterns of basic speech units and the accepted rules of pronunciation, is known as phonology.<sup>i</sup> The smallest units of sound that make up a language are called *phonemes*. For example, the word “that” contains three phonemes the “th” represents one phoneme /th/, the “a” maps to the short a sound /ă/, and the “t” to its basic sound /t/.

**2. Morphology:** Moving to the next level of language, we find the study of the smallest units of meaning, *morphemes*. Morphemes include base words, such as “hat,” “dog,” or “love,” as well as affixes, such as “un-,” “re-,” the plural “s” or “es,” and the past tense “ed.” Knowledge of the morphology of our language is critical to vocabulary development and reflects the smallest building blocks for comprehension.

**3. Syntax:** The study of how individual words and their most basic meaningful units are combined to create sentences is known as syntax. As words are grouped together when we communicate, we must follow the rules of grammar for our language, in other words, its syntax. It is the knowledge of syntax that allows us to recognize that the following two sentences, while containing different word order and levels of complexity, have the same meaning.

- The boy hit the ball.
- The ball was hit by the boy.

Syntax also allows us to accept “I went to the store” as a meaningful (grammatical) sentence while “To store went I” would not be acceptable English.

**4. Semantics:** Not only does the grammatical structure of our language provide the needed clues for understanding, we also have a wealth of figurative language and rich description that adds color and nuance to our communication. *Semantics* refers to the ways in which a language conveys meaning.<sup>ii</sup> It is our understanding of semantics that allows us to recognize that someone who is “green with envy” has not changed hue, or that “having cold feet” has less to do with the appendage at the end of our legs and more to do with our anxiety about a new experience. Because semantics moves beyond the literal meaning of words and is culture-dependent, this is among the most difficult aspects of language for individuals who are not native speakers and even those who speak the same language but come from different cultures and convey meaning using words in unique ways. Anyone who has attempted to converse with a teenager in his own vernacular can appreciate the importance of sharing a semantic base for communicating clearly.

**5. Pragmatics:** “Pragmatics’ refers to the ways the members of the speech community achieve their goals using language.”<sup>iii</sup> The way we speak to our parents is not the same as the way we interact with a sibling, for example. The language used in a formal speech may bear little resemblance to what we would hear at a lunch with five friends. The conversational style of day-to-day interactions is quite different from the language used even when reading a storybook to a toddler. Knowing the difference and when to use which style is the essence of pragmatics.

Facility with language is critical to social interactions. Our ability to effectively communicate with others through spoken and written language is considered one of the ultimate goals of our educational system, with reading receiving much-needed emphasis. "Reading is essential to success in our society. The ability to read is highly valued and important for social and economic advancement."<sup>iv</sup> In the following section the components identified by experts as critical to developing reading skills are reviewed.

## LANGUAGE ACQUISITION AND LANGUAGE DEVELOPMENT

There are two main areas of language

1. **Receptive language (understanding):** Comprehension of language.
2. **Expressive language (using language):** The use of language through speech, sign or alternative forms of communication to communicate wants, needs, thoughts and ideas.

The process of language acquisition and development in humans does not occur suddenly and randomly, but through an organized process and surrounding factors play a prominent role in the development and acquisition of language. Most parents can hardly wait for the baby to say its first word. This usually happens between nine months and a year. From about two years, the child should be able to use simple phrases, and by three he should be able to use full sentences. By four, he should be able to talk although he may still make grammatical errors. By five, he should have acquired basic language. According to Wood, language acquisition takes place in the following stages:

<b>Pre-linguistic stage</b>	During the first year of life, the child is in a pre-speech stage. Developmental aspects related to speech would include the development of gestures, making adequate eye contact, sound repartee between infant and caregiver, cooing, babbling and crying. Examples of such pre-speech sounds would be dadadada, mamamama and waaaaah .
<b>Holophrase or one-word sentence stage</b>	The child usually reaches this phase between the age of 10 and 13 months. Although the child tends to utter a single word at a time, its meaning is also supplemented by the context in which it takes place as well as by nonverbal cues. For example, a child leaning over the edge of his cot and pointing to his bottle while laughing and saying 'botty' in a commanding way. An adult in the situation could well interpret the child's holophrase as meaning.
<b>Two-word sentence stage</b>	By the age of 18 months, the child reaches this stage. His/her sentences now usually comprise a noun or a verb plus a modifier. This enables the child to formulate a sentence which may be either declarative, negative, imperative or interrogative. For example , « Doggy big » (declarative) « Where ball »(interrogative) « Not egg » (negative) « more sugar !» (imperative)
<b>Multiple-word stage (Telegraphic stage)</b>	The child at this stage between the age of two and two and a half. Grammatical morphemes in the form of prefixes and suffixes are used when changing meanings and tenses. Furthermore, the child can now form sentences with a subject and a predicate. Using the examples which were listed in the previous stage, the sentences could now be the following : « Doggy is big » « Where is the ball » « That is not egg » « I want more sugar » « I caught it »..... it means they still make errors.

## FACTORS AFFECTING LANGUAGE ACQUISITION AND LANGUAGE DEVELOPMENT

<b>1. Gender:</b>	It was observed that females outperform males in all aspects of language as the beginning of speech. They learn faster.
<b>2. Intelligence:</b>	Language is a manifestation of the growth of general mental capacity and the intelligent child speaks early About the less intelligent child
<b>3. Social environment:</b>	The social environment is characterized by its distinct cultural and economic characteristics.
<b>4. Physical factors:</b>	the safety of speech organs
<b>5. Media:</b>	the role of the media from radio and television helps to develop sound language.

## II. LANGUAGE PRODUCTION AND COMPREHENSION

Language is a goal-directed activity having communication as its goal. Motivational and social factors need to be considered in addition to linguistic ones. There is controversy over the extent to which psychological processes involved in spoken and written language are the same or different. To produce and comprehend words and sentences, people use their knowledge of language structure, their knowledge of the situation they are in, including the previous discourse and the local situation, and their cognitive abilities, including memory, attention, and motor control.

### 1. Language production

- It refers to the cognitive process engaged in going from mind to mouth (Bock ; 1995). It is the process of transforming a non-linguistic conceptual structure representing a communicative intention into a linguistically well-formed utterances.
- Spoken and written language both have as their central function the communication of information about people and the world. However, children and adults often find writing much harder than speaking, suggesting there are major differences between the production of spoken and written language.

### 2. Language comprehension

Mehl et al. (2007) stated that on average, an individual speaks approximately 16 ;000 words everyday. These verbal symbols are combined in coherent narratives and people are somehow able to understand and to communicate meaning, simple or/and profound.

➡ However ; the question raised here is that : are all people able to process meaning through language ?

- It is a fluid and successful process of receiving and interpreting incoming information dynamically and appropriately, and simultaneously responding.
- However , this process can fail with some people who have certain neurological disorders resulting from brain damages which leads to language impairment.

## SOME NEUROLOGICAL DISORDERS THAT CAUSE LANGUAGE IMPAIRMENT

- **Aphasia** : people with difficulties to use correct words for an idea, to understand speech or to speak.
- **Autism spectrum** : characterised by mainly social impairment, stereotyped behaviours and communication problems. People with autism spectrum have language deficits and suffer from linguistic and communicative difficulties, and many are even non-verbal. (six out of 1000 suffer from)
- **Schizophrenia** : characterised by delusion, disorganised behaviour, unusual perception and language deficits (1% of the general population suffers from)

### III. THEORIES OF LANGUAGE ACQUISITION

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Although each theory emphasizes a certain part in the child's language acquisition. However, the majority of theorists believe that children are biologically ready to acquire language, and their cognitive abilities play a role in shaping children's language proficiency.

#### 1. BEHAVIORIST THEORY

- Behaviorists, like B.F. Skinner (who lived from 1904-1990), argued that language acquisition and development are learned behaviors. Behaviorists believe we learn by associating events, known as **classical conditioning**. We also learn through rewards and punishments, a process known as **operant conditioning**. Another aspect of behaviorism is that we learn by observation and imitation.
- How do these theories of learning apply to language acquisition? Over repeated exposures, infants may learn to associate an object with a sound or word for that object. When an infant babbles 'dada,' the infant is rewarded by smiling and happy parents who cheer and reward their child's efforts at communicating. And infants may learn language by observing caregivers and imitating their sounds.

#### 2. INNATE HYPOTHESIS

Chomsky's linguistic theory states that we are born with an innate ability to learn language, and with little guidance, children will naturally learn language. Chomsky argues we must be born with a language acquisition device, an area in our brains that makes learning language a natural event. As evidence, he points to the idea that children all over the world learn language in similar ways, regardless of their culture or the language they learn to speak.

#### 3. COGNITIVE THEORY

Cognitive theories try to get inside the mind of the child and to propose the types of mental structures and thinking processes that may be taking place. They argue that the child cannot move on to learning a new language skill until he or she is intellectually ready for the next stage. This theory was most forcefully presented by the Swiss psychologist **Jean Piaget**. He argued that the child has to have a certain psychological capacity, or cognitive ability before s/he can learn particular aspects of using language in order to make themselves understood. Piaget views language acquisition within the context of the child's broader intellectual development.

#### 4. INTERACTIONIST THEORY

From birth, children are surrounded by others who talk to them or with them. This communication plays a part in how the baby learns to speak his or her native language. Some argue that "nature" is entirely responsible for how a baby learns a language, while others argue that "nurture" is responsible for how a baby picks up his or her mother tongue. Social interactionists argue that the way a baby learns a language is both biological and social.

Everyone loves to coo at babies, and this "baby talk" is exposing the child to language, whether we realize it or not. Interactionists believe that children are born with brains that predispose them to the ability to pick up languages as well as with a desire to communicate. Some Interactionists even argue that babies and children cue their parents and other adults into giving them the linguistic exposure they need to learn

a language. The Interactionist Theory posits that children can only learn language from someone who wants to communicate with them.

## 5. THEORY OF IMITATION

The basics of this theory are that children listen to verbalized communication and repeat what they hear. However, it is more complex than that. Edward Thorndike stated that trial and error were very important in the learning process. He also believed that learning happens in increments and it does not involve insight.

## 6. RATIONALIST THEORY

This theory focuses on how children use speech, and differ from cognitive theory in terms of how the child interacts with those around him through speech. The believers in this theory think that the child learns language early, so he can express what he wants from others, and that he can practice speech when he learns its different characteristics from the tone, intensity and length ... etc. There are human needs or demands that can be satisfied by language, naturalism essentially assumes that the individual's acquisition of language is innate, and all the children are born and have a device to prepare them to acquire and to perceive the language in an organized manner, and states that the language behavior characterizes the human race from other creatures.

## SECOND LANGUAGE ACQUISITION (SLA)

Research in SLA and the field as a whole is particularly concerned with those acquiring a second (or, more correctly, an additional) language in the target language environment; for example, a Spanish or a Chinese immigrant acquiring English in the U.S., a Pakistani or a Bulgarian acquiring English in the U.K. or a Greek in Greece. Though the hypotheses articulated and the findings of research in the SLA field did not have an overwhelming impact on European FLD, they are worth some careful consideration to the extent that they have offered some insightful new concepts and also because European foreign language teaching professionals are increasingly involved in the programmes for the influx of economic immigrants in member states and for the children of these families in schools.

### 1. THE THEORY OF 'COMPREHENSIBLE INPUT'

The Input Theory by the American applied linguist Stephen Krashen (1981) has received considerable attention in the SLA literature, but has not had an overwhelming effect on European FLD. Since it rests on the assumption that language is acquired by people understanding messages that are expressed in a way that is slightly beyond their current level of competence, it places particular emphasis on the 'comprehensible input' (language that can be understood) provided to acquirers in the spoken or written medium in formal educational settings or in their social environment. This theory puts forth a series of hypotheses which it investigates.

**Table 1: The Input Theory - Five hypotheses.**

1. Learning and acquisition are two separate processes.
2. There is a natural order of morpheme acquisition that applies to second language acquisition.
3. Acquisition is more important than learning since the role of the latter is merely to monitor what one says and writes in the second language.
4. The most important point in the instructional process is to provide acquirers with comprehensible input.
5. The so-called 'affective filter' of the acquirer must be clean so that language passes easily through it; in other words, the acquirer must be positively predisposed or motivated so that s/he is open to input.

## 2. THE ACCULTURATION THEORY

The American applied linguist, John Schumann (1978), who carried out research with Spanish-speaking populations in the U.S.A, developed his theory placing great emphasis on social issues as his findings provided strong indications that there is a strong link between effective language acquisition and the acquirer's positive attitude to the target language and his/her desire to be acculturated in the social environment which attempts to assimilate him/her.

Two basic factors that play a decisive role in SLA, according to Schumann, who uses discursive concepts developed in Sociolinguistics, and to his Acculturation Theory are acquirers' distance to the target language and culture.

**Table 2: Acquirers' distance to the target language and culture.**

<b>Social distance:</b>	<b>Psychological distance:</b>
<ul style="list-style-type: none"><li>• If they feel that the target language and culture is more/less prestigious, or dominant/subordinate over their own.</li><li>• If their living conditions allow them to be integrated in a society or they live in a type of ghetto.</li><li>• If they are living or intend to live in the target culture for a long time.</li><li>• If there is social congruence between the source and target language and culture.</li></ul>	<ul style="list-style-type: none"><li>• If they feel that they have or haven't control over the new environment and a say in their process of integration.</li><li>• If their initial experience was to undergo a 'culture shock'.</li><li>• If they feel that no matter what type of attempts they make they are unable to understand or convey their meanings in the target language.</li><li>• If they feel that the meanings that they convey are undervalued.</li></ul>

While the reasoning behind the Acculturation Theory is of some concern to FLD, a concept that was developed further therein and has been of great interest in foreign language teaching is that of fossilisation –a phenomenon which occurs when language development stops and errors of accuracy and appropriateness persist, no matter how much the language is practiced or used. This is a phenomenon that occurs to many second language or foreign speakers who may feel that all they need is to get their point across and that greater proficiency will cause an acculturation or assimilation that they do not desire to have.

### FIRST LANGUAGE VS. SECOND LANGUAGE ACQUISITION

We know that humans acquire their first language based on the instinct that is the need to communicate with others. Conversely, humans acquire a second language through a conscious effort to learn. This basic difference leads to other differences between the two processes.

### IS LANGUAGE RELATED TO THINKING ?

- The connection between language and thought is profound. The majority of our everyday life involves the use of language. We tell our ideas to others with language, we "read" their responses and understand their meanings with language, and very often, we "speak" internally to ourselves when we process this information and make



logical conclusions. It seems that rational thinking unavoidably involves certain degree of the use of language. This connection seems so tight that, some linguists like Sapir and Whorf had to propose that thought is indeed utterly determined by language.

- On the other hand, some linguists hold that language and thought are two separate and independent entities. The differences in the syntactic structure and the lexicons available in different languages, for example, cannot possibly determine the way these people think. Thus we have thought in the very first place, and then language came in as a tool for expressing our thought.
- Still some others, not feeling contented with either version, proposed a third possibility, that language and thought are interdependent. "Language is a regular part of the process of thinking... It is not a question of one notion taking precedence over the other, but of both notions being essential."

While the conclusion on this issue is not a simple this-or-that answer and cannot be easily drawn, this paper will nevertheless try to provide adequate evidences in linguistic and psycholinguistic studies and seek for a reasonable conclusion.

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